

EARLY HISTORY OF
YELLOWSTONE NATIONAL PARK AND
ITS RELATION TO NATIONAL
PARK POLICIES

UNITED STATES DEPARTMENT OF THE INTERIOR
RAY LYMAN WILBUR, Secretary
NATIONAL PARK SERVICE
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CONTENTS

	Page
Letter of transmittal.....	1
Early explorations.....	5
Folsom-Cook expedition of 1869.....	10
Washburn-Doane expedition of 1870.....	12
Montana in 1870 and 1871.....	20
Hayden expedition of 1871.....	21
Passage of the Yellowstone National Park act.....	24
Who secured the creation of the Yellowstone National Park?.....	28
Later Yellowstone expeditions.....	35
Administration, legislation, appropriations.....	37
Yellowstone Park claims.....	51
Points of order.....	51
Congressional friends of Yellowstone.....	52
Chronological legislative history.....	61
Bibliography.....	69
Appendix A—Act of March 1, 1872, creating Yellowstone National Park.....	76
Appendix B—Act of May 7, 1894, to give protection.....	78
Appendix C—Act of August 3, 1894, concerning leases.....	82
Appendix D—"The Valley of the Upper Yellowstone, by C. W. Cook," Western Monthly, July, 1870.....	83
Appendix E—"The Yellowstone Expedition," from notes of N. P. Lang- ford, Helena Daily Herald, September 26, 1870.....	90
Appendix F—"The Yellowstone Expedition," from the notes of H. D. Washburn, Helena Daily Herald, September 30, 1870....	92
Appendix G—"Mount Everts," Cornelius Hedges, Helena Daily Herald, October 8, 1870.....	97
Appendix H—"The Great Falls of the Yellowstone," Cornelius Hedges, Helena Daily Herald, October 15, 1870.....	99
Appendix I—"Hell-Broth Springs," Cornelius Hedges, Helena Daily Herald, October 19, 1870.....	102
Appendix J—"Sulphur Mountain and Mud Volcano," Cornelius Hedges, Helena Daily Herald, October 24, 1870.....	104
Appendix K—"Yellowstone Lake," Cornelius Hedges, Helena Daily Herald, November 9, 1870.....	107
Appendix L—Editorial, New York Times, October 14, 1870.....	111
Appendix M—Report of Lieut. G. C. Doane.....	113

THE EARLY HISTORY OF YELLOWSTONE NATIONAL PARK

DEPARTMENT OF THE INTERIOR,
Washington, May 11, 1932.

TO THE DIRECTOR OF THE NATIONAL PARK SERVICE.

SIR: As a part of the study of national park policies which I have been making in cooperation with your Service by direction of the Secretary, I have, at your suggestion, made considerable study of the early history of Yellowstone National Park. This study has to do chiefly with the early exploration, the passage of the act of March 1, 1872, authorizing the park, and the protracted and constant struggle for its proper administration, protection, and development.

During that period of time, there was fought out in the Congress of the United States and gradually crystallized in the Nation that fairly definite code of policies which now obtains in the administration of the national parks and monuments under your charge. The history of the first quarter century of Yellowstone National Park is in fact the history of the development of our present national park policies.

Some of these policies are so universally concurred in that it does not occur to us now that they ever could have been questioned. Others, not so universally accepted, have become thoroughly established as our national policy in connection with the areas under your administration through the trials of Yellowstone. Among these policies may be noted the following:

1. That the Federal Government may, under proper circumstances, itself undertake the administration of a reservation of land "dedicated and set apart as a public park or pleasuring ground for the benefit and enjoyment of the people." It is true that in 1872 this region was a part of the public domain of the United States within certain of its Territories and, therefore, the question of turning it over to a State for administration was not at that time directly an issue. That course had been followed a few years previously in the case of Yosemite, and the brief debate in the Senate January 30, 1872, in connection with the passage of the Yellowstone bill shows that the experiment of turning great scenic regions over to the State for administration was not deemed successful. The merit of Yellowstone as a park project and its outstanding importance did much to establish a general policy of Federal control in such cases. After the Territories concerned became States, demand for transfer of control to the States could, as to Yellowstone, make no headway.

2. The twin purposes of such a reservation are the enjoyment and use by the present, with preservation unspoiled for the future. The act of March 1, 1872, set the area apart as a "pleasuring ground for the benefit and enjoyment of the people," and at the same time required "the preservation, from injury or spoliation of all timber, mineral deposits, natural curiosities or wonders within said park and their retention in their natural condition." There has never been any serious controversy in Congress concerning the wisdom of each of these.

3. The parks are to be administered primarily for the enjoyment of the people. The early and long continued contest concerning leases and concessions in the park has always revolved around the determination of Congress that the welfare of the visitor shall be the first consideration in park administration.

4. Enjoyment of these areas shall be free to the people. The preface to Dunraven's "Great Divide" voices protest against the fee system universal in Europe which was securing widespread foothold in the United States and popular appreciation of a nonfee system in national parks.

The park came into being within a few years after the close of the Civil War when the national debt was large, taxation was onerous, and economy in Federal expenditures was necessary. Very soon came panic and years of depression. But at no time was there any proposal for adoption of a fee system in Yellowstone. All the debate stressed the idea that this wondrous land be free to the public. At first there was the theory that revenues from leases of needed utilities would be sufficient for the development and maintenance of the park. But as it became clear that this would not be the case and the needs became understood, the policy of appropriations from the Federal Treasury began, 1878, and has never been seriously challenged.

5. Administrative responsibility shall be civil rather than military. The act of March 1 provides, "Said public park shall be under the exclusive control of the Secretary of the Interior."

With negligible appropriations and resulting lack of administration, attended by alarming reports of game destruction and park spoliation, Congress in 1883 directed the Secretary of War, upon the request of the Secretary of the Interior, to make necessary details of troops for park protection. It was also provided that the construction of roads should be under the supervision and direction of an engineer officer detailed by the Secretary of War. In 1886 the appropriation for the park carried the provision that thereafter a company of cavalry should be stationed there for the protection of the park and eliminated any appropriation for civilian administration. Complete transfer of the administration to the War Department was proposed in bills introduced and in congressional debates. Because of the presence of troops on the frontier and the need for economy in Federal expenditures this same military administration continued for some years, but at no time did the complete transfer of the administration to the War Department make any headway in Congress. Eventually Congress eliminated the military protection and became definitely committed to civilian administration and civilian protection.

6. The welfare of the public and the best interests of the park visitors are conserved by protective permits for needed utilities. In the early days there was much fear, probably well-founded, that some monopoly would secure leases of land at strategic points which would enable them to hold up the public. No feature of park administration has had the amount of debate in Congress that there has been about Yellowstone leases. Through the insistence of Congress that the welfare of the visitor be the first consideration and through gradual growth of understanding of the necessities of the situation, the policy of protective permits with Government control of rates, service, and the extent and character of improvements has been developed.

7. The park area is to constitute a game preserve and not a hunting reservation. When the bill was under consideration in the Senate, it being observed that the destruction of game and fish for gain or profit was forbidden, Senator Anthony urged that "Sportsmen going over there with their guns" were not wanted, that the park ought not be used as preserve for sporting. Senator

Tipton urged a prohibition against their destruction for any purpose. They were satisfied with assurance that hunting would not be permitted, and that policy has remained unquestioned.

8. No commercial enterprise in a park is to be permitted except so far as is essential to the care and comfort of park visitors.

9. The national interest shall be supreme in the park area, and encroachments for local benefit shall not be permitted. The fight to maintain and establish this policy in Yellowstone was spectacular with well-financed and influential private interests supported by some official sanction determined to secure a right-of-way in the park area for a railroad connection, ostensibly for mining development, but actually, in considerable degree at least, for speculative purposes. Failing to secure such a right-of-way, the effort was made to eliminate from the park the area involved, in return adding to the park much larger areas desired elsewhere. For years the House was amenable to the desires of these private interests, and the Senate was the stronghold of opposition under the leadership of Senator Vest. It is interesting to note how in this critical period so many men of the greatest caliber in the Senate rallied to defense of the public interests. And when the Senate lost hope and was prepared to accept the inevitable the House reversed its attitude. Finally the time came that any railroad right-of-way proposal or park segregation scheme brought definite adverse report from congressional committees. The disintegration of national park areas to meet local demands has been made impossible through the struggles that revolved around the Yellowstone.

10. Recreation is an essential purpose of park use even though secondary or incidental. The Yellowstone act sets the area aside as "a pleasuring ground for the benefit and enjoyment of the people." Senator Pomeroy in urging the bill in the Senate said, January 23, 1872, that it was proposed to "consecrate and set apart this great place of national resort, as it may be in the future, for the purposes of public enjoyment." The park then being 500 miles from any railroad and its nearest railroad point so remote from centers of population under existing modes of travel, it is surprising that any large park travel could have been at that time anticipated.

The Montana Legislature, in its memorial in 1872, asked that this area "be dedicated to public use, resort, and recreation." The Hallett Phillips report which had much influence with Congress in 1886 said the first object accomplished by Congress in the establishment of the park was "a pleasuring ground for the benefit and enjoyment of the people." Preservation of these areas for scientific study, or for the enjoyment of the esthetic taste in looking upon the beauties of nature, or the preservation of the great species of game from extermination, or the protection of an important watershed, are all purposes that have had congressional support. But the simple idea of the common people going to these regions and enjoying themselves, recreation, has always had strong appeal to Congress.

11. "In a national park the national laws and regulations should be enforced by a national tribunal." These are the words of Joseph Medill, the great publisher, and was his verdict after he had observed at first hand the workings of the attempt to enforce laws of the State of Wyoming through local officials in the Yellowstone. When the park was created its nearest boundary was 140 miles from the nearest civil authority. The country loudly demanded park protection, but Congress was loath to give substantial appropriations. Finally the State of Wyoming passed a law specifying offenses and punishments, and its enforcement was attempted. The best legal authorities questioned any such authority in the State, and the effort was abandoned.

Vest fought for years to secure an enactment of needed legislation prescribing offenses with penalties therefor and sought a Federal organization to administer the park. Because of the deadlock which ensued as to railroad and boundary legislation the needed park legislation was not secured until 1894, when the Lacey Act became effective, May 7, 1894. This act followed debate and controversy of a score of years. It declares that the Yellowstone National Park shall be under the sole and exclusive jurisdiction of the United States; that the park, although portions of it are in Montana and Idaho, shall constitute a part of the United States judicial district of Wyoming and the district and circuit courts of the United States shall have jurisdiction of all offenses committed within the park; that any offense committed which is not punishable by Federal law shall be subject to the punishment provided by the law of Wyoming; that the United States circuit court shall appoint a commissioner who shall reside in the park and try persons charged with offenses in the park, an appeal being possible from his decision to the Federal court; that one or more deputy marshals may be appointed to reside in the park, but that arrests may be made by any officer or employee in the park of any person taken in the act. This whole structure of Federal control through existing Federal courts supplemented by a resident commissioner was worked out after 20 years of debate. Once enacted, its wisdom is generally accepted.

12. In the national parks nature is to be preserved and protected and not improved. The act of March 1 requires "retention in their natural condition." The report of the subcommittee of the committee on appropriations by Representative Holman in 1886 reads: "The park should so far as possible be spared the vandalism of improvement. Its great and only charms are in the display of wonderful sources of nature, the ever varying beauty of the rugged landscape, and the sublimity of the scenery. Art can not embellish these."

The above are the principal policies of a legislative character, or affected by legislative influences, which now govern in our park system. I have no doubt that many of our present policies and practices of a more purely administrative character in vogue to-day in various parks were likewise evolved through experience in Yellowstone.

I have no doubt a study of the legislative history of the Yellowstone from 1897 to date would also be of interest. The fundamentals, however, having been developed in the first quarter-century, it does not seem desirable for me to take the additional time necessary to bring the study down to date.

The accompanying report does not attempt any study of the geological or other scientific or scenic aspects of the park.

Accompanying the report is an epitomized legislative chronology down to 1897. There is also a Yellowstone bibliography. In the latter there has been no attempt to cover the field of references having to do with the scientific or the purely descriptive.

There has been no attempt to do more in the accompanying report than to assemble facts for reference use. As Chittenden's "Yellowstone" is so generally available in the Service I have treated more briefly subjects covered therein.

Sincerely yours,

LOUIS C. CRAMTON,
Special Attorney to the Secretary.

EARLY EXPLORATIONS

That John Colter, a soldier with the Lewis and Clark expedition, was the first white person to visit the region now known as Yellowstone National Park seems well authenticated. He secured his discharge from the expedition on its return journey in 1806 to join a band of trappers, and his work for these men brought about his adventures in the Yellowstone region. Chittenden devotes a chapter to John Colter in his book, "The Yellowstone National Park."

NILES REGISTER LETTER, 1827

Probably the earliest publication of a description of Yellowstone Lake and the hot springs appears in Niles Register for October 6, 1827. This description occurs in a letter from a trapper or trader, which is dated July 8, 1827. The Niles Register credits the article "Phil. Gaz." On inquiry of the Library Co. of Philadelphia, I am informed that this article appeared in the Philadelphia Gazette of September 27, 1827. The letter is as follows:

"FROM THE WEST

"SWEET LAKE, July 8, 1827.

"Shortly after writing to you last year I took my departure for the Blackfoot country much against my will, but I could not make a party for any other route. We took a northerly direction about 50 miles, where we crossed Snake River, or the South Fork of Columbia, at the forks of Henrys and Lewis; at this place we were daily harassed by the Blackfeet; from thence we went up Henrys or North Fork which bears north of east 30 miles and crossed a large rugged mountain which separates the two forks; from thence east up the other fork to its source, which heads on the top of the great chain of Rocky Mountains which separates the waters of the Atlantic from those of the Pacific. At or near this place heads the Luchkadee or California Sticking Fork, Yellowstone South Fork of Maswri, and Henrys Fork, all those head at one angular point; that of the Yellowstone has a large fresh-water lake near its head on the very top of the mountain, which is about 100 by 40 miles in diameter, and as clear as crystal. On the south border of this lake is a number of hot and boiling springs, some of water and others of most beautiful fine clay, resembling a mush pot, and throwing particles to the immense height of from 20 to 30 feet. The clay is of a white, and of a pink color, and the water appears fathomless as it appears to be entirely hollow underneath. There is also a number of places where pure sulphur is sent forth in abundance. One of our men visited one of these whilst taking his recreation—there at an instant the earth began a tremendous trembling, and he with difficulty made his escape, when an explosion took place resembling that of thunder. During our stay in that quarter I heard it every day. From this place by a circuitous route to the northwest we returned. Two others and myself pushed on in advance for the purpose of accumulating a few more beaver, and in the act of passing through a narrow confine in the mountain, we were met plump in the face by a large party of Blackfeet Indians, who not knowing our number fled into the mountain in confusion; we retired to a small grove of willows; here we made every preparation for battle after which finding our enemy as much alarmed as ourselves we mounted our horses, which were heavily loaded, and took the back retreat. The Indians raised

a tremendous yell, showered down from the mountain top, and almost cut off our retreat. We here put whip to our horses and they pursued us in close quarters until we reached the plains, when we left them behind. On this trip one man was closely fired on by a party of Blackfeet; several others were closely pursued.

"On this trip I lost 1 horse by accident, and the last spring 2 by the Utaws, who killed 3 for the purpose of eating them, 1 of which was a favorite buffalo horse. This loss can not be computed at less than \$450. A few days previous to my arrival at this place, a party of about 120 Blackfeet approached the camp and killed a Snake Indian and his squaw. The alarm was immediately given and the Snakes, Utaws, and whites sallied forth for battle. The enemy fled to the mountain to a small concavity thickly grown with small timber surrounded by open ground. In this engagement the squaws were busily engaged in throwing up batteries and dragging off the dead. There were only six whites engaged in this battle, who immediately advanced within pistol shot and you may be assured that almost every shot counted one. The loss of the Snakes was 3 killed and the same number wounded; that of the whites, 1 wounded and 2 narrowly made their escape; that of the Utaws was none, though they gained great applause for their bravery. The loss of the enemy is not known—six were found dead on the ground; a great number besides were carried off on horses. To-morrow I depart for the West."

There is good evidence that Joseph Meek visited this region in 1829. "The River of the West," written by Mrs. Frances Fuller Victor, is in reality his biography, and written while he was still living. This book was copyrighted in 1869 and a copy of it is now in the rare book section of the Library of Congress. Therein is found the description of the hot springs region quoted on page 34 of Chittenden's work. Meek was later a member of the Oregon Legislature in 1846, and in 1848 was appointed United States marshal.

JIM BRIDGER

James Bridger, the noted hunter and scout, is clearly shown to have visited the region at various times from 1830 on, and his reports, although not generally credited, did contribute materially to later bringing about actual exploration.

Lieut. J. W. Gunnison, "of the topographical engineers," wrote a small history of the Mormons which was copyrighted September 28, 1852. Therein we find on page 151 the following:

"The builder of Fort Bridger is one of the hardy race of mountain trappers who are now disappearing from the continent, being inclosed in the wave of civilization. These trappers have made a thousand fortunes for eastern men, and by their improvidence have nothing for themselves. Major Bridger, or 'old Jim,' has been more wise of late, and laid aside a competence; but the mountain tastes, fostered by 28 years of exciting scenes, will probably keep him there for life. He has been very active, and traversed the region from the headwaters of the Missouri to the Del Norte and along the Gila to the Gulf, and thence throughout Oregon and the interior of California. His graphic sketches are delightful romances. With a buffalo skin and piece of charcoal, he will map out any portion of this immense region, and delineate mountains, streams, and the circular valleys called 'holes,' with wonderful accuracy; at least we may so speak of that portion we traversed after his descriptions were given. He gives a picture, most romantic and enticing,

of the headwaters of the Yellowstone. A lake 60 miles long, cold and pellucid, lies embosomed amid high precipitous mountains. On the west side is a sloping plain several miles wide, with clumps of trees and groves of pine. The ground resounds to the tread of horses. Geysers spout up 70 feet high, with a terrific hissing noise, at regular intervals. Waterfalls are sparkling, leaping, and thundering down the precipices, and collect in the pool below. The river issues from this lake, and for 15 miles roars through the perpendicular canyon at the outlet. In this section are the Great Springs, so hot that meat is readily cooked in them, and as they descend on the successive terraces, afford at length delightful baths. On the other side is an acid spring, which gushes out in a river torrent; and below is a cave which supplies 'vermillion' for the savages in abundance. Bear, elk, deer, wolf, and fox are among the sporting game, and the feathered tribe yields its share for variety, on the sportsman's table of rock or turf."

Mr. James Gemmell claimed that in 1846 he went with Jim Bridger on a trading expedition to the Crows and Sioux; that they went up the Green River, camped near the Three Tetons and followed a trail of the Divide between the Snake River and the streams which flow north into Yellowstone Lake. He said, "We camped for a time near the west arm of the lake and here Bridger promised to show me the wonderful spouting springs at the head of the Madison." He stated they visited the Upper and Lower Geyser Basins and Mammoth Hot Springs and went down the Yellowstone to Bensons Landing. This is related by Wm. F. Wheeler, former United States marshal for Montana, in his article on Gemmell in volume 2, Montana Historical Society, page 331.

In Volume III of Scribner's Dictionary of American Biography Bridger is given dignified consideration, the following statement being included:

"With the sole exception of a few Mormon contemporaries, everyone of the scores of pioneers, army men, explorers, and sportsmen with whom he came in contact, mentions his services, his intelligence, and his character in the highest terms. Tall, keen eyed and of commanding personality, this completely illiterate frontiersman placed at the disposal of a multitude of varied western travelers his unrivaled knowledge of the country and the Indian."

He retired in 1868. In 1873, Bridger wrote Gen. B. F. Butler, then Member of Congress from Massachusetts: "You are probably aware that I am one of the earliest and oldest explorers and trappers of the Great West now alive. Many years prior to the Mexican War, the time Fort Bridger, with adjoining territories became the property of the United States, and for 10 years thereafter (1857) I was in peaceable possession of my old trading post, Fort Bridger, occupied it as such and resided thereat." (See H. Rept. 1576, June 4, 1892, 52d Cong. 1st sess.)

FATHER DE SMET, 1851

Father Pierre-Jean De Smet, a Jesuit missionary, traveled extensively in the West in the course of his missionary labors among the Indians. A 4-volume edition of his life, letters, and travels, edited from his original manuscripts by Maj. H. M. Chittenden and Alfred T. Richardson, was published by Harper's in 1905. His description of this region, which he had visited in 1851, is found in his letter of January 20, 1852, quoted by Chittenden in his "Yellowstone National Park" and set forth on pages 660 and 661 of the De Smet work. De Smet credited Bridger's knowledge of this country, as is shown by his reference to Bridger's reports in quotation above referred to.

BONNEVILLE

In volume 1, Montana Historical Society, published in 1876, appears a letter from General Bonneville, answering some inquiry which had been made of him concerning his 1832 travels in the Yellowstone region. He says "You ask me if I know of the thermal springs and geysers. Not personally, but my men knew about them and called their location the 'fire hole.' I recollect the name of Alvarez; I think he came to the mountains as I was leaving them."

There are more or less definite reports of visits to this region by various hunters and trappers, traders and miners, who have, however, left no real report of what they saw.

CAPTAIN RAYNOLDS, 1860

In 1860, Capt. W. F. Reynolds, of the Corps of Topographical Engineers of the Army, made the first Government expedition directed to the Yellowstone Park region. Reynolds had graduated from West Point in 1843 number 5 in the class in which U. S. Grant was number 21. The personnel of that party tied up the past and the future, as it included as guide Jim Bridger and as geologist Dr. F. V. Hayden. The Chittenden work on the park devotes a chapter to this expedition, which failed to accomplish its purpose because of the natural obstacles in the way. His report was published in 1867 as Senate Executive Document 77 of the Fortieth Congress, first session. The delay in its publication was due, no doubt, to the Civil War. His map was, however, available earlier.

THE STUART PARTY, 1863

In 1863 an unofficial expedition was organized with Capt. James Stuart as its chosen leader "to explore a portion of the country drained by the Yellowstone for the purpose of discovering gold mines and securing town sites." Samuel T. Hauser, later to be a member of the Washburn party, was a member of the Stuart expedition. This expedition indirectly resulted in the discovery of Alder Gulch, the rich gold mining region. William Fairweather and several others who had planned to go with Stuart's party were delayed a few days. While they were trying to overtake the party they were attacked and plundered by Crows and forced to turn back. On their return trip the Fairweather party were in camp when one of the party made the Alder Gulch discovery. Alder Gulch was the beginning of Virginia City.

The Stuart party encountered terrific hardships. May 13, 1863, they were attacked by Indians and suffered losses. Hauser had a miraculous escape from death, being struck in the left breast by a bullet which passed through a thick memorandum book in his shirt pocket and was stopped against a rib over his heart. They had constant Indian difficulties. They traveled 1,600 miles from the time they left Bannack City (the town resulting from Grasshopper Diggings), April 9, until their return on June 22, the last 1,200 miles without tents or a change of clothes. For over 400 miles they seem to have been constantly followed by hostile Indians. See the James Stuart diary report of this trip, page 149, of volume 1, Montana Historical Society, which carries extensive notes by Hauser and by Granville Stuart.

WALTER W. DE LACEY, 1863

Two months later another prospecting expedition, simply an aggregation of men looking for gold, headed up the South Snake River. There were originally over 40 in the party, and they promptly elected as their captain Walter Wash-

ington De Lacey. He was, no doubt, the best fitted leader, as he was an engineer and a man of capacity, but he says the only man in the party who knew him was the man who proposed him. Chittenden gives several pages to this expedition. The report of it was first published by De Lacey in "A Trip up the Snake River in 1863" at page 113 of volume 1, Montana Historical Society (1876). De Lacey and 14 of the original party were, he says, "the first to ascend to the headwaters of the South Snake River, and thence passed over to the head of the Madison and West Gallatin Rivers, the geographical results of which were published." They discovered the lake called by him "De Lacey Lake" and now Shoshone Lake, and also the Lower Geyser Basin of the Yellowstone Park. They saw "the white, outlying spurs of the Teton Range" August 24, and the next day entered Jackson Hole. They prospected Gros Ventre Creek and September 2 came to the lake he named "De Lacey Lake," later carried as such on his maps and on Colonel Ludlow's 1875 map, but which Hayden called "Shoshone Lake." He says further: "On the 9th we continued our journey; and after traveling 3 miles, descended the mountain side into an open country. In another mile we reached the head of a small stream, the water of which was hot, and soon entered a valley or basin, through which the stream meandered, and which was occupied on every side by hot springs. They were so thick and close that we had to dismount and lead our horses, winding in and out between them as best we could. The ground sounded hollow beneath our feet. We were in great fear of breaking through and proceeded with great caution. The water of these springs was intensely hot, of a beautiful ultramarine blue, some boiling up in the middle, and many of them of very large size, being at least 20 feet in diameter and as deep. There were hundreds of these springs, and in the distance we could see and hear others, which would eject a column of steam with a loud noise. These were probably geysers, and the boys called them 'steamboat springs.' No one in the company had ever seen or heard of anything like this region, and we were all delighted with what we saw. This was what was afterwards called the 'Lower Geyser Basin' of the Madison by Professor Hayden." They went on down the Madison, reached the West Gallatin, and were back to Virginia City September 23, 1863, being absent 51 days and having traveled 500 miles.

While he did not publish any report of his expedition until 1876, he made a reference to it in a letter which he addressed to Prof. A. K. Eaton for use in Raymond's "Mining Resources West of the Rocky Mountains." His letter was probably written in November, 1868, and Raymond's report was published by Congress January 21, 1869, as House Executive Document No. 54 of the Fortieth Congress, third session. In giving information about possible routes for the Northern Pacific, and also for a branch of the Union Pacific, Professor Eaton gives, "the following letter from Capt. W. W. De Lacey, who from his ability as an engineer, as well as his long experience in the Territory, is entitled to the confidence of all." In this letter De Lacey said: "I am well acquainted with the South Snake River, which I explored from its mouth to its head in 1863 * * *. The river heads in a large lake some 12 or 15 miles long, and flows into another large lake called 'Jackson's Lake' of about the same length. At the head of the South Snake and also on the south fork of the Madison, there are hundreds of hot springs, many of which are 'geysers.'"

De Lacey was well educated and a man of standing. Born in Virginia in 1819 he was privately tutored at West Point by Professor Mahan and had a wide experience. (See brief biography by William F. Wheeler in Vol. II, Montana Historical Society; also in Scribner's Dictionary of American Biography.) He died in 1892.

Chittenden says: "De Lacey might have passed into history as the real discoverer of the Yellowstone but for the fact that he failed to appreciate the true importance of what he saw." He certainly did not attempt to capitalize what he had seen, except as a map maker. It needs to be remembered, however, that 1863 was much earlier than 1870. Montana, as a Territory, was not yet in existence; there was no *Helena Herald*; in fact, no newspaper; no settlements except hasty mining camps; no telegraph to the outside world, and the outside world had its attention turned to the Civil War. There was no paper to seek a report from De Lacey and spread it to the Nation; no audience to hear lectures; no Jay Cooke to use him for railroad-financing propaganda.

But De Lacey was experienced in map making, and his knowledge was recognized by the people of Montana. The first legislature of the new Territory, meeting in the winter of 1864-65, engaged De Lacey to make a map of the Territory, for the purpose of laying off counties. In this map he embodied the knowledge he had acquired.

In 1870 a map of Montana, drawn by him, was published by Colton Bros., of New York. In making this map he marks the route of the Folsom-Cook expedition, showing he had contacted with them.

Henry Gannett wrote (1878): "The first authentic information regarding the great natural wonders of the park was derived from a prospecting party under the leadership of W. W. De Lacey, who in 1863 visited the Lower Geyser Basin."

THE FOLSOM-COOK EXPEDITION OF 1869

The first real exploring expedition in the Yellowstone Park region, of which anything like a complete and authentic report is preserved, was that of David E. Folsom and C. W. Cook and William Peterson, the latter being an employee of Folsom on his ranch. This expedition was entirely unofficial, and, while Folsom, who headed it, was a man of standing, integrity, and capacity, he feared to give general publicity to his story, even among Montana people, not expecting to be believed. He did write up the trip and offered it for publication, but was turned down by eastern magazines, such as Lippincott's, with the reply that they did not publish fiction. His article finally was published in the *Western Monthly*, of Chicago, in their July, 1870, issue, and so is preserved to us, although essential parts were deleted by the editors. No national movement or interest resulted directly from the Folsom-Cook expedition. His personal reports to Hauser, Langford, Washburn, and others at Helena seem to have been accepted by them, and no doubt had much to do with their determination to make their expedition the following year. Langford says in his "Vigilante Days," that the information secured from Folsom led to the organization of the Washburn exploring expedition in August, 1870.

Folsom, Langford, and Hauser had come to Montana together with the first Fisk expedition, headed for the Salmon River gold fields, arriving at Fort Benton in June, 1862. Hauser went on to Gold Creek where he arrived in August, 1862, and Langford to Grasshopper Creek, later called Bannack. At the time of the Yellowstone expedition Folsom was 31. He was considered a good surveyor. He was later county surveyor, county treasurer, State senator, and member of the commission that built the State capitol at Helena. He was the Republican nominee for Governor of Montana in 1900.

Charles W. Cook had reached Montana in 1864.

Expecting a military escort, a party was made up in 1869 for exploration of the Yellowstone region. Disappointed in securing the military escort, and with numerous rumors of Indian hostilities, all of the party lost their desire to go

except Folsom, Cook, and Peterson. The attempting of this difficult and dangerous expedition by these three men, without escort, and their complete success, should give to this expedition more prominence than it has heretofore had.

This is especially true since it was clearly from this expedition of 1869 that the first suggestion for a national park to preserve these wonders resulted. In his preface to "The Folsom-Cook Exploration of the Upper Yellowstone in the Year 1869," published by him in 1894, Nathaniel P. Langford says:

"Before we left Helena Mr. Folsom furnished us with a map showing his route of travel and imparted to us much valuable information, and, as we afterwards learned, discussed with General Washburn the project of creating a park, but I do not find that he ever published through the press his views on this subject."

In a note to the third revision of Chittenden's work, page 73, is the statement:

"In the manuscript of his article in the *Western Monthly* was a reference to the park idea; but the publishers cut out a large part of his paper, giving only the descriptions of the natural wonders, and this reference was cut out with the rest."

While Folsom did not have the position or the contacts to enable him to advance the park idea nationally, or the technical talent in his party to give weight nationally to the report of the discoveries by his party, the fact remains that the Folsom-Cook expedition was the first definitely intended exploration of the Yellowstone National Park region; that his publication in the *Western Monthly* in July, 1870, was the first publication of such a report; and that he was the first to suggest that this wonderful region be set aside as a public park.

The publication of the report in the July, 1870, issue of the *Western Monthly*, published by the Lakeside Publishing Co., of Chicago, is entitled "The Valley of the Upper Yellowstone by C. W. Cook." (See Appendix D.) In 1894 Nathaniel P. Langford republished this article under the title "The Folsom-Cook Exploration of the Upper Yellowstone in the year 1869, by David E. Folsom." Every reference to the article, except the signature in the *Western Monthly*, speaks of it as having been written by Folsom, and Director Albright informs me that Mr. Cook told him that the article was written by Folsom. In his introduction to his book "Discovery of Yellowstone Park, 1870," containing his own diary during that expedition, Mr. Langford says:

"The office of the *Western Monthly* was destroyed by fire before the copies of the magazine containing Mr. Folsom's article were distributed and the single copy which Mr. Folsom possessed, and which he presented to the Historical Society of Montana, met a like fate in the great Helena fire. The copy which I possessed and which I afterwards presented to that society, is doubtless the only original copy now in existence."

In this Mr. Langford is slightly confused. The Folsom article, as above stated, appeared in the July, 1870, number of the *Western Monthly*, and the fire did not occur until September. The regular edition of the *Western Monthly* for July was therefore distributed and appears in the bound copy of volume 4, covering July to December, 1870, which I have referred to in the Library of Congress. The surplus of the edition, however, was destroyed in the great fire, which came a few weeks later, so that when demand for the Folsom account was increased after the return of the Washburn expedition in September, 1870, the publishers could not supply it. In the bound copy referred to at the Library of Congress has been included a slip headed "Explanation," and which reads in part as follows:

"The great fire which consumed the Drake and Farwell Building on Wabash Avenue, on the 4th of September last, destroyed the printing office in which

the Western Monthly was published. The October number of the magazine was at that time nearly completed, and—manuscripts, proof sheets, matter in type, and stereotype plates—was entirely destroyed. * * * It is believed that the readers of the magazine will be satisfied with this explanation of the reason why the October number did not reach them."

In the spring of 1873 Superintendent Langford, with the approval of the Department, appointed Mr. Folsom assistant superintendent of the park, both Langford and Folsom serving without pay.

THE WASHBURN-DOANE EXPEDITION OF 1870

In 1870 followed the Washburn-Doane expedition. This was promoted primarily by Col. Samuel T. Hauser, a civil engineer and president of the First National Bank of Helena, heretofore referred to, and by Nathaniel P. Langford, each of whom had in the spring of 1870 appealed to General Hancock for military escort for the Yellowstone exploration party. Both were leading citizens of the new Territory. Hauser, who was a native of Kentucky, was a former vigilante and was later appointed governor of the Territory by President Cleveland.

Langford was a native of New York, and in 1864 was made collector of internal revenue for the new Territory. In 1868 he had been appointed governor of the Territory, by President Andrew Johnson, but due to relations between the President and the Senate, his nomination was not confirmed. He was collector of internal revenue from 1864 to 1868. He was one of the famous Montana vigilantes and later published a 2-volume work concerning them. For a long time he was national bank examiner in Montana. He spent his later years in Minnesota. The Helena Herald of November 16, 1870, contains a 2-column masonic address by him.

This was only a few years after the vigilante days of 1863 and 1864 in Montana, and in that trying time Hauser and Langford had played notable parts. Dimsdale (ch. 46 of his Vigilantes of Montana) says, "N. P. Langford was an especial object of hatred" to the outlaw element. And in Chapter IX Dimsdale tells of a trip to the States at that time and of the plan of the outlaw leader Plummer to kill them en route, first giving to Hauser a woolen scarf to wear on the trip and thus make identification sure; and how Hauser and Langford, their suspicions aroused, rode all one night with guns loaded and cocked; and their escape because of Langford's unusual vigilance. In his own "Vigilante Days," Langford says he was "early marked for summary retaliation."

Hauser looms very large in the early history of Montana. He joined with others in building the first furnace in Montana for reducing silver ore, opened coal mines, built the toll road and telegraph line from Virginia City to the mouth of the Yellowstone, built telegraph line to Salt Lake, organized national banks at Virginia City in 1865, Helena in 1866, Missoula in 1873, and Butte in 1878, built railroad from Helena to Butte and was interested in Northern Pacific, was first to see possibilities of water power in the Northwest and constructed high tension line to Butte, planned the first reclamation project in the State and was the first to engage in large scale stock raising. He was a benefactor of pioneer ministers and an enthusiastic student of early Montana history. He married a grandniece of George Rogers Clark.

Gen. Henry D. Washburn had a few months before come to Montana under appointment as surveyor-general of Montana. He had enlisted as a private, been elected captain and won his commission as a major general in the Civil War, and served two terms in Congress from 1866 to March 3, 1869. He

declined reelection presumably because of his health. He became interested in the expedition and was chosen its head.

Judge Cornelius Hedges was another member. Born in Westfield, Mass., October 28, 1831, he graduated from Yale in 1853. That class included also Andrew D. White, Wayne McVeagh, Justice Shiras, and the poet Stedman. He later graduated from the Harvard Law School, migrated to Independence, Iowa, then taught in Southington, Conn., in the Sally Lewis Academy from 1861 to 1863. He practiced law and edited a newspaper in Independence, Iowa, from 1863 to April, 1864, when he left for the Bannack mines in Montana Territory. He also was active in opposition to Plummer and the road agents; he mined in Highland Gulch and came to Last Chance, the mining gulch which was the beginning of the settlement of Helena, in January, 1865. He mined and practiced law at Helena. The winter of 1866 he spent with his family in New England and in the spring of 1867 brought his family and a stamp mill to Helena, where he lived thereafter. He was United States district attorney for Montana in 1871 and 1872. He was grand secretary of the Masons of Montana from 1874 until his death. He was judge of probate from 1875 to 1880 and from 1872 to 1877 Territorial superintendent of public schools. In 1874 he was the Republican candidate for Delegate in Congress and was a member of the Territorial Constitutional Convention in 1884 and of the first State senate in 1889. He was Republican nominee for United States Senate in 1899. For years he was an editorial staff writer on the Helena Herald. He edited the reports of the Montana Supreme Court from 1872 to 1878, led in establishing the public library in Helena, and was recording secretary and later president of the Montana State Historical Society and president of the Montana State Pioneers. He died April 29, 1907.

Another member of the party was Truman C. Everts, who had been assessor of internal revenue from July 16, 1864, to February 17, 1870. He was the member who became separated from the party and was lost, encountering terrible hardships as set forth in his article "Thirty-seven Days of Peril," which was published in November, 1871, in Scribner's and later in the Contributions of the Montana Historical Society.

Other members of the party were Warren C. Gillett and Benjamin Stickney, pioneer merchants, also Walter Trumbull, assistant assessor of internal revenue, and a son of United States Senator Lyman Trumbull of Illinois. Trumbull was later the special correspondent of the Helena Daily Herald, who traveled with William H. Clagett, Republican candidate, in his successful campaign for election as Delegate in Congress in 1871.

The remaining member of the party, Jacob Smith, seems chiefly noted for his willingness to sleep while on guard duty, and to permit anyone else to stand guard in his place.

While it was a private expedition, it was very natural that, made up of some of the most influential citizens and officials of the Territory, headed by the surveyor general of the Territory, a former major general and Congressman, the request for military escort should be granted. But see Sheridan discussion later. Lieut. G. C. Doane was designated, with one sergeant and four privates, "to escort the surveyor general of Montana to the falls and lakes of the Yellowstone and return." The soldiers in the party were Sergt. William Baker and Privts. John Williamson, George W. McConnell, William Leitner, and Charles Moore. Moore and Walter Trumbull made drawings of various scenic wonders, Moore making the first picture of Yellowstone Falls.

Lieutenant Doane was a very fortunate selection to command the military escort. His report to Gen. Winfield S. Hancock is very likely the finest account

of the trip presented by any member of the party so far as the general reader is concerned. Doctor Hayden in his preliminary report, a year later, refers to "the remarkable report of this young officer, which he seems to have written under the inspiration of the wonderful physical phenomena around him." He further states it as his opinion "that for graphic descriptions and thrilling interest it has not been surpassed by any official report made to our Government since the time of Lewis and Clark." This report was submitted by Lieutenant Doane under date of December 15, 1870. It was transmitted by General Hancock to General Sherman to the Secretary of War to the Senate, March 3, 1871, and printed as Executive Document No. 51 of the Forty-first Congress, third session. (See Appendix M herein.) His power of beautiful and graphic description is illustrated in the following description of the middle canyon of the Yellowstone, which they visited August 26, 1870:

"We kept the Yellowstone to our left, and finding the canyon impassable passed over several high spurs coming down from the mountains, over which the way was much obstructed by falling timber, and reached, at an elevation of 7,331 feet, an immense rolling plateau extending as far as the eye could reach. This elevated scope of country is about 30 miles in extent, with a general declivity to the northward. Its surface is an undulated prairie dotted with groves of pine and aspen. Numerous lakes are scattered throughout its whole extent, and great numbers of springs, which flow down the slopes and are lost in the volume of the Yellowstone. The river breaks through this plateau in a winding and impassable canyon of trachyte lava over 2,000 feet in depth; the middle canyon of the Yellowstone, rolling over volcanic boulders in some places, and in others forming still pools of seemingly fathomless depth. At one point it dashes here and there, lashed to a white foam, upon its rocky bed; at another it subsides into a crystal mirror wherever a deep basin occurs in the channel. Numerous small cascades are seen tumbling from the lofty summits a mere ribbon of foam in the immeasurable distance below. This huge abyss, through walls of flinty lava, has not been worn away by the waters, for no trace of fluvial agency is left upon the rocks; it is a cleft in the strata brought about by volcanic action plainly shown by their irregular structure which gives such a ragged appearance to all such igneous formations. Standing on the brink of the chasm the heavy roaring of the imprisoned river comes to the ear only in a sort of hollow, hungry growl, scarcely audible from the depths, and strongly suggestive of demons in torment below. Lofty pines on the bank of the stream 'dwindle to shrubs in dizziness of distance.' Everything beneath has a weird and deceptive appearance. The water does not look like water, but like oil. Numerous fishhawks are seen busily plying their vocation, sailing high above the waters, and yet a thousand feet below the spectator. In the clefts of the rocks, hundreds of feet down, bald eagles have their eyries, from which we can see them swooping still further into the depths to rob the ospreys of their hard-earned trout. It is grand, gloomy, and terrible; a solitude peopled with fantastic ideas; an empire of shadows and of turmoil."

Immediately on return of the party there had been several newspaper stories by Washburn, Langford, Hedges, and Trumbull, but the publication of the Doane report in March, 1871, was the first official Government account of exploration of the Yellowstone Park region. Doane was later to accompany the Hayden party of 1871 during the greater part of their exploration, and in

1875 guided Secretary of War Belknap and Gen. W. E. Strong. His report is especially remarkable since he was suffering excruciating physical pain from a felon on the thumb of his right hand during the greater part of the exploration, finally securing relief through a crude surgical operation performed by Langford.

This party left Helena August 17, 1870, and returned late in September.

The Helena Daily Herald of September 26, 1870, devoted column 1 of page 1 to the first published report of the Washburn expedition under this heading: "The Yellowstone Expedition—Interesting Data of the Trip, from Notes Furnished by Hon. N. P. Langford." It was at the same time announced to be the intention of Mr. Langford to prepare for publication a detailed report of "this most interesting portion of the country, where in a space so circumscribed are presented at once the wonders of Iceland, Italy, and South America." And on page 3 of that issue is the announcement that "Hon. N. P. Langford of the Yellowstone expedition arrived last night. He came from Virginia on the coach." On page 3 also of that same issue of the Herald is the following:

"ARRIVAL OF TWO OF THE EXPEDITIONERS

"Gen. D. H. Washburn and Col. S. T. Hauser of the Yellowstone expedition arrived this morning about 11 o'clock. Cornelius Hedges and Jake Smith are back with the train and will not reach Helena before to-morrow night. We saw one of the party only—Colonel Hauser—but had no time to interview him. We were glad to see the Colonel looking so well after the hardships and trials of the 6 weeks' campaign in the mountains and valleys of the Yellowstone. He is much improved in his personal appearance, and as he rode into Main Street he was the very impersonation of a prepossessing and gallant cavalier. Elsewhere in the Herald we give our readers some of the incidents of the trip, the results of their observation, etc. We expect to be able to give a full and complete account of the expedition in a few days."

The following day, September 27, the Herald carried a 2-column article signed by H. D. W. headed: "The Yellowstone Expedition. Explorations in a New and Wonderful Country. Description of the Great Falls of the Yellowstone, Volcanic Eruptions, Spouting Geysers, etc., from the Notes of Hon. H. D. Washburn, Surveyor General of Montana."

In the September 28 issue of the Herald followed a second installment by Washburn which included the naming of Old Faithful and other geysers.

These Washburn articles were republished in Mining Statistics West of the Rocky Mountains, March 21, 1871. (H. Ex. Doc. 10, 42d Cong., 1st sess.)

The very keen local interest in the results of the expedition was testified to by the following announcement which appeared at the top of column 1, page 1, of the Herald for September 30:

"THE YELLOWSTONE EXPEDITION—UNPRECEDENTED DEMAND FOR THE HERALD

"Having entirely exhausted the extra editions both of the Daily and Weekly Herald containing the admirable reports of Gen. H. D. Washburn and Hon. N. P. Langford, of the Yellowstone expedition, who have made their special and invaluable contributions to our columns, we to-day reproduced the articles of both these gentlemen and print a large number extra of the paper to supply the partial demand. Copies of the daily containing both reports in full can be had of Stickney or Ward or at the Herald counting room."

The Langford and Washburn articles were accordingly reprinted in that issue of September 30, 1870, of the Herald. (See Appendices E and F.)

The Herald of October 3 mentions the return of Warren C. Gillett to Helena.

The loss of one member of the party, Truman C. Everts, while it caused the party great distress and inconvenience, added materially to the public interest in the expedition and its results. The news was wired all over the country, as was his eventual return, and did much to advertise the expedition throughout the country. In the October 6 Herald, Judge Lawrence offered a reward of \$600 for the recovery of Everts. It appears from the note of thanks later written Judge Lawrence by Everts that others contributed to this fund, although Judge Lawrence took the lead. As a result of this reward offer, George Pritchard and John Baronett started out to look for Everts and announced their purpose "to remain until the deep snows of winter drive them back unless they shall have succeeded in finding the lost man before that." They found him October 16, which was 37 days from the time he was lost. October 23 the Herald has an article, two-thirds of a column, on The Long Lost Found. October 23 the Herald has on page 1 a single-column letter written by S. W. Langhorne from Bozeman, headed "The Lost and Found." In this article Langhorne alleges that Everts in his period of greatest exhaustion had delusions, thinking that different parts of his body were different men, his right hand one man, his left hand another, and so with his feet and legs, stomach, etc., and quotes him as having wondered why these different men didn't do the things he told them to. However, in the same issue of the Herald, on page 3, is a little 3-inch note of thanks from Everts to Judge Lawrence in which he asked the Judge "to believe no stories of my having been deranged," because of his sufferings from exhaustion. November 5 Mr. Everts returned to Helena from Bozeman. In his own account of his wanderings later published he confesses that his mind was in a condition "to receive impressions akin to insanity" and indulged in "strange reveries." He gives credit for his final rescue to what he calls "one of those strange hallucinations which many of my friends have misnamed insanity, but which to me was Providence." So that evidently the Langhorne letter had full authority for its report of hallucinations. Secretary Dixon informs me that Langhorne was a man of standing and worthy of credit. The Herald of November 14, 1870, gives a full account of "The Yellowstone Banquet," which was tendered in honor of Everts, November 12, by other members of the party. All members of the party were present, except Lieutenant Doane, and the press was represented by Major Maginnis (later Delegate to Congress) for the Gazette and Capt. R. E. Fisk for the Herald.

In the Herald for October 8 appears a full-column letter by Cornelius Hedges on Mount Everts, its climb, and its naming. In this he pays high tribute to Everts, at that time supposed to be dead. Hedges followed this on October 15 with an article, "The Great Falls of the Yellowstone—A Graphic Picture of Their Grandeur and Beauty"; on October 19, "Hell Broth Springs"; on October 24, "Sulphur Mountain and Mud Volcano"; and on November 9, "Yellowstone Lake." (See Appendices G, H, I, J, and K.)

These Helena Herald articles were secured through the courtesy of the Library of Congress and the Helena Public Library.

That these well written and highly interesting accounts of what they had seen, written by various members of the party, attracted wide interest in the country and were immediately copied generally by the press, is testified to in the Helena Herald of October 1 where it is stated:

"Our exchanges, East and West, are just now reaching us, containing copious extracts from the Herald's Yellowstone reports. These contributions from our corps of correspondents have proved, as we rightly predicted, of unusual interest, not alone to Montanans but to the reading public throughout the country. The Herald is everywhere complimented for the enterprise it has exhibited in placing before the world these excellent and reliable reports, descriptions as they are, of a section of country unequaled in nature's wonders by any other portion of the globe."

How generally these articles were reprinted or commented upon I have not attempted to verify. Appendix L is copy of an editorial in the New York Times of October 14, 1870. This publication is especially interesting, showing such early interest in national-park matters by a newspaper that is now an outstanding defender of proper national-park standards.

A special correspondent writing from the St. James Hotel in Washington, November 1, in a letter which appears in the Helena Herald of November 14, 1870, says:

"The Yellowstone expedition of which we have been so fully and graphically informed through the columns of the Herald has from the first excited a deep interest here and throughout the East, while the news of the final recovery of Mr. Everts, as copied from the Herald into all of the papers of this city yesterday, sent a thrill of sympathetic joy through the entire community. The wonderful discoveries reported by General Washburn (whose report thereof, by the way, is lavishly complimented by the New York journals) are likely and almost certain to lead to an early and thorough exploration of those mysterious regions under the patronage of the general Government and of the Smithsonian Institute and other prominent institutions of the country. I think this will be sure to take place next season."

I have not examined the New York newspapers or others of that time at all generally, but a general survey of such publications from October 1, 1870, to April 1, 1872, from the first publication of Yellowstone exploration reports to the enactment of the bill, would be of interest.

The party brought back with them, of course, many specimens to corroborate their stories of natural wonders. The following appears in the Herald for November 10:

"Petrifaction—We saw to-day, in the window of the First National Bank, as beautiful a specimen of petrifaction as perhaps was ever found in the Territory. It is apparently the body of a cedar tree and is about 15 inches in length, 6 inches in diameter, and weighs 30 pounds. The interior resembles white, polished marble, with a streak of black coral between it and the exterior, which is a dull white color. It was found on Canyon Creek near its intersection with Jefferson River. The specimen is the property of N. P. Langford, who purposes to take it East with him this winter for display, with many curiosities collected in the Yellowstone trip, as among the wonderful freaks of nature in Montana."

Langford very soon took to the platform and gave a "grand lecture" to open the Helena Library Association Lecture Course, November 18, 1870, his speech being "Recent Explorations on the Yellowstone." Soon thereafter he went East, giving his Yellowstone lecture to "a very fair audience" in Lincoln Hall in Washington the evening of January 19, 1871, with Speaker James G. Blaine presiding, and at the Cooper Institute in New York the evening of January 21. The New York Times says of the New York meeting that the large hall "was filled to its utmost capacity." The following advertisement for the Washington lecture appeared in the Washington Star for January 19, 1871:

LINCOLN HALL

LECTURE ON THURSDAY NIGHT, JANUARY 19

By Hon. N. P. LANGFORD

Describing a trip during the past season to a hitherto unexplored region at the headwaters of the Yellowstone, including discoveries of cataracts many hundred feet high, active volcanoes, fountains of boiling water 200 feet high, and many other features of scenery, interesting and striking in the highest degree.

Tickets of admission 50 cents; for sale at Ballantynes.

The reading notice in the same paper referred to "mountain peaks, 11,000 feet perpendicular height, cataracts, volcanoes, geysers, etc."

R. E. Fisk, one of the editors of the Helena Herald in his news letter from New York, May 26, 1871, says:

"Mr. Langford, whom I have had the pleasure of meeting several times in the city, lectured last week at the house of Jay Cooke, near Philadelphia, in the interest of the Northern Pacific Railroad Co. Mr. Langford has an engagement for a series of lectures which he will deliver in Pennsylvania the present month should his threatened bronchial trouble permit."

It will be remembered that Jay Cooke was floating the bond issue for the extension of the Northern Pacific Railroad and would naturally be much interested in this proposed development in the Northern Pacific's projected territory and it is definite that he utilized Langford's services.

In Oberholser's "Jay Cooke" we find:

"A very important feature of the general scheme of publicity for the Northern Pacific Co. was the employment of lecturers for whom meetings were arranged by the general agents in order to enthuse the people in their districts. The principal of these was C. C. Coffin, * * * S. Garfield, the eloquent delegate in Congress from Washington Territory; N. P. Langford, who had just returned from a visit to the Yellowstone region, deeply impressed with its wonders; and several others were pressed into service with undoubted advantage to the enterprise." (P. 236, Vol. II.)

"It was said that the Yellowstone River region with its many natural wonders would attract tourists in increasing numbers. Lectures were delivered by returning travelers, pictures were shown upon slides, and paintings were exhibited to impress upon the unbelieving a faint idea of the future attraction of this district and the resulting profits to a railroad penetrating it. No promise on this point remains unfulfilled." (P. 316, Vol. II.)

That Langford had other matters than the creation of a new national park on his mind is evident from the following extract from the Washington letter to the Corrine Reporter as quoted in the Helena Herald of January 26, 1871:

"N. P. Langford, of Montana, is here working for various interests in that Territory."

In Mr. Langford's diary as first published in 1904 there appears the story of the campfire discussion of the future of the wonderful Yellowstone region where was born the movement to set this region aside as a national park. This appears on pages 117 and 118 of that edition, which reads in part as follows:

"Mr. Hedges then said that he did not approve of any of these plans—that there ought to be no private ownership of any portion of that region, but that the whole of it ought to be set apart as a great national park, and that each

one of us ought to make an effort to have this accomplished. His suggestion met with an instantaneous and favorable response from all—except one—of the members of our party, and each hour since the matter was first broached, our enthusiasm has increased. It has been the main theme of our conversation to-day as we journeyed. I lay awake half of last night thinking about it; and if my wakefulness deprived my bedfellow (Hedges) of any sleep, he has only himself and his disturbing national park proposition to answer for it.

"Our purpose to create a park can only be accomplished by untiring work and concerted action in a warfare against the incredulity and unbelief of our national legislators when our proposal shall be presented for their approval. Nevertheless, I believe we can win the battle.

"I do not know of any portion of our country where a national park can be established furnishing to visitors more wonderful attractions than here. These wonders are so different from anything we have ever seen—they are so various, so extensive—that the feeling in my mind from the moment they began to appear until we left them has been one of intense surprise and of incredulity."

Neither in the Doane report, in form a dairy, nor in the diary of Mr. Hedges himself, as published later by the Montana Historical Society, is there any reference to this suggestion or to the national park idea. Also there is no suggestion to any reserve of this area in the Langford or Washburn articles in the Helena Herald or in the Langford or Trumbull articles published in May and June, 1871, in Scribner's and the Overland Monthly.

But in his article on "Yellowstone Lake" in the Helena Herald of November 9, 1870, Mr. Hedges says:

"Hence the propriety that the Territorial lines be so readjusted that Montana should embrace all that lake region west of the Wind River Range, a matter in which we hope our citizens will soon move to accomplish, *as well as to secure its future appropriation to the public use.*" [Italics are mine.]

Mr. Hedges has added a note to his diary as published August, 1904, in 5 Montana Historical Society 370, in which he says:

"It was at the first camp after leaving the Lower Geyser Basin when all were speculating which point in the region we had been through would become most notable, when I first suggested uniting all our efforts to get it made a national park, little dreaming such a thing were possible."

In his introduction to "Discovery of Yellowstone Park," page 19, Langford says, "In my lectures delivered in Washington and New York in January, 1871, I directed attention to Mr. Hedges's suggestion and urged the passage by Congress of an act setting apart that region as a public park." Chittenden, page 75, third edition Yellowstone Park, states that the New York Tribune thus quotes Mr. Langford:

"This is probably the most remarkable region of natural attractions in the world, and, while we always have our Niagara and Yosemite, this new field of wonders should be at once withdrawn from occupancy and set apart as a public national park for the enjoyment of the American people for all time."

I find that the New York Herald half-column account of the Langford lecture in its issue of Monday, January 23, and the Times account in its issue of January 22, included no national park reference, nor did the Washington Star account of his Washington lecture. A more extended search might find it in some other article.

Delegate Cavanagh, of Montana, attended the Langford lecture in Washington, but no bill with reference to the Yellowstone region was introduced in

that session of Congress. The Government official exploration of the region was, however, authorized, and very logically any definite movement toward reservation of the area awaited the report of that expedition.

The winter of 1870-71 Hedges and Hauser were also in the East and visited Washington.

General Washburn, the leader of the expedition, left Helena December 3, 1870, for the East by stage, announcing his purpose to visit his people in Indiana and return in March. The Helena Herald of that day paid him a glowing tribute. He died at his old home in Indiana of pulmonary trouble January 26, 1871. The news of his death was received with great regret in Montana. The Helena Herald of January 28, 1871, published an obituary, and Sunday evening, January 29, memorial services were held in the Methodist Church, which was crowded to its capacity, with people standing. At that meeting addresses were given by Judge Symes, Cornelius Hedges, and Reverend Lathrop. The resolution adopted by that meeting declared that "no one ever came to this Territory who so rapidly and securely won his way to general esteem." He was succeeded as surveyor-general by John E. Blaine, brother of Speaker Blaine.

At the time of the Yellowstone expedition Washburn was 38, Hauser 37, Langford 38, Hedges 39, Doane 30, and Everts 54.

General Washburn no doubt would have included a discussion of his Yellowstone expedition in his annual report for the fiscal year 1871 if he had lived. Due to his death, the only annual report filed by him as surveyor-general of Montana was for the fiscal year ending June 30, 1870. As he died January, 1871, the 1871 annual report was by John E. Blaine and contained no reference to the Washburn expedition of 1870.

MONTANA IN 1870 AND 1871

In his 1870 report Surveyor-General Washburn reports the yield of gold for the Territory for the "present season (1870) will be about \$12,000,000."

The annual report of the Commissioner of the General Land Office for 1870, dated October 21, 1870, says:

"On Alder Gulch, in the Jefferson Basin, or in that territory east of the Rocky Mountains, the first extensive mining operations were conducted. This gulch has produced more gold than any other locality in Montana. The result obtained for the first three years after its discovery is estimated at \$20,000,000. In 18 months a population of 10,000 had settled in this vicinity, causing the rapid building up of the towns of Nevada, Central City, Virginia City, and Summit City."

The population of the towns in Montana as shown by Blaine in his 1871 report as surveyor general for Montana was as follows: Helena, 3,713; Virginia City (the capital), 867; Deer Lodge, 789; Diamond City, 460; Benton, 435; Bannack, 381; Radersburgh, 311; Bozeman City, 165; Missoula, 119.

The 1870 report of the commissioner of the General Land Office showed the area of public lands in the United States was 1,387,732,209 acres of which there remained unsurveyed 1,307,115,448 acres.

The Territory of Montana had only recently (1864) been formed from a portion of the territory ceded to the United States by France. It was carved out of the Territory of Idaho, which had been created in 1863. In 1868 the Territory of Wyoming, including most of the Yellowstone National Park region, was carved out of the Territory of Montana. Because of difficulty of access the early exploration of the Yellowstone Park region came from Montana.

At this time there was no railroad in Montana, and Helena was 500 miles from its railroad point, Corinne, Utah. The Northern Pacific extension was then being promoted. Winter mails were uncertain. The Helena Herald of February 10, 1872, says only one or two small batches of mail had been received since January 10. "In 1870, 18,000,000 pounds of freight entered Montana by this route (Corinne by stages) at a cost of 15 cents a pound. The 'first class' fare for passengers was \$66. Wells, Fargo & Co. ran daily stages, making the trip in four days. There was also 'a daily line of post freight and express wagons, which traveled night and day and covered the distance in nine days. Sometimes during the summer boats ascended the Missouri to Fort Benton, about 140 miles north of Helena, with which place there was stage connection thrice a week. It was 3,100 miles from St. Louis to Fort Benton and the trip cost \$100 upon the boats alone, the time consumed varying from four to eight weeks." (P. 316, Vol. II, Oberholser's Jay Cooke.)

As a result of the Folsom and Washburn expeditions and the general publicity resulting concerning the wonders of the Yellowstone, travelers began to find their way into this region and desirable routes of travel were established. In the Helena Herald of December 1871, appears a letter from A. J. Thresher, of Helena, answering inquiries as to the best routes from Helena "to the geysers, Yellowstone Falls, Lake, etc." In the December 20, 1871, issue of the Helena Herald is a column article "Mammoth Mound Springs," giving extracts from the "forthcoming book of Prof. A. F. Thresher on Yellowstone country." I have not located this book, but if published it would be about the first Yellowstone guidebook.

HAYDEN EXPEDITION OF 1871

The sundry civil act of March 3, 1871, carried an item of \$40,000 for continuation of the Hayden survey under direction of the Secretary of the Interior. It also carried \$12,000 to continue the Powell survey of Colorado, etc., under direction of the Smithsonian.

Under this appropriation Hayden was, May 1, 1871, reappointed United States geologist from July 1, 1871, at a salary of \$4,000 per year (had been \$3,000) and permitted to select his own assistants "who will be entirely subject to your orders." He was to complete "the season's work about the sources of the Missouri and Yellowstone Rivers."

Representative Henry L. Dawes, of Massachusetts, was chairman of the House Committee on Appropriations and had shown his interest in this survey as evidenced by the following in Hayden's Preliminary Report for 1871 (p. 96):

"Our little bark * * * was named by Mr. Stevenson in compliment to Miss Anna L. Dawes, the amiable daughter of Hon. H. L. Dawes. My whole party were glad to manifest, by this slight tribute, their gratitude to this distinguished statesman, whose generous sympathy and aid had contributed so much toward securing the appropriation which enable them to explore this marvelous region."

Chester M. Dawes, a general assistant in the party, was a son of Representative Dawes, is the present recollection of Mr. W. H. Jackson, the only living survivor of the party.

I have had a talk with George B. Chittenden of East River, Conn., who was in the Hayden survey from 1873 to 1877. He tells me Hayden had a remarkable personality and the capacity to arouse in his subordinates the utmost loyalty and the most enthusiastic effort. He tells me that once, while talking about

the campfire, Hayden jumped up with enthusiasm, exclaiming, "Geology is like the Bible, a sermon in every verse." He never carried a gun, even in the wilds, saying he often ran away from trouble, when, if he had had a gun, he would have stayed and been in trouble. He was fearless, going anywhere. Once, in the Black Hills, he was captured by Indians who found him carrying a bag of stones. Believing him insane, and treating the demented always with consideration, he was released by them unharmed. He was called by the Indians "the man who picks up stones running." Forty-four genera and species of various organisms were named for him "from a living moth to a fossil dinosaur." He had been a surgeon in the Civil War and 1865 to 1872 was professor of geology at the University of Pennsylvania. After that he gave full time to his Government survey. He was born in 1829 and died in 1887.

In his preliminary report on the 1871 expedition Professor Hayden refers to his contact with Jim Bridger as guide of the expedition to the Lower Yellowstone under General Warren in 1856 and his wonderful tales "that sharpened the curiosity of the whole party." In 1860 he had been a member of the Reynolds expedition as geologist. He said that the Langford articles in Scribner's had called the attention of the whole country "to that remarkable region." The Washburn expedition led to the Hayden exploration, just as the Folsom expedition led to the Washburn.

The Hayden expedition in addition to Professor Hayden included the following: James Stevenson, managing director; Henry W. Elliott, artist; Prof. Cyrus Thomas, agricultural statistician and entomologist; Anton Schonborn, chief topographer; A. J. Smith, assistant; William H. Jackson, photographer; George B. Dixon, assistant; J. W. Beaman, meteorologist; Prof. G. N. Allen, botanist; Robert Adams, jr., assistant; Dr. A. C. Peale, mineralogist; Dr. C. S. Turnbull, physician; Campbell Carrington, in charge of zoological collections; William B. Logan, secretary; F. J. Huse, Chester M. Dawes, C. DeV. Hegley, and J. W. Duncan, assistants; Thomas Moran, artist.

Of these William H. Jackson, of Denver, is believed to be the only one now living. Robert Adams, jr., assistant botanist, at the time only 22, later was minister to Brazil and Member of Congress from Pennsylvania for seven terms, taking part in the debate on the Yellowstone Park legislation in 1894.

At the same time that the Hayden exploration was under way Capt. J. W. Barlow and Capt. D. P. Heap, of the Engineer Corps of the Army, were conducting a reconnaissance of the upper Yellowstone, and the two parties traveled a great deal together. General Sheridan had directed that a military escort be furnished the Hayden survey party. The escort was under command of Captain Tyler and Lieutenant Grugan until the party reached Yellowstone Lake, where Lieutenant Doane, who had played such a prominent part in the Washburn expedition of the year before, was sent to relieve them. Barlow and Heap had been directed by General Sheridan "to make an exploration of the sources of the Yellowstone." Barlow was then chief engineer for the military division of the Missouri, which included the Yellowstone country.

The Barlow-Heap party joined themselves to the expedition of Professor Hayden "taking advantage of the escort ordered for him," as it was expressed by General Sheridan in his order, but traveled and camped with the Hayden party or not, as suited their mutual convenience. His orders stated he was to have "one noncommissioned officer and five mounted cavalrymen to be under his special orders for this expedition," making it clear he was not in actual command of the regular escort. Therefore, the Government was simultaneously making two technical studies of the Yellowstone Park region. Professor Hayden was in charge of one party, representing the Interior Department,

while Captain Barlow was making an independent study as the representative of the Army.

Captain Barlow's diary, later published in his report, Senate Executive Document 66, Forty-second Congress, second session, gives no indication but what the arrangement was very satisfactory, and all the contacts between the two parties, including its leaders, entirely agreeable. It may be inferred, however, from the very brevity of his references to the Barlow party that Professor Hayden did not enthuse over his unexpected company. In his preliminary report Professor Hayden referred to the escort as being under command of Captain Tyler and Lieutenant Grugan "under the direction of Col. J. W. Barlow and Capt. D. P. Heap of the Engineer Corps and the party under my charge." He otherwise always referred to the Barlow-Heap expedition as if it were entirely apart from his own. In his preliminary report he says that Barlow and Heap "made an exploration of the Yellowstone Basin during the past year," and in his introduction to the Moran collection of Yellowstone pictures in 1876 he speaks of the Barlow expedition as if it were an entirely separate expedition from his own. It would have been quite human for Hayden to mentally resent the presence of another well organized party landing itself into the scene of his own exploration problem. The interest of the whole country was aroused and public attention was turned toward the Yellowstone. The Hayden expedition was well provided with technical experts, including geologists, botanists and other scientists and also a noted artist and a notably competent photographer. Then they find they are to have a rival expedition journeying with them, including in its number a photographer. There is no evidence that he manifested anything except cordiality during their travels, but he forgot Barlow as fully as possible thereafter.

The Barlow report of 43 pages was sent to Congress and printed as a public document April 18, 1872, after the Yellowstone Park bill had become law. Some extracts from it appeared in the Chicago Journal of January 13, 1872, but no reference to the Barlow report appears in the brief congressional debates.

The Washburn expedition of the year before, having no photographer with them, brought back somewhat crude drawings by Walter Trumbull and Pvt. Charles Moore as the first sketches of Yellowstone Park scenery ever to be published. The Hayden party, through the presence of Thomas Moran, secured paintings of Yellowstone Park scenery which are famous. Also William H. Jackson, their photographer, secured a series of photographs which were after their return handsomely reproduced and are remarkably fine, notwithstanding the difficulties which had to be overcome in that early stage of the photographic art.

The Barlow party were not so fortunate in connection with their photography. A Thomas J. Hine, so Captain Barlow reports, had about 200 negatives of "beautiful views of lake and mountain scenery, including photographs of some of the largest geysers taken while in action." These were taken to the military division headquarters at Chicago and destroyed with the meteorological records of the expedition in the great Chicago fire in October, 1871. Captain Barlow says "16 prints were made the day previous to the fire, which Mr. Hine saved. These will but serve as a sample of those destroyed." Whether these prints were sent to the War Department with Captain Barlow's report, I have found no evidence of their ever having been published officially or otherwise. Informal inquiry made by telephone by me at the office of the Adjutant General has met with very kind cooperation in that office, but they

advise me that they can not locate the prints in their files or in the office of the Chief Engineer.

The Hayden party left Ogden City about June 1, and spent the entire season in their work. Professor Hayden's report to Secretary Delano was dated February 20, 1872. Articles by him with reference to the Yellowstone Park region appeared in the American Journal of Science and Arts and in Scribner's for February, 1872.

In his Scribner's article, page 396, which was probably in the hands of the public in January, Hayden says:

"Why will not Congress at once pass a law setting it apart as a great public park for all time to come as has been done with that far inferior wonder, the Yosemite Valley?"

As to the article in the American Journal of Science and Arts for February, 1872, the pamphlet copy in the Library of Congress is inscribed "To Hon. J. A. Garfield with compliments of F. V. Hayden." Garfield had that session succeeded Dawes as Chairman of the House Committee on Appropriations. Hayden closes this article:

"A bill has been introduced into Congress which has for its purpose the setting apart of this wonderland as a great National Park for all time. We have, as a precedent, a similar action with regard to the Yosemite Valley, and this noble act has met with the hearty approval of the people. The speedy passage of this bill, which will prevent squatters from taking possession of the springs and destroying the beautiful decorations, will also meet with the cordial approval of all classes. We hope that before this article is published to the world the act will have become law."

PASSAGE OF THE YELLOWSTONE NATIONAL PARK ACT

December 18, 1871, the bill to create Yellowstone Park was introduced simultaneously in both Houses of Congress, H. R. 764 by Delegate William H. Clagett, of Deer Lodge, Mont., and S. 392 by Senator Pomeroy, of Kansas.

The speed with which the Yellowstone Park bill proceeded from introduction to enactment into law is surprising. It is true it was not accompanied by any appropriation and was merely the reservation of lands already belonging to the Government. There were, however, projects pending at the same time involving the reservation or transfer of lands totaling about 100,000,000 acres, most of which projects failed. It was just after the Civil War, a period when economy in the National Government was urgent. Nevertheless the bill which was first introduced in Congress December 18, 1871, became law March 1, 1872, only about 10 weeks later.

At this time Helena, Mont., was well represented in Washington. Langford, Everts, and Hauser were in Washington much of the time and Walter Trumbull was clerk of the Senate Committee on Judiciary, of which his father was chairman. Professor Hayden was at the Interior Department.

The Helena Herald of January 16, 1872, contains the following Washington correspondence from the Territorial Enterprise of Nevada, dated January 7, 1872:

"The Hon. N. P. Langford, of Montana, the leader of the famous Yellowstone expedition of 1870 and several scientific and literary gentlemen are engaged in an effort to have the Yellowstone region declared a National Park. The district, of which some features have been described in Scribner's Monthly, is said to be unadapted for agricultural, mining, or manufacturing purposes, and it is proposed to have its magnificent scenery, hot springs, geysers, and

cataracts forever dedicated to public use as a grand national reservation. Congress is to be petitioned to this effect."

At the time the Yellowstone Park was established Congress apparently had before it Joint Memorial No. 5 adopted by the Montana Legislative Council on motion of Councilman Seth Bullock, later noted as a friend of Roosevelt. This memorial asked Congress to add the Yellowstone area to Montana and that it "be dedicated and devoted to public use, resort and recreation, for all time to come, as a great national park, under such care and restrictions as to your honorable bodies may seem best calculated to secure the ends proposed."

That sentiment in Montana was not entirely unanimous appears from an editorial in the *Helena Gazette*, one of the publishers of which was Col. Martin Maginnis, later Delegate, which said in part: "In our opinion the effect of the measure will be to keep this country in wilderness and shut out for many years the travel that would seek that curious region if good roads were opened through it and hotels built therein. We regard the passage of the act as a great blow struck at the prosperity of the towns of Bozeman and Virginia City which might normally look for considerable travel to this section if it were thrown open to a curious but comfort loving public." (*Helena Herald*, March 1, 1872.)

The Territorial (Nevada) *Enterprise* indorsed the park as the "grandest park in the world." (*Helena Herald*, March 22, 1872.)

The Senate bill received the more prompt committee action. January 22, 1872, Senator Pomeroy stated that he had been instructed by the Committee on Public Lands to report back S. 392 and recommend its passage. There being some objection to other business being interfered with at that time, he withdrew the report, presenting it again January 23. After some discussion of the purposes of legislation objection was made to its immediate consideration. A week later, January 30, 1872, it came up for consideration before the Senate in its regular order and was passed.

In the debate Senator Anthony, of Rhode Island, and Senator Tipton, of Nebraska, showed their friendly interest in the legislation and its conservation purposes. Senator Edmunds, of Vermont, and Senator Trumbull, of Illinois, father of Walter Trumbull of the Washburn party, spoke in support of the legislation. The only hostile note came from Senator Cornelius Cole, of California, strange to say, where the State had recently accepted the Yosemite grant from the Federal Government. But he was chairman of the Senate Committee on Appropriations. With trifling amendments the bill was then passed by the Senate.

The *Helena Herald* of January 31, 1872, under the heading "A National Park," carried an editorial stating that telegraphic dispatches that morning "announce that the bill introduced by Senator Pomeroy, providing for a national park on the headwaters of the Yellowstone," had passed the Senate. It further states that the idea was first conceived "by the party of gentlemen in 1869" and was promoted by the letters of Hedges, the lectures of Langford, the articles by Trumbull, etc.

When the bill went to the House it was allowed to remain on the Speaker's table until February 27. In the meantime the House committee on January 27 had asked from the Interior Department a report on the Clagett bill. In making the request to the Secretary of the Interior Representative Dunnell referred to "the bill to set apart some land in Wyoming Territory" and said, as chairman of the subcommittee on the bill he "would be pleased to receive the report made by Professor Hayden or such report as he may be able to give us on the subject." This original letter is now in National Park Service files.

Hayden prepared a statement which was transmitted by Secretary Delano, January 29, 1872. The House committee authorized a favorable report, Representative Dunnell accepted and used as the committee report the draft prepared by Professor Hayden. This he did not have opportunity to file until February 28, after the Senate bill had passed the House.

February 27 during the consideration of business on the Speaker's table the House took up S. 392. Mr. Scofield, of Pennsylvania, a member of the Committee on Public Lands and later an associate justice of the United States Court of Claims, moved that the bill be referred to the Public Lands Committee. Representative Henry L. Dawes, of Massachusetts, expressed the hope that the bill be put upon its immediate passage as a meritorious measure. Mr. John Taffe, of Nebraska, a member of the Committee on the Territories, moved that the bill be referred to that committee. Mr. Scofield withdrew his motion "at the request of the gentleman from Massachusetts," and no further action was taken on the Taffe motion. Mr. Hawley, of Illinois, and Mr. Dunnell, of Minnesota, stated the favorable action of the House Public Lands Committee, and Mr. Dawes stated the purpose of the legislation. Notwithstanding no speech was made directly in opposition to the passage of the bill, opposition developed upon the vote. On a division there were ayes 81, and noes 41. Mr. Morgan, of Ohio, demanded the ayes and nays, and on the roll call there were 115 ayes, 65 nays, and 60 not voting.

Morgan had been the Democratic nominee for Speaker against Blaine and was now evidently the minority leader. He had been brevetted brigadier general in the Mexican War, had served as minister to Portugal, and had been commissioned as brigadier general in the Union Army of the Civil War. He had presented credentials as a Democratic member elect to the Fortieth Congress, serving from March 4, 1867, to June 3, 1868, when he was succeeded by Columbus Delano, who had contested the election. Then he was elected to the Forty-first and Forty-second Congresses. Delano became Secretary of the Interior and reported favorably upon this legislation to which Morgan now proved to be hostile.

THE HOUSE ROLL CALL

Analysis of the roll call vote shows that, the vote being demanded by the minority leader, the division was largely on party lines, possibly due only to the fact that partisanship ruled more strongly in legislation then than now.

In any event, the Republicans being in power, there were voting for the bill 97 Republicans, 15 Democrats, 1 Conservative, 1 Conservative Democrat, and 1 Independent Democrat. Of these 18, 5 came from New York, 3 from Maryland (former home of Clagett and Everts), 2 each from Delaware and Illinois, and 1 each from Nevada, Kentucky, Wisconsin, Pennsylvania, North Carolina, and Alabama.

Against the bill were 52 Democrats, 11 Republicans and 2 Liberal Republicans. Of the latter 13, two each came from Indiana and Connecticut, and one each from Nebraska, California, Pennsylvania, Kansas, New York, South Carolina, Georgia, Missouri, and Illinois.

The vote for the bill included—

Ames, Oakes (Republican), Massachusetts, later prominent in transcontinental railroad promotion.

Archer (Democrat), Maryland, whose father and grandfather preceded him in Congress.

Banks (Republican), Massachusetts, who was first elected to the Thirty-third Congress as a Coalition Democrat, to the Thirty-fourth by the American Party

and elected Speaker, to the Thirty-fifth as a Republican, as a Union Republican to the Thirty-ninth, and as a Republican to the Fortieth, Forty-first, and Forty-second, was defeated as a Liberal and Democrat for the Forty-third, elected as a Liberal Republican to the Forty-fourth and Forty-fifth and to the Fifty-first as a Republican. He had gained fame in the Civil War as a major general.

Beveridge (Republican), Illinois, governor 1873-1877.

Bigby (Republican), Georgia, later president Atlanta & West Point Railroad.

Biggs (Democrat), Delaware, governor 1882-1891.

Bingham (Republican), Ohio, who had been special judge advocate at the trial of the Lincoln conspirators and one of the House managers of the Johnson impeachment and was minister to Japan 1873-1885.

Blair (Republican), Michigan, Civil War governor.

Boles, Thomas (Republican), Arkansas, father of Thomas Boles, former superintendent of Hawaii National Park and now superintendent of Carlsbad Caverns National Park.

Burdett (Republican), Missouri, commissioner, General Land Office, 1874.

Clarke, W. T. (Republican), Texas, former major general in Union Army.

Coburn (Republican), Maryland, who had been appointed as first secretary, Territory of Montana, but resigned at once and later appointed associate justice supreme court of that Territory and served 1884-85.

Conger (Republican), Michigan, Senator 1881-1887.

Cox (Democrat), New York, later minister to Turkey.

Duell (Republican), New York, Commissioner of Patents 1875-1877.

Farwell (Republican), Illinois, Senator 1882-1891.

Frye (Republican), Maine, Senator 1881-1911, President pro tempore, member 1898 Peace Commission.

Garfield (Republican), Ohio, President 1881.

Hale (Republican), Maine, declined appointment as Postmaster General 1874 and Secretary Navy 1877, Senator 1881-1911.

Hambleton (Democrat), Maryland, president Chesapeake & Ohio Canal 1853-1854.

Hoar (Republican), Massachusetts, member Electoral Commission 1877, Senator 1877-1904.

McNeeley (Democrat), Illinois, died in 1921, probably the last to die.

Rusk (Republican), Wisconsin, governor 1882-1889, Secretary of Agriculture 1889-1893.

Sargent (Republican), California, Senator 1873-1879, minister to Germany 1882-1884.

Twichell (Republican), Massachusetts, president Atchison Topeka & Santa Fe 1870-1874.

Wheeler (Republican), New York, Vice President 1877-1881.

Among those voting against the bill were:

Barnum (Democrat), Connecticut, later Senator.

Beck (Democrat), Kentucky, later Senator.

Kerr (Democrat), Indiana, Speaker Forty-fourth Congress.

Rainey (Republican), South Carolina, first negro elected to Congress. Served December 12, 1870, to March 3, 1879.

Roberts (Republican), New York, Treasurer of United States 1897-1905.

Slater (Democrat), Oregon, Senator 1879-1885.

Tyner (Republican), Indiana, Postmaster General 1876-77.

Voorhees (Democrat), Indiana, Senator 1877-1897, defeated previously by General Washburn.

Whithorne (Democrat), Tennessee, Senator 1886-87.

Winchester (Democrat), Kentucky, later minister to Switzerland.

Passage of the bill through the House brought this editorial from the *Helena Herald* February 28, 1872.

"OUR NATIONAL PARK

"Our dispatches announce the passage in the House of the Senate bill setting apart the upper Yellowstone Valley for the purposes of a National Park. The importance to Montana of this congressional enactment can not be too highly estimated. It will redound to the untold good of the Territory inasmuch as a measure of this character is well calculated to direct the world's attention to a very important section of country that to the present time has passed largely unnoticed. It will be the means of centering upon Montana the attention of thousands heretofore comparatively uninformed of a Territory abounding in such resources of mines and of agriculture and of wonderland as we can boast, spread everywhere about us. The efficacy to this people of having in Congress a Delegate able, active, zealous, and untiring in his labors as well as in political harmony with the General Government is being amply demonstrated in the success attending the representative stewardship of Mr. Clagett. Our Delegate surely is performing deeds in the interest of his constituents which none of them can gainsay or overlook and these deeds are being recorded in the public's great ledger and in the hearts of us all."

The bill was promptly signed by President Grant, becoming law March 1, 1872.

WHO SECURED THE CREATION OF YELLOWSTONE NATIONAL PARK?

It is to be regretted that in a field where there would seem to be glory enough for all the claims to credit should be so conflicting. Clagett, Langford, Hayden, Daves, Sheridan—each of these is certainly entitled to great credit in the creation and preservation of this great park. Faulty recollections conflict as to the credit to go to each.

DELEGATE CLAGETT

In the introduction to N. P. Langford's "The Discovery of Yellowstone Park," is given a letter from Clagett in 1894, setting forth the history of the Yellowstone Park legislation. He states that in the fall of 1870, or spring of 1871, he remonstrated with certain persons who proposed to enter some lands of the Yellowstone region for speculative purposes, and stated that the whole region should be made into a national park, and no private proprietorship should be allowed; that after his election to Congress in August, 1871, Langford, Hedges, and he consulted and agreed that the park should be established as soon as possible. He further states:

"* * * In December, 1871, Mr. Langford came to Washington and remained there for some time, and we two counseled together about the park project. I drew the bill to establish the park, and never knew Professor Hayden in connection with that bill, except that I requested Mr. Langford to get from him a description of the boundaries of the proposed park. There was some delay in getting the description, and my recollection is that Langford brought me the description after consultation with Professor Hayden. I then filled the blank in the bill with the description, and the bill passed both Houses of Congress just as it was drawn and without any change or amendment whatsoever.

"After the bill was drawn, Langford stated to me that Senator Pomeroy of Kansas was very anxious to have the honor of introducing the bill in the Senate; and as he (Pomeroy) was the chairman of the Senate Committee on Public Lands, in order to facilitate its passage, I had a clean copy made of the bill and on the first call day in the House, introduced the original there, and then went over to the Senate Chamber and handed the copy to Senator Pomeroy, who immediately introduced it in the Senate. The bill passed the Senate first and came to the House, and passed the House without amendment, at a time when I happened to be at the other end of the Capitol, and hence I was not present when it actually passed the House.

"It has always been a pleasure to me to give to Professor Hayden and to Senator Pomeroy, and Mr. Dawes of Massachusetts all of the credit which they deserve in connection with the passage of that measure, but the truth of the matter is that the origin of the movement which created the park was with Hedges, Langford, and myself; and after Congress met, Langford and I probably did two-thirds, if not three-fourths of all the work connected with its passage."

However true may be Clagett's statement as above, the Congressional Globe carries no reference to Clagett's interest in the bill further than his introduction of it. When Senator Pomeroy introduced the bill December 18, 1871, he made a brief statement in the Senate and referred to the "elaborate report" of Professor Hayden as basis for congressional action. When he reported the bill to the Senate January 22, 1872, he again made a brief statement in which he referred to the Hayden exploration. Again on January 23 when he called the bill up and attempted its passage in the Senate he says:

"This bill originated as the result of the exploration, made by Professor Hayden, under an appropriation of Congress of last year. With a party he explored the headwaters of the Yellowstone and found it to be a great natural curiosity, great geysers, as they are termed, waterspouts, and hot springs, and, having platted the ground himself, and having given me the dimensions of it, the bill was drawn up, as it was thought best to consecrate and set apart this great place of national resort, as it may be in the future, for the purposes of public enjoyment."

Contrary to Mr. Clagett's recollection, the bill was amended in the Senate and there was substantial opposition in the House.

The proceedings as reported in the Congressional Globe do not seem to me to conform to Mr. Clagett's recollection as to Pomeroy. Senator Pomeroy was the first one to introduce a bill that day in the Senate and the order of introduction of bills came very early in the day's proceedings. While that order of business likewise came early in the House, Mr. Clagett was not the first one to introduce a bill in the House, but followed quite a number of others. It is evident he could not have introduced the bill first and then gone over to the Senate to give a copy to Senator Pomeroy in time for Senator Pomeroy to take the action he did.

I have sought to examine the manuscripts of the original bills introduced in the House and Senate. Some years ago the Clerk of the House, William Tyler Page, turned over to the Library of Congress these old documents of the House. In the manuscript division of the Library of Congress they promptly found for me H. R. 764. It is in a bound volume with other bills introduced at that time, such bills being arranged in numerical order. There is in the files of the National Park Service a photostat copy of the bill which is in handwriting consisting of three pages with the usual backing on the last page.

H. R. 763 introduced at the same time by Delegate Clagett had for its purpose the removal of the Flathead Indians from Bitter Root Valley of Montana. H. R. 763 is in the same handwriting as 764, which handwriting is evidently that of Mr. Clagett, as comparison with his signature on the backing of each of the bills indicates. I am satisfied, therefore, that the Yellowstone Park bill, introduced by Mr. Clagett, was in his handwriting, but this does not necessarily determine whether the original draft was by him or by someone else. He says in his letter of July 14, 1894, set forth in the introduction to Langford's "The Discovery of Yellowstone Park" that he "drew the bill to establish the park and never knew Professor Hayden in connection with that bill, except that he requested Mr. Langford to get from Hayden a description of the boundaries of the proposed park" and then "filled the blank in the bill."

The copy of the bill which Clagett used in introducing it in the House was manifestly not constituted in that fashion. It was all written at one time rather than a bill written at one time with a blank filled in later. It could, of course, have been what he calls "clean copy" of such a bill.

I have not been able to locate the manuscript copy of the bill introduced by Senator Pomeroy. Mr. Hoffner, one of the clerks in the office of the Secretary of the Senate, who has given a good deal of attention to these old Senate records, has spent several hours in examination of the files of that session of Congress without finding the Pomeroy bill. Unfortunately, the bills are not filed numerically, but according to some very uncertain system of indexing, and further, it is not at all certain that all of them have been preserved. While in recent years efforts have been made to arrange for their proper preservation, that was not formerly the case. It would be interesting to see the copy, for, if Mr. Clagett's recollection is correct, it would be in Mr. Clagett's handwriting.

The Yellowstone Park act was a remarkably well-drawn piece of legislation, it being remembered that it was pioneering in a new field. The description admittedly came from Hayden. Fully as important, however, was the statement of the purpose of the reservation "dedicated and set apart as a public park or pleasuring ground for the benefit and enjoyment of the people." This is the real foundation on which the national-park system has been built. Congress had previously reserved public lands for various purposes, but never "as a public park or pleasuring ground for the benefit and enjoyment of the people." The bill further emphasized "the preservation from injury or spoliation of all timber, mineral deposits, natural curiosities or wonders within said park and for retention in their natural condition." It also provided against "the wanton destruction of the fish and game" and against "their capture or destruction for the purpose of merchandise or profit." The bill does not seem to me the draft of an amateur who had only been a few weeks in Washington and had only served two weeks in Congress.

Mr. Clagett's election to Congress the previous August had followed a very bitter and hectic political contest, which had stirred Montana all the summer of 1871. His predecessor, James Cavanagh, a Democrat, was defeated for the nomination after a very bitter fight, the bitterness of which extended into the election and resulted in the election of Clagett as a Republican from this Democratic constituency. In the election Clagett toured the whole State of Montana, making speeches everywhere. It was urged that he as a member of the party in power in Washington, could accomplish for Montana much more than a Democrat could. Walter Trumbull, who had been a member of the Washburn party and was therefore interested in and committed to the national park idea, traveled with him on his tour of the State and reported

his meetings for the Helena Herald, the leading Republican paper. The Herald had taken notable interest in everything pertaining to the Yellowstone region and had devoted many columns to Yellowstone Park news and descriptions. Clagett told in his speeches, as reported generously by this paper, of various things that he would do for the Territory—removal of the Indians, establishment of an assay office, etc., but no mention of his interest in the creation of a national park appears. In his statement he claims no activity in the matter until after his election.

After his arrival in Washington he was very active in accomplishing the things he had urged in his campaign, and the Herald sought to strengthen him by playing up strongly an order which he secured from President Grant concerning the Indians even before the session of Congress opened, and also his progress toward an assay office. His introduction of the Yellowstone Park bill, however, received scant attention.

Clagett no doubt was interested, but he did not become a Delegate in Congress until his election on August 7, 1871, and could not have arrived in Washington much before Congress met on December 4, 1871. His influence could not therefore have been very great.

Following the previously quoted letter by Clagett, Mr. Langford states:

"It is true that Professor Hayden joined with Mr. Clagett and myself in working for the passage of the act of dedication, but no person can divide with Cornelius Hedges and David E. Folsom the honor of *originating the idea of creating the Yellowstone Park.*"

HAYDEN

Professor Hayden's annual report (fifth) was "passing through the press" when the Yellowstone Park bill became law, and he inserted Chapter X "a small space to a notice of this event, omitting the details until the more complete history can be prepared."

In his letter of February 21, 1878, to Secretary Schurz, published in House Executive Document No. 75, Forty-fifth Congress, second session, Hayden presents what he calls a "brief statement of the history of the National Park." He refers to the survey of 1871 and the great quantities of maps, sketches, photographic views, etc., and says that "so great was the interest excited in Congress by the results of this expedition" that Congress passed the law. Which statement was no doubt quite accurate. He further said:

"I beg permission to state here, that, so far as I know I originated the idea of the park, prepared the maps designating the boundaries, and in connection with Hon. W. H. Clagett, then Delegate from Montana Territory, wrote the law as it now stands. During the pending of the bill, every effort was made by myself and other members of the survey to remove all objection to the bill, and the labor was constant and great. *It is now acknowledged all over the civilized world that the existence of the National Park, by law, is due solely to my exertions* during the sessions of 1871 and 1872. The growing opposition to the withdrawal of any portion of the public domain for any purpose, however laudable, would undoubtedly have prevented the success of this bill at any subsequent session."

The italics are mine. It would be difficult to sustain all the above statement.

Five years later, at page 17 of his twelfth annual report, dated February 1, 1883, Hayden says:

"So far as is now known, the idea of setting apart a large tract about the sources of the Yellowstone River as a National Park originated with the writer."

And further:

"It was at the suggestion and under the *direction of the writer* that all the papers, maps, reports, *and the law were prepared* that set this large tract of land apart for the benefit of the people."

Senator Pomeroy, presenting the bill in the Senate January 22, 1872, said of Hayden, "This bill is drawn on the recommendation of that gentleman to consecrate for public uses this country for a public park."

HENRY L. DAWES

In his preliminary report Professor Hayden states that because of the interest of Representative Dawes, which had made the exploration possible, the first boat to float on Yellowstone Lake was named the *Anna* in honor of his daughter. If Mr. Jackson is correct, that the Dawes who was a member of the Hayden party was a son of Congressman Dawes, it is clear that the Dawes contact on the Yellowstone project continued to be very close.

In Blaine's "Twenty Years in Congress" he says that in the period 1861 to 1881, each succeeding Congress of the 10 Congresses, with a single exception, contained a majority of new members. Also that only four men served continuously through that period, W. D. Kelley in the House, Henry B. Anthony in the Senate, and Henry L. Dawes and Justin Morrill in House and Senate.

March 4, 1871, a few months before the Yellowstone Park bill was introduced, James G. Blaine was elected Speaker of the House, and Henry L. Dawes was selected to administer the oath of office to him, the Globe stating, "having served the longest continuously as Member of the House." In the previous Congress Dawes had been chairman of the Committee on Appropriations, Garfield, chairman of the Committee on Banking and Currency, and Hooper, of Massachusetts, ranking Republican on Ways and Means. In this Congress Dawes was switched to the chairmanship of Ways and Means, Garfield from Banking and Currency to chairman of Appropriations, and Hooper from second member of Ways and Means to chairman of Banking and Currency, all of which goes to show that Dawes was one of the greatest powers in the House of Representatives. The speed with which the bill became law after it was introduced is in part to be explained by this. See further the Dawes sketch later herein.

There is a definite and very public record in the Senate debates testifying to the claim of Dawes authorship. February 17, 1883, Senator Vest said in the Senate (p. 2836):

"At the suggestion of older and more experienced Senators, who take an interest with myself in the matter, notably the Senator from Vermont (Mr. Edmunds), and the Senator from Massachusetts (Mr. Dawes), who was the father of the park, we may say, for he drew the law of designation."

August 2, 1886 (p. 7843) Senator Dawes said:

"I spent some time in the Yellowstone Park and have taken a great deal of interest in it; indeed I think I drew the bill that originally set it apart."

August 3, 1886, (p. 7915) Senator Vest said:

"The park was originated by my distinguished friend on my right (Mr. Dawes) who was the author of the law."

May 10, 1892, within a few months of the close of his service in the Senate, Senator Dawes said (p. 4121):

"I have taken an interest in this park from the day of its creation. I had the honor to write the bill which created it, and I defended it when the outcry against the expenditure necessary for it was large."

GENERAL SHERIDAN

In 1887, when his doctor told him his life was limited and Gen. Phil Sheridan was writing his memoirs, he remembered his Yellowstone Park contacts with pride. Therein he tells us that after he had been for a year commanding the division of the Missouri, which embraced the entire Rocky Mountain region, he found it necessary to make an inspection of the military posts in northern Utah and Montana, "in order by personal observation to inform myself of their location and needs and at the same time become acquainted with the salient geographical and topographical features of that section of my division." In May, 1870, he started West, taking the Union Pacific to Corinne and stage coach to Helena. Rumors of war between France and Germany became so certain he cut short his tour. He says:

"This resolution limited my stay in Helena to a couple of days which were devoted to arranging for an exploration of what are now known as the Upper and the Lower Geyser Basins in the Yellowstone Park. While journeying between Corinne and Helena I had gained some vague knowledge of these geysers from an old mountaineer named Atkinson, but his information was very indefinite, mostly second hand; and there was such general uncertainty as to the character of this wonderland that I authorized an escort of soldiers to go that season from Fort Ellis with a small party, to make such superficial explorations as to justify my sending an engineer officer with a well equipped expedition there next summer to scientifically examine and report upon the strange country." (Memoirs, second edition, pp. 348-350, Vol. II.)

The above statement itself shows that General Sheridan first heard of the wonderland while en route to Helena. And, while it is very likely he was approached concerning military escort for an expedition, certainly he could not have initiated the exploration as is suggested when he says "arranging for an exploration." Hauser, Langford, and all were experienced frontiersmen, and had been interested in this exploration before Sheridan heard of Yellowstone's wonders. None of them even mentions any talk with Sheridan about it. He was in Helena in May, 1870. Langford says he had seen General Hancock in St. Paul in the spring of 1870 and Hauser had had a conference with Hancock about the same time and Hancock had given assurances of an escort if needed; that their plans took definite shape about August 1 and that Washburn and Hauser joined in a wire to Hancock about that time. In forwarding the Doane report to Washington, General Hancock says that August 14, 1870, H. D. Washburn, surveyor general of Montana, had asked an escort and he had directed the escort be furnished and "that an officer be sent with it who could make a report of the trip, as well as a map of the country passed over." Doane's special orders, dated August 21, 1870, set forth in his report, simply instruct him to "escort the surveyor general of Montana to the falls and Lakes of the Yellowstone and return."

Hayden, in 1871, says he was armed with orders from the Secretary of War upon the military posts of the West for such assistance as could be afforded without detriment. The Hayden exploration was planned before Sheridan returned from Europe and was leaving Ogden about June 1, to secure their escort at Fort Ellis. General Sheridan issued orders June 26, 1871, to the commanding officer at Fort Ellis to furnish Barlow equipment as he "has been directed to proceed to the headwaters of the Yellowstone." It is said to be "Captain Barlow's intention to accompany the expedition of Professor Hayden, taking advantage of the escort ordered for him," but he is to have a small detail under his own direction.

The scope of the Barlow report was necessarily very limited in its scientific features as compared with the Hayden, and the failure to mention the Hayden exploration was at least naïve on the part of Sheridan, quite in keeping with more modern military tactics.

Sheridan did not carry his memoirs beyond his return from Europe in 1871 because of the progress of his last illness, but in 1902 a second edition was issued which included a sketch of his later years by his brother, Gen. Michael V. Sheridan, who had been closely associated with him during his greater years. In that sketch the following appears:

"General Sheridan (1883) was particularly gratified with what the journey had accomplished toward benefiting the park, gaining for its future protection not only the good will of his influential guests, but interesting the public in its preservation to such a degree that it became comparatively easy to induce Congress to safeguard it from speculators and plunderers. This was a consummation to which Sheridan had looked forward since 1869 when, in consequence of his assignment to the command of the division of the Missouri, he had become practically its guardian. At that time he had assumed a responsibility for the wonderful region, though as yet there existed only vague rumors concerning its characteristics. The Indians knew little or nothing about it. They looked on the 'Firehole' with all the suspicion of their superstitious nature and gave it wide berth, while the misty tales of Bridger and other trappers were considered as gross exaggerations, if not wholly unreliable. In order to secure definite information Sheridan sent Lieut. G. C. Doane, of the Second Cavalry, from Fort Ellis to make an exploration and report on the region. Doane's party was small and his equipment incomplete, but his graphic descriptions of what he saw were so surprising that many, unacquainted with his trustworthy character, thought his stories Munchausenisms. Yet his narrative actually fell short of the reality, as demonstrated a little later by a well-equipped expedition sent by Sheridan under Col. J. W. Barlow of the Engineers. Colonel Barlow made accurate surveys, measured and photographed the geysers, the Grand Canyon, and in fact all the extraordinary freaks of nature in the strange land, and accompanied them with an accurate scientific report that could not be questioned. The information gathered by these two explorations awakened in the mind of Sheridan and others the idea of reserving this wonderland as a public park, not only to prevent its passing into the hands of private owners who might extort excessive fees from visitors, but that it should become a great preserve for big game in the Rocky Mountains. While he was not alone in this undertaking, it was largely through Sheridan's personal efforts that Congress created the Yellowstone National Park, and from time to time passed appropriations for its care, and laws to prevent its desecration."

See page 550 et seq. Volume II, second edition, Sheridan's Memoirs.

Sheridan had so nearly nothing to do with the creation of the park and so much to do with the protection and preservation of it that it is regrettable that his hasty biographer grossly overstated the one and ignored the other. His connection with its creation was confined to granting of military escorts which General Hancock in 1870 and the Secretary of War in 1871 had assured and the ordering of the Barlow expedition which never interested anyone but the Army very materially. But without his interest and championing from 1875 and for 10 years thereafter the whole national park story might have been much different.

MANY CONTRIBUTED

Clearly Folsom's suggestion to Washburn was the first recorded idea of a reservation of the Yellowstone area for public benefit and his article in the *Western Monthly* of July, 1870, was the first publication of report of Yellowstone exploration; the Hedges proposal at the campfire of the Washburn party put in train of action the movement to secure such reservation and his letter of November 9, 1870, in the *Helena Herald* was the first publication of the idea; Langford early became the enthusiast who by writings, lectures, and personal effort actively promoted the project; the Washburn expedition reports aroused national interest in the area; the Hayden expedition fully satisfied all public questions and solidified and extended national interest; the personal and official contacts of Hayden, fully supported by the Interior Department in the winter 1871-72 had great influence with Congress, he was admittedly consulted in the drafting of the legislation, and his reports were chiefly relied upon by members and committees of Congress; after his election, Clagett became committed, had a part in drafting the bill, wrote out in his own hand the copy introduced by him in the House; Senator Pomeroy proceeded in the Senate with zeal, supported on the floor by Senators Trumbull, Edmunds, and Anthony (three powerful leaders) and no doubt in close contact with Walter Trumbull, the Senate committee clerk, so that the bill promptly passed the Senate; Representative Dawes, interested in the region, who as chairman of the appropriations committee had made possible in the winter of 1870-71 the appropriation for the Hayden expedition of which his son seems to have been a member, was in closest contact with results of that expedition and interested in the park creation, a most experienced legislator of outstanding influence, while his hand may not have written down the words, he undoubtedly shaped the lines of the draft and was the power behind the scenes that made things move; Sheridan in May, 1870, was intrigued by tales of the area and sympathetic with proposals for exploration and from the time of his own personal contact with it a powerful champion of its preservation and protection, the witness whose words were cited in Congress during the critical years with greatest effect; and Vest was the persistent senatorial champion, without whose interest and leadership private interests would have had their way. These men all are entitled to all the credit that broad and farseeing vision, devotion to the public interest and effective action, each in his own sphere, can ever bring to any men. And the list of other men, each of whom, in lesser but important extent, have contributed to the full success of this first great national park experiment is long. Some of the congressional friends are noted elsewhere (p. 52).

LATER YELLOWSTONE EXPEDITIONS

The summer of 1872 Professor Hayden made his second expedition into the Yellowstone Park country. He had with him as his guest Nathaniel P. Langford, who had been appointed the first Yellowstone Park superintendent. He reports the trip in his first annual report of 1872.

Gen. John Gibbon explored the park also in 1872.

In 1873 Capt. W. A. Jones, accompanied by Prof. Theodore B. Comstock made a "reconnaissance of northwest Wyoming." Their report, including considerable scientific material, was published as House Executive Document 285 of the Forty-third Congress, first session. This party discovered the Togwotee Pass into Wyoming.

In 1875 Col. William Ludlow made a reconnaissance and was accompanied by George Bird Grinnell, who later, as editor of *Forest and Stream*, played so large a part in Yellowstone Park matters. In this report, published by the War Department, Grinnell calls attention to the "reckless destruction of animals in the park." He states that in the winter of 1874-75 3 000 elk were killed for their hides in the Valley of the Yellowstone between the mouth of Trail Creek and the Hot Springs. In the same report Colonel Ludlow mentions the lack of adequate police force in the park and said (p. 36): "Recourse can most readily be had to the already existing facilities afforded by the presence of troops in the vicinity and by the transfer of the park to the control of the War Department."

The same year Secretary of War Belknap made a tour of the park, guided by Lieutenant Doane. He was accompanied by Gen. W. E. Strong, who has written the story of the expedition.

In 1877 Gen. P. H. Sheridan and Gen. W. T. Sherman made an inspection "of the country north of the Union Pacific Railroad." In his report General Sheridan refers to their visit to "two new military posts in the Yellowstone and Big Horn Valleys in the heart of the hostile Sioux country." The Sheridan report includes a report by Lieut. W. L. Carpenter on the geology and natural history of the Big Horn Mountains and a report on the botanical features of the Big Horn Mountains by Assistant Surgeon J. H. Patski.

The Sherman report consists of a series of letters by General Sherman to Secretary of War McCrary. His letter of August 19, 1877, from Fort Ellis tells of his Yellowstone Park trip, and his descriptions are interesting. He says this of his climb of Mount Washburn:

"Any man standing on Mount Washburn feels as though the whole world were below him. The view is simply sublime; worth the labor of reaching it *once* but not *twice*." (Emphasis by Gen. Sherman.)

He further says:

"We saw no signs of Indians and felt at no moment more sense of danger than we do here (Fort Ellis). * * * Some four or five years ago parties swarmed to the park from curiosity, but now the travel is very slack."

But as he was leaving the park he met the parties that later encountered the hostile Nez Perce, the last Indian trouble in the park area. The Sherman report also carries the diary of Gen. O. M. Poe, which includes his story of the Yellowstone trip and a brief description of the Yellowstone Park region.

Secretary of the Interior Carl Schurz, accompanied by General Crook, made an extended tour of the park in 1880.

In 1881 the park had its first visit from a President of the United States, although his service as President came later. Senator Benjamin Harrison, who served as President from 1889 to 1893, visited the park.

In the same year, 1881, Capt. W. S. Stanton made his reconnaissance for the War Department, and Hon. John W. Hoyt, Governor of Wyoming, with a large escort, made his wagon road reconnaissance.

Lieut. Gen. P. H. Sheridan in 1881 made an exploration "through the Big Horn Mountains, Yellowstone National Park, etc." His report was dated September 20, 1881, and as published includes the reports of Lieut. Col. J. F. Gregory, Surg. W. H. Forwood, and Capt. S. C. Kellogg. On page 9 of his report he says that \$15,000 a year is not enough for the park. "A larger appropriation should be given by Congress and an engineer officer should be detailed to expend it on improvement of the trails and roads, with a company or two of cavalry to be stationed in the park for the summer to watch and prevent the burning of forests and the mutilation of the great craters and other similar

phenomena of the geysers." Forwood presents a report on the flora of the park.

In 1883 President Arthur, with the Secretary of War, Senator Vest, and others, visited the park, the first President to visit a national park during his term of office.

The Arthur party came in from Wyoming and saw the Grand Teton region before reaching Yellowstone Park. The first presidential view of the Grand Teton region is thus described by Gen. Michael V. Sheridan, brother of Gen. Phil Sheridan, in his second edition of *Sheridan's Memoirs*:

"Of the beauty and grandeur of this scenery Sheridan and his staff were aware, and they therefore maneuvered that the President and other guests should reach the summit first. In consequence, the glorious spectacle of the Teton Basin, from one of the most advantageous points of view, burst on their gaze with all the added effect of complete surprise. A most beautiful crescent-shaped valley, which incloses Jacksons Lake, lay before them, fringed on the left with somber pine-clad mountains, at whose base runs the turbulent Gros Ventre, and on the right by rugged hills of red clay, broken here and there by thickly wooded ravines. The valley itself was thickly carpeted with grass and wild flowers and the course of each of the numerous little brooks that crossed it was marked with willows and cottonwoods. Along the whole westerly edge of the valley, with no intervening foothills to detract, rose to towering height the Royal Tetons, whose snowy peaks pierce the air 5,000 feet above the ridge on which the entire party had now assembled, the ridge itself being 8,000 feet above sea level. Nothing in mountain scenery the world over can surpass this in beauty and grandeur. It may be doubted if even its equal exists." (See p. 545, Vol. II.)

Later Presidents to visit the Yellowstone Park were Roosevelt in 1903, Harding in 1923, Coolidge in 1927, and Hoover in 1927 while he was Secretary of Commerce.

ADMINISTRATION OF, LEGISLATION CONCERNING, AND APPROPRIATIONS FOR YELLOWSTONE NATIONAL PARK

Although the Yellowstone National Park came into being March 1, 1872, it was several years before any appropriation was made. Indeed Professor Hayden wrote a little later, February 21, 1878, that he had been compelled to give "a distinct pledge" that "he would not apply for an appropriation for several years at least," and that, otherwise, passage of the bill would have been very doubtful. (See his letter in H. Ex. Doc. 75, 45th Cong. 2d sess.)

Mr. T. C. Everts, who won national fame by his "thirty-seven days of peril" in the Washburn party of 1870, was in Washington at the time the bill became law, and for several weeks thereafter, and seems to have been a candidate for superintendent of the park. So it was stated in an item from the Missouri Democrat quoted by the Helena Herald, April 13, 1872. The Washington correspondent of the Helena Herald, in a letter published in that paper April 19, 1872, says that Everts was stopping in Washington at the National Hotel and that when the national park bill became law many Congressmen and others indorsed him for superintendent of the park "but it would appear that this fact is likely to defer the asking of an appropriation to make the place acceptable."

It further appears in the Herald of May 3, 1872, that Everts was a delegate to the Liberal Republican Convention at Cincinnati, "a round about way, to

our thinking, for friend Everts to reach the superintendency of the national park."

In letter of May 10, 1872, Langford was appointed superintendent, without salary (see Langford, First Annual Report) and accepted in the following letter dated May 20, 1872, the original being now in the National Park Service file:

"I have been advised here, of my appointment as superintendent of the Yellowstone Park, and shall make immediate preparations for a thorough exploration of it. A number of parties have expressed a desire to put up small hotels for the accommodation of visitors, and it will be desirable to grant leases for this purpose to two or three persons, or at least, to one. Until a survey of the park is made by me, and my report submitted, I do not think it best to grant many leases for hotels, etc., nor these for a long time; but at least one stopping place for tourists should be put up this year.

"I am informed that a toll-road company has graded a few steep hills on the line of travel, and are charging exorbitant rates of toll, without authority of law. I should have authority to regulate this matter, and to prevent imposition upon visitors.

"Will you therefore, communicate with me at Helena, Mont., advising me what power my appointment gives me, and authorizing me to make all necessary regulations for the building of one public house, or more if needed, and generally, for the protection of the rights of visitors, and the establishment of such rules as will conduce to their comfort and pleasure.

"Whatever authority is given me in this matter will be cautiously exercised, for little need be done in this behalf the present season.

"P. S. As I shall be in Helena but a short time, I bespeak an early reply to this communication."

This letter was received May 25, 1872, and answered the same day, but the reply has not been located.

In the spring of 1873 Superintendent Langford appointed D. E. Folsom, of the 1869 expedition, assistant superintendent, also without salary.

FORTY-SECOND CONGRESS, THIRD SESSION

The next winter, 1872-73, Superintendent Langford was back in Washington and seeking an appropriation. Delegate Clagett wrote Secretary Delano February 3, 1873:

"From what I have been able to learn I think that the sum of \$15,000 would certainly make all the improvements in the national park that will be needed for some years to come. This amount will make it accessible and travel over the main routes therein comparatively easy. And the revenues of the park will probably do the rest. If you should recommend not more than the above amount I will do my best to secure the appropriation."

Neither Langford nor Clagett, or the department, seems to have known that promises had been made that no appropriations would be asked for for several years as later stated by Hayden.

The first estimates sent to Congress for protection and improvement of Yellowstone National Park are found in House Executive Document 241, Forty-second Congress, third session. Therein under date of February 20, 1873, Acting Secretary Cowen asks for an appropriation of \$15,000 "for the purpose of opening up said park to the public by the construction of wagon roads within its boundaries." Included in this document is supporting letter of February 3, 1873, from Superintendent Langford. No appropriation was made.

FORTY-THIRD CONGRESS, FIRST SESSION

November 14, 1873, H. R. Horr, whose claim is elsewhere referred to, wrote the Secretary of the Interior that several parties were killing elk and deer, taking only the tongues and skins. He suggested that Jack Baronette, "now residing near his bridge" be authorized to act in the premises. "Besides myself," he wrote, "he is the only one who will hibernate in this national domain."

September 26, 1873, Governor Campbell of Wyoming and November 27, 1873, Governor Potts of Montana wrote the Secretary urging an appropriation for survey of park boundaries. Potts also urged "a liberal appropriation to employ a resident superintendent of the park, and make such roads as are necessary, and preserve from spoliation the numberless curiosities of that wonderful region."

November 7, 1873, Superintendent Langford urged appropriations and protection, and November 14, 1873, Professor Hayden presented a plan for improvement and protection. December 9, 1873, people living near the line of the Yellowstone National Park petitioned for an appropriation for its management and that a committee of Congress be appointed to visit the park the coming year, this petition being included in House Executive Document 147, Forty-third Congress, first session.

Early in 1874 one Knut Forsberg, a landscape architect, presented to the Secretary an "estimate upon the survey of the national park" amounting to \$132,000, a copy of which accompanies this report. This bizarre conception of the scope and purpose of the park must have impressed the Interior Department since it was transmitted by the Secretary February 12, 1874, along with criticism thereof by Hayden, to Hon. James A. Garfield, chairman of the House Committee on Appropriations. Garfield promptly replied, February 13, that the Forsberg scheme was wholly beyond "the range of improvements that the Government might undertake," but that he had no doubt something should be done to preserve the property from spoliation. Copies of the Hayden and Garfield letters and the Forsberg estimate are in the files of the National Park Service. The department letter of February 12 can not be found.

Very promptly, as suggested by Garfield, February 17, 1874, Secretary Delano sent to Congress an estimate for an appropriation of \$100,000 for park purposes and a draft of a bill for legislation. He accompanies this request with letters of November 7, 1873, and February 6, 1874, from Superintendent Langford, who states that 500 persons had visited the park the previous season. His request is also supported by letters from Governor Potts, of Montana, Governor Campbell, of Wyoming, and Professor Hayden, and a petition from citizens of Bozeman above referred to. (See H. Ex. Doc. 147, 43d Cong., 1st sess.)

This bill was introduced in the House by Delegate Maginnis, H. R. 2177, and in the Senate by Senator Windom, S. 581. The latter was favorably reported by Senate Committee on Territories, the amount being cut to \$25,000. Substitute for the House bill was drafted by the committee but not reported. Again no appropriation resulted.

FORTY-THIRD CONGRESS, SECOND SESSION

At the next session the Secretary asked Congress, December 8, 1874, for \$100,000, supporting his request with letter of September 7, 1874, from Superintendent Langford. (H. Ex. Doc. 20, 43d Cong., 2d sess.) Again no appropriation.

December 15, 1874, the Secretary of War made a favorable report on H. R. 2854 for "a military wagon road from Green River, Wyo., to the park and

Fort Ellis" and quotes letter of November 28 from General Sheridan. In this letter Sheridan states that although he did not favor the road when forwarding the Jones report in 1873, he had since that time had opportunity to make a personal examination of the road through to Camp Brown, Wyo., and he recommends the road going to the pass at the head of Wind River Valley, to Yellowstone Lake, passing Great Falls, and along the crest of the Grand Canyon, past Mammoth Hot Springs and to Fort Ellis, Bozeman, and the Crow Agency.

The first recorded attempt on the floor of Congress to secure an appropriation for the improvement of Yellowstone National Park was March 1, 1875. Representative Dunnell, of Minnesota, who had reported the original Yellowstone Park bill to the House in 1872, that day offered an amendment to the sundry civil appropriation bill for the fiscal year 1876 to appropriate \$25,000 for the construction of public roads within the park, the survey of its boundaries and such other purposes as were deemed necessary by the Secretary of the Interior. The amendment was defeated. Chairman Garfield opposed it as "too early."

FORTY-FOURTH CONGRESS, FIRST SESSION

August 28, 1875, Superintendent Langford writes the Secretary urging \$100,000 for surveys, roads, etc. Delegate Maginnis, who had defeated Clagett in 1873, and who had in 1872 editorially questioned the value of the park to Montana, indorsed the Langford letter August 31, 1875, with his hearty approval. He wrote:

"From members of Secretary Belknap's party who came down recently I learn that the spoliations in the park are great. There is at present no way of checking them. Several of the geysers are now nearly ruined and the Government should take some action to preserve these wonderful and beautiful curiosities before it is too late."

June 1, 1876, the House Committee on Military Affairs favorably reported H. R. 180 for the Green River-Park-Fort Ellis military road at \$50,000.

APPOINTMENT OF NORRIS

April 13, 1877, P. W. Norris of Michigan applied for appointment as superintendent of the park. He presented indorsements from Governor Croswell of Michigan, Chief Justice Morrison R. Waite, and others. He was appointed April 18, 1877, his pay being subject to appropriations. He eventually presented a claim for \$3,180.41 for salary and expenses, which was appropriated for in the sundry civil act of August 7, 1882. (See H. Ex. Doc. 85, 47th Cong., 1st sess.)

FORTY-FIFTH CONGRESS, SECOND SESSION

March 11, 1878, Representative Alpheus Williams of Detroit, Mich., introduced H. R. 3785, to provide an appropriation for protection and improvement of the Yellowstone Park, but no action was taken by the Committee on Appropriations.

In February and April, 1878, Delegate Corlett of Wyoming introduced bills to fix the northern boundary of the park, one referred to appropriations and one to public lands. Neither was acted upon.

Under date of March 6, 1878, Secretary Schurz had sent to Congress an estimate for \$15,000 for "better protection of the National Park from injuries." (See H. Ex. Doc. 75, 45th Cong., 2d sess.) He transmitted letters from Norris and Hayden, and also letter from committee of American Association for Ad-

vancement of Science, with a summary by Theo. B. Comstock. The Hayden letter herein is especially interesting.

The Appropriations Committee still including nothing in the sundry civil bill for Yellowstone, on June 13, 1878, Representative Williams offered an amendment to appropriate \$10,000 "to protect, preserve, and improve the Yellowstone National Park." This amendment was agreed to, by teller vote, ayes 92, noes 59. On a separate vote in the House it was agreed to by a vote of 91 to 50 and was enacted into law, becoming the first appropriation for national park purposes.

FORTY-FIFTH CONGRESS, THIRD SESSION

The sundry civil bill for the fiscal year 1880, as reported to the House February 24, 1879, contained an appropriation of \$10,000 for Yellowstone Park.

FORTY-SIXTH CONGRESS, SECOND SESSION

May 10, 1880, Delegate Downey of Wyoming introduced a bill, H. R. 6133, to change Yellowstone boundaries. No action was taken.

FORTY-SEVENTH CONGRESS, FIRST SESSION

January 16, 1882, Hon. S. S. Cox (Sunset) referred to the department letter of Samuel Wilkeson and asked what legislation was necessary to protect the park. The department reply is not available. January 30, 1882, Cox introduced H. R. 3751, proposing to transfer the park to the War Department, permit railroads, provide penalties for offenses, and give Wyoming courts jurisdiction.

In January, 1882, Delegate Post of Wyoming introduced a bill for the construction of a military road from Fort Washakie to Yellowstone Park, but the bill was adversely reported by the Military Affairs Committee.

F. Jay Haynes, so long connected with concessions in the park, made application in January, 1882, and was advised by Secretary Kirkman January 27, 1882, to await the return of Superintendent Norris to the park.

March 4, 1882, Secretary Kirkman sent the House Committee on Public Lands an adverse report on the Cox bill saying:

"In regard to placing the park under the control of the War Department as proposed by the bill, I have to state that it does not appear to me that that Department could accomplish more with the same expenditure of funds toward carrying out the objects for which the park was set aside than could be accomplished by the Department of the Interior."

FORTY-SEVENTH CONGRESS, SECOND SESSION

December 12, 1882, Senator Vest, of Missouri, first took up Yellowstone matters and secured adoption of the resolution by the Senate directing the Senate Committee on Territories to inquire as to what legislation was necessary to protect public property and enforce laws in Yellowstone Park, initiating a fight which he led for many years in an effort to secure needed legislation and appropriations and prevent encroachments on the park. January 5, 1883, Senator Vest, in response to this resolution, reported from the committee S. 2317 to amend the Yellowstone Park act. His report, Senate Report 911, Forty-seventh Congress, second session, carries letters of Secretary Teller, Governor Crosby of Montana, and General Sackett, and quotes from Sheridan's report on his 1882 trip. Representative Deuster of Wisconsin introduced the same bill in the House. No further action.

For several years to come controversy over Yellowstone Park administration was lively, the widespread interest in the country being indicated by petitions from individuals and memorials from legislatures which came to Congress.

February 1, 1883, came petition from members of Kent County Sportsman's Club of Grand Rapids, Mich., memorial of Illinois Legislature, and letter from the Governor of Montana, and February 14 from Sportsman's Association of Western Pennsylvania.

February 17, 1883, Senator Vest sought to pass a resolution for a special committee of five to report at the next session on the condition and needs of the park, but it went over without action. Several later attempts also failed.

The appropriation item in the sundry civil bill for the fiscal year 1884 was the subject of keen controversy in House and Senate debates. As reported by the Committee on Appropriations of the House, it carried an appropriation of \$15,000 for Yellowstone National Park. It also carried a proviso authorizing the Secretary of the Interior to grant leases of limited areas for hotels, etc., but forbidding exclusive privileges or monopolies. Mr. McCook, of New York, said the committee provision would improve the situation, but offered a substitute providing that the Secretary of the Interior be entirely prohibited from leasing any portion of the park; that all leases previously entered into should be of no force and effect; further that the Secretary of War be authorized and directed to make necessary detail of troops to prevent trespassers or intruders entering the park for any purpose prohibited by law. In this debate the report of General Sheridan had much weight. Mr. McCook's amendment was agreed to. When the sundry civil bill came up in the Senate, March 1, the appropriation was increased from \$15,000 to \$40,000. The Senate adopted an amendment of Senator Vest providing that \$2,000 should be paid annually to the superintendent of the park, and \$900 to each of 10 assistants, etc. The McCook amendment as to leases was struck out and in lieu thereof a paragraph was inserted authorizing the Secretary of the Interior to lease small portions of the ground in the park not exceeding 10 acres in extent for each tract, no such leased land to be within one-quarter of a mile of any of the geysers or of the Yellowstone Falls. Also the Senate inserted the provision that the Secretary of War, upon request of the Secretary of the Interior, was directed to make the necessary detail of troops to prevent trespassers, etc. As so amended, the provision became law. It will be noted that this first legislation concerning the administration of Yellowstone National Park was carried in an appropriation bill and there appears under the heading "Columbia Hospital for Women and Lying-in Asylum."

FORTY-EIGHTH CONGRESS, FIRST SESSION

The following December, at the opening of the Forty-eighth Congress, Senator Vest had another resolution adopted by the Senate, calling on the Secretary of the Interior for further Yellowstone Park data.

Expressions of national interest in the park continued. December 20, 1883, the Senate received memorial of legislature of Nevada.

Also December 4, 1883, the Senate received memorial of legislature of Montana urging that in any enlargement of the park the Clarks Fork mining district and the mines contiguous thereto be excluded from the park. (S. Misc. Doc. 9, 48th Cong., 1st sess.)

March 4, 1884, Senator Vest secured consideration on his bill S. 221, which he had introduced December 4, 1883, to revise the Yellowstone Park act. This bill eliminated the portions of the park in Montana and Idaho, and ex-

tended the park about 9 miles to the south and 30 miles to the east; provided for punishment of offenses; extended the laws of Montana over the park and made the park, for the administration of justice, a part of Gallatin County, Mont.; provided for a superintendent at \$2,000 and 15 assistants at \$900, with power to arrest; required detail of Army engineers to survey and build roads and bridges, estimates therefor to be submitted by the Secretary of War to Congress; authorized leases for hotels, etc., the proceeds to be available for improvements. After considerable debate bill passed Senate March 5, 1884.

Numerous bills were introduced, carrying the railroad proposition in one form or another. January 29, 1884, Delegate Maginnis, of Montana, had introduced H. R. 4363, for the Cinnabar & Clark Fork Railroad to connect up with the mines at Cooke City. March 18, 1884, the House Committee on Pacific Railroads reported H. R. 6083 as a substitute for the Maginnis bill. It was not acted upon by the House.

S. 1373, for the Cinnabar & Clarks Fork Railroad Co., was introduced February 4, 1884, by Senator McMillan of St. Paul, and February 27, 1884, it was reported favorably. May 27, 1884, S. 1373 was debated at length in the Senate and the powerful opposition to it which developed was clearly a surprise to Vest, and probably was an unwelcome surprise to the railroad promoters. Senator Logan, a few weeks later to be his party's candidate for Vice President, Senator Harrison, four years later to be his party's candidate for President, Senator Conger of Michigan, Senator Garland of Arkansas, Senator Call of Florida, Senator Voorhees of Indiana, constituted, with Senator Vest, an oratorical phalanx which made so strong a showing against the bill that when it was laid aside that day it was not brought up again in that Congress.

February 27, 1884, H. R. 5715, to incorporate the Yellowstone Park Railroad was introduced by Representative Rosecrans of California, but nothing further was heard of it.

July 3, 1884, Secretary Teller reported to Congress on leases in the park, Senate Executive Document 207, Forty-eighth Congress, first session, saying in part:

"The Department has endeavored to restrict the settlement in the park to the class that provides for the comfort of the traveling public. If permits or leases are granted to all who desire to settle in the park, the very purpose of the Government in reserving it from settlement will be defeated."

FORTY-EIGHTH CONGRESS, SECOND SESSION

February 13, 1885, the House considered S. 221 as reported by the Committee on Territories with important amendments, making the Yellowstone River and its eastern fork the northern boundary of the park, and changing the jurisdiction from Montana to Wyoming Territory. The House agreed to committee amendments and passed the bill.

As conferees on S. 221 the Senate appointed Senators Vest, Harrison, and Manderson, while the House named Representatives Pryor of Alabama, Hill of Ohio, and Kiefer of Ohio. Kiefer had been the only one to make any fight against the committee amendments in the House. The bill died in conference.

FORTY-NINTH CONGRESS, FIRST SESSION

March 3, 1885, a special committee of the House had been appointed to investigate Indian education and the Yellowstone Park. This committee consisted of Representatives Holman of Indiana, Hatch of Missouri, Peale of

Arkansas, Cannon of Illinois, and Ryan of Kansas. The following summer that committee made an extensive western survey, including some time in the park. Representative Hatch was prevented from going, but the other four members made the trip. Their report was filed with the House March 16, 1886, being House Report 1076, Forty-ninth Congress, first session. In the report appears this statement of park policy:

"The park should so far as possible be spared the vandalism of improvement. Its great and only charms are in the display of wonderful forces of nature, the ever varying beauty of the rugged landscape, and the sublimity of the scenery. Art can not embellish them."

The majority of the committee held that police were only needed to guard against fires and to prevent spoliation by vandals. Cannon and Ryan in their minority report urged the building of more roads and that the superintendent and assistants protect all objects of interest from injury by vandals. Among the witnesses heard by the committee, whose testimony is fully reported, were Arnold Hague and Col. D. C. Kingman.

February 1, 1886, the Senate received the report of Special Agent W. Hallett Phillips on Yellowstone Park, as requested under a resolution by Senator Manderson. (S. Ex. Doc. 51, 49th Cong., 1st sess.). The Phillips report gives considerable attention to the arbitrary administration of justice in the park area under the Wyoming territorial statute in force at that time. The justice of the peace who officiated was a former woodchopper, and was compensated by fees. The assistants superintendent who made the arrests received half of the fines. The climax came when Congressman Payson, of Illinois, later chairman of the Public Lands Committee of the House and always a good friend of national parks, was arrested for failing to put out a campfire. The evidence showed the arrest was entirely unjustified by the facts, but notwithstanding he was fined \$50 and costs. He announced his purpose to appeal and contest the validity of the act under which the justice of the peace claimed jurisdiction, and posted a thousand-dollar bond. The justice offered to reduce the fine to a dollar, and later appealed to the Congressman as a former judge to advise the court as to his legal rights. Joseph Medill, of the Chicago Tribune, was in the party and wired an account of the incident to his paper. In that article Medill says, "In a national park the national laws and regulations should be enforced by a national tribunal."

The Phillips report recommends that the regulations be revised and extended and generally posted in the park, opposes a railroad in the park, and opposes the elimination of the Montana strip in the park because of its value as a game refuge. He urges that the permits be kept separate, that is as to hotels, stores, transportation, etc., and urges that all trespassers be removed and unlawful buildings be torn down. He states:

"Three objects were shown and accomplished by Congress in the establishment of the park: First, a pleasure ground for the benefit and enjoyment of the people; second, the preservation of the great game of the country; and third, the preservation of the natural forests in a region where so many of the great rivers of the continent find their sources."

In the Forty-ninth Congress Delegate Toole, of Montana, and Senator McMillan introduced the Cinnabar Railroad bills. February 23, 1886, the House committee reported a substitute bill for the Toole bill, and Senator Sabin, of Minnesota, of the Senate Committee on Railroads, March 9, 1886, reported a substitute for the McMillan bill. Senator Manderson, of Nebraska, had the McMillan bill referred to the Committee on Territories, of which he was a member. That committee, through Senator Butler, of South Carolina, reported

the McMillan bill with an amendment. Senator Manderson filed an adverse minority report. June 8, 1886, when they sought to bring up the McMillan bill in the Senate for consideration, Senator Allison, of Iowa, objected. June 21, 1886, it was debated, Senator Vest speaking at length against the bill, with manifestations of interest by Senators Allison and Voorhees. Butler and Ingalls defended the bill. The debate was not concluded, and three later attempts to call up the bill failed. That was the end of this legislation in that Congress.

In 1886 when the 1887 sundry civil bill was under consideration the House desired to substitute a company of cavalry for the assistants superintendent who had been policing the park. The Senate contested this, but the House view prevailed. The conferees having agreed to reject the Senate amendment as to Yellowstone Park, the Senate accepted the conferees' report by an aye and nay vote, 37 to 14. It will be noted, however, that this was the 3d of August, within two days of adjournment of the session, also that this appropriation bill was for the fiscal year beginning the 1st of July previously. It is rather remarkable under the circumstances that Senator Vest was able to secure as many as 14 votes in his attempt to reject the conference report. It was in the House debate on this August 2, 1886, that Representative O'Neill of Missouri quoted Lieutenant Kingman as saying that ultimately "the only way we could preserve this game in the park would be by the construction of immense stockades."

FORTY-NINTH CONGRESS, SECOND SESSION

December 8, 1885, at the opening of the Forty-ninth Congress, Senator Vest had introduced S. 101, to revise the Yellowstone Park act. May 17, 1886, the Senate committee reported S. 2436 as a substitute for S. 101. July 12, 1886, Senator Vest attempted to get the bill up for consideration by the Senate, explaining that since the Territory of Wyoming had repealed its statutes "now this park is entirely without a form of government," but Senator McMillan, of Minnesota, prevented, which ended the bill for that session. The following session, January 28, 1887, Senator Vest endeavored to bring the bill up and moved its consideration during the morning hour. Senator Plumb, of Kansas, delayed acceptance until expiration of the morning hour, and the bill was laid aside. This bill, as reported in the Senate and as Vest sought to pass it, made the north line of Wyoming the northern boundary of the park and extended the park about 30 miles to the eastward and about 20 miles to the southward. It provided for appointment of a United States commissioner for the park, with no right of appeal from his decisions, and made laws of Wyoming effective so far as applicable. Considerable debate on power to name commissioner. During debate morning hour expired and Vest's motion to postpone bill that would then come up prevailed on roll call by vote 24 to 20, and his motion to continue consideration of S. 2436 carried on roll call 36 to 17. In this debate Vest was supported by Manderson, Edmunds, Dawes, and Call. In opposition were Senators Butler, Ingalls, Van Wyck, George, and McMillan. The bill was amended to provide for appeals to the United States District Court of Wyoming. The bill passed on roll call by 49 to 8. No action taken in the House.

FIFTIETH CONGRESS, FIRST SESSION

The opening of the Fiftieth Congress, December 12, 1887, Senator Vest introduced S. 283 to revise the Yellowstone Park act, and it was reported, with amendments, by Senator Manderson, February 20, 1888. March 29 it was considered and passed by the Senate. This bill eliminated the Montana and

Idaho strips and was stated to be "essentially same as passed Senate last year." Representative Wheeler (Gen. Joe Wheeler) reported the bill in the House July 26, 1888, with amendment authorizing the Cinnabar & Cooke City Railroad. The House report was a verbatim copy of the 4-page Senate report and had no discussion of the railroad amendment. October 8, 1888, Mr. McRae, of Arkansas, called it up for consideration, this being just on the eve of adjournment of this unusually long session. Mr. Henderson, of Iowa, announced his purpose of making every point to secure defeat of the bill, with the result that no action was taken.

The Fiftieth Congress, 1887 and 1888, received an avalanche of petitions from 31 States asking protection of Yellowstone.

FIFTIETH CONGRESS, SECOND SESSION

Near the close of the next session, March 1, 1889, Senator Vest had S. 233 returned to the Senate and secured the adoption of several amendments and the passage of the bill by the Senate again on March 2, 1889. The same day on its return to the House Mr. Holman, of Indiana, sought to take up the bill and secure its immediate passage, but Mr. Payson, of Illinois, prevented, and the bill died.

FIFTY-FIRST CONGRESS, FIRST SESSION

At the opening of the Fifty-first Congress, December 4, 1889, Senator Vest introduced S. 491 and S. 1275. January 20, 1890, Senator Manderson reported S. 491, with amendments, his report being verbatim copy of report on S. 233 above. With the amendments the bill passed the Senate, February 21, 1890. It was favorably reported in the House by Mr. Payson, April 15, 1890. He states the bill made the north and west boundaries coincide with State boundaries and extended the park to the east 35 miles and to the south 15 miles, "so as to include additional mountain land, heavily timbered, of no special value now in a commercial sense but of vast importance in protecting the water supply of the Northwest." He further says: "We recommend an amendment striking off the provision for the employment of a police force. We are of the opinion that the present method of patrolling and policing the park by a detail of a few soldiers is the best course and is all that is needed." The report also authorized a right-of-way for the Montana Mineral Railway and quoted the report in the Forty-ninth Congress on the Cinnabar Railroad. The bill was discussed September 29, 1890. It was called up in the House by Mr. Stockdale, whose railroad right-of-way proposal had been inserted by the committee as an amendment. Mr. Adams, of Pennsylvania, who had been a member of the Hayden party, showed his interest and Representative Dunnell, of Minnesota, who had reported the original Yellowstone Park bill stated, "If this bill provides for the building of a railroad in any part of the national park, I enter my objection." Mr. Holman stated his opposition to the railroad amendment. Consideration of the bill was objected to, and that was the end of it for that Congress. February 19, 1891, the Senate received memorial of Legislature of Montana asking right of way for Montana Mineral Railroad as provided in House committee amendment to S. 491 (S. Misc. Doc. 75, 51st Cong., 2d sess.)

February 14, 1890, the Secretary of War sent Congress an estimate for \$50,000 for buildings for troops stationed in the park. (H. Ex. Doc. 188, 51st Cong., 1st sess.)

April 17, 1890, Secretary Windom sent in estimate of Captain Boutelle that \$27,221 would be necessary to meet the survey and other expenses required by pending legislation.

March 25, 1890, a pamphlet statement by G. L. Henderson for the Cannon subcommittee on appropriations reviews park appropriations. He praises Langford and Norris but calls the three succeeding superintendents "mon-archial." This pamphlet is in the library of Yellowstone Park. He alleged Congress paid \$10,000 for Moran's painting but would not protect the original.

FIFTY-FIRST CONGRESS, SECOND SESSION

In this Congress Senator Turpie, of Indiana, introduced S. 3894, which proposed to grant to Montana & Wyoming Railroad Co. a right-of-way through the Crow Indian Reservation. This had been favorably reported from the Senate committee and was considered in the Senate February 12, 1891. Senator Manderson manifested an interest in the effect of the railroad on Yellowstone Park. A committee amendment provided that no part of this railroad should be nearer than 1 mile to the Yellowstone National Park, but Senator Hale urged that it ought to be at least 3 miles. The bill passed the Senate, but did not receive consideration in the House.

FIFTY-SECOND CONGRESS, FIRST SESSION

December 10, 1891, at the opening of the Fifty-second Congress, Senator Vest introduced S. 428 to revise the Yellowstone Park act, upon which no action was taken in that Congress.

December 14, 1891, Senator Sanders, of Montana, introduced S. 667, to change the boundaries of Yellowstone Park. Senator Warren on February 26, 1892, introduced S. 2373, to establish Yellowstone Park boundaries. No action was taken on these bills.

Representative Stockdale, of Mississippi, and Senator Carlisle, of Kentucky, introduced bills H. R. 4545 and S. 2286 to grant a right-of-way through Yellowstone Park to the Montana Mineral Railroad Co. A substitute for the Stockdale bill, H. R. 7556, was favorably reported March 25, 1892, by Representative Henry St. George Tucker, of Virginia. In the Tucker report it is stated:

"Cooke City, or the New World mining district, is pronounced by mining experts the most valuable and extensive mining district in the world. There are now registered over 1,500 mining claims awaiting the vitalizing touch of a railroad to be developed into enormous wealth. Congress can regulate commerce and all its instruments, but should not prohibit it by erecting a barrier artificial but impenetrable to citizens."

Representative De Armond filed a report by himself and two other members, opposing the bill, but only because it was a monopoly.

Senator Vest evidently appeared before the House committee in the hearings on this bill and denounced the railroad lobby. He refers to "the aggressive action of a lobby that for years have been endeavoring to put a railroad into the park in order to sell it for a large sum to the Northern Pacific" and says, "the fact remains that no legislation can be had for the park until the demands of these people are conceded." He said he produced before the House committee the evidence the charter had been put on the market. I have been unable to locate these hearings, either in the House Committee on Public Lands, the Library of Congress, or the office of Congressman Tucker.

February 29, 1892, the Secretary of the Interior sends the Senate a report on settlers in the park in 1872 as asked by Senate resolution of January 15, 1891. (S. Ex. Doc. 47, 52d Cong., 1st sess.)

March 7, 1892, Senator Carey reports favorably from Senate Territories his bill S. 1843 as to punishment of offenses in the park, Senate Report 322. This bill was discussed in the Senate June 22, 1892, and laid aside.

March 29, 1892, Representative Stockdale introduced H. R. 7693, to repeal the Yellowstone Park act, but it was not reported.

February 26, 1892, Senator Warren introduced S. 2373 to establish Yellowstone boundaries. This was reported with amendments by Senator Platt March 25, 1892, and debated and passed by the Senate May 10, 1892. This bill made the Yellowstone River the boundary in the northeast, to eliminate the railroad and mines controversy and eliminate all of the Montana and Idaho portions of the park, making large additions to the south and east. The Senate debate was extended and interesting. Senator Vest, in accepting this bill was drinking gall and vinegar. He excused himself in part on the ground that Idaho, Montana, and Wyoming had become States and he was inclined to submit to their Senators on questions affecting the park. He confessed, however, "with humiliation," his defeat in his persistent fight against disintegration and mutilation of the park and said he had found after 12 years "that a persistent and unscrupulous lobby are able to do almost what they please with the public domain." He said he submitted to this legislation "because I can not help myself not because my judgment approves it." Senators Gray, Dawes, Bate, Palmer, Call, and Gorman showed their strong interest in protection of the park but there was no Logan to lead. Senators Platt and Teller supported the Wyoming Senators, Warren and Sanders. Senator Berry of Arkansas favored cutting the park up into 160-acre tracts for settlers and Senator George of Mississippi, who wanted the park abolished, opposed any increase. The bill passed on roll call 32 to 18. This was the high-water mark of the railroad interest.

June 3, 1892, the House Committee on Public Lands, by Representative Stout, House Report 1574, favorably reported S. 2373, making State lines the north and west boundaries. The report is devoted to argument for the need of railroad to Cooke City. Permission was granted for a minority report which was not filed. No action on the report.

July 9, 1892, the Senate had under consideration committee amendments to the sundry civil bill, increasing the Yellowstone Park appropriation from \$40,000 to \$60,000 and requiring \$15,000 to be spent for construction of a road from the Upper Geyser Basin to Snake River on the southern boundary. Here occurred the first recorded park road controversy between Montana and Wyoming. Evidently the item, approved by the Senate was not retained in the bill for July 28, 1892, Senator Warren of Wyoming introduced S. 3485 for a road from Snake River to Du Noir Creek, on which bill no action was taken.

July 20, 1892, Chairman McRae filed majority report of the investigation of Yellowstone Park matters by special committee, House Report 1956, putting the burden of attack on Russell B. Harrison, son of the President. Minority report by Pickler and Townsend defends. Reports consume 317 pages. They framed H. R. 9597 to punish crimes, regulations, etc., which was reported favorably but not acted on further.

December 5, 1892, Theodore Roosevelt, then of the United States Civil Service Commission, wrote Forest and Stream, "So far from having the park cut down, it should be extended."

FIFTY-THIRD CONGRESS, FIRST SESSION

At the opening of the Fifty-third Congress, August 8, 1893, in the special session Senator Vest introduced S. 43 to revise the Yellowstone Park act, on which no action was taken.

Senator Carey introduced S. 159 to authorize leases on which no action was taken.

Representative Hartman introduced H. R. 7 to define park boundaries. Adverse report H. R. 1763 was filed by Representative McRae, February 5, 1895, with map. This adverse action by a House committee on northern boundary change was emphatic and definite in the report of Chairman McRae:

"Your committee has finally come to the conclusion after a thorough examination of the arguments of both sides that the Yellowstone Park should remain undisturbed so far as its present boundaries are concerned, although they do not wish to exclude such additions as may from time to time be made to the present area of the reservation. Your committee think the public interest and the public sentiment call upon Congress not to recede from this wise policy by which this park was dedicated for the benefit and enjoyment of the entire country."

This definite and effective pronouncement came when the park was 21 years old.

Senator Carey also introduced S. 166 to provide for punishment of offences which was reported by him from Senate Territories April 3, 1894, Senate Report 295. No further action.

September 9, 1893, Senator Shoup, of Idaho (by request), introduced S. 884, to authorize an electric railroad in Yellowstone Park, and September 6, 1893, Representative Doolittle, of Washington, introduced H. R. 59 for the same purpose. The Doolittle bill was reported adversely August 7, 1894, by Representative Lacey, of Iowa, House Report 1387. No further action was taken on either bill. This bill proposed to grant two waterfalls for the water power to operate the railway. The House report included adverse reports by Secretary Hoke Smith and Captain Anderson. The latter calls it "unneeded, undesirable, vicious."

FIFTY-THIRD CONGRESS, SECOND SESSION

December 18, 1893, Senator Carey introduced S. 1302, similar to H. R. 7, to establish the park boundaries. March 31, 1894, Secretary Hoke Smith reported adversely. (S. Misc. Doc. 156.) Report carries report of Captain Anderson "with my strongest disapproval" and says present boundaries should not be interfered with. Anderson says:

"Not one of the portions thus sought to be cut off is of the slightest use to any considerable number of people. It is claimed that the north part is needed as a right of way for a railroad to Cooke City. The whole wealth of Cooke would not pay *running expenses* on one train a year, and there is not the slightest chance of such a road even being built. The people of Livingston are the active boomers of the project. * * * In a word these three cuts would each be squatted on by a crowd of poachers, trappers, and skin hunters. The north one would destroy the best (except one) winter range for elk; the northeast one would take the home of the mountain sheep; the southwest one would take the home of the few remaining moose and encroach dangerously close to the summer range of the buffalo. * * * The bill is purely in the interest of private greed and that too not of a very high order."

The Secretary expands the Anderson argument and says further it would be a very bad precedent. With this report are also printed a letter from George Bird Grinnell, two letters from Lieut. H. M. Chittenden, and one from W. Hallett Phillips answering Arnold Hague. At the foot of the Phillips letter is concurrence by Theodore Roosevelt, then chairman of the Civil Service Commission, and offer to testify. No further action was taken on this bill or on S. 1753 which he had introduced March 9, 1894, and which also proposed changes in park boundaries.

January 8, 1894, Representative Coffeen, of Wyoming, introduced H. R. 5066, "to encourage and establish better facilities for travel to and from, into and through Yellowstone Park," proposing a grant to the Grand Island Wyoming Central Railroad. This was adversely reported August 7, 1894, by Representative Hare, of Ohio, House Report 1386. Report includes adverse report of Department and of Captain Anderson. Latter says it is "most mischievous bill ever introduced in regard to the park." The long adverse report of Secretary Lamar, dated April 22, 1886, is also included, quoting General Sheridan as saying, "A railroad through any portion of the park is not in harmony with the objects for which this reservation was created."

It was in 1894 that legislation for the better protection and administration of Yellowstone Park was secured, nearly one-quarter of a century after the establishment of the park. An era of good feeling appears to have arrived. The Secretary of Interior stands solidly with Captain Anderson, acting superintendent, in opposition to mutilation or spoliation of the park. House and Senate give only adverse reports to railroad and boundary bills. Legislation concerning administration fully approved by the department becomes law.

Representative Hayes, of Iowa, introduced H. R. 5293, and Representative Lacey, of Iowa, introduced H. R. 6442. Both of these bills became law. The Hayes Act was "concerning leases in the Yellowstone National Park" and was very generally along the lines of the paragraph in the 1883 appropriation act. It was approved August 3, 1894. The Lacey Act was "to protect the birds and animals in Yellowstone National Park and to punish crimes in said park, and for other purposes." This was approved May 7, 1894. It makes the entire park a part of the United States judicial district of Wyoming, provides generally for protection of the game and for punishment of all offenses, authorizes appointment of deputy marshals and a United States commissioner for the park, etc. (See Appendices B and C.) Especially active in securing passage of the leasing bill was Representative David Henderson, who had in former years been antagonistic, and whose brother, G. L. Henderson, had been interested in park affairs. His park description on page 3502 of the Record is notable.

FIFTY-FOURTH CONGRESS, FIRST SESSION

In the Fifty-fourth Congress, Senator Shoup and Representative Doolittle reintroduced their electric railroad bills. The Senate bill was adversely reported by Senator Davis, of Minnesota. No further action taken on either bill.

In the Fifty-fourth Congress, Senator Carter, of Montana, introduced S. 1654, to amend the Lacey Act, and Representative Hartman, of Montana, introduced H. R. 4587, for the same purpose. This bill proposed to confer concurrent jurisdiction upon the United States courts of Wyoming and Montana. It was favorably reported from the Committee on the Judiciary by Senator Teller, of Colorado, former Secretary of the Interior, and was briefly discussed in the Senate. February 28, 1897, it was referred back to the Judiciary Committee at the request of Senator Hoar, of Massachusetts.

February 3, 1896, Representative Hartman, of Montana, introduced H. R. 5373, to establish Yellowstone Park boundaries on which no action was taken.

Passage of the Lacey and Hayes Acts by this Congress had ended Senator Vest's long fight, but his Yellowstone interest continued.

FIFTY-FOURTH CONGRESS, SECOND SESSION

On February 17, 1897, in the Fifty-fourth Congress, Senator Vest secured adoption of a resolution by the Senate, calling on the Interior Department for information as to installation of an elevator or other appliance to convey persons up and down the Yellowstone Canyon, which report was furnished by the Secretary February 24, 1897. (S. Doc. 151, 54th Cong., 2d sess.) In this report it appears Assistant Secretary Simms had concluded such an elevator would not detract from the natural grandeur of the landscape.

YELLOWSTONE PARK CLAIMS

H. R. Horr was busy with his claims before the park was created. The Helena Herald of February 8, 1872, says that Horr "for some time past, located in the midst of the great wonders of the Yellowstone, has forwarded to Congress a numerously signed petition asking for the protection of his right in case of passage of the Yellowstone National Park act." He resided at Mammoth Hot Springs and the Herald supported his claim.

February 25, 1887, the Senate received a memorial from the Legislature of Montana in behalf of the Yellowstone settlers.

January 15, 1891, the Senate passed resolution of Senator Sanders, of Montana, directing the Secretary of the Interior to investigate what settlers were in Yellowstone March 1, 1872. The Secretary sent in his report on settlers February 29, 1892. (See S. Ex. Doc. 47, 52d Cong., 1st sess.)

March 16, 1896, Senator Hoyt, of California, introduced S. 2540, to pay for Baronett's bridge and for McCartney and McGuirk's buildings at Mammoth Hot Springs, and himself reported it from committee April 28, 1896. It passed the Senate without debate, but was not acted on in the House. These claims were paid by an appropriation under the act of March 1, 1899.

In the Fifty-fifth Congress, Senator Warren got a favorable Senate report on his bill S. 3140 to pay Wyoming its expense in enforcing law in the park in the early days. (S. Rept. 728.)

POINTS OF ORDER

Two important parliamentary rulings were made in the House early in Yellowstone Park history.

March 1, 1875, Mr. Dunnell, of Minnesota, who had reported the original Clagett bill in the House, offered an amendment to the sundry civil bill for the fiscal year 1876, providing an appropriation of \$25,000 for the preservation of the park, survey of boundaries, building of roads, etc. Mr. O'Brien, a member of the Committee on Appropriations, made the point of order that the amendment was new legislation. The chairman of the committee, Mr. Hoskins, of New York, overruled the point of order.

June 13, 1878, when the sundry civil bill for the fiscal year 1879 was pending, Representative Williams, of Michigan, offered an amendment to add \$10,000 for the Secretary of the Interior to protect, preserve, and improve the Yellowstone National Park in compliance with section 2475 of the Revised

Statutes. Mr. Atkins, of Tennessee, made the point of order that there was no law authorizing the appropriation. Mr. Williams argued that there was not only a law authorizing it, but there was a law which compelled the Secretary of the Interior to protect and preserve the park. Mr. Maginnis attempted to argue the merits, which was ruled not to be in order. Mr. Williams had the statute read. The chairman, Mr. John G. Carlisle, of Kentucky, later Speaker of the House of Representatives and Secretary of the Treasury, overruled the point of order.

CONGRESSIONAL FRIENDS OF YELLOWSTONE

HENRY B. ANTHONY, SENATOR FROM RHODE ISLAND

Born in Rhode Island in 1815; graduate of Brown; newspaper editor and publisher; governor 1849, 1850; served in United States Senate from 1859 to his death in 1884. Frequently elected President pro tempore. Named by Blaine as only Senator to serve as such through the period 1861 to 1881.

When bill was under consideration January 30, 1872, he made it clear it was to be a game and fish preserve and not a hunting reserve.

WILLIAM B. BATE, SENATOR FROM TENNESSEE

Born in Tennessee in 1826; served in the Mexican War; served in the Confederate Army in the Civil War, becoming major general; elected Governor of Tennessee 1882 to 1884; elected as a Democrat to the United States Senate, serving from 1887 to his death in Washington in 1905.

On May 10, 1892, the Senate was considering S. 2373 by Senator Warren, to revise the boundaries of Yellowstone Park. Senator Bate spoke at some length in opposition to the bill upon the idea that "the Yellowstone National Park is a reservation set apart by the Government for the people in common, and that each person in this country has an interest in it. I do not desire to see it diverted from the original intention for which it was allowed to be set aside, to be regarded as a great public reservation."

WILKINSON CALL, SENATOR FROM FLORIDA

Senator Call was a nephew of Richard Keith Call, Delegate from the Territory of Florida from 1823 to 1825, and a cousin of James David Walker, Senator from Arkansas from 1879 to 1885. Born in Kentucky in 1834, was adjutant general of the Confederate Army during the Civil War, elected to the United States Senate in 1865, but was not permitted to take his seat, elected as a Democrat in the United States Senate, serving from March 4, 1879, to March 3, 1897, died in August, 1910.

When the Cinnabar Railroad bill was up on May 27, 1884, Mr. Call in a brief speech directly opposed the passage of the bill. He said: "I think when the Senate have deliberately passed a bill setting aside this park as a national reservation, then an attempt to pass another act at the same time which virtually destroys the force and efficacy of that reservation and the purposes for which it was made, and which must end in the destruction of the game that may be found there, ought to be opposed unanimously by the Senate. There can be no doubt that the passage of a railroad through this reservation must destroy the game found there. The park and the natural curiosities there and the game were set aside to be preserved for future generations, for the naturalist and the philosopher. Great public objects will be promoted by

faithfully adhering to this policy. We can not estimate the value of the preservation of the remnants of the almost extinct animals of the western continent to science. For one I shall vote against the bill." Again, on August 2, 1886, he urged the Senate to insist on its provision for protection of Yellowstone Park and opposed therein park administration under the War Department.

WILLIAM H. CLAGETT, DELEGATE FROM MONTANA

Mr. Clagett introduced the Yellowstone Park bill in the House simultaneously with the Pomeroy bill in the Senate. He had an interesting career, residing at different times in nine different States, besides going to school in one other. He was born in Upper Marlboro, Md., September 21, 1838; moved with his father to Keokuk, Iowa, 1850; attended law school in Albany, N. Y.; commenced practice in Keokuk; practiced in Carson City, Humboldt, and Virginia City, Nev.; member Territorial house of representatives in 1862-63 and State house of representatives 1864-65; practiced law in Helena and Deer Lodge, Mont., 1871-1877; moved to Denver, Colo.; practiced law at Deadwood, Colo.; engaged in mining at Butte, Mont.; practiced law in Portland, Oreg.; practiced law and mined at Coeur d'Alene, Idaho; president of the Constitutional Convention of Idaho in 1889; unsuccessful candidate for United States Senate from Idaho in 1891-1895; went West for his health; practiced law in Spokane, Wash., until his death August 3, 1901. He was a real national park disciple, clearly believing in "seeing America first." In his remarkable 2-day address to the Senate, February 26, 1892, in his contest for seat in the Senate, he opened by saying: "I have lived upon the frontier from childhood. I have helped to bring more than one State into the Union." The session of 1871-72 he lived with his family in Washington at 720 Fourteenth St. NW.

In the present Congress (1932) is Samuel B. Pettengill, of South Bend, Ind., who states in his biography in the Congressional Directory that his uncle "Hon. W. H. Clagett was a Delegate from the Territory of Montana to the Forty-second Congress and was author of the bill for creation of Yellowstone National Park."

THOMAS REED COBB, REPRESENTATIVE FROM INDIANA

Born in Indiana in 1829, lawyer, served in Congress 1877 to 1887, died 1892. Supported vigorously the McCook amendment February 23, 1883, saying, "this is a very valuable public property, on account of its scenery and the character of the game which is there, and it should be preserved for the benefit of future generations."

OMAR D. CONGER, REPRESENTATIVE AND SENATOR FROM MICHIGAN

Born in New York State in 1818; practiced law in Port Huron, Mich.; elected as a Republican to six succeeding Congresses, serving from March 4, 1869, to March 3, 1881, and in the United States Senate from 1881 to 1887; died in 1898.

His first real service to the park was in the debate on May 27, 1884, when the Cinnabar Railroad bill was before the Senate. Senator Vest had expressed his continued opposition to any railroad going into the park, but seemed to have lost hope of being able to prevent the legislation. Senator Conger had offered an amendment limiting the right of way to 100 feet in width, and joined with Senator Vest in stating that the bill was not to be regarded as a precedent. On later occasions he further manifested his interest in the protection of the park.

SAMUEL SULLIVAN COX, REPRESENTATIVE FROM OHIO AND NEW YORK

Born in Ohio in 1824; graduate of Brown; lawyer and editor; served in House from Ohio, 1857 to 1865; from New York, 1869 to March 4, 1873, from 1873 to 1885, and from 1886 to 1889; minister to Turkey, 1885-1886; died 1889. Commonly called "Sunset," because of his initials and an apostrophe to sunset delivered by him.

His interest in the park was so pronounced that Senator Vest said, May 10, 1892: "When Samuel S. Cox of New York died there was no friend who had so deep an interest in the Yellowstone Park in the House of Representatives to speak in its defense or take any action in its behalf."

HENRY L. DAWES, REPRESENTATIVE AND SENATOR FROM MASSACHUSETTS

Born in Cummington, Mass., October 30, 1816; graduated from Yale; was teacher, editor, lawyer; served in State house of representatives; State senator, State Constitutional Convention; served in the United States House of Representatives eight terms, from March 4, 1857, to March 3, 1875; served three terms in the United States Senate, from March 4, 1875, to March 3, 1893; declined to be candidate for reelection in 1893; chairman of the commission created to administer tribal affairs of the Five Civilized Tribes 1893 to 1903; and died in Massachusetts on September 5, 1903.

The Scribner Dictionary of American Biography says he "sat in the House of Representatives term after term until 1875, growing steadily in influence until he was recognized as perhaps its most useful and reliable member." Ex-Senator Hoar wrote in his memoirs, "There has never been, within my experience, a greater power than his on the floor of the House."

It is said there was very little lawmaking in this period in which he was not consulted. Besides his dominant influence in appropriation and tariff making he was responsible for the establishment of the Fish Commission, initiated a plan for daily weather reports that resulted in establishment of the Weather Bureau, secured the completion of the Washington Monument, helped establish the college for deaf mutes, created the system of Indian education and reshaped our Indian policies. Scribner's Dictionary says:

"In appearance, he was a shrewd looking Yankee, with high cheek bones and a gray beard. He was a man of simple tastes, without any showy qualities, and he never sought popular applause. Without any gift of eloquent speech, he confined himself always to a dignified and lucid presentation of his case, but he worked more often in the committee rooms than on the floor of the House or Senate."

MARK H. DUNNELL, REPRESENTATIVE FROM MINNESOTA

Born in Minnesota in 1823; colonel of the Federal Army in the Civil War; State superintendent of common schools of Maine and later State superintendent of public instruction in Minnesota; served in Congress from 1871 to 1883 from Minnesota and from 1889 to 1891; died in 1904.

Prepared a favorable report on the Clagett bill in the House and spoke briefly in support of the Pomeroy bill when it was called up in the House. Later continued a friendly interest in Yellowstone matters. March 1, 1875, he offered an amendment to the sundry civil bill to appropriate \$25,000 for the construction of public roads within the park and for other purposes, the first effort on the floor of Congress to secure an appropriation, but his motion to amend was defeated.

GEORGE F. EDMUNDS, SENATOR FROM VERMONT

Born in Vermont, February 1, 1828; served in the Senate from 1866 to 1891; President pro tempore of Senate from 1883 to 1885; member of the Electoral Commission which decided the presidential election in 1876; died in 1919.

He showed a lively interest in the passage of the Pomeroy bill in the Senate, and made a speech in behalf of the passage of the bill. Thereafter when Yellowstone matters were up he was always sympathetic in his support of Senator Vest.

AUGUST H. GARLAND, SENATOR FROM ARKANSAS

Born in Tennessee in 1832; member of the Confederate Provisional Congress, and subsequently served in both Houses of the Confederate Congress; elected to the United States Senate in 1867 but was not permitted to take his seat as Arkansas had not been readmitted to representation; argued and won the test-oath case as to lawyers in the Supreme Court of the United States; Governor of Arkansas from 1874 to 1876; United States Senator from 1877 to 1885; Attorney General of the United States under President Cleveland from 1885 to 1889; died in 1899.

Opposed in Committee on Territories the proposed Cinnabar Railroad legislation and said on the floor of the Senate on May 27, 1884, that no such bill should be passed if the preservation of the park was intended, and announced his purpose to vote against the legislation. He said passage of the bill would "amount in the end to a virtual nullification and repeal of the act originally passed in reference to the Yellowstone Park."

ARTHUR PUE GORMAN, SENATOR FROM MARYLAND

Born in Maryland 1839; page, messenger, and postmaster of United States Senate through patronage Stephen A. Douglas 1852-1866; Speaker, Maryland House of Delegates; president Chesapeake & Ohio Canal Co. 1872; served in United States Senate 1881 to 1899, and 1903 to death in 1906. Was one of the authors of the Wilson-Gorman tariff act.

May 10, 1892, he forcibly denounced any railroad in the Yellowstone Valley.

BENJAMIN HARRISON, SENATOR FROM INDIANA

Born in Ohio in 1833; practiced law in Indianapolis; brevetted brigadier general of the Federal forces in the Civil War; elected as a Republican to the United States Senate, serving from 1881 to 1887; President of the United States from 1889 to 1893; died March 13, 1901.

In the debate on March 1, 1883, on the proposed provision in the sundry civil bill for the protection of Yellowstone Park and the use of the military, upon request of the Secretary of the Interior, he supported vigorously the position of Senator Vest, referring to his visit to the park in the summer of 1881. Thereafter he spoke on various occasions in support of proper protection of Yellowstone Park, spoke in opposition to the Cinnabar Railroad, and joined in minority report in opposition. He was the first one to introduce a bill to create the Grand Canyon National Park, reintroducing it through several Congresses as long as he was a Member of the Senate.

JOHN B. HAWLEY, REPRESENTATIVE FROM ILLINOIS

Born in Connecticut 1831; practiced law; captain in the Federal Army in the Civil War; served in Congress from 1869 to 1875; Assistant Secretary of the Treasury from 1877 to 1880; died in 1895.

When the Pomeroy bill was called up in the House, February 27, 1872, Mr. Hawley spoke briefly in support of it.

WALTER I. HAYES, REPRESENTATIVE FROM IOWA

Born in Michigan, 1841; elected as a Democrat, serving in Congress from March 4, 1887, to March 3, 1895; died in Michigan in 1901.

Introduced H. R. 5293, concerning leases in the Yellowstone National Park, which became law on August 3, 1894.

DAVID B. HENDERSON, REPRESENTATIVE FROM IOWA

Born in Scotland in 1840; came to Illinois in 1846 and to Iowa in 1849; served as lieutenant in the Union Army and lost a leg in 1863, commissioned colonel in 1864, and served until the close of the war; elected as a Republican and served in Congress from March 4, 1888, to March 3, 1903, being Speaker in the Fifty-sixth and Fifty-seventh Congresses; died in 1906.

His earlier attitude to the park was not a very sympathetic one. He first spoke on April 2, 1886, when he said:

"I am opposed to the Senate amendment; and I differ from my friend from Missouri (Mr. O'Neill) when he states that the reason this amendment has been urged by the Senate is that so many Senators have wandered around the spouting springs of the Yellowstone and have become so enamored of its beauty that they feel it necessary to make large expenditures to keep up the force now running that park. If the gentleman would speak with the candor which usually characterizes him, he would say that the real reason is that the present superintendent of the park is from the State of Missouri, and that a prominent gentleman from his State is trying to keep that superintendent with his subordinates in control of the park."

He made fun of the "mountaineers" who, he said, had been "imported into that section within the last few months, many of whom did not know a bear from a jackal or a jack rabbit from a jackass." He charged that we no longer had a national park, but the property of a private corporation and a ring of park hotels.

Patrick A. Conger, of Iowa, was superintendent of the park from 1882 to 1884, and was succeeded by Robert E. Carpenter, also of Iowa, who was removed May 29, 1885, being succeeded by Colonel Wear, of Missouri. G. L. Henderson, brother of Congressman Henderson, was assistant superintendent under Conger, and he and two of his daughters were for many years residents of the park and had business interests there. In 1890 he denounced Conger, Carpenter, and Wear as "monarchical" in their sway. Very evidently, Representative Henderson was then influenced by him.

But April 6, 1894, when H. R. 5293, concerning leases in Yellowstone National Park, which became the act of August 3, 1894, came up on a request for unanimous consent for its consideration, Henderson, a member of the committee reporting it, made the principal argument for its passage in the House. He tells of visiting the park in the summer of 1893, and gave a graphic description of the park, which was received by the House with great enthusiasm.

JOSEPH W. KEIFER, REPRESENTATIVE FROM OHIO

Born January 30, 1836, Mr. Keifer died, April 22, 1932, at the age of 96; brevetted brigadier general in the Union Army "for gallant and meritorious services in the Battles of Opequon, Fishers Hill, and Cedar Creek, Va.";

severely wounded in the Battle of the Wilderness, promoted to major general "for gallant and distinguished services"; elected as a Republican and served in the House from March 4, 1877, to March 3, 1885, serving as Speaker in the Forty-seventh Congress; was major general in the Spanish-American War; served in Congress from March 4, 1905, to March 3, 1911; engaged in the practice of law since 1858; was president of a bank in Springfield, Ohio, his home.

When S. 221, the Vest bill, revising the boundaries of Yellowstone Park came up for consideration in the House, with House committee amendments, and debate was limited to five minutes on each side, General Keifer opposed the legislation as amended by the House committee with reference to the northern boundary. He told of his great delight in visiting the park a short time before; said he was in favor of the proposed boundary extensions, but utterly opposed to cutting out the land along the northern boundary, which, he said, came within less than 5 miles "of the greatest natural curiosity in all the world—the Mammoth Hot Springs." He was not able to stop the adoption of the amendment, or the passage of the bill, which later died in conference.

JOHN F. LACEY, REPRESENTATIVE FROM IOWA

Born in Virginia in 1841; served with the Union forces in the Civil War; elected as a Republican, serving in Congress from March 4, 1889, to March 3, 1891, and from March 4, 1893, to March 3, 1907.

He introduced H. R. 6442 for the protection of birds and animals in Yellowstone National Park and to punish crime in said park, which became law on May 7, 1894.

JOHN A. LOGAN, REPRESENTATIVE AND SENATOR FROM ILLINOIS

Born in Illinois in 1826; served in the war with Mexico. elected as a Democrat, serving in the House from March 4, 1859, to April 2, 1862, when he resigned to enter the Union Army; served as a major general of Volunteers from 1862 to 1865; declined appointment as minister to Mexico in 1865, and elected as a Republican to the House, serving from March 4, 1867 to 1871; served in the Senate from March 4, 1871 to 1877 and from 1879 until his death in 1886; one of the managers representing the House in 1868 in conducting the impeachment proceedings against President Andrew Johnson; was Republican nominee for Vice President with Blaine in 1884.

He should rank as one of the most effective friends of the national-park idea, perhaps second only to Dawes and Vest. When the Cinnabar Railroad bill was up in the Senate in May, 1884, Senator Vest seems for the moment to have lost hope of being able to stem the tide of influence back of the mining railroad and was not apparently planning to combat it, further than contenting himself with insistence that it should not be treated as a precedent. He was followed then by Senator Conger who fought to limit the grant and to further insist it should not be considered as a precedent. Senator Garland announced he would vote against the bill, and Senator Call made his brief and effective statement against the bill. Then Senator Logan, who only a few weeks later was to be made the candidate of his party for Vice President and must have been a powerful figure in the Senate, arose and made a notably forceful 10-minute speech in opposition to the bill on principle. He stated that he had traveled through the park in the summer of 1883 with some other members of the Senate. He began his speech by the declaration:

"This tract, by the legislation of Congress, was laid out as a national park on account of its beauty, its scenery, and the many curiosities that are there found, and the intention that it should be kept for the use of the people of this country and visitors as a great and beautiful park where the people might resort at all times for the purpose of seeing the greatest curiosities that had ever been found in the world. But we find to-day, just as we have always found in the Congress of the United States, some corporation desires a railroad to run in there to disfigure the beauties of this park, and all that is necessary and has been in this country for years is for some corporation to ask Congress to do something, and, no matter what the requests, it is always done, but not to be taken as a precedent for the future."

After talking very frankly and pointedly about the bill as an entering wedge certainly to be followed by similar concessions to others, he then denounced the lobbying for the bill on the part of an official of the Interior Department. Following his speech Senator Vest came in again apparently entirely revived in his confidence, and that bill never passed the Senate.

MARTIN MAGINNIS, DELEGATE FROM MONTANA

Born in New York State 1841; moved with his parents to Minnesota 1852; edited a newspaper; rose from private to major in the Federal forces in the Civil War; moved to Helena, Mont., where he engaged in mining and subsequently published the Helena Daily Gazette, elected as a Democrat to Congress for six terms, 1873 to 1885, defeated for Congress in 1890, presented credentials in 1900 as senator to fill the vacancy caused by the resignation of Senator Clark, but was not seated; died in Los Angeles in 1919. In his first election to Congress he defeated Mr. Clagett.

He spoke briefly on the Williams amendment June 13, 1873, urging "it would be true economy in the end to preserve these beautiful works of nature, and not allow them to be destroyed by vandals."

CHARLES F. MANDERSON, SENATOR FROM NEBRASKA

Born in Philadelphia 1837; brevetted brigadier general of the Union Army "for gallant, long-continued, and meritorious services"; elected by both political parties a member of the State constitutional conventions in 1871 and in 1874; elected as a Republican to the United States Senate, serving from March 4, 1883, to March 3, 1895, serving as President pro tempore of the Senate from March 2, 1891, to March 22, 1893; general solicitor of Burlington System of Railroads and president of the American Bar Association; died in 1911.

March 23, 1886, he secured a rereference to the Committee on Territories of S. 980 for the Cinnabar Railroad, which had been referred to and favorably reported by the Committee on Railroads. When S. 980 was favorably reported to the Senate by Senator Butler, of South Carolina, Senator Manderson filed a minority report. Thereafter he took an active part in Yellowstone matters in committee and in debate on the floor.

ANSON GEORGE M'COOK, REPRESENTATIVE FROM NEW YORK

Born in Ohio 1835; mined in California and Nevada 1854-1859; brevetted brigadier general 1865; lawyer; founder, the Law Journal; served in House 1877 to March 3, 1883; Secretary United States Senate 1883-1893; died 1917.

Offered amendment to sundry civil bill February 14, 1883, prohibiting leases and providing for Army protection for park, quoting Sheridan and others on bad conditions. Was then a lame duck whose term expired in 10 days.

THOMAS CHIPMAN M'RAE, REPRESENTATIVE FROM ARKANSAS

Born in Arkansas in 1851; graduate Washington and Lee; lawyer; served in House 1885 to 1903; Governor of Arkansas 1921-1925; resident of Prescott, Ark.

As chairman of House Committee on Public Lands conducted investigation Yellowstone Park in 1892, the benefit of which seems somewhat clouded by politics. Thereafter he took an active interest in Yellowstone matters and his adverse report February 5, 1895, on the Hartman bill, H. R. 7, as to park boundaries was of important effect. He was chairman of the House conferees on the Lacey bill in 1894.

SAMUEL CLARKE POMEROY, SENATOR FROM KANSAS

Senator Pomeroy, who introduced the Yellowstone Park bill, December 18, 1871, was at that time chairman of the Committee on Public Lands of the Senate. He was born at Southampton, Mass., January 3, 1816; settled in Kansas in 1854, and on the admission of Kansas as a State was elected as a Republican to the United States Senate, serving from 1861 to 1873; defeated for reelection in 1873; died in Massachusetts in 1891. He reported the bill to the Senate and secured its prompt passage.

LYMAN TRUMBULL, SENATOR FROM ILLINOIS

When Senator Pomeroy sought to secure consideration for his bill, January 23, 1872, Senator Trumbull was seconding his efforts. January 30, 1872, when the bill came up for passage in the Senate, Senator Trumbull made the closing speech in support of the bill.

His son, Walter Trumbull, was a member of the Washburn party, reported the expedition in two articles of the *Overland Monthly*, and, there being no photographer with the party, made certain original sketches, which, with those of Private Moore, were the first pictures of Yellowstone scenery.

Senator Trumbull was born in Connecticut in 1813; practiced law in Greenville, Ga., and Belleville, Ill.; was member of the State house of representatives in 1840; secretary of State of Illinois in 1841-42; justice of the Supreme Court of Illinois 1848-1853; elected as a Republican to the Thirty-fourth Congress, but before the beginning of the Congress was elected to the United States Senate, serving from March 4, 1855, to March 3, 1873; resumed the practice of law in Chicago, and was the unsuccessful Democratic candidate for Governor of Illinois in 1880; died in Chicago June 25, 1896.

GEORGE G. VEST, SENATOR FROM MISSOURI

Born in Kentucky in 1830; judge advocate in General Price's Confederate forces in Missouri in 1862; served in the House of Representatives of the Confederate Congress from 1862 to 1865, and thereafter in the Confederate Senate; elected as a Democrat to the United States Senate, serving from March 4, 1879, to March 3, 1903; died August 9, 1904.

His first activity in behalf of Yellowstone Park was a resolution of inquiry concerning Yellowstone Park matters, addressed to the Secretary of the

Interior in December, 1882, and a resolution introduced December 12, 1882, instructing the Committee on Territories to inquire as to what legislation was necessary to protect property and enforce the laws in Yellowstone National Park, etc. Thereafter during all the period of his service he introduced in Congress after Congress legislation for the benefit of Yellowstone Park, and combated all proposed encroachments, becoming recognized as the outstanding champion of proper protection and development of the park. It was almost a half century ago, March 1, 1883, that he made this prophetic statement, "There should be to a nation that will have a hundred million or a hundred and fifty million people a park like this as a great breathing place for the national lungs."

DANIEL W. VOORHEES, REPRESENTATIVE AND SENATOR FROM INDIANA

Born in Ohio in 1827; elected as a Democrat to Congress, serving from March 4, 1861, until February 23, 1866, when he was unseated in a contest by Henry D. Washburn, later head of a Yellowstone exploration party. Appointed and subsequently elected to the United States Senate and served from November 6, 1877, to March 3, 1897; died in Washington, April 9, 1897.

While a member of the House in 1872 he voted against the park bill. While he interjected comment and suggestions in the earlier debates on Yellowstone matters after he came to the Senate in 1877, his first definite stand was on May 27, 1884, when he followed the Logan and Vest speeches with a brief statement. In part he said:

"We have set aside the park because of its great natural curiosities; it is rich in the graces and beauties of nature; we have not had it set aside more than a year and a half for the enjoyment of the American people, in the cultivation of aesthetic taste, until a railroad drives head foremost, locomotive light up, to lay its track down through it. * * * If this is to be done, then it is just as well to throw open this reservation that we have set aside and be done with it, and let each person go in for a grab."

ALPHEUS S. WILLIAMS, REPRESENTATIVE FROM MICHIGAN

Born in Connecticut in 1801; graduate of Yale; practiced law in Detroit; judge of probate; editor of the Detroit Daily Advertiser from 1843 to 1847; served in War with Mexico; brevetted major general in Federal forces in Civil War "for marked ability and energy"; minister to San Salvador from 1866 to 1869; elected as a Democrat to Congress, serving from March 4, 1875, until his death in Washington, December 20, 1878.

March 11, 1878, he introduced a bill for an appropriation for the protection and improvement of Yellowstone Park, on which no action was taken. June 13, 1878, when the sundry civil bill for the fiscal year 1879 was being considered, he offered an amendment "to enable the Secretary of the Interior to protect, preserve, and improve the Yellowstone National Park in compliance with section 2475 of the Revised Statutes of the United States, \$10,000." His amendment carried in committee by a vote of 71 to 38. Later the same day when the bill was reported to the House, on a standing vote, it was carried by a vote of 91 to 50, and so the first appropriation directly for Yellowstone Park administration was made. It will be noted that his death came the following December.

LEGISLATIVE HISTORY OF YELLOWSTONE NATIONAL PARK

(Arranged chronologically from its establishment in 1871 to the close of the Fifty-fourth Congress, March 3, 1897)

FORTY-SECOND CONGRESS, SECOND SESSION

December 18, 1871 (159). Introduction of S. 392 to create Yellowstone National Park, Senator Pomeroy, Kansas. Introduction similar bill, H. R. 764, Delegate Clagett, Montana (199).

January 22, 1872 (484). S. 392 reported in Senate by Pomeroy.

January 23, 1872 (520). Attempt to pass S. 392 in Senate.

January 30, 1872 (697). S. 392 passed by Senate.

February 27, 1872 (1243-1244). S. 392 passed by House.

February 28, 1872. H. R. 764 reported by Dunnell, of Minnesota. (H. Rept. 26.)

FORTY-SECOND CONGRESS, THIRD SESSION

February 22, 1873. Secretary of the Interior approves and transmits Superintendent Langford's request for money for roads. (H. Ex. Doc. 241.)

FORTY-THIRD CONGRESS, FIRST SESSION

February 24, 1874. H. R. 2177, to amend, proposed by Secretary, introduced by Maginnis, of Montana. (H. Ex. Doc. 147.)

March 31, 1874. H. R. 2781 reported from Public Lands Committee of House by Dunnell, of Minnesota, as substitute for H. R. 2177, and recommitted.

March 6, 1874. S. 581, to amend, proposed by Secretary, introduced by Windom, of Minnesota.

March 27, 1874. S. 581 reported with amendment by Oglesby, of Illinois. (S. Rept. 216.)

FORTY-THIRD CONGRESS, SECOND SESSION

December 8, 1874. Letters of Secretary and Langford ask \$100,000 for roads. (H. Ex. Doc. 20.)

December 15, 1874. H. R. 2854, military road Green River to Fort Ellis, favorable report by Secretary of War.

March 1, 1875 (2017). Dunnell amendment for road appropriation defeated.

FORTY-FOURTH CONGRESS, FIRST SESSION

June 1, 1876. H. R. 180 by Steele, of Wyoming, for military road from Green River City to Yellowstone Park and Fort Ellis reported by House Military Affairs Committee. (H. Rept. 616.)

July 12, 1876. H. R. 2118 by Maginnis for appropriation to build Army posts on Yellowstone and Muscleshell passed by House.

July 13, 1876 (4546). H. R. 2118 passed by Senate.

FORTY-FIFTH CONGRESS, SECOND SESSION

February 4, 1878. H. R. 3026, to fix northern boundary of Yellowstone Park, introduced by Corlett, of Wyoming, and referred to Appropriations Committee.

April 29, 1878. Similar bill by Corlett introduced and referred to Public Lands Committee.

- March 6, 1878. Secretary Schurz urges appropriations and legislation and transmits letters of Norris, Hayden, Comstock, et al. (H. Ex. Doc. 75.)
- March 11, 1878. H. R. 3785 for appropriation protection and improvement of Yellowstone Park introduced by Williams of Michigan, and referred to Appropriations Committee.
- June 13, 1878 (4557 and 4580). Amendment in House by Williams to sundry civil bill for money to preserve and improve Yellowstone Park.

FORTY-FIFTH CONGRESS, THIRD SESSION

- February 24, 1879. Sundry civil bill for 1880 passed by House under suspension carrying \$10,000 for Yellowstone Park as reported by committee.

FORTY-SIXTH CONGRESS, SECOND SESSION

- March 15, 1880. H. R. 5207 introduced by Downey, of Wyoming, for appropriation for protection of Yellowstone Park.
- May 10, 1880, H. R. 6132 introduced by Downey, of Wyoming, concerning Yellowstone Park leases.
- May 10, 1880. H. R. 6133 introduced by Downey, of Wyoming, to amend boundary of Yellowstone Park.

FORTY-SEVENTH CONGRESS, FIRST SESSION

- December, 1881. Estimate Norris back pay claim. (H. Ex. Doc. 85.)
- January 16, 1882. H. R. 3174 introduced by Post, of Wyoming, to construct military road from Fort Washakie to Yellowstone Park. Adversely reported later by Military Affairs Committee. (H. Rept. 1006.)
- January 30, 1882, H. R. 3751 introduced by Cox, of New York, to protect Yellowstone Park; referred to Public Lands Committee. Would transfer park to War Department, permit railroad, and provide penalties. Wyoming jurisdiction.
- January 30, 1882. H. R. 3812 introduced by Post, of Wyoming, to permit service of process in Yellowstone Park. Referred to Judiciary Committee.
- August 8, 1882. Sundry civil act carries pay for Norris claim.

FORTY-SEVENTH CONGRESS, SECOND SESSION

- December 7, 1882. Vest resolution adopted calling on Secretary of the Interior for information as to leases.
- January 9, 1883. Secretary of the Interior reports on leases. (S. Ex. Docs. 10-48.)
- December 12, 1882 (193). Vest resolution adopted by Senate directing Committee on Territories to inquire as to what legislation was necessary to protect public property and enforce laws in Yellowstone Park, etc.
- January 5, 1883 (870). Senator Vest from Territories reports S. 2317 to amend Yellowstone Park act as result of Vest resolution and quotes Secretary of the Interior, Governor Crosby, General Sacket and General Sheridan.
- January 29, 1883, Representative Deuster, of Wisconsin, introduced H. R. 7439 of same title as S. 2317. Referred to Public Lands Committee.
- February 1, 1883 (1874). Senator Vest presents petition of Kent County, (Mich.), Sportsman's Club for enlargement of Yellowstone Park.

- February 1, 1883 (1942). Representative George R. Davis, of Chicago, presented resolutions of Legislature of Illinois thanking General Sheridan and Senator Vest.
- February 7, 1883 (2182-3). Governor of Montana sends memorial asking care in leasing in Yellowstone Park.
- February 14, 1883 (2678). Representative Bayne, of Allegheny, Pa., presented resolution from Sportsmen's Association of Western Pennsylvania indorsing report of General Sheridan.
- February 17 and 19, 1883 (2835, 2836, 2890). Debate on Vest resolution for special committee to investigate Yellowstone conditions and authorizing Secretary of the Interior to ask aid of Secretary of War.
- February 24, 1883 (3214). Same.
- February 26, 1883 (3268-3270). Same.
- February 23, 1883 (3193-3195). House debate on Yellowstone item in sundry civil bill.
- March 1, 1883 (3482-3488). Senate debate on Yellowstone item in sundry civil bill.

FORTY-EIGHTH CONGRESS, FIRST SESSION

- December 4, 1883. Senate adopts Vest resolution asking Secretary of the Interior for Yellowstone Park data.
- December 4, 1883. Memorial received from Legislature of Montana asking mining district be excluded from park. (S. Misc. Doc. 9.)
- December 4, 1883. Senator Vest introduces S. 221 to revise Yellowstone Park act.
- December 20, 1883 (199). Senator Fair presented memorial of Legislature of Nevada protesting long leases in Yellowstone Park and against park passing from control of the Government.
- January 29, 1884. H. R. 4363 introduced by Maginnis, of Montana, and referred to Committee on Pacific Railroads—Cinnabar & Clarks Fork Railroad.
- February 4, 1884. S. 1373 introduced by McMillan, of St. Paul, to grant right of way in Yellowstone Park to Cinnabar & Clarks Fork Railroad Co.
- February 4, 1884. S. 221 reported by Senator Vest from Territories.
- February 14, 1884. Representative Burns, of St. Joseph, Mo., presented joint resolution from the Legislature of Missouri instructing the Senators and requesting the Representatives of that State to protect Yellowstone Park and thanking Senator Vest.
- February 27, 1884. S. 1373 reported favorably in Senate with amendment. (S. Rept. 239.)
- February 27, 1884. S. 1666 introduced by Lapham, of New York, Yellowstone Park Railroad.
- March 4-5, 1884 (1580-1582, 1609-1612). S. 221 by Vest to add 2,000 square miles to Yellowstone Park and regulate park debated and passed by Senate.
- March 10, 1884. H. R. 5715 introduced by Rosecrans, of California, bill to incorporate the Yellowstone Park Railroad.
- March 18, 1884. H. R. 6083 reported by Representative Haubach as substitute for H. R. 4363. (H. Rept. 832.)
- January to July, 1884. Reports House Executive Document 139, Senate Executive 47-207, by Secretary of the Interior on Yellowstone leases.
- May 27, 1884 (4547-4553). S. 1373 debated—Conger, Logan, Harrison, Vest.
- May 28, 1884. Senate adopts resolution of Wilson, of Iowa, calling on Secretary of the Interior for Yellowstone Park papers.

FORTY-EIGHTH CONGRESS, SECOND SESSION

- December 19, 1884. Estimate \$40,000 for Yellowstone. (H. Ex. Doc. 50.)
- January 24, 1885. House Committee on Territories by Post reports S. 221. (H. Rept. 2383.)
- February 13, 1885 (1640-1641). House debates, amends, and passes S. 221 on park boundaries.
- February 13, 1885. At request of Conger, Senate appoints conference—Vest, Harrison, Manderson.
- February 13, 1885. House appoints Pryor, Hill, Kiefer as conferees.
- February 13, 1885 (1702-1703). House approves and debates provision in legislative, executive, and judiciary appropriation bills for investigation of Indian education and Yellowstone Park by special committee.
- March 3, 1885. Speaker appoints as Special Committee on Indian Education and Yellowstone Park, Representatives Holman, of Indiana; W. H. Hatch, of Missouri; Peel, of Arkansas; Cannon, of Illinois; and Ryan, of Kansas.

FORTY-NINTH CONGRESS, FIRST SESSION

- December 8, 1885. S. 101 introduced by Vest to revise the Yellowstone Park act.
- January 7, 1886. H. R. 2881 introduced by Toole, of Montana, and referred to Public Lands Committee. Cinnabar & Clarks Fork Railroad Co.
- January 11, 1886. H. R. 3756, Toole, same title.
- January 11, 1886. S. 980 for Cinnabar & Clarks Fork Railroad, introduced by McMillan.
- January 7, 1886. H. R. 2879 introduced by Toole, of Montana, and referred to Judiciary, service of process in military and Indian reservation and Yellowstone Park. Reported by Mr. Bennett March 30, 1886. (H. Rept. 1390.)
- February 1, 1886. Senate receives report of Special Agent W. Hallett Phillips on Yellowstone Park requested by Manderson resolution. (S. Ex. Doc. 51.)
- February 23, 1886. H. R. 5880 reported by Public Lands Committee as substitute for H. R. 2881 and H. R. 3756. (H. Rept. 672.)
- March 9, 1886. S. 980 reported by Sabin, of Minnesota, from Railroad Committee with substitute. (S. Rept. 204.)
- March 16, 1886. Holman Select Committee reported to House. (H. Rept. 1076.)
- March 20, 1886. Senate received petition from citizens of Cooke for wagon road between Cooke and Cinnabar.
- March 22, 1886. Resolutions of Representatives Lawler, of Illinois, and Green, of New York, not reported, ask the Secretary to transmit papers concerning Yellowstone Park leases especially Northern Pacific. (H. Misc. Docs. 174, 176.)
- March 23, 1886 (2646). S. 980 referred to Senate Committee on Territories.
- May 5, 1886. S. 980 reported with amendment by Butler, of South Carolina. (S. Rept. 938.) Minority by Senator Manderson, of Nebraska.
- May 17, 1886. Senate committee reports S. 2436 as substitute for S. 101.
- June 8, 1886. Senator Allison, of Iowa, objects to consideration of S. 980 (5409).
- June 21, 1886 (5946-5950). S. 980 debated in Senate. Three later attempts to call up bill failed. (See pp. 6208, 6440, 6680.)
- July 12, 1886 (6758). S. 2436 discussed in Senate.
- July 20, 1886 (7220, 7221). Item in sundry civil bill for 1887 for Yellowstone Park discussed and amended in Senate.
- August 2, 1886 (7841-7846). Debate on above.
- August 2, 1886 (7863-7867). Debate on above.

August 3, 1886 (7915-7918). Debate on above.

January 28, 1887 (1126-1127). Senate discussed S. 2436.

January 29, 1887 (1143-1154). Senate discussed and passed S. 2436.

February 25, 1887 (2231). Senate receives memorial from Legislature of Montana in behalf of settlers in Yellowstone.

FIFTIETH CONGRESS, FIRST SESSION

December 12, 1887. S. 283 to revise Yellowstone Park act introduced by Vest, eliminating Montana and Idaho strips.

January 10, 1888. H. R. 4452 for government of park introduced by Carey, of Wyoming. Referred to Public Lands Committee.

February 20, 1888. S. 283 reported with amendments by Manderson, from Territories Committee. (S. Rept. 315.)

March 29, 1888. (2474-2476). S. 283 discussed and passed. (816 of Index.) Avalanche of petitions for protection of Yellowstone Park.

July 24, 1888. S. 283, consideration in House objected to (6768).

July 26, 1888. S. 283 reported by Wheeler. House Report 3071 with amendments for Cinnabar-Cooke City Railroad.

October 8, 1888. (9301-9302, 9304-9306). S. 283 debated in House.

FIFTIETH CONGRESS, SECOND SESSION

March 1, 1889. S. 283 returned to Senate at request of Vest.

March 2, 1889 (2587). S. 283 amended and passed by Senate.

March 2, 1889. S. 283, consideration objected to in House.

FIFTY-FIRST CONGRESS, FIRST SESSION

December 4, 1889. S. 491 to revise Yellowstone Park act introduced by Vest. Same as S. 283 above.

December 16, 1889. S. 1275 to revise Yellowstone Park act introduced by Vest.

December 18, 1889. H. R. 987, introduced by Carey, of Wyoming; to revise Yellowstone Park act.

January 20, 1890. S. 491 reported by Manderson. (S. Rept. 128.)

February 14, 1890. Estimate by Secretary of War, \$50,000 for buildings for troops in park. (H. Ex. Doc. 188.)

February 21, 1890 (1584). S. 491 amended and passed by Senate.

April 15, 1890. S. 491 reported in House, authorized railroad, with amendment, by Payson. (H. Rept. 1454.)

April 17, 1890. Estimate by Secretary of the Interior, \$27,221 if pending legislation enacted.

September 29, 1890 (10696-10697). S. 491 discussed and objected to in House.

FIFTY-FIRST CONGRESS, SECOND SESSION

January 15, 1891. Senate passed Sanders resolution directing the Secretary to investigate what settlers were in Yellowstone March 1, 1872.

February 12, 1891 (2538-2540). Senate debated and passed S. 3894 by Turpie for Montana & Wyoming Railroad near Yellowstone Park.

February 19, 1891. Senate receives memorial Montana Legislature on right of way for Montana Mineral as provided in House Committee amendment to S. 491. (S. Misc. Doc. 75.)

FIFTY-SECOND CONGRESS, FIRST SESSION

December 10, 1891. S. 428 to revise Yellowstone Park act.

December 14, 1891. Sanders, of Montana; introduced S. 667 to change boundaries of Yellowstone Park.

January 25, 1892 (517). H. R. 4545 introduced by Stockdale, of Mississippi. Referred to Public Lands Committee. (Montana Mineral Railroad.)

January 25, 1892. Carey introduced S. 1843 to provide for punishment of offenses in Yellowstone Park.

February 1, 1892. Washburn, of Minnesota; introduced S. 1963 to incorporate the Yellowstone Park Co.

February 9, 1892. Dixon, of Montana; introduced H. R. 5674 to revise the Yellowstone Park act.

February 18, 1892. S. 2286 to grant right of way through Yellowstone Park to Montana Mineral Railroad Co., introduced by Carlisle, of Kentucky.

FIFTY-SECOND CONGRESS, FIRST SESSION

February 26, 1892. S. 2373, to establish boundaries of Yellowstone Park, introduced by Warren.

February 29, 1892. Secretary reported on settlers. (S. Ex. Doc. 47.)

March 7, 1892. S. 1843 reported from Territories by Senator Carey. (S. Rept. 322.)

March 25, 1892 and April 5, 1892. (See hearings.) H. R. 7556 reported by Tucker, of Virginia, as substitute for H. R. 4545. (H. Rept. 854.) Minority report by De Armond, of Missouri.

March 25, 1892. S. 2373 reported with amendment report by Platt.

March 29, 1892. Stockdale, of Mississippi, introduced H. R. 7693 to repeal Yellowstone Park act.

April 8, 1892 (3096). On motion of McRae, of Arkansas, the Committee on Public Lands directed an investigation of Yellowstone Park matters.

April 8, 1892. Carey introduced S. 2874 to authorize leases in Yellowstone Park.

April 23, 1892. Taylor, of Illinois, introduced H. R. 8355 to confirm Yellowstone Park leases.

May 10, 1892 (4119-4127). S. 2373 debated and passed by Senate.

June 3, 1892. Stout reports S. 2373. (H. Rept. 1574.)

June 22, 1892 (5434-5436). Senate debates S. 1843.

July 9, 1892 (5932-5933). Amendment to sundry civil appropriation bill for roads in Yellowstone Park and beyond.

July 20, 1892 (6458 and special committee reports). H. R. 9597 introduced by Public Lands Committee through McRae, of Arkansas, to provide for punishment of offenses and regulation of leases in Yellowstone Park. (H. Rept. 1956.)

July 28, 1892. Warren introduces S. 3485 for road from Snake River to Du Noir Creek.

FIFTY-SECOND CONGRESS, SECOND SESSION

January 30, 1893. H. R. 9597 reported by McRae, with minority report (H. Rept. 2380.)

FIFTY-THIRD CONGRESS, FIRST SESSION

August 8, 1893. S. 43 to revise Yellowstone Park act introduced by Vest.

August 8, 1893. S. 159 to authorize leases in Yellowstone Park introduced by Carey.

August 24, 1893. S. 692 introduced by Power, relief for C. McCartney.
 September 9, 1893. S. 884, to authorize electric railroad in Yellowstone Park, introduced by Shoup, of Idaho (by request).
 September 6, 1893. H. R. 59, to authorize electric railroad in Yellowstone Park by David B. May, introduced by Doolittle, of Washington, by request.
 September 1, 1893 (1138). H. R. 7, to define boundaries of Yellowstone Park, introduced by Hartman, of Montana. Referred to Public Lands Committee.
 September 20, 1893. S. 957, for relief C. J. Baronett, introduced by Senator Power.

FIFTY-THIRD CONGRESS, SECOND SESSION

December 18, 1893. S. 1302, to establish the boundaries of Yellowstone Park, introduced by Carey.
 January 4, 1894. S. 1380, introduced by Senator White, for relief Martin McQuirk.
 January 8, 1894. H. R. 5066, to encourage and establish better facilities for travel to and from, into and through Yellowstone Park, introduced by Coffeen, of Wyoming (Grand Island-Wyoming Central as extension of Burlington).
 January 16, 1894. H. R. 5293, concerning leases in Yellowstone Park, introduced by Hayes, of Iowa, as proposed by Secretary Holn Smith and Captain Anderson.
 February 8, 1894. H. R. 5293 reported by Gresham. (H. Rept. 380.)
 March 9, 1894. S. 1753 to define boundaries of Yellowstone Park, introduced by Carey.
 March 26, 1894. H. R. 6442 to protect birds and animals and punish crime in Yellowstone Park, introduced by Lacey of Iowa.
 April 3, 1894. S. 166 to punish offenses reported with amendment by Carey from Territories. (S. Rept. 295.)
 April 4, 1894. H. R. 6442 reported by Lacey. (H. Rept. 658.)
 April 6, 1894 (3503). H. R. 6442, consideration objected to.
 April 7, 1894. S. 166, request for consideration objected to.
 April 10, 1894 (3631). H. R. 6442 amended and passed House without debate.
 April 14, 1894 (3751). H. R. 6442 reported by Senator Carey with substitute and consideration objected to.
 April 18, 1894. Senate ordered printed certain letters concerning Yellowstone Park. (S. Misc. Doc. 156.)
 April 19, 1894. Protests received by House from citizens of Wyoming, Idaho, and Utah against H. R. 5066.
 April 21, 1894 (3939-3941). H. R. 6442 debated, amended, and passed Senate.
 April 24, 1894 (3961). H. R. 6442, Senate appoints conferees—Senators Carey, White, and Vest.
 April 25, 1894. H. R. 6442, House appoints conferees—Representatives McRae, Hare, and Lacey.
 May 1, 1894 (4296-4297). H. R. 6442, conference report agreed to in House.
 May 2, 1894 (4315). H. R. 6442, conference report agreed to in Senate.
 May 7, 1894. H. R. 6442, approved by President.
 April 6, 1894 (3500-3503). H. R. 5293 passes House.
 July 18, 1894. H. R. 5293 reported by Senator Faulkner. (S. Rept. 548.)
 July 26, 1894. H. R. 5293 passed Senate without debate.
 August 3, 1894. H. R. 5293 approved by President.
 August 7, 1894. H. R. 5066, transportation in Yellowstone Park, adverse report by Representative Hare, of Ohio. (H. Rept. 1385, carrying reports of Secretary Lamar, Captain Anderson, and quoting General Sheridan.)

August 7, 1894. H. R. 59 for electric railroad reported adversely by Representative Lacey, of Iowa. (H. Rept. 1387, including reports of Secretary Hoke Smith and Captain Anderson.)

FIFTY-THIRD CONGRESS, THIRD SESSION

February 5, 1895. H. R. 7, to establish the boundaries of Yellowstone Park, adversely reported by Representative McRae. (H. Rept. 1763.)

February 13, 1895. S. 957 reported by Senator White. (S. Rept. 925.)

February 19, 1895, S. 642 reported by Senator Faulkner.

March 2, 1895. S. 1380 reported by Senator White carrying map showing effect of various bills.

FIFTY-FOURTH CONGRESS, FIRST SESSION

December 4, 1895. S. 320 introduced by Senator Shoup, of Idaho, to authorize an electric railroad in Yellowstone Park.

December 6, 1895. H. R. 345 for electric railroad in Yellowstone Park, introduced by Representative Doolittle.

January 21, 1896. S. 1654 to amend Lacey Act, introduced by Senator Carter, of Montana.

January 22, 1896. H. R. 4587 to amend Lacey Act, introduced by Representative Hartman, of Montana.

January 30, 1896. H. R. 5170 to open Yellowstone Park timber reserve to location mining claims, introduced by Representative Mondell, of Wyoming.

February 3, 1896. H. R. 5373 to establish Yellowstone Park boundaries, introduced by Representative Hartman, of Montana.

February 18, 1896. H. R. 6260 introduced by Representative Hartman, similar to S. 2540.

February 26, 1896. Senate resolution of Senator Allen asking information from the Secretary of the Interior as to poaching, adopted by Senate.

March 16, 1896. Senate receives report from Secretary of the Interior on game in Yellowstone Park. (S. Ex. Doc. 170.)

March 16, 1896. S. 2540 introduced by Senator White, of California, to pay for Baronett's bridge and for McCartney's and McGuirk's buildings at Mammoth Hot Springs.

April 10, 1896. S. 320 adversely reported by Senator Davis.

April 28, 1896. S. 2540 reported with amendment by Senator White. (S. Rept. 810.)

May 15, 1896. S. 2540 passed Senate without debate.

May 15, 1896. H. R. 6260 reported in House by Representative Allen, of Utah. (H. Rept. 1846.)

FIFTY-FOURTH CONGRESS, SECOND SESSION

February 17, 1897. Resolution of Senator Vest adopted by Senate as to elevator or other appliances to convey persons up and down in Yellowstone Canyon.

February 25, 1897. Senate receives report of the Secretary of the Interior as to elevator in Yellowstone Canyon proposed by David May. (S. Doc. 151.)

February 2, 1897 (1423). S. 1654 reported by Senator Teller from Judiciary Committee, and some discussion.

February 28, 1897. S. 1654 rereferred to Judiciary Committee at request of Senator Hoar,

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APPENDIX A

THE ORIGINAL YELLOWSTONE PARK ACT

March 1, 1872.

CHAP. XXIV.—An act to set apart a certain Tract of Land lying near the Head-waters of the Yellowstone River as a public Park.

Public park established near the head-waters of the Yellowstone River.

Boundaries.

Certain persons locating, &c., thereon to be trespassers.

Secretary of the Interior to have control of the park; to make rules for its care;

may grant certain leases and expend proceeds thereof;

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the tract of land in the Territories of Montana and Wyoming, lying near the head-waters of the Yellowstone river, and described as follows, to wit, commencing at the junction of Gardiner's river with the Yellowstone river, and running east to the meridian passing ten miles to the eastward of the most eastern point of Yellowstone lake; thence south along said meridian to the parallel of latitude passing ten miles south of the most southern point of Yellowstone lake; thence west along said parallel to the meridian passing fifteen miles west of the most western point of Madison lake; thence north along said meridian to the latitude of the junction of the Yellowstone and Gardiner's rivers; thence east to the place of beginning, is hereby reserved and withdrawn from settlement, occupancy, or sale under the laws of the United States, and dedicated and set apart as a public park or pleasure-ground for the benefit and enjoyment of the people; and all persons who shall locate or settle upon or occupy the same, or any part thereof, except as hereinafter provided, shall be considered trespassers and removed therefrom.

SEC. 2. That said public park shall be under the exclusive control of the Secretary of the Interior, whose duty it shall be, as soon as practicable, to make and publish such rules and regulations as he may deem necessary or proper for the care and management of the same. Such regulations shall provide for the preservation, from injury or spoliation, of all timber, mineral deposits, natural curiosities, or wonders within said park, and their retention in their natural condition. The Secretary may in his discretion, grant leases for building purposes for terms not exceeding ten years, of small parcels of ground, at such places in said park as shall require the erection of buildings for the accommodation of visitors; all of the proceeds of said leases, and all other revenues that may be derived from any source connected with said park, to be expended under his direction in the management of the same, and the construction of roads and bridle-paths therein. He shall provide against the wanton destruction of the fish and game found within said park, and against their capture

or destruction for the purposes of merchandise or profit. He shall also cause all persons trespassing upon the same after the passage of this act to be removed therefrom, and generally shall be authorized to take all such measures as shall be necessary or proper to fully carry out the objects and purposes of this act. shall prevent the wanton destruction of fish and game, and remove trespassers.

Approved, March 1, 1872.

(42d Cong., Sess. II, chs. 21-24)

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APPENDIX B

THE LACEY ACT

May 7, 1894.	CHAP. 72.—An Act To protect the birds and animals in Yellowstone National Park, and to punish crimes in said park, and for other purposes.
Yellowstone National Park.	<i>Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,</i> That the Yellowstone National Park, as its boundaries now are defined, or as they may be hereafter defined or extended, shall be under the
Sole jurisdiction of United States.	sole and exclusive jurisdiction of the United States; and that all the laws applicable to places under the sole and exclusive jurisdiction of the United States shall have force and effect in
Proviso. State process.	said park: <i>Provided, however,</i> That nothing in this Act shall be construed to forbid the service in the park of any civil or criminal process of any court having jurisdiction in the States of Idaho, Montana, and Wyoming. All fugitives from justice taking refuge in said park shall be subject to the same laws as refugees from justice found in the State of Wyoming.
Jurisdiction of Wyoming judicial district.	SEC. 2. That said park, for all the purposes of this Act, shall constitute a part of the United States judicial district of Wyoming, and the district and circuit courts of the United States in and for said district shall have jurisdiction of all offenses committed within said park.
Punishment of offenses under Wyoming laws.	SEC. 3. That if any offense shall be committed in said Yellowstone National Park, which offense is not prohibited or the punishment is not specially provided for by any law of the United States or by any regulation of the Secretary of the Interior, the offender shall be subject to the same punishment as the laws of the State of Wyoming in force at the time of the commission of the offense may provide for a like offense in the said State; and no subsequent repeal of any such law of the State of Wyoming shall affect any prosecution for said offense committed within said park.
Prohibition of hunting, fishing, etc.	SEC. 4. That all hunting, or the killing, wounding, or capturing at any time of any bird or wild animal, except dangerous animals, when it is necessary to prevent them from destroying human life or inflicting an injury, is prohibited within the limits of said park; nor shall any fish be taken out of the waters of the park by means of seines, nets, traps, or by the use of drugs or any explosive
Fishing allowed.	substances or compounds, or in any other way than by hook and line, and then only at such seasons and in such times and manner as may be directed by the Secretary of the Interior. That the
Regulations.	Secretary of the Interior shall make and publish such rules and regulations as he may deem necessary and proper for the management and care of the park and for the protection of the property

therein, especially for the preservation from injury or spoliation of all timber, mineral deposits, natural curiosities, or wonderful objects within said park; and for the protection of the animals and birds in the park, from capture or destruction, or to prevent their being frightened or driven from the park; and he shall make rules and regulations governing the taking of fish from the streams or lakes in the park. Possession within said park of the dead bodies, or any part thereof, of any wild bird or animal shall be prima facie evidence that the person or persons having the same are guilty of violating this Act. Any person or persons, or stage or express company or railway company, receiving for transportation any of the said animals, birds, or fish so killed, taken, or caught shall be deemed guilty of a misdemeanor, and shall be fined for every such offense not exceeding three hundred dollars. Any person found guilty of violating any of the provisions of this Act or any rule or regulation that may be promulgated by the Secretary of the Interior with reference to the management and care of the park, or for the protection of the property therein, for the preservation from injury or spoliation of timber, mineral deposits, natural curiosities or wonderful objects within said park, or for the protection of the animals, birds and fish in the said park, shall be deemed guilty of a misdemeanor, and shall be subjected to a fine of not more than one thousand dollars or imprisonment not exceeding two years, or both, and be adjudged to pay all costs of the proceedings.

Evidence of violation.

Penalty for unlawful transportation, etc.

That all guns, traps, teams, horses, or means of transportation of every nature or description used by any person or persons within said park limits when engaged in killing, trapping, ensnaring, or capturing such wild beasts, birds, or wild animals shall be forfeited to the United States, and may be seized by the officers in said park and held pending the prosecution of any person or persons arrested under charge of violating the provisions of this Act, and upon conviction under this Act of such person or persons using said guns, traps, teams, horses, or other means of transportation such forfeiture shall be adjudicated as a penalty in addition to the other punishment provided in this Act. Such forfeited property shall be disposed of and accounted for by and under the authority of the Secretary of the Interior.

Forfeiture of guns, traps, etc.

SEC. 5. That the United States circuit court in said district shall appoint a commissioner, who shall reside in the park, who shall have jurisdiction to hear and act upon all complaints made, of any and all violations of the law, or of the rules and regulations made by the Secretary of the Interior for the government of the park, and for the protection of the animals, birds, and fish and objects of interest therein, and for other purposes authorized by this Act. Such commissioner shall have power, upon sworn information, to issue process in the name of the United States for the arrest of any person charged with the commission of any misdemeanor, or charged with the violation of the rules and regulations, or with the violation of any provision of this Act prescribed for the government of said park, and for the protection of the animals, birds, and

Commissioner. Appointment.

Duties.

Trials.	fish in the said park, and to try the person so charged, and, if found guilty, to impose the punishment and adjudge the forfeiture prescribed.
Appeals.	In all cases of conviction an appeal shall lie from the judgment of said commissioner to the United States district court for the district of Wyoming, said appeal to be governed by the laws of the State of Wyoming providing for appeals in cases of misdemeanor from justices of the peace to the district court of said State; but the United States circuit court in said district may prescribe rules of procedure and practice for said commissioner in the trial of cases and for appeal to said United States district court. Said commissioner shall also have power to issue process as hereinbefore provided for the arrest of any person charged with the commission of any felony within the park, and to summarily hear the evidence introduced, and, if he shall determine that probable cause is shown for holding the person so charged for trial, shall cause such person to be safely conveyed to a secure place for confinement, within the jurisdiction of the United States district court in said State of Wyoming, and shall certify a transcript of the record of his proceedings and the testimony in the case to the said court, which court shall have jurisdiction of the case: <i>Provided</i> , That the said commissioner shall grant bail in all cases bailable under the laws of the United States or of said State. All process issued by the commissioner shall be directed to the marshal of the United States for the district of Wyoming; but nothing herein contained shall be construed as preventing the arrest by any officer of the Government or employee of the United States in the park without process of any person taken in the act of violating the law or any regulation of the Secretary of the Interior: <i>Provided</i> , That the said commissioner shall only exercise such authority and powers as are conferred by this Act.
Process in felony cases.	
<i>Provisos.</i> Bail, etc.	
Summary arrests.	
Limit of authority.	
Deputy marshals.	SEC. 6. That the marshal of the United States for the district of Wyoming may appoint one or more deputy marshals for said park, who shall reside in said park, and the said United States district and circuit courts shall hold one session of said courts annually at the town of Sheridan in the State of Wyoming, and may also hold other sessions at any other place in said State of Wyoming or in said National Park at such dates as the said courts may order.
Terms of court.	
Fees, etc.	SEC. 7. That the said commissioner provided for in this Act shall, in addition to the fees allowed by law to commissioners of the circuit courts of the United States, be paid an annual salary of one thousand dollars, payable quarterly, and the marshal of the United States and his deputies, and the attorney of the United States and his assistants in said district, shall be paid the same compensation and fees as are now provided by law for like services in said district.
Costs, etc.	SEC. 8. That all costs and expenses arising in cases under this Act, and properly chargeable to the United States, shall be certified, approved, and paid as like costs and expenses in the courts of the United States are certified, approved, and paid under the laws of the United States.

SEC. 9. That the Secretary of the Interior shall cause to be Jail.
erected in the park a suitable building to be used as a jail, and
also having in said building an office for the use of the commis-
sioner, the cost of such building not to exceed five thousand
dollars, to be paid out of any moneys in the Treasury not other- Appropriation.
wise appropriated upon the certificate of the Secretary as a
voucher therefor.

SEC. 10. That this Act shall not be construed to repeal existing Existing laws.
laws conferring upon the Secretary of the Interior and the Secre-
tary of War certain powers with reference to the protection, im-
provement, and control of the said Yellowstone National Park.

Approved, May 7, 1894.

(53d Cong., Sess. II; Chs. 72, 73)

APPENDIX C

THE HAYES ACT

August 3, 1894. CHAP. 198.—An Act Concerning leases in the Yellowstone 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 is hereby authorized and empowered to lease to any person, corporation, or company, for a period not exceeding ten years, at such annual rental as the Secretary of the Interior may determine, parcels of land in the Yellowstone National Park, of not more than ten acres in extent for each tract and not in excess of twenty acres in all to any one person, corporation, or company on which may be erected hotels and necessary outbuildings: *Provided*, That such lease or leases shall not include any of the geysers or other objects of curiosity or interest in said park, or exclude the public from free and convenient approach thereto or include any ground within one-eighth of a mile of any of the geysers or the Yellowstone Falls, the Grand Canyon, or the Yellowstone River, Mammoth Hot Springs, or any object of curiosity in the park: *And provided further*, That such leases shall not convey, either expressly or by implication, any exclusive privilege within the park except upon the premises held thereunder and for the time therein granted. Every lease hereafter made for any property in said park shall require the lessee to observe and obey each and every provision in any Act of Congress, and every rule, order, or regulation made, or which may hereafter be made and published by the Secretary of the Interior concerning the use, care, management, or government of the park, or any object or property therein, under penalty of forfeiture of such lease, and every such lease shall be subject to the right of revocation and forfeiture, which shall therein be reserved by the Secretary of the Interior: *And provided further*, That persons or corporations now holding leases of ground in the park may, upon the surrender thereof, be granted new leases hereunder, and upon the terms and stipulations contained in their present leases, with such modifications, restrictions, and reservations as the Secretary of the Interior may prescribe.

This act, however, is not to be construed as mandatory upon the Secretary of the Interior, but the authority herein given is to be exercised in his sound discretion.

That so much of that portion of the Act of March third, eighteen hundred and eighty-three, relating to the Yellowstone Park as conflicts with this Act be, and the same is hereby, repealed.

Approved, August 3, 1894.

(53d Cong., Sess. II, Chs. 198, 199)

APPENDIX D

THE VALLEY OF THE UPPER YELLOWSTONE

By C. W. Cook

The country around the headwaters of the Yellowstone River, although frequently visited by prospectors and mountain men, is still to the world of letters a veritable terra incognita. Environed by mountain chains that are covered by a dense growth of timber, making all approaches to it seem difficult, it has no regularly traveled route, and no party of emigrants on their way to the Pacific slope have ever passed through it; nor has any expedition under the patronage of the Government yet attempted to penetrate its fastnesses. The hardy prospectors, searching in this region for new "diggings," have hitherto failed to find gold in paying quantities, but have always returned to repeat the tales of wonderful waterfalls a thousand feet in height, of innumerable hot springs of surprising magnitude, and of vast tracts of country covered with the scoria of volcanoes—some of which were reported to be in active operation. Owing to the fact that this class of men had gained a reputation for indulging in flights of fancy when recounting their adventures, these reports were received with considerable incredulity, until it was noticed that, however much the accounts of different parties differed in detail, there was a marked coincidence in the descriptions of some of the most prominent features of the country.

In 1867, an exploring expedition from Virginia City, Montana Territory, was talked of; but for some unknown reason—probably for the want of a sufficient number to engage in it—it was abandoned. The next year another was planned, which ended like the first—in talk. Early in the summer of 1869 the newspapers throughout the Territory announced that a party of citizens from Helena, Virginia City, and Bozeman, accompanied by some of the officers stationed at Fort Ellis, with an escort of soldiers, would leave Bozeman about the 5th of September for the Yellowstone country, with the intention of making a thorough examination of all the wonders with which that region was said to abound. The party was expected to be limited in numbers and to be composed of some of the most prominent men in the Territory; and the writer felt extremely flattered when his earnest request to have his name added to the list was granted. He joined with two personal friends in getting an outfit and then waited patiently for the other members of the party to perfect their arrangements. About a month before the day fixed for starting, some of the members began to discover that pressing business engagements would prevent their going. Then came news from Fort Ellis that, owing to some changes made in the disposition of troops stationed in the Territory, the military portion of the party would be unable to join the expedition; and our party, which had now dwindled down to 10 or 12 persons, thinking it would be unsafe for so small a number to venture where there was a strong probability of meeting with hostile Indians, also abandoned the undertaking. But the writer and his two friends before mentioned believing that the dangers to be encountered had been magnified and, trusting by vigilance and good luck to avoid them, resolved to attempt the journey at all hazards.

We provided ourselves with 5 horses, 3 of them for the saddle and the other 2 for carrying our cooking utensils, ammunition, fishing tackle, blankets and buffalo robes, a pick and pan, a shovel, an ax, and provisions necessary for a six weeks' trip. We were all well armed with repeating rifles, Colt's six shooters, and sheath knives, and had besides a double-barreled shotgun for small game. We also had a good field glass, a pocket compass, and a thermometer.

On the 6th of September we started from Diamond City, a mining town on a small tributary of the Missouri River 40 miles east of Helena. Our second day's journey brought us to Gallatin City, at the "three forks" of the Missouri. From Gallatin City a ride of three hours brought us to Hamilton, a post town situated near the center of the Gallatin Valley, where we camped for the night. From Hamilton to Bozeman, a distance of 18 miles, our route lay through a beautiful farming country, where generous stacks of grain or wide fields covered with golden sheaves indicated the propriety of calling this valley the Genesee of Montana. Bozeman is a thriving frontier town, pleasantly located in the eastern part of the Gallatin Valley. Bozeman Pass, the lowest pass in the divide between the waters of the Yellowstone and the Missouri Rivers, has been surveyed as the proposed route for the Northern Pacific Railroad.

Two and one-half miles from Bozeman we passed Fort Ellis, soon after leaving which we took a trail leading up a creek which is one of the tributaries of the East Gallatin, and in a short time found ourselves traversing a deep ravine, bounded on the left by a perpendicular wall of limestone a thousand feet in height, while on the right the mountains rose in irregular steps or terraces, covered with a dense growth of spruce. In some places the mass of dark green foliage was unbroken from base to summit, at others it was relieved by beetling cliffs of fantastic shape, so characteristic of the limestone formation. On one of the highest points stood a huge rock that bore a strong resemblance to an old castle; rampant and bulwark were slowly yielding to the ravages of time, but the stout old turret stood out in bold relief against the sky, with every embrasure as perfect in outline as though but a day ago it had been built by the hand of man. We could almost imagine that it was the stronghold of some baron of feudal times and that we were his retainers returning laden with the spoils of a successful foray. As we approached the summit, the timber appeared only in patches and the hills on either hand were less abrupt and covered with a luxuriant growth of bunch grass, which affords fine pasturage for the numerous herds of antelope which roam there. Immediately after crossing the divide we struck the head of Trail Creek and followed it down 6 or 7 miles in an easterly direction to where it debouched from the foothills into the valley of the Yellowstone. Here we turned in a southerly direction over a low, rolling plateau covered with prickly pear, through which our horses gingerly picked their way, and arrived at the river about sunset. This valley is about 25 miles long and varies in width from 1 to 5 miles; at the foot of it the mountains close in on both sides, forming a canyon, below which is the Yellowstone Valley proper.

We pushed on up the valley, following the general course of the river as well as we could, but frequently making short detours through the foothills, to avoid the deep ravines and places where the hills terminated abruptly at the water's edge. On the eighth day out we encountered a band of Indians—who, however, proved to be Tonkeys, or Sheepeaters, and friendly; the discovery of their character relieved our minds of apprehension, and we conversed with them as well as their limited knowledge of English and ours of pantomime would permit. For several hours after leaving them we traveled over a high rolling

table-land, diversified by sparkling lakes, picturesque rocks, and beautiful groves of timber. Two or three miles to our left we could see the deep gorge which the river, flowing westward, had cut through the mountains. The river soon after resumed its northern course; and from this point to the falls, a distance of 25 or 30 miles, it is believed to flow through one continuous canyon, through which no one has ever been able to pass.

At this point we left the main river, intending to follow up the east branch for one day, then to turn in a southwest course and endeavor to strike the river again near the falls. After going a short distance we encountered a canyon about 3 miles in length, and while passing around it we caught a glimpse of scenery so grand and striking that we decided to stop for a day or two and give it a more extended examination. We picked our way to a timbered point about midway of the canyon, and found ourselves upon the verge of an overhanging cliff at least 700 feet in height. The opposite bluff was about on a level with the place where we were standing; and it maintained this height for a mile up the river, but gradually sloped away toward the foot of the canyon. The upper half presented an unbroken face, with here and there a reentering angle, but everywhere maintained its perpendicularity; the lower half was composed of the débris that had fallen from the wall. But the most singular feature was the formation of the perpendicular wall. At the top there was a stratum of basalt from 30 to 40 feet thick standing in hexagonal columns; beneath that a bed of conglomerate 80 feet thick, composed of washed gravel and boulders; then another stratum of columnar basalt of about half the thickness of the first; and lastly what appeared to be a bed of coarse sandstone. A short distance above us, rising from the bed of the river, stood a monument or pyramid of conglomerate, circular in form, which we estimated to be 40 feet in diameter at the base and 300 feet high, diminishing in size in a true taper to its top, which was not more than 3 feet across. It was so slender that it looked as if one man could topple it over. How it was formed I leave others to conjecture. We could see the river for nearly the whole distance through the canyon—now dashing over some miniature cataract, now fretting against huge boulders that seemed to have been hurled by some giant hand to stay its progress, and anon circling in quiet eddies beneath the dark shadows of some projecting rock. The water was so transparent that we could see the bottom from where we were standing, and it had that peculiar liquid emerald tinge so characteristic of our mountain streams.

Half a mile down the river, and near the foot of the bluff, was a chalky looking bank, from which steam and smoke were rising; and on repairing to the spot we found a vast number of hot sulphur springs. The steam was issuing from every crevice and hole in the rocks; and, being highly impregnated with sulphur, it threw off sulphuretted hydrogen, making a stench that was very unpleasant. All the crevices were lined with beautiful crystals of sulphur, as delicate as frostwork. At some former period not far distant there must have been a volcanic eruption here. Much of the scoria and ashes which were then thrown out has been carried off by the river; but enough still remains to form a bar 75 or 100 feet in depth. Smoke was still issuing from the rocks in one place, from which a considerable amount of lava had been discharged within a few days or weeks at farthest. While we were standing by, several gallons of a black liquid ran down and hardened upon the rocks; we broke some of this off and brought it away, and it proved to be sulphur, pure enough to burn readily when ignited.

September 18—the twelfth day out—we found that ice had formed one-fourth of an inch thick during the night, and 6 inches of snow had fallen.

The situation began to look a little disagreeable; but the next day was bright and clear, with promise of warm weather again in a few days. Resuming our journey, we soon saw the serrated peaks of the Big Horn Range glistening like burnished silver in the sunlight, and, overtowering them in the dim distance, the Wind River Mountains seemed to blend with the few fleecy clouds that skirted their tops; while in the opposite direction, in contrast to the barren snow-capped peaks behind us, as far as the eye could reach, mountain and valley were covered with timber, whose dark green foliage deepened in hue as it receded, till it terminated at the horizon in a boundless black forest. Taking our bearings as well as we could, we shaped our course in the direction in which we supposed the falls to be.

The next day (September 20) we came to a gentle declivity at the head of a shallow ravine, from which steam rose in a hundred columns and united in a cloud so dense as to obscure the sun. In some places it spurted from the rocks in jets not larger than a pipestem; in others it curled gracefully up from the surface of boiling pools from 5 to 15 feet in diameter. In some springs the water was clear and transparent; others contained so much sulphur that they looked like pots of boiling yellow paint. One of the largest was as black as ink. Near this was a fissure in the rocks, several rods long and 2 feet across in the widest place at the surface, but enlarging as it descended. We could not see down to any great depth, on account of the steam; but the ground echoed beneath our tread with a hollow sound, and we could hear the waters surging below, sending up a dull, resonant roar like the break of the ocean surf into a cave. At these springs but little water was discharged at the surface, it seeming to pass off by some subterranean passage. About half a mile down the ravine the springs broke out again. Here they were in groups, spreading out over several acres of ground. One of these groups—a collection of mud springs of various colors, situated one above the other on the left slope of the ravine—we christened "The Chemical Works." The mud, as it was discharged from the lower side, gave each spring the form of a basin or pool. At the bottom of the slope was a vat, 10 by 30 feet, where all the ingredients from the springs above were united in a greenish-yellow compound of the consistency of white lead. Three miles farther on we found more hot springs along the sides of a deep ravine, at the bottom of which flowed a creek 20 feet wide. Near the bank of the creek, through an aperture 4 inches in diameter, a column of steam rushed with a deafening roar, with such force that it maintained its size for 40 feet in the air, then spread out and rolled away in a great cloud toward the heavens. We found here inexhaustible beds of sulphur and saltpeter. Alum was also abundant; a small pond in the vicinity, some 300 yards long and half as wide, contained as much alum as it could hold in solution, and the mud along the shore was white with the same substance, crystallized by evaporation.

On September 21 a pleasant ride of 18 miles over an undulating country brought us to the great canyon 2 miles below the falls; but there being no grass convenient, we passed on up the river to a point half a mile above the upper falls and camped on a narrow flat close to the river bank. We spent the next day at the falls—a day that was a succession of surprises—and we returned to camp realizing as we had never done before how utterly insignificant are man's mightiest efforts when compared with the fulfillment of Omnipotent will. Language is entirely inadequate to convey a just conception of the awful grandeur and sublimity of this masterpiece of nature's handwork; and in my brief description I shall confine myself to bare facts. Above our camp the river is about 150 yards wide and glides smoothly along between gently sloping banks, but just below the hills crowd in on either side,

forcing the water into a narrow channel, through which it hurries with increasing speed, until, rushing through a chute 60 feet wide, it falls in an unbroken sheet over a precipice 115 feet in height. It widens out again, flows with steady course for half a mile between steep timbered bluffs 400 feet high, and again narrowing in till it is not more than 75 feet wide, it makes the final fearful leap of 350 feet. The ragged edges of the precipice tear the water into a thousand streams—all united together, and yet apparently separate—changing it to the appearance of molten silver; the outer ones decrease in size as they increase in velocity, curl outward, and break into mist long before they reach the bottom. This cloud of mist conceals the river for 200 yards, but it dashes out from beneath the rainbow arch that spans the chasm, and thence, rushing over a succession of rapids and cascades, it vanishes at last, where a sudden turn of the river seems to bring the two walls of the canyon together. Below the falls the hills gradually increase in height for 2 miles, where they assume the proportions of mountains. Here the canyon is at least 1,500 feet deep, with an average width of twice that distance at the top. For one-third of the distance downwards the sides are perpendicular; from thence running down to the river in steep ridges crowned by rocks of the most grotesque form and color; and it required no stretch of the imagination to picture fortresses, castles, watchtowers, and other ancient structures of every conceivable shape. In several places near the bottom steam issued from the rocks; and judging from the indications there were at some former period hot springs or steam jets of immense size all along the wall.

The next day we resumed our journey, traversing the northern slope of a high plateau between the Yellowstone and Snake Rivers. Unlike the dashing mountain stream we had thus far followed, the Yellowstone was in this part of its course wide and deep, flowing with a gentle current along the foot of low hills or meandering in graceful curves through broad and grassy meadows. Some 12 miles from the falls we came to a collection of hot springs that deserve more than a passing notice. These, like the most we saw, were situated upon a hillside; and as we approached them we could see the steam rising in puffs at regular intervals of 15 or 20 seconds, accompanied by dull explosions, which could be heard half a mile away, sounding like the discharge of a blast underground. These explosions came from a large cave that ran back under the hill, from which mud had been discharged in such quantities as to form a heavy embankment 20 feet higher than the floor of the cave, which prevented the mud from flowing off; but the escaping steam had kept a hole some 20 feet in diameter open up through the mud in front of the entrance to the cave. The cave seemed nearly filled with mud and the steam rushed out with such volume and force as to lift the whole mass up against the roof and dash it out into the open space in front; and then, as the cloud of steam lifted, we could see the mud settling back in turbid waves into the cavern again. Three hundred yards from the mud cave was another that discharged pure water; the entrance to it was in the form of a perfect arch, 7 feet in height and 5 feet in width. A short distance below these caves were several large sulphur springs, the most remarkable of which was a shallow pool, 75 feet in diameter, in which clear water on one side and yellow mud on the other were gently boiling without mingling.

September 24 we arrived at Yellowstone Lake, about 20 miles from the falls. The main body of this beautiful sheet of water is 10 miles wide from east to west, and 16 miles long from north to south; but at the south end it puts out two arms, one to the southeast and the other to the southwest, making the entire length of the lake about 30 miles. Its shores—whether gently sloping mountains, bold promontories, low necks, or level prairies—are everywhere

covered with timber. The lake has three small islands, which are also heavily timbered. The outlet is at the northwest extremity. The lake abounds with trout, and the shallow water in its coves affords feeding ground for thousands of wild ducks, geese, pelicans, and swans.

We ascended to the head of the lake and remained in its vicinity for several days, resting ourselves and our horses and viewing the many objects of interest and wonder. Among these were springs differing from any we had previously seen. They were situated along the shore for a distance of 2 miles, extending back from it about 500 yards and into the lake perhaps as many feet. The ground in many places gradually sloped down to the water's edge, while in others the white chalky cliffs rose 15 feet high—the waves having worn the rock away at the base, leaving the upper portion projecting over in some places 20 feet. There were several hundred springs here, varying in size from miniature fountains to pools or wells 75 feet in diameter and of great depth; the water had a pale violet tinge, and was very clear, enabling us to discern small objects 50 or 60 feet below the surface. In some of these, vast openings led off at the side; and as the slanting rays of the sun lit up these deep caverns we could see the rocks hanging from their roofs, their water-worn sides and rocky floors, almost as plainly as if we had been traversing their silent chambers. These springs were intermittent, flowing or boiling at irregular intervals. The greater portion of them were perfectly quiet while we were there, although nearly all gave unmistakable evidence of frequent activity. Some of them would quietly settle for 10 feet, while another would as quietly rise until it overflowed its banks, and send a torrent of hot water sweeping down to the lake. At the same time one near at hand would send up a sparking jet of water 10 or 12 feet high, which would fall back into its basin and then perhaps instantly stop boiling and quietly settle into the earth, or suddenly rise and discharge its waters in every direction over the rim; while another, as if wishing to attract our wondering gaze, would throw up a cone 6 feet in diameter and 8 feet high, with a loud roar. These changes, each one of which would possess some new feature, were constantly going on; sometimes they would occur within the space of a few minutes, and again hours would elapse before any change could be noted. At the water's edge, along the lake shore, there were several mounds of solid stone, on the top of each of which was a small basin with a perforated bottom; these also overflowed at times and the hot water trickled down on every side. Thus, by the slow process of precipitation, through the countless lapse of ages, these stone monuments have been formed. A small cluster of mud springs near by claimed our attention. They were like hollow truncated cones and oblong mounds 3 or 4 feet in height. These were filled with mud, resembling thick paint of the finest quality—differing in color, from pure white to the various shades of yellow, pink, red, and violet. Some of these boiling pots were less than a foot in diameter. The mud in them would slowly rise and fall, as the bubbles of escaping steam, following one after the other, would burst upon the surface. During the afternoon they threw mud to the height of 15 feet for a few minutes and then settled back to their former quietude.

As we were about departing on our homeward trip we ascended the summit of a neighboring hill and took a final look at Yellowstone Lake. Nestled among the forest-crowned hills which bounded our vision lay this inland sea, its crystal waves dancing and sparkling in the sunlight, as if laughing with joy for their wild freedom. It is a scene of transcendent beauty which has been viewed by but few white men; and we felt glad to have looked upon it before its primeval solitude should be broken by the crowds of pleasure seekers which at no distant day will throng its shores.

September 29 we took up our march for home. Our plan was to cross the range in a northwesterly direction, find the Madison River, and follow it down to civilization. Twelve miles brought us to a small triangular-shaped lake about 8 miles long, deeply set among the hills. We kept on in a northwesterly direction as near as the rugged nature of the country would permit, and on the third day (October 1) came to a small, irregularly shaped valley, some 6 miles across in the widest place, from every part of which great clouds of steam arose. From descriptions which we had had of this valley from persons who had previously visited it we recognized it as the place known as "Burnt Hole" or "Death Valley." The Madison River flows through it, and from the general contour of the country we knew that it headed in the lake which we passed two days ago, only 12 miles from the Yellowstone. We descended into the valley and found that the springs had the same general characteristics as those I have already described, although some of them were much larger and discharged a vast amount of water. One of them, at a little distance, attracted our attention by the immense amount of steam it threw off; and upon approaching it we found it to be an intermittent geyser in active operation. The hole through which the water was discharged was 10 feet in diameter and was situated in the center of a large circular shallow basin into which the water fell. There was a stiff breeze blowing at the time, and by going to the windward side and carefully picking our way over convenient stones we were enabled to reach the edge of the hole. At that moment the escaping steam was causing the water to boil up in a fountain 5 or 6 feet high. It stopped in an instant and commenced settling down—20, 30, 40 feet—until we concluded that the bottom had fallen out, but the next instant, without any warning, it came rushing up and shot into the air at least 80 feet, causing us to stampede for higher ground. It continued to spout at intervals of a few minutes for some time, but finally subsided and was quiet during the remainder of the time we stayed in the vicinity. We followed up the Madison 5 miles and there found the most gigantic hot springs we had seen. They were situated along the river bank and discharged so much hot water that the river was blood-warm a quarter of a mile below. One of the springs was 250 feet in diameter and had every indication of spouting powerfully at times. The waters from the hot springs in this valley, if united, would form a large stream, and they increase the size of the river nearly one-half. Although we experienced no bad effects from passing through the "Valley of Death," yet we were not disposed to dispute the propriety of giving it that name. It seemed to be shunned by all animated nature. There were no fish in the river, no birds in the trees, no animals—not even a track—anywhere to be seen; although in one spring we saw the entire skeleton of a buffalo that had probably fallen in accidentally and been boiled down to soup.

Leaving this remarkable valley we followed the course of the Madison—sometimes through level valleys and sometimes through deep cuts in mountain ranges—and on the 4th of October emerged from a canyon, 10 miles long and with high and precipitous mountain sides, to find the broad valley of the Lower Madison spread out before us. Here we could recognize familiar landmarks in some of the mountain peaks around Virginia City. From this point we completed our journey by easy stages and arrived at home on the evening of the 11th. We had been absent 36 days—a much longer time than our friends had anticipated—and we found that they were seriously contemplating organizing a party to go in search of us.—(Western Monthly, Chicago, July, 1870.)

APPENDIX E

THE YELLOWSTONE EXPEDITION

INTERESTING DATA OF THE TRIP, FROM NOTES FURNISHED BY HON. N. P. LANGFORD

The party left Bozeman on the 22d of August, reaching the Yellowstone on the 24th, and traveling up that river until the 27th, when they reached the Lower Fall Creek, where they remained in camp one day. On this creek is the Lower Fall, a beautiful cascade 115 feet high. The Indian trail crosses the Yellowstone at this point to the east side, but the party kept upon the west side of the river, near the base of Mount Washburn, a peak 10,570 feet in height, passing the Hell-broth Springs on the 29th, and on the 30th camping opposite the Great Falls of the Yellowstone, on Cascade Creek. Nearly two days were spent in examining the falls and their surroundings. Mr. Langford suspended a weight perpendicularly from the rock adjoining the falls, 491 feet to the bottom of the canyon, and deducting from this the distance from the top of the rock to the surface of the water above the fall, found it to be 350 feet in height. The Upper Fall, half a mile further up the stream, is 115 feet high. A day and a half more brought the party to the Hot Sulphur and Mud Springs, 60 to 75 in number, of diameters varying from 2 to 70 feet. From scores of craters on the side of the mountain adjoining these springs issue hot vapors, the edges of the craters being incrustated with pure sulphur. Six miles further on is the first geyser, which throws a column of water 20 feet in diameter to the height of 30 to 35 feet. Near by is a volcano, which throws up mud from the bottom of its crater to the height of 30 feet or more, with explosions resembling distant discharges of cannon, the pulsations occurring at intervals of five seconds, and the explosions shaking the ground for a long distance. This volcano has evidently been in existence but a short time—a few months—as the newly grown grass was covered for nearly 200 feet with the clayey mud that was thrown out at the first outbreak. The crater of this volcano is about 30 feet in diameter at its mouth and is narrowed down to a diameter of 15 feet at a depth of 20 feet from the top, and the surface of the mud down in the crater appeared, when for a few seconds it was in a quiescent state, to be about 60 feet below the mouth of the crater.

At this point the party forded the river and traveled along the east bank 12 miles to the Yellowstone Lake, a beautiful sheet of water of very irregular shape, but of an average length of 22 miles and width of 15 miles. An accurate map of the lake was made from observations taken by Messrs. Hauser and Langford, from the tops of three mountains on different sides of the lake. One of these mountains was 11,200 feet high, as measured by the barometer.

The journey around the lake was rendered very difficult by the fallen timber, the party sometimes halting at night not more than 6 or 7 miles from their morning camp.

From the lake the party struck off to the Fire Hole River, on which, in the Geyser Basin, they found a most remarkable collection of springs and

craters. In the basin, which extends about 2 miles down the river and is a mile in width, are between 700 and 800 springs and craters of all diameters, from 2 to 100 feet. The party found here 12 geysers, 5 of which threw columns of water to heights varying from 90 to 150 feet, the columns being from 3 to 20 feet in diameter. The column of water from the sixth was discharged from the apex of a conical-shaped mound, through a nozzle 2 feet by 3, and rose to the height of 219 feet, Messrs. Hauser and Langford carefully measuring the column by triangulation.

We learn the following concerning the loss of Mr. Everts: He was with the rest of the party at noon on September 9, all slowly working their way through the fallen timber. In making search for a passage through it, one or another of the members of the party would, for a brief time, become separated from the main body, but would readily find his way back again. At 2 o'clock p. m. the company camped for the night, all being present but Mr. Everts. In camp it was found that Mr. Hedges's pack horse, which had that day rolled down a steep hill, 30 or 40 feet, with his pack on his back, was missing, and Mr. Langford, with the two packers, went in search of him, finding him about 2 miles from camp and returning about 5 o'clock but discovering no sign of Mr. Everts.

The objective point of the party at this time was the southwest arm of the lake, and anyone lost or separated from the train would have pushed on to that point. On the morning of the 11th Lieutenant Doan, Langford, and Hauser, leaving the train, pushed on with provisions to this arm of the lake, confidently expecting to find Mr. Everts, but no trace of him could be discovered. The rest of the party reached the lake at night and all remained at that point five days longer. Messrs. Gillette and Hauser the following day returned on the trail four days' march, or near to the camp occupied by the party two days before Mr. Everts was lost, but could discover no trace of him—the trail made by the 37 horses belonging to the party being in many places entirely obliterated. Messrs. Trumbull and Smith followed the shore of the lake, and General Washburne and Mr. Langford traveled south to the headwaters of Snake River, but neither party could find any trace of the lost man. While in camp on the lake snow fell to the depth of 2 feet. An inventory of provisions was then taken, and on the 17th, eight days after the loss of Mr. Everts, most of the party started for the Madison with sufficient supplies to carry them home, leaving Mr. Gillette and Messrs. More and Williamson, of the Second Cavalry, with the balance of the provisions to prosecute the search.

It was the opinion of all the members of the party when Mr. Langford left them on the Madison that if Mr. Everts had not then been heard from in Virginia or Helena he had been shot by Indians. The only route that he could have taken that would not have brought him to Virginia or Helena a week since is that leading by the "Three Tetons" to Eagle Rock Bridge, which point he could have reached several days ago; and had he done so would undoubtedly have telegraphed his friends here.

It is the intention of Mr. Langford to prepare for publication, as soon as practicable, a detailed report of the journey to and from this most interesting portion of our country, where, in a space so circumscribed, are presented at once the wonders of Iceland, Italy, and South America.—(Helena (Mont.) Daily Herald, September 26, 1870.)

APPENDIX F

THE YELLOWSTONE EXPEDITION

EXPLORATIONS IN A NEW AND WONDERFUL COUNTRY—DESCRIPTION OF THE GREAT FALLS OF THE YELLOWSTONE—VOLCANIC ERUPTIONS, SPOUTING GEYSERS, ETC.

[From the notes of Hon. H. D. Washburne, Surveyor General of Montana]

As your readers are aware, the Yellowstone expedition left Fort Ellis on the 22d of August, through the Bozeman Pass, finding it all that the Bozemanites claim for it—easy and practicable—and camped for the first night on Trail Creek, having a fine view of the mountains beyond the Yellowstone. The next day they struck the valley, and their journey up the river commenced. They camped for the night at the ranch of Mr. Bottler, the last settler up the river. Crow Indians were quite plenty during the day, and a heavy rain at night gave anything but a pleasing aspect to the commencement of the trip; but a bright sun, about 10 o'clock, made everything right, and we moved to the canyon of the river, about 14 miles distant, and camped on one of the loveliest spots in Montana. Two small streams put in from the east from an elevation near camp. The river and valley can be seen stretching away far to the north, the river bank plainly defined by the trees skirting its margin. South, the river can be seen pouring through the canyon; while far away to the east and west the mountain peaks were then covered with snow—the setting sun brightening both in its last rays, before night's mantle was thrown over the party.

We passed through the canyon next morning and found it about 6 miles long—the trail leading us along the side of the torrent and sometimes hundreds of feet above it. Night found us at the mouth of Gardiner River, a fine mountain stream coming from the south and entering the Yellowstone just below the Grand Canyon, over 30 miles in length and nearly equally divided by the East Fork. The canyon proving impracticable, we took to the mountains, camping one night in them and the next night a few miles above. The river runs for 16 miles in nearly a due west course here. Our camp was on a fine stream coming in from the opposite side of the East Fork, and designated by us as Tower Creek. The camp was called Camp Comfort. Game and trout were abundant. We found here our first hot springs, small but attractive, and of five or six different kinds—sulphur, iron, etc. This canyon of the river is grand. Basaltic columns of enormous size are quite numerous. But the great attraction here was the falls on the creek near our camp. The stream is about as large as the Prickly Pear and for a mile rushes down with fearful velocity. It seems at some time to have been checked by a mountain range, through which it has torn its way, not entirely removing the barrier but tearing through, leaving portions still standing; and these, by the elements, have been formed into sharp pinnacles. Looking from the canyon below it appears like some old castle with its turrets dismantled but still standing. From between two of these turrets the stream makes its final leap of 110 measured feet, and then, as if satisfied with itself, flows peacefully into the Yellowstone. We attempted

to compare it with the famous Minnehaha, but those who had seen both said there was no comparison. It was not as terrible in its sublimity as Niagara, but beautiful and glorious. You felt none of the shrinking back so common at the Great Fall, but rather, as you stood below and gazed upon its waters broken into white spray, you felt as though you wanted to dash into it and catch it as it fell. By a vote of the majority of the party this fall was called Tower Fall.

The canyon of the main river here runs in a southwest direction. The party crossed over a high range of mountains and in two days reached the Great Falls. In crossing the range, from an elevated peak, a very fine view was had. The country before us was a vast basin. Far away in the distance but plainly seen was the Yellowstone Lake. Around the basin the jagged peaks of the Wind River, Big Horn, and Lower Yellowstone ranges of mountains, while just over the lake could be seen the tops of the Tetons. Our course lay over the mountains and through dense timber. Camping for the night 8 or 10 miles from the falls we visited some hot springs that in any other country would be a great curiosity, boiling up 2 or 3 feet, giving off immense volumes of steam, while their sides were incrustated with sulphur. It needed but a little stretch of imagination on the part of one of the party to christen them "Hell-Broth Springs." Our next camp was near the Great Falls upon a small stream running into the main river between the Upper and Lower Falls. This stream has torn its way through a mountain range, making a fearful chasm through lava rock, leaving it in every conceivable shape. This gorge was christened the "Devil's Den." Below this is a beautiful cascade, the first fall of which is 5 feet, the second 20 feet, and the final leap 84 feet. From its exceedingly clear and sparkling beauty it was named Crystal Cascade.

Crossing above the Upper Falls of the Yellowstone you find the river 100 yards in width, flowing peacefully and quiet. A little lower down it becomes a frightful torrent, pouring through a narrow gorge over loose boulders and fixed rocks, leaping from ledge to ledge, until, narrowed by the mountains and confined to a space of about 80 feet, it takes a sudden leap, breaking into white spray in its descent 115 feet. Two hundred yards below the river again resumes its peaceful career. The pool below the falls is a beautiful green capped with white. On the right-hand side a clump of pines grow just above the falls, and the grand amphitheater, worn by the maddened waters on the same side, is covered with a dense growth of the same. The left side is steep and craggy. Towering above the falls, halfway down and upon a level with the water, is a projecting crag, from which the falls can be seen in all their glory. No perceptible change can be seen in the volume of water here from what it was where we first struck the river. At the head of the rapids are four apparently enormous boulders standing as sentinels in the middle of the stream. Pines are growing upon two of them. From the Upper Fall to the Lower there is no difficulty in reaching the bottom of the canyon. The Lower Falls are about half a mile below the Upper, where the mountains again, as if striving for the mastery, close in on either side, and are not more than 70 feet apart. And here the waters are thrown over a perpendicular fall of 350 feet. The canyon below is steep and rocky and volcanic in its formation. The water, just before it breaks into spray, has a beautiful green tint, as has also the water in the canyon below. Just below, on the left-hand side, is a ledge of rock from which the falls and canyon may be seen. The mingling of green water and white spray with the rainbow tints is beautiful beyond description.

The canyon is a fearful chasm, at the Lower Falls a thousand feet deep, and growing deeper as it passes on, until nearly double that depth. Jutting over

the canyon is a rock 200 feet high, on the top of which is an eagle's nest which covers the whole top. Messrs. Hauser, Stickney, and Lieutenant Doan succeeded in reaching the bottom, but it was a dangerous journey. Two and a half miles below the falls, on the right, a little rivulet, as if to show its temerity, dashes from the top of the canyon and is broken into a million fragments in its daring attempt.

After spending one day at the falls we moved up the river. Above the falls there is but little current comparatively for several miles, and the country opens into a wide, open, treeless plain. About 8 miles from the falls, and in this plain, we found three hills, or rather mountains, thrown up by volcanic agency, and consisting of scoria and a large admixture of brimstone. These hills are several hundred feet high, and evidently are now resting over what was once the crater of a volcano. A third of the way up on the side of one of these hills is a large sulphuric spring, 20 feet by 12, filled with boiling water, and this water is thrown up from 3 to 5 feet. The basin of this spring is pure solid brimstone as clear and bright as any brimstone of commerce. Quite a stream flows from the spring, and sulphur is found encrusting nearly everything. Near the base of the hills is a place containing about half an acre, but covered with springs of nearly every description—yellow, green, blue, and pink. Flowing from the base of the hill is a very strong spring of alum water—not only alum in solution but crystallized. This place we called Crater Hill, and as we passed over, the dull sound coming from our horses' feet as they struck proved to us that it was not far through the crust. All over the hill were small fissures, giving out sulphurous vapors. The amount of brimstone in these hills is beyond belief.

Passing over the plain we camped on the river bank, near a series of mud springs. Three of the largest were about 10 feet over the top and had built up 10 or 12 feet high. In the bottom of the crater thus formed thick mud was boiling and bubbling, sputtering, and splashing as we have often seen in a pot of hasty pudding when nearly cooked. Near these we found a cave under the side of the mountain, from which was running a stream of clear but very hot water. At regular intervals the steam was puffing out. For some time we had been hearing a noise as of distant artillery, and soon we found the cause. Some distance above the level of the river we found the crater of a mud volcano 40 feet over at its mouth. It grew smaller until at the depth of 30 feet, when it again enlarged. At intervals a volume of mud and steam was thrown up with tremendous power and noise. It was impossible to stand near, and one of the party, Mr. Hedges, paid for his temerity in venturing too close by being thrown backward down the hill. A short time before our visit mud had been thrown 200 or 300 feet high, as shown by the trees in the vicinity. Not far from this we found our first geyser. When discovered it was throwing water 30 or 40 feet high. The crater was funnel shaped and 75 by 35 feet at its mouth. We stayed and watched it one day. Without warning it suddenly ceased to spout, and the water commenced sinking until it had gone down 30 feet or more. It then gradually commenced rising again, and three times during the day threw up water 30 or 40 feet.

The next day we recrossed the river and succeeded in reaching the lake and camped on the lower end. The fishing, which had been good all the way up the river, proved remarkably so in the lake. Trout from 2 to 4 pounds were to be had for the taking. Flies proved useless, as the fish had not been educated up to that point. Remaining over Sunday we took up the line of march around the south side of the lake, which took us through a dense growth of pine filled with fallen timber. The third day's march was over a mountain, and but little progress was made, the train going into camp about 2 o'clock.

Mr. Everts failed to come into camp, but this occasioned no uneasiness as we had all expected to reach the lake and believed he had pushed on to the lake, as he had once before done, and was awaiting our arrival. Moving on 5 miles we struck an arm of the lake but found no trace of him. A party was sent down the shore and two other parties to climb the adjacent mountains to search for him and to build fires on them to attract his attention. Next morning, no news being heard of him, a council was held and the camp moved to the main lake and search commenced vigorously but without avail. The fourth night a snowstorm commenced and continued for two days, rendering the search during that time impossible. The situation of the party was becoming precarious; away from the settlements, no trail, without a guide, and snow covering the ground. Another council was held and it was determined that it was best to move toward the settlements. Mr. Gillette volunteered to stay and prolong the search, and two soldiers were left with him. Mr. Gillette is one of the best mountain men of the party, and there is hope that he may bring some tidings of the missing man. On the south end of the lake is a very beautiful collection of hot springs and wells—in many the water is so clear that you can see down 50 or 100 feet. The lake is 8,000 feet above the level of the sea, a beautiful sheet of water with numerous islands and bays, and will in time be a great summer resort, for its various inlets, surrounded by the finest mountain scenery, can not fail to be very popular to the seeker of pleasure, while its high elevation and numerous medicinal springs will attract the invalid. Its size is about 22 by 15 miles.

Leaving the lake we moved nearly west over several high ranges and camped in the snow amid the mountains. Next day about noon we struck the Fire Hole River and camped in Burnt Hole Valley. This is the most remarkable valley we found. Hot springs are almost innumerable. Geysers were spouting in such size and number as to startle all, and are beyond description. Enormous columns of hot water and steam were thrown into the air with a velocity and noise truly amazing. We classified and named some of them according to size.

No. 1. The Giant, 7 by 10 feet, throwing a solid column of water from 80 to 120 feet high.

No. 2. The Giantess, 20 by 30, throwing a solid column and jets from 150 to 200 feet high.

No. 3. Old Faithful, 7 by 8, irregular in shape, a solid column each hour 75 feet high.

No. 4. Bee Hive, 24 by 15 inches, stream measured 219 feet.

No. 5. Fan Tail, irregular shape, throwing a double stream 60 feet high.

No. 6 is a beautiful arched spray, called by us the Grotto, with several apertures, through which, when quiet, one can easily pass, but when in action each making so many vents for the water and steam.

Upon going into camp we observed a small hot spring that had apparently built itself up about 3 feet. The water was warm but resting very quietly, and we camped within 200 yards of it. While we were eating breakfast, this spring, without any warning, threw, as if it were the nozzle of an enormous steam engine, a stream of water into the air 219 feet, and continued doing so for some time, thereby enabling us to measure it, and then as suddenly subsided.

Surrounded by these hot springs is a beautiful cold spring of tolerable fair water. Here we found a beautiful spring or well. Raised around it was a border of pure white, carved as if by the hand of a master workman, the water pure. Looking down into it one can see the sides white and clear as

alabaster, and carved in every conceivable shape, down, down, until the eye tires in penetrating.

Standing and looking down into the steam and vapor of the crater of the Giantess, with the sun upon your back, the shadow is surrounded by a beautiful rainbow, and by getting the proper angle, the rainbow, surrounding only the head, gives that halo so many painters have vainly tried to give in paintings of the Savior. Standing near the fountain when in motion, and the sun shining, the scene is grandly magnificent; each of the broken atoms of water shining like so many brilliants, while myriads of rainbows are dancing attendance. No wonder, then, that our usually staid and sober companions threw up their hats and shouted with ecstasy at the sight.

We bid farewell to the geysers, little dreaming there were more beyond. Five miles below Burnt Hole we found the "lake of fire and brimstone." In the valley we found a lake measuring 450 yards in diameter, gently overflowing, that had built itself up by a deposit of white substrata, at least 50 feet above the plain. This body of water was steaming hot. Below this was a similar spring, but of smaller dimensions, while between the two, and apparently having no connection with either, was a spring of enormous volume flowing into the Madison, and is undoubtedly the spring which Bridger has been laughed at so much about, as heating the Madison for two miles below. For some distance down the river we found hot springs and evidences of volcanic action. Our passage down the river was a little rough but generally very pleasant, and on the evening of the 22d we reached the first ranch on the Madison, where we found a paper dated September 1, the latest news from the inside world. Next day we sent to Virginia for papers, and soon found that the world had been moving.

Our trip was a grand success, only marred by the loss of one of our number. If he is merely lost, there is still hopes of his return, as he had a good horse and plenty of ammunition and matches. The danger is that he has been killed by the Indians for his horse and gun.

H. D. W.

(Helena (Mont.) Dairy Herald, September 27 and 28, 1870.)

APPENDIX G

MOUNT EVERTS

To the Editor of the Herald :

Please allow me, through your columns, to relate an incident connected with the recent trip of the Yellowstone party, to which subsequent events have added melancholy interest. It occurred at our first camp on the south shore of Yellowstone Lake, where we bivouacked on the evening of September 7. On that day, by a long detour through tangled thickets and fallen timber, through swampy flats surrounding the inlet of the Yellowstone River into the lake of the same name, we had reached a point but little farther east than we had made the day before, and been compelled to retrace our steps by reason of impassable sloughs. We no longer had any sort of trail, and the difficulties of traveling were multiplying upon us; besides, the southern lake shore is very irregular—long promontories or points jutting out from the mainland for miles into the lake. It became to all of us a matter of first importance to curtail our route by making cuts across the necks of these points. With that object in view, General Washburn and myself, after pitching camp and disposing of supper, took a ramble to spy out a route for our next day's drive. At about a mile from camp, in nearly a due-east course, we came upon a game trail, passed an old Indian tepee at least a year old, skirted a little lake about 50 feet above the main lake, snugly tucked up about the foot of a high, bold, bluff point partly open and partly covered with standing and fallen timber. At that time we only ascended a short distance, as the sun had already set and we were not altogether fresh after the scratching and floundering of the day's journey. We were anxious to know what could be seen from the top of that mountain, and Mr. Everts proposed to me that I should go with him as soon as breakfast was over in the morning, September 8. Accordingly we went. He manifested much eagerness to go and seemed in more than usual good spirits. The point reached the night before was soon passed, and we stood upon what appeared as the top seen from the base, but we found it but one step to a much bolder point, whose base was concealed from our view below. Not knowing the persistency of the man, I asked him if we had better go to the top, and his quick response was, "By all means." The sides of this mountain were in places so nearly perpendicular that we made slow and labored progress. Sometimes losing our foothold, we would slide back several feet. In one instance I lost ground about 4 rods and was indebted to a dwarf pine for not losing more distance and perhaps even worse consequences. Thrice we halted on what seemed from below to be the summit, and still we found the top beyond us, which we reached by a final desperate attempt, making the last 50 feet by drawing ourselves up, grasping projecting rocks along the face of an almost perpendicular ledge of dark, coarse, conglomerate rock. Here we stood on a broad, level, rocky rim to a high plateau, pine covered as it receded, which commands a most magnificent view of the whole lake and the dark-green piney basin in which it nestles. In admiration of the pluck and perseverance of my companion, I told him that point should be named Mount Everts. During the half hour that we remained on this mountain, probably 12,000 feet above

the lake's surface, we traced almost its entire outline, as well the part that we proposed to traverse as that over which we had already come. We could even see through a gap in the easternmost of the southern promontories the blue waters of the southeast arm of the lake, near which we expected to take our departure for the headwaters of the Madison. I then noticed, with some surprise, that with his glasses he could see such distant features as I called to his notice. We examined, as minutely as time allowed, the intervening space, tracing out what we thought the most practicable route across the necks of several points reaching miles away into the lake. This was only the day before he got separated from us, and so strong was my faith that he knew our course and would appear at some point in our advance that I scarcely entertained a fear till we finally reached the farthest point where we left the lake.

In descending the mountains Mr. Everts took a shorter line to camp than that by which we came, while I was unwilling to take any chances of missing my way, and returned as I went. I found Mr. Everts in camp when I reached it. It increased greatly my confidence in his good judgment as a woodsman.

The company, of course, assented to my proposed name for the mountain we had visited, and let future tourists respect this monumental record. What more fitting monument can transmit to future generations the name of our lamented companion? As it towers in self-complacent grandeur above the beautiful lake, and serenely marks the passage of storms, and seasons, and centuries, Mount Everts seems a fitting type of that noble, self-reliant spirit, destined, as we fear, so soon after to be quenched by a dismal fate in the wooded wilderness near its base.

The hope of his rescue so long deferred makes the heart sicken with gloom. Baffled in all our hopes, we incline to believe that he became a victim to the gang of desperadoes that, flying from hot pursuit by way of Snake River, found their refuge in the impenetrable forests and swamps of the south shore of Yellowstone Lake. It is some melancholy satisfaction, should the mystery of his fate never be cleared up, that I had some instrumentality in providing for him so fitting a monument as Mount Everts.

Yours truly,

CORNELIUS HEDGES.

HELENA, *October 8, 1870.*

(Helena (Mont.) Daily Herald, October 8, 1870.)

APPENDIX H

THE GREAT FALLS OF THE YELLOWSTONE

A GRAPHIC PICTURE OF THEIR GRANDEUR AND BEAUTY

To the Editor of the Herald :

With the view, in a measure, to meet the general interest of this community, by giving more fully some of the results of our recent expedition, I will commence with a brief description of the falls of the Yellowstone. These falls, two in number, are not more than half a mile apart, perhaps not as much in a direct line. The Upper Falls are not more than 25 miles from the lake, and it can hardly be more than 50 miles by the course we went from the Lower Falls to the mouth of the Grand Canyon, where we were forced to leave the river and take the trail over the mountains. By barometric measurement, we found the altitude of the lake to be 8,337 feet; the altitude of the point where the river issues from the canyon we did not positively determine, but are certain that it will be found to be between 3,000 and 4,000 feet less. Such is the tremendous fall of this river in that short distance. From the lake to the Upper Falls the river generally flows with a moderate current between wooded banks, with occasional openings gently sloping to the water's edge. In only one point above the Upper Falls did we notice any considerable rapids, and from the general character of the country I am satisfied that there can not be any great amount of fall between those points. This, then, would leave almost all this vast amount of river fall to be accounted for within the short distance of 50 miles. I confess that this fact leads me to wish that we had explored that canyon to a greater distance, though I hardly think any greater falls would be found than those to which we attached the name of the Great Falls, which we ascertained by careful measurement to be 350 feet perpendicular plunge. The Upper Falls were 115 feet, with no very strong rapids between the two falls. But below the Great Falls for a distance of 3 or 4 miles that we explored the descent was very great by a succession of falls from 12 to 20 feet, and a continuous, foaming series of rapids. At one point from which I could command the view of perhaps three-quarters of a mile of the river's surface I counted no less than 12 of these smaller falls. And should this feature extend along the entire tortuous course of the river through the canyon, it would be enough to account for all this great descent. Still it may be that at some point below our explorations there is a greater fall than any yet seen. The wild, floating stories about falls 1,000 feet in height are no doubt exaggerations as applied to the main stream. That there are small streams from the high plateau above the brink of the canyon that fall the distance of 1,000 feet or more, perpendicular, is true and such were seen by some of our party. Every stream that we crossed in our course around the canyon when explored was certain to bring us to cascades, several of which we saw of surprising beauty, from 84 to 115 feet in height. The river just above the Upper Falls for the distance of one-fourth of a mile breaks down into a strong rapid, and circles in foaming eddies about the base of several huge, black boulders that lay scattered through this distance at irregular intervals. The growing uproar of the waters through this part of its

course reminded me of the wild chant of the Indian before starting out on the war path. It is the death song before the fatal leap.

The sides of the river converge as the waters approach the brink, and rise into bold, rocky bluffs, the one from the west, stretching out as if to forbid any further advance, gives the stream a turn to the northeast, and then, as if conscious of its folly, stops short in a perpendicular face, past which the crowding waters, fretting at restraint, shoot like an arrow, reel for a moment as they feel their foothold failing, then, blanching into foam, plunge down, down, till they seem but a mass of down in the surging bed below. The distance between the rock bluffs that stand sentinel over this ceaseless carnival of waters can not be above 200 feet. I fancied I could see in the dim distance of a few seasons an iron swing bridge, with bright, happy eyes gazing wondrously upon this beauty of nature in water colors. The west bank, upon which we stood, presents wonderful facilities for seeing the falls to the greatest advantage. The most convenient ledge, with a surface accommodation for 20 persons and easily reached, juts out about a quarter of the distance down the falls, almost within reach of the face of the waters, within kissing distance, for eccentric drops would fall upon us. Here we could look up into the foaming, furious jaws of the cataract, from whence would shoot out fierce, crested tongues, as if in wrath aimed to consume the beholder. The view at first is almost terrifying, and makes one's knees knock together in conscious impotence. But these watery arrows, seemingly shot at the beholder, by a graceful curve bend beneath his feet to be quenched upon the stony buckler of the river's bed. Human ingenuity could not suggest a better point of view than is here presented to gather in at once the beauty, majesty, and power of all the parts of a waterfall. The volume of the waters is great, not equal to Niagara but apparently equal to those of the Missouri at the Great Falls as I saw them in October, 1865. The water is as clear as crystal, with a little tinge of green at some points of observation. Below the Upper Falls the basin is very wide, and the river spreads out so that it appears quite shallow; large, dark, smooth bowlders cover its bottom, and on the west side especially the bank is very rocky and broken; still I think these falls might be approached from below—none of us attempted it. Much grander, of course, but not more beautiful, are the Great Falls below. Between the two falls the river flows quietly in a wide channel, until the west bank again protrudes a mountain, as if having repented of its irresolution before. Here, as at the Upper Falls, the rocky sides rise perpendicular from the brink of the falls, though the rocky formation is more shelly and of a lighter yellow tinge about the Lower Falls, and I can but think that, in coming centuries, the force of the water will wear away the interval between the two falls and unite both in one. Miles of this canyon below has doubtless been thus worn out and transported to the Gulf of Mexico. In spite of the looser character of rock, the Lower Falls are more perfect in all parts. The plunge of the waters is in the direct course of the stream; the gateway is wider and the water on the brink of nearly uniform depth. If anything, it is some deeper on the east side. But from this nearly horizontal shelf, without a break, the united volume clears its bed at a bound. In an instant its clear, greenish mass is transformed in mid-air to thousands of jets, shaped like arrow heads or like a comet with nucleus and trailing coma, following in constant succession and gathered into five rather prominent and distinct ridges, all of silvery whiteness. Intertwining with this silvery sheen the golden sunbeams wear rainbow wreaths of rare and radiant beauty. The basin below the falls is apparently chiseled by watery hands in regular, smoothly carved surface from solid rock. There is no place for the approach of human footsteps within the run of this basin. Along its smooth, steep sides are num-

berless secondary cascades, formed by the condensation of spray from the dissipated waters. So profound is this awful chasm that the roar of the water is stifled, and no sound is perceptible at a little distance back of the canyon. The upper level is generally covered with thick pine timber to the edge of the chasm, though at a little further distance on the crest side is open country, rolling and covered with sagebrush. Still further back, about 3 miles away from the river, is a pretty meadow, with a clear stream, a nice place as we found to camp.

The eastern side is much more open, with only small, occasional groves. The sides of the canyon from immediately below the Great Falls are almost perpendicular for the most part. In some places lateral ravines cut down through these perpendicular sides and render it possible by great care and difficulty to reach the water's edge. These sides rise to the height of 1,200 feet above the river below, the falls growing higher below from the rapid fall of the river, and where this canyon cuts through the highest part of the mountains I have no doubt that the almost perpendicular sides will stand 3,000 feet, perhaps more, above the river. One mountaineer told us that he had approached the river at one point where the bank was a mile above the river. The sides of this canyon are beautiful and grand beyond description. The general color is yellow, and shows how the river came by its name, but in parts this color changes to a dazzling white, others to a bright red, while the river shrinks to a crooked thread in the vast abyss, its general color of green alternating with white at the falls and rapids. Many a bold cliff protrudes from the bluff banks, affording magnificent points, to view the falls and the dizzy depths of the canyon. To all those points were well-worn paths of the mountain sheep, and as there was no herbage of any kind to tempt their adventurous steps I concluded these peculiar animals must be gifted with a strong sense of the sublime and beautiful which they come here to indulge. For my own part I must confess to an uncontrollable shrinking and shaking of limbs that forbade all approach to the verge of these points except by crawling at full length extended. I could thus trust the weight of my body to hold my giddy head. I stayed for hours on these points, almost an entire day, trying to inure myself to the sight so as to overcome this feeling of terror that so interrupted the enjoyment of the beauties of the scene. So long I stayed and so intense was the strain upon mind and muscle that I withdrew exhausted, but with the grand picture so indelibly graven upon my fancy that it returns to my recollection more like a perpetual reality even to the extent of removing the muscular tremor I then experienced.

To attain a proper enjoyment of these great falls I am satisfied that considerable time is essential. At first the grandeur overtops and absorbs all other considerations, while the beauties only come out to appreciation by time. Fearing to trespass on your space, I will conclude this imperfect notice of what I am satisfied is in many respects the grandest waterfall in the world, and surely destined at no distant day to become a shrine for a world-wide pilgrimage.

Truly yours,

CORNELIUS HEDGES.

HELENA, *October 15, 1870.*

(Helena (Mont.) Daily Herald, October 15, 1870.)

APPENDIX I

HELL-BROTH SPRINGS

To the Editor of the Herald :

In the afternoon of Monday, August 29, we pitched camp in a beautiful, grassy, upland opening near a small, cold, clear creek and plenty of timber in scattered groves. It was an inviting spot to toil-worn tourists. The signs of game were plenty and recent, and those who had hankered for bears had promise of a heart full of satisfaction. I may add that none were brought into our camp to my knowledge.

After supper, General Washburn, Lieutenant Doane, and myself started out in the supposed direction of the river, keeping down the source of the creek. We found the timber growing thicker as we proceeded and the grassy openings fewer and smaller, till finally they entirely disappeared. While thus toiling through dense timber we came suddenly upon a basin of hot, boiling, sulphur springs, which to us at that time seemed wonderful beyond conception. These springs—not counting the smaller ones—were four in number, differing considerably in character. The westernmost spring was the largest, with an oval-shaped basin 20 by 40 feet in diameter. Its greenish-yellow water was hot and bubbles of steam or gas were constantly rising from various parts of its surface. This spring, with two others, were situated in about an east and west line, and at the upper side of the basin which opened south toward the creek. The central one of these three was the largest of all, and was in constant, violent agitation, like a seething caldron over a fiery furnace. The water was often thrown higher than our heads, and fearful volumes of stifling, sulphurous vapors were constantly escaping. The water was of a dark lead color and intensely hot. As near as I now recollect, the basin of this spring was about 30 feet in diameter. There was very little water flowing away from it and very little deposit from its overflows were visible. It had no such mound as many that we saw subsequently nor was its margin of such solid material. The easternmost and uppermost spring was not as large in its crater as its near neighbor, but was more infernal to look at and suggested the name that we attached to the springs. Hecate, with all her wierd band, could never have brewed a more devilish-looking dish, to say nothing about the contents. The substance was not as thick as mud, but rather beyond the consistency of soup, and was in constant, noisy ebullition, emitting fumes of villainous smell. The margin was not safe for close approach, but I ventured near enough to thrust a pine sapling into the substance of this infernal kettle, and pulling it out found it covered about one-fourth of an inch thick with a lead colored, sulphury slime. Nothing flows away in liquid form from this spring. It seems to be boiling down, and will doubtless become thick as pudding, like so many that we afterwards saw. In earlier ages fancy would have peopled the vicinity with grimy ghosts and demons dire, trooping in the triple darkness of storm, shade, and night to hold unhallowed carnival about such an infernal looking smelling, and sounding place, bowl, and contents. But science has so demoralized fancy that it will probably succeed poorly in peopling Hell-broth Springs.

We simply become conscious in the presence of these seething craters that volcanic forces and fires were not yet extinct and might again burst forth in earthquaking and mountain heaving might and majesty.

The fourth spring of this group is farther down toward the creek, in the southeast corner of the basin, and about 10 feet in diameter. The water was of a cloudy, yellowish color, but nearer clear than any of the group. This spring was partly covered by an overreaching ledge of rock. The agitation of the waters was violent, and large quantities overflowed and were running away through an opening in the lower side of the basin. We rolled large rocks into this fiend at the bottom, and lead to still greater agitation in the waters. We tried to sound its depths with the longest pole we could find, but the bottom was beyond our reach. Doubtless the sources of this heat, if not of the water, are the great internal fires in the innermost bowels of the earth.

So secluded is this cluster of springs that it would be impossible to suppose it to have ever been seen before by any white man, and it appeared to us that the merest chance directed our steps thither.

How many similar basins are hidden away among the vast forests that cover this region we can best conceive who have seen scores of them without turning much from our direct course.

After weeks of continual new discoveries, becoming more and more wonderful till wonder itself became paralyzed, I am satisfied that we saw but a fraction of the strange sights the country contains. As the first geyser that we saw, and the dark, dismal, diabolical aspect of the whole group, it made more of an impression upon us than if seen later on our course.

The setting sun drove us to return without finding the river, and the next day, after the rest of the party had paid a visit to Hell-broth Springs, we pushed on through the most open portions of the country and with great good fortune found ourselves in the vicinity of the Great Falls of the Yellowstone.

Yours truly,

CORNELIUS HEDGES.

HELENA, *October 19, 1870.*

(Helena (Mont.) Daily Herald, October 19, 1870.)

APPENDIX J

SULPHUR MOUNTAIN AND MUD VOLCANO

September 1 our party struck camp near the falls and moved up, still on the west side of the river, toward the lake. Hauser, Stickney, Langford, Moore, and myself, not yet satisfied with our views of the falls did not accompany the train, but returning spent the day 'til high 12, slaking our souls with the beauty and inspiration flowing from those incomparable masterpieces of nature. In about 6 miles from the falls we came to a broad, open space of lowland, through the center of which runs a considerable sized creek of alum water. We crossed without any trouble, where we anticipated much. From this creek we first came in sight of our train, near the base of an isolated mountain, to the right of our course, and some 2 or 3 miles away from the river. We could also see smoke or vapor rising in continuous columns from the western end of the mountain. Pushing on as fast as the wet and loose nature of the ground would admit, we were soon in the midst of a new field of wonders, apparently, in the very crater of an extinct volcano, whose smouldering fires were finding vent through hundreds of smaller outlets. The field of this activity was confined to the southern slope of this mountain. At its base were large sized, hot, boiling, sulphur springs. One among these deserves particular mention for size, activity, and appearance; its basin was 20 feet in diameter, and was full to overflowing with scalding water of yellowish clouded color, much impregnated with sulphur, which was deposited all around the margin of this basin and along the channel, by which its overflowings passed away. The water in the basin was in constant, violent agitation, sometimes bursting out with terrific force, throwing the whole of its contents into the form of an irregular cone, 6 feet in height (*sic*), and dashing it when it fell all over its sides, whence part would trickle back and the most run away. The margin was beautifully scalloped and fluted, its inner facing bright yellow as pure brimstone, fading into gray further back. From another smaller crater, lower and further to the west, issued dense, sulphurous vapors, in irregular jets, accompanied with a deep, guttural sound, somewhat resembling the sound of a steamboat when laboring over a sand bar. No water was visible in this crater, but its dashings in the depths below could be distinctly heard, and occasionally drops were thrown out. All over the southern slope of the mountain, from hundreds of crevices issued fumes and smoke of sulphur, whilst every such outlet was encircled with converging crystals (*sic*) and orifices of pre bright, yellow brimstone. So brittle was the crust that it was constantly breaking under our feet, opening occasionally to view the most beautiful little caves and grottoes, lined throughout with the same bright, yellow crystals. So hot was the surface of this part of the mountain that our thick boots in rapid motion could hardly be kept tolerable. Acres of surface were thus covered with almost pure brimstone. The specimens we brought away will speak for themselves. At the southeast foot of this mountain was a distinct basin of springs, which as they did not exhibit any wonderful symptoms, we did not visit, but mounting our horses we rode over to an en-

tirely separate basin, about 30 rods to the southwest, where, in our approach we were compelled to dismount, as our horses began to break through. In this heart-shaped basin were scores of mud springs of all degrees of consistency, and of great variety of color. It was the most dangerous looking crater to explore of any that we traversed. The surface appeared to be simply a crust of indurated mud over a boiling lake of fire and brimstone. Down through the many vent holes we could see the yellowish liquid, boiling and sputtering in receding caverns apparently connected together. It looked like an infernal dyehouse, where pots of pigments were in process of preparation. Here was a pot of light yellow color, within 2 feet another of pink, and another of lead color, with various intermediate shades. The *tout ensemble* was decidedly unique and picturesque in the extreme.

So long had we tarried to survey these wonders, that we lost all thought of our distant train and declining day. Putting spurs to our horses we bounded over hills and heaths in the supposed direction of our train, skirting on our way a lazy creek, coiled up like a monster serpent under a sand bluff; then, through a low, flat, bottom, almost on a level with the river's surface, and covered with coarse swamp grass reaching to the horses' shoulders, then, bending around the base of a protuding bluff, we caught the welcome sight of camp among scattered trees close by the river's side. Supper was nearly ready, and we were quite so. Such venison and trout as we had would be sweet to take under any circumstances, but for a keen relish commend me to a day's riding and pleasurable sightseeing.

Dense clouds of vapor rising from a neighboring pine grove, and low, sullen, booming sounds that made the earth tremble, gave notice that grander scenes awaited us. Hunger is easier satisfied than curiosity. We were soon following sight and sound in a southwest direction. General Washburn having been in advance, became our guide, and took us first to see a most singular spring that issues from the mouth of a cave. The substance of the top and sides of this cave seem like decomposed marble purely white, but the dashing of the water and the constant exhalations of steam have left a deposit of the deepest green, vitriol looking substance, over much of the surface, contrasting beautifully with the white, as well as with the perfectly clear water in the bottom of the cave. The débris from the crumbling sides had been carried out and built up by the dashing waters into an embankment of pure, white sand, about a foot high, and a little out from the mouth of the cave. Back of this the waters rose to the brim, and overrun, at each spasmodic exhalation of steam, recurring almost as regularly as those of a steam engine. This cave seemed to be at the head of a ravine and at the base of a pine-covered hill. The mouth of the cave was about 6 feet in diameter, and its top sloped rapidly to the surface of the water, touching it at about 25 feet from its mouth. In any other vicinity it would have attracted more attention.

About a dozen rods distant, perhaps 20, the most singular phenomenon that had yet been seen in this region, prolific in wonders, attracted and absorbed our attention and interest. From out the murky mouth of a mud-covered mound were rolling rounded volumes of commingled smoke and steam, surcharged with sulphurous gas, an intermittent, rather irregular booming sound, as of a mighty engine, which echoed through the deep woods, quaked the ground beneath us, and produced a feeling of awe as we cautiously approached the brim of the crater. At intervals the smoke would roll back for an instant, and we could see the shape and dimensions of the opening. It was nearly circular, 30 feet in diameter at the top, then appearing to contract like the neck of an urn, swelling out again further down. At another visit,

the day following, and after a most thorough watching and examination, I gained an indelible impression of its force and appearance, whilst my wonder was proportionately increased. In one respect different from anything seen on our whole trip, this monster was of very recent date. Alone by itself, on the slope of a wooded hill it had evidently burst forth in an instant, hurling stone, soil, trees, and muddy lava in hot and promiscuous ruin in all directions. Approaching from below, the mound rises 30 feet; on the side next to the hill it is but very little above the natural surface. The entire surface of the mound is covered with a lead colored, very rough indurated mud. The same substance covers all the surrounding trees and bushes, dried on just as it fell, with no rain or snowstorm to dissolve or loosen it since. The wind had shaken these trees in vain. In all the rough fantastic (*sic*) shapes in which this plastic mud had first fallen, the sun had baked it, and so we saw it. We tried to transport some specimens of small limbs thus covered, but they crumbled. For a radius of 400 feet I traced this mud on earth and tree, while other trees that stood along the crest of the hill above the crater, 200 feet above were shorn of limbs. I watched with others for hours, trying in vain to catch sight of the liquid mass in the belly of the crater, whose surging and splashing we could distinctly hear, sometimes seemingly thrown almost to the top. This veritable mud volcano was surely of most recent date, probably not two months old, possible not two weeks old. Should there yet be found in this region full-fledged volcanoes emitting smoke, cinders, and molten larva, it would not surprise me any more or convince me any stronger that this was a region of active volcanic forces.

Between the mud volcano and the river, about a quarter of a mile distant, is a remarkable hot spring, becoming at times a spouting geyser of magnificent proportions. In a basin of about 8 rods in diameter and containing several small springs of various qualities, this one spring had a funnel-shaped bowl, sometimes quite empty and 25 feet deep, showing an aperture of no more than 15 or 18 inches. When empty, the sides of this bowl become almost white. It has a beautiful mottled appearance, ruffled and ridged all over. The spring is recent, or the mineral solution slight, for the deposit is quite thin, though solid, specimens of which I brought away with me. Gradually and quietly this basin fills, when suddenly bursts forth the most terrific agitation; the whole mass of water turns to froth and leaps up in wild, irregular spouts. Sometimes the whole volume seems lifted at once. Probably some of these jets reach the height of 50 feet. The geysers that we subsequently saw in the Madison Valley were radically different in all their features, but this one was in our eyes so marvelous that we felt ourselves more than rewarded for the toil, trouble, and expense of the trip. During this violent agitation, not more than 10 minutes long, a dense, unbroken volume of steam rises in a cloudy column that can be seen many miles away. These spasms are very irregular, and many hours at one time we sat under the neighboring pines awaiting the troubling of its waters. It came in a most exciting display.

Yours,

CORNELIUS HEDGES.

(Helena (Mont.) Daily Herald, October 24, 1870.)

APPENDIX K

YELLOWSTONE LAKE

To the Editor of the Herald :

This beautiful body of water is situated in the extreme northwest corner of Wyoming, and, with its tributaries and sister lakes of smaller dimensions, is entirely cut off from all access from any portion of that Territory by the impassable and eternally snow-clad range of the Wind River Range of mountains. Hence the propriety that the Territorial lines be so readjusted that Montana should embrace all that lake region west of the Wind River Range, a matter in which we hope our citizens will soon move to accomplish, as well as to secure, its future appropriation to the public use.

The lake was often visited by others before our party reached it on September 3, but never before had any party attempted a thorough exploration of its entire shore line, or had any correct idea of its shape, tributaries, or dimensions. The point where we first struck the lake was about 3 miles southeast of the point where the river leaves it and near the mouth of a small stream that flows from a sulphur basin to the east. Around the mouth of this stream is a broad, low, swampy bottom which we found much difficulty in crossing. Having crossed this bottom, we first caught the inspiring sight of the broad lake's surface over the top of a high sand ridge, which the waters have heaped up as a breastwork, and crowned with an abattis of sagebrush. There is always something exhilarating in the sight of waters, and in the fervor of our excitement at the first glimpse of the lake we dashed away without thought of train or camp and very little regarding intervening obstacles till we reined up our horses on the very edge of the waters. A noble sight spread out before us. White-crested waters of marine proportions were chasing each other over the watery plain, breaking with a monotonous dirge along a beach of soft, clean, sparkling sand, which ran away to the southeast in a line as straight as an arrow's flight for a full mile in length. About the mouth of the little stream that we had just crossed were numerous shallows and bars, which were covered by the acre with ducks, geese, huge white-breasted cranes, and long-beaked pelicans, while the solitary albatross, or sea gull, circled above our heads with a saucy look that drew many a random shot and cost one, at least, its life. The country generally around the lake is densely timbered, but at this point where we first reached it there was an open shore for 2 miles or more, terminating in a bold, rocky ledge that rises perpendicularly about 150 feet above the water, and from its forward position affording a fine view of a large portion of the lake. Before sunset of the first day I had traced several miles of the lake beach alone, gathered many curious specimens of watery mechanism, and in spite of the high-rolling waters had bagged four of as handsome trout as ever kindled the enthusiasm of a genuine disciple of Isaac Walton.

The wonderful beauty of the lake had wrought a charm over almost the entire party, and around the evening camp fire we voted to traverse the entire

lake shore, Hauser and Smith only voting a halfway "no." We would build a raft, raise a blanket sail, and visit the wooded islands; we would visit every nook and corner, and find the favorite haunts of the waterfowls; we would pile high our rude water craft with trout and game, and dot the entire beach with the glowing embers sputtering under the weight of broiling brant and crisping fish. Many of these fine, rich, fancy pictures fell far short of realization, and still they figured in the original resolve, and as they disappeared one by one they left the first vote unrescinded and not one ever hesitated or proposed to back out. Our attempt at raft building was such an utter and ignominious failure that the subject was dropped by mutual consent. The wind was always from the wrong direction, the waves rolled unnecessarily high, the water was evidently deep and unmistakably cold, the islands distant, and the logs altogether too much inclined to slip their cables and strike out in their individual capacity. The toil of a day was the wreck of a few moments, and we hushed our disgust with the glad reflection that we had never got away on it, and quit the subject by promising ourselves to bring an india-rubber boat when we came again. Other fancies more nearly approached realization, and still I retain no distinct recollection of frequent feasts on broiled duck, for which none were to blame but ourselves. My individual taste led me to fishing, and I venture that none of the party dare complain that they did not have all the fine trout that their several appetites and capacities could provide storage for. Indeed, I feel in gratitude bound to bear testimony that for fine fish, and solid, satisfying fun, there is no body of water under the sun more attractive to the ambitious fisherman than the Yellowstone Lake. While upon the subject of fishing, allow me to relate one or two instances of personal experience. One day, after the loss of our comrade, and when rations were getting short, I was deputed to lay in a stock of fish to eke our scanty larder on our homeward journey. Proud of this tribute to my piscatory skill, I endeavored under some difficulties, to justify the expectations of my companions, and in about two hours, while the waves were comparatively quiet, I strewed the beach with about 50 beauties, not one of which would weigh less than 2 pounds, while the average weight was about 3 pounds. Another incident, illustrative of the proximity of hot springs rather than of trouting: Near the southwest corner of the lake is a large basin of exceedingly hot springs. These springs cover a large field. Some are in the very margin of the lake, while others rise under the lake and indicate their locality by steam and ebullition upon the lake's surface when the waves are not too uneasy. One spring of large size, unfathomable depth, sending out a continuous stream of at least 50 inches of scalding water, is still separated from the cool water of the lake by a rocky partition, not more than a foot thick in places. I returned along the narrow rim of this partition, and catching sight of some expectant trout lying in easy reach, I solicited their attention to a transfixed grasshopper, and meeting an early and energetic response, I attempted to land my prize beyond the spring, but unfortunately for the fish, he escaped the hook to plunge into this boiling spring. As soon as possible I relieved the agonized creature by throwing him out with my pole, and though his contortions were not fully ended, his skin came off and he had all the appearance of being boiled through. The incident, though excusable as an incident, was too shocking to repeat.

We noted it as a singular fact that we saw no other fish than trout in the lake, and no small fish of any sort. There was a wide contrast in the color of the meat of these trout. While most of them were as richly red as salmon,

others were quite white; and as a frank confession is good for the soul, we will relieve our own by confessing that some at our very last camp on the lake were found to be wormy.

At our first camp we ascertained the altitude of the lake to be 8,337 feet above the sea level. We found that water boiled at so low a temperature as to sensibly prolong the operation of cooking while the warmest days were sure to be checkmated by chilly nights. In spite of the many hot springs and fire rents in the region of the lake, the altitude renders it certain that winter comes early and tarries late; in fact, it is almost always in sight, and liable to drop in any day.

We made one camp on the east shore, and did not find as much trouble as anticipated in making our way, sometimes on the beach, but more by following game trails through the timber, generally in sight of the lake. During this first day of travel we rounded one large eastern bay, at the southern extremity of which was a rocky point, from which was issuing many columns of sulphurous vapor from crevices in the rock, as seen across the lake, in early morning. This point had looked like some busy factory town with steam works in full play. The portions of the beach that we traversed the first day on the eastern shore were remarkably rich in curiosities. Here were clay, slate layers, wrought by the cunning and tireless waves into cups and saucers, and bowls and slender pestles, and some well-turned specimens of a human foot and leg. But in many respects the most singular beach was opposite our second camp, named by us "Cornelian Beach," from the many fine specimens of these stones found here. But what attracted my attention still more was a portion of the beach composed of stones as large and round as cannon balls, nearly all appearing of uniform size. The material seemed to be a dark red sandstone. A little further on the size diminishes to that of canister and grape shot. I have no recollection of having seen anything similar in my life. It looked like the abandoned stores of some Cyclopean arsenal.

Near the southeast corner of the lake the Yellowstone River flows into it with about one-half the volume that flows out, and the distance between the inlet and outlet is about 25 miles. Above the lake the Yellowstone River has a course of many miles along the base of the Wind River Range of mountains, which are buried in eternal snows.

Langford and Doane report having seen, 30 miles up the valley, two columns of steam, apparently 500 feet in height. This report, received at the time with uncivil incredulity, received so much subsequent confirmation that we afterwards regretted our folly in not ascertaining the truth.

I think a more confirmed set of skeptics never went out into the wilderness than those who composed our party, and never was a party more completely surprised and captivated with the wonders of nature.

The south shore of the lake is very irregular. It is cut up by several long promontories—two of them mountains of considerable height, running out for several miles, inclosing arms of the lake like fingers reaching in after more space. The most graphic map of the lake that I could present my readers would be the human hand with fingers extended and spread apart as much as possible. The main portion of the lake is the northern, which would represent the flat of the hand. There is a large southwest bay, nearly cut off, that would represent the thumb, while there are about the same number of narrow southern inlets as there are fingers on the hand. The southern shore is an

almost impenetrable timbered wilderness, through which we toiled and swore our way, coming out after several days tattered and torn, ragged, bleeding, and sullen. We had lost one of our company and only wondered that we had not lost all of them. Future generations may find on this south shore hallowed grounds, but it was soundly and sorely cursed by us.

At the southwest corner of the lake is a large region of wonderful hot springs that deserve more space in portrayal than now remains at my disposal.

CORNELIUS HEDGES.

(Helena (Mont.) Daily Herald, November 9, 1870.)

APPENDIX L

THE YELLOWSTONE EXPEDITION

Accounts of travel are often rather uninteresting, partly because of the lack of interest in the places visited and partly through the defective way in which they are described. A poetic imagination may, however, invest the dreariest spots with attraction, and the loveliest nooks of earth may seem poor and arid if sketched with a dullard's pencil. But perhaps the most graphic and effective descriptions of actual scenery come from those "plain people," as Mr. Lincoln would have called them, who, aiming at no graces of rhetoric, are unconsciously eloquent by the force of simplicity.

A record of the Yellowstone exploring expedition, which has just happened to reach us, is distinguished by this graphic directness and unpretending eloquence. It is partial and fragmentary, but it reads like the realization of a child's fairy tale. We mean no disparagement, but the reverse, of the notes of the surveyor general of Montana, in saying this. No unstudied description that we have read of the internal scenery of the American continent surpasses his notes in any particular. The country he had to describe certainly offers great advantages. But it is much to his credit that he has performed the task in so unpretending a manner. Where temptation to fall into the besetting sins of tourists is great, the merit of avoiding them is equally great. The Yellowstone expedition left Fort Ellis on the 22d of August. Through the Bozeman Pass it made its way to Trail Creek, from which a view was had of the mountains beyond the Yellowstone. Soon after it reached the mouth of Gardiner River, which enters the Yellowstone just below what is called the Grand Canyon. Here the explorers pitched their camp amid magnificent scenery. They found abundance of game and trout, hot springs of five or six different kinds, including sulphur and iron, and basaltic columns of enormous size, that constantly suggested some mighty effort at human architecture. But finer and more imposing still they found the river—the Gardiner, just before reaching the Yellowstone—running between a procession of sharp pinnacles, looking like some noble old castle, dismantled and shivered with years, but still erect and defiant. Suddenly, and between two of these turrets, the river makes a sheer leap into the air—a leap of 110 measured feet—and then flows peacefully into the Yellowstone. This cataract, which has been named the Tower Fall, must be in form, color, and surroundings one of the most glorious objects on the American continent.

Beyond this from an elevated peak a panorama was obtained of vast extent and beauty. Far in the distance were seen the Yellowstone Lake, the jagged summits of the Wind River, Big Horn, and Lower Yellowstone Ranges of mountains, while still farther could be discerned the tops of the Tetons. Soon the party came upon huge boiling springs giving forth volumes of steam and their sides encrusted with sulphur. These, with questionable taste, were named "Hell-broth Springs," and a gorge hard by where a mountain stream had ages back torn its way through a rock of lava, was naturally called the "Devil's Den." More picturesque cascades were afterwards found, several of them exceeding 100 feet in height, and the water possessing a beautiful emerald green

tint, to which Mr. Washburne often refers. But beautiful is hardly the word for the Lower Falls of the Yellowstone. Here the height more than doubles Niagara. The water of the river is flung in one sheet down a perpendicular wall of 350 feet; and the mingling of green water and white spray with the rainbow tints above is spoken of as gorgeous beyond description. Not far away there is something more amazing still. There is a canyon or ravine which, a thousand feet deep at the Lower Falls, becomes nearly double that depth farther on. Jutting obliquely over this canyon frowns a rock, itself 200 feet high, on the top of which is an eagle's nest. Close by a little rivulet comes chasing down past this rock and leaps squarely into the canyon. It is dashed into mist long before it can reach the bottom.

There are many other strange things in the Yellowstone Basin which would take much space to describe. There are extinct volcanoes and hills made of solid brimstone; there is a large sulphuric spring, 20 feet by 12, filled with boiling water, which is constantly thrown up by the effervescence high into the air; there is a spot covered with springs of nearly every color—yellow, green, blue, and pink; there is another spring of alum water, not in solution only, but crystallized, and there are geysers of mud and steam ceaselessly active that must exceed in size and power those of Iceland. One of the number, according to Mr. Washburne, throws mud 300 feet high, and another spouts only at intervals, becoming perfectly still, and anon throwing up a volume of boiling rubbish to a great altitude. We have said that this record reads like a fairy tale, and readers will by this time agree with us. Its official character, however, may be added to the evidence of that simplicity of style already commended as earnest of the trustworthiness of the narrative. Rarely do descriptions of nature come to our hands so unaffectedly expressed and yet so gilded with true romance.—(New York Times, Editorial, October 14, 1870.)

APPENDIX M

THE REPORT OF LIEUT. GUSTAVUS C. DOANE UPON THE SO-CALLED YELLOWSTONE EXPEDITION OF 1870 TO THE SECRETARY OF WAR

[41st Cong. 3d sess. Executive Document No. 51]

FORT ELLIS, MONTANA TERRITORY,
December 15, 1875 (1870)

SIR: The subjoined special order was received from your office by me on the 21st of August, 1870:

[Special Order No. 100.—Extract]

HEADQUARTERS FORT ELLIS, MONTANA TERRITORY,
August 21, 1870.

II. In accordance with instructions from Headquarters District of Montana, Lieut. G. C. Doane, Second Cavalry, will proceed with one sergeant and four privates of Company F, Second Cavalry, to escort the surveyor general of Montana to the falls and lakes of the Yellowstone, and return. They will be supplied with 30 days' rations, and 100 rounds of ammunition per man. The acting assistant quartermaster will furnish them with the necessary transportation.

By order of Major Baker.

J. G. MACADAMS,
First Lieutenant Second Cavalry, Acting Post Adjutant.

In obedience to the above order, I joined the party of Gen. H. D. Washburn, en route for the Yellowstone, and then encamped near Fort Ellis, Montana Territory, with a detachment of Company F, Second Cavalry, consisting of Sergt. William Baker, Privts. Charles Moore, John Williamson, William Leipler, and George W. McConnell. The detachment was supplied with two extra saddle horses and five pack mules for the transportation of supplies. A large pavilion tent was carried for the accommodation of the whole party, in case of stormy weather being encountered; also 40 days' rations and an abundant supply of ammunition. The party of civilians from Helena consisted of Gen. H. D. Washburn, surveyor general of Montana, Hon. N. P. Langford, Hon. T. C. Everts, Judge C. Hedges, Samuel T. Hauser, Warren C. Gillette, Benjamin C. Stickney, jr., Walter Trumbull, and Jacob Smith, all of Helena, together with two packers and two cooks. They were furnished with a saddle horse apiece, and nine pack animals for the whole outfit; they were provided with one aneroid barometer and one thermometer, and several pocket compasses, by means of which observations were to be taken at different points on the route.

First day.—We left Fort Ellis on the morning of the 22d, taking the road to the Yellowstone River, in an easterly direction.

Barometer, 25.25; thermometer, 92° noon; elevation, 4,911 feet.

This road follows the general course of the East Gallatin, over a hilly country of limestone formation, with scattering pine timber on the northern slopes. The ravines and small valleys are grown up with quaking aspens and willows. The strata of rock are nearly perpendicular, composed of cliff limestones, interspersed with shales and slate, having nearly a vertical dip to the westward, and greatly broken up by volcanic agencies underneath. Six miles from Fort

Ellis we crossed the Yellowstone divide, a ridge of considerable height, forming the apex of two water sheds; one sloping to the Gallatin, the other to the Yellowstone. At the point of crossing the ridge is depressed several hundred feet below its usual altitude, allowing a tolerable wagon road over the pass. The summit affords a fine view of the beautiful Gallatin Valley, with its cordon of snow-capped peaks, its finely timbered watercourses, and its long grassy declivities, dotted with the habitations of pioneers, and blooming with the fruits of industry now ready for harvest.

Barometer, 24.10; thermometer, 70°; elevation, 6,140 feet.

At the head of the East Gallatin ravine a fine seam of coal has been struck in the bed of the stream, where it can be worked to advantage, beneath the carboniferous limestone found in such localities. We traveled thence through a natural pass between high ridges, and down a gentle declivity about 3 miles, striking the valley of Trail Creek leading to the Yellowstone, and camping on this creek at a point distant about 15 miles from Fort Ellis. This stream is shut in by high hills, wooded at the summits, and with grassy slopes. Occasionally masses of lava are seen projecting from the highest points. The valley formation is composed of the débris washed down from the hills, together with traces of original drift. Trail Creek at the place of our encampment is a small sized trout stream of great clearness and purity; the general direction of the stream is southeast.

Barometer, 24.30; morning, thermometer, 54°; elevation, 5,803 feet.

Second day.—On the 23d we followed the valley of Trail Creek 12 miles, to within sight of the valley of the Yellowstone. Approaching the river the country became more and more volcanic in appearance, with large masses of basaltic lava cropping out from the high ridges on the right and left. Many of these masses showed a perpendicular front of several hundred feet, with projections resembling towers, castles, and other objects of interest. Several miles away on the right, in the highest range bordering the valley, is Pyramid Mountain, a snow-capped peak, and further to the southward a long range, also covered with snow. On the left of the valley the foothills were clothed with beautiful verdure, and the higher summits of the ranges grown up with pine timber. Crossing a low ridge, in the afternoon, we came in full sight of the Yellowstone Valley and stream. The view from this point was extremely grand, covering a vista of some 30 miles along the river of the valley, which is here several miles wide, and shut in by volcanic mountains of immense height on the opposite side. These peaks are of a dark lava, with ragged summits that stand out in bold relief against the sky. Heavy masses of snow fill the upper ravines, in the summer time feeders of hundreds of springs, which trickle through dense masses of forest on the mountain sides. The valley descends from the foothills in gentle declivities, covered with luxuriant grass, and the channels of numerous streams come down from the ranges above on either side. Descending to the valley we followed up the stream, camping at Butler's ranch, 8 miles above. A few antelope were seen during the day, but no other game. Distance traveled 20 miles. In the afternoon we met several Indians belonging to the Crow agency, 30 miles below. In the evening a severe rainstorm set in, lasting with intervals throughout the night, and on the following morning the mountains were covered with newly fallen snow. We remained in camp at Butler's until 12 o'clock on the 24th.

Third day.—Throughout the forenoon it rained occasional showers, but before 12 o'clock the clouds rolled away in heavy masses along the mountain sides, the sun came out, and the atmosphere was clear again. From this point a beautiful view is obtained; the mining camp of Emigrant Gulch is nearly opposite, on a small stream coming down from the mountains, on the

opposite side of the river. A few settlements have been made in this immediate vicinity, and small herds of cattle range at will over the broad extent of the valley. Our camp was situated at the base of the foothills, near a small grove, from which flowed several large springs of clear water, capable of irrigating the whole bottom in front. The soil here is very fertile, and lies favorably for irrigation; timber is convenient, water everywhere abundant, and the climate for this region remarkably mild. Residents informed me that snow seldom fell in the valley. Stock of every kind subsist through the winter without being fed or sheltered. Excepting the Judith Basin, I have seen no district in the western territories so eligible for settlement as the upper valley of the Yellowstone. Several of the party were very successful during the morning in fishing for trout, of which we afterward had an abundant and continued supply. The Yellowstone here is from 50 to 100 yards wide, and at the lowest stage 4 feet deep on the riffles, running over a bed of drift bowlders and gravel, with a very rapid current. The flow of water is fully equal to that of the Missouri at Fort Benton, owing to the rapidity of the current, though the channel is much more narrow.

The Yellowstone trout are peculiar, being the largest variety of the genus caught in waters flowing east. Their numbers are perfectly fabulous, but their appetites extremely dainty. One may fish with the finest tackle of eastern sportsmen, when the water appears to be alive with them, all day long without a bite. Grasshoppers are their peculiar weakness, and using them for bait the most awkward angler can fill a champagne basket in an hour or two. They do not bite with the spiteful greediness of eastern brook trout, but amount to much more in the way of subsistence when caught. Their flesh is of a bright yellow color on the inside of the body, and of a flavor unsurpassed. The barometer stood here 25.10; thermometer, 40°; elevation, 4,837 feet.

We moved in the afternoon at 2.30 p. m., following the course of the valley, crossing several small streams and numerous dry gulches on the way. After traveling about 6 miles we crossed, by a difficult pathway, a spur of the mountain, coming down with a bluff bank on the edge of the stream, beyond which the valley opened out to a bottom of large extent and great beauty, back of which the foothills rose up in successive plateaus to the summit range. On the opposite side the steep, lava mountains came in close to the stream, their lofty fronts covered with stunted timber, and their summits of naked granite piercing the sky. Several small streams ran in from the right, their banks bordered with wild cherry and cottonwood, the branches of the former broken down in many places by grizzly bears in gathering the fruit. A large portion of the bottom land is subject to overflow by the mountain streams, and bears a crop of grass, in many places waist-high. The river is skirted with shrubbery and cedars, the latter having short, thick trunks, too short for ordinary lumber, but yielding most beautiful material for small cabinetwork, and of a nature susceptible of an exquisite finish. We followed up this valley about 6 miles, and camped on the bank of the stream upon a high plateau of drift bowlders, and at the opening of an immense canyon, the lower canyon of the Yellowstone. Our mess table was here supplied with antelope, hare, ducks, and grouse killed during the day, with fish caught *ad libitum* in the afternoon. Guards were established here during the night, as there were signs of a party of Indians on the trail ahead of us, all the members of the party taking their tours of this duty, and using in addition the various precautions of lariats, hobbles, etc., not to be neglected while traveling through this country. The night was very clear and somewhat chilly, a strong wind setting in down the canyon toward morning. From observations taken at this point it appears that the maximum variation between

high and low water mark in the Yellowstone is less than 8 feet. Distance, 12 miles.

Fourth day.—Morning of the 25th, barometer 25.10; thermometer, 40°; elevation, 4,837 feet. Threading our way for a distance of 1 mile among the enormous granite boulders, we came to the foot of the canyon, through which the trail was very narrow, admitting but one animal at a time, and passing over a high spur of the mountain overlooking the river, which at this point is forced in tremendous rapids, surging through a narrow gorge and over immense boulders in the bed of the stream. The lava walls rise hundreds of feet above this trail, which passes in many places under projecting boulders, holding tenure of their places by a very slight gravitation, and threatening continually a resumption of their journey to the river bed below. Huge masses of trachyte lava, heaped together in every conceivable form, obstruct the narrow way, affording refuge in their interstices to numbers of rattlesnakes, which made hostile demonstrations on being disturbed, and remained masters of the situation after we had passed. After scrambling over rocks for a distance of 2 miles, we came to where the valley opens again slightly, and the trail leaving the river passes to the summit of a ridge on the right, where we found at an elevation 1,000 feet above the river a small but beautiful lake. On descending presently from the mountain we again entered the river valley, which was here from $1\frac{1}{2}$ to 2 miles wide. The rock formation, after passing the narrow gorge, was of limestone strata, with superincumbent sandstones and shales; small deposits of gypsum appeared, and over all drift boulders were scattered, even on the summits of the higher hills; behind these granite peaks rose up, worn at their bases by the drift currents. The soil here lost its fertility, the level lands being covered with a heavy growth of sagebrush, and the few streams of water impregnated with alkali. The general trend of the river is to the southeast. About noon we passed a very singular formation on the right; the strata of limestone turned up edgewise formed a hill several hundred feet in height, on the face of which the softer portions of the strata having been washed away caused the more solid limestones to stand out from the hillside in two immense walls, the crests of which were covered with stunted pine trees. Near these a dark stratum of coal was visible, also a red stratum, reported to be cinnabar, which we did not, however, examine. From this point to the mouth of Gardiners River, a distance of 12 miles, the valley was full of original drift. The boulders were of Quincy granite, and, wherever found, were worn off smooth as if by the action of water. The ground rose rapidly as we proceeded, passing from a dead level alkali plain to a succession of plateaus, covered slightly with a sterile soil, through which the limestones cropped out constantly. In many places deep ravines were worn down in the strata by the waters from the melting snows; numerous springs were seen far up on the mountain sides, but their waters sank among the arid foothills without reaching the river. This desert region, inclosed by mountains covered with verdure, and on the banks of a large stream, is one of the anomalies common in the West, where the presence of limestones or sandstones, in horizontal strata especially, almost always means want of water, and consequent desolation. We camped at the mouth of Gardiners River, a large stream coming in through a deep and gloomy canyon from the south. This was our first poor camping place, grass being very scarce, and the slopes of the range covered entirely with sagebrush. From this camp was seen the smoke of fires on the mountains in front, while Indian signs became more numerous and distinct. Many prospect holes of miners were passed during the day, and several abandoned camps of the previous year. The river at this point shrinks to half its usual size, lost among the boulders of the drift, immense masses of which choke up the stream in many places, forming

alternate pools and rapids, which afforded great delight to the fishermen of our party. Some of the huge masses of granite in the bed of the stream are hollowed out by the action of the water into many singular forms. We here found numerous specimens of petrified wood, but no traces of fossils, except in the solid limestone of the higher ledges. Two or three miles above, and on the opposite side of the Yellowstone from this point, is the mouth of Bear Gulch, an almost inaccessible mining district, not being worked at present, but said to yield well during the season of operations. Distance, 18 miles.

Morning—Barometer, 24.80; thermometer, 49°; elevation, 5,215 feet. Noon—Barometer, 23.10; thermometer, 72°; elevation, 7,331 feet.

Fifth day—August 26.—We left camp at 11 o'clock a. m., and crossed Gardiners River, which at this point is a mountain torrent about 20 yards wide and 3 feet in depth. We kept the Yellowstone to our left, and finding the canyon impassable passed over several high spurs coming down from the mountains, over which the way was much obstructed by fallen timber, and reached, at an elevation of 7,331 feet, an immense rolling plateau extending as far as the eye could reach. This elevated scope of country is about 30 miles in extent, with a general declivity to the northward. Its surface is an undulated prairie dotted with groves of pine and aspen. Numerous lakes are scattered throughout its whole extent, and great numbers of springs, which flow down the slopes and are lost in the volume of the Yellowstone. The river breaks through this plateau in a winding and impassable canyon of trachyte lava over 2,000 feet in depth, the middle canyon of the Yellowstone, rolling over volcanic boulders in some places, and in others forming still pools of seemingly fathomless depth. At one point it dashes here and there, lashed to a white foam, upon its rocky bed; at another it subsides into a crystal mirror wherever a deep basin occurs in the channel. Numerous small cascades are seen tumbling from the rocky walls at different points, and the river appears from the lofty summits a mere ribbon of foam in the immeasurable distance below. This huge abyss, through walls of flinty lava, has not been worn away by the waters, for no trace of fluvial agency is left upon the rocks; it is a cleft in the strata brought about by volcanic action, plainly shown by that irregular structure which gives such a ragged appearance to all such igneous formations. Standing on the brink of the chasm the heavy roaring of the imprisoned river comes to the ear only in a sort of hollow, hungry growl, scarcely audible from the depths, and strongly suggestive of demons in torment below. Lofty pines on the bank of the stream "dwindle to shrubs in dizziness of distance." Everything beneath has a weird and deceptive appearance. The water does not look like water, but like oil. Numerous fish hawks are seen busily plying their vocation, sailing high above the waters, and yet a thousand feet below the spectator. In the clefts of the rocks down, hundreds of feet down, bald eagles have their eyries, from which we can see them swooping still farther into the depths to rob the ospreys of their hard-earned trout. It is grand, gloomy, and terrible; a solitude peopled with fantastic ideas; an empire of shadows and of turmoil. The great plateau had been recently burned off to drive away the game, and the woods were still on fire in every direction. In the morning I had ridden forward on the trail hoping to find a passage through the canyon, and after having endeavored to descend its precipitous banks in several places without success, I had climbed to the summit of the plateau and followed the trail of two hunters who had camped with us on the previous night and were gone in advance after game. Mr. Everts and Private Williamson accompanied me; the latter killed an antelope on the trail immediately after reaching the summit, which we left as an indication to the party following. Our course led along the great plateau, about 3 miles to the right of the canyon, toward which the ground fell off with

a slight declivity. Passing over the high rolling prairie for several miles, we struck at length a heavy Indian trail leading up the river, and finding a small colt abandoned on the range, we knew they were but a short distance ahead of us. The plateau formation is of lava, in horizontal layers, as it cooled in a surface flow; these have been upheaved in places by a subterraneous action into wavelike undulations, and occasionally granite shafts protrude through the strata, forming landmarks, at once permanent and generally of picturesque form. They resemble dark icebergs stranded in an ocean of green, rising high above the tops of the trees, in wooded districts, or standing out grim and solid on the grassy expanse of the prairie land. On the lower verge of this plateau we bade farewell to drift, its altitude being far above the line of operations of the ice period. I noticed that the grass in many places was here too green to burn, though already parched in the lower valleys we had already traversed, and that many flowers were just in bloom. It was still early summer in this elevated region, far above the perpetual-snow line of the mountains on the Gallatin.

In the afternoon the trail led us through a deep canyon to the south, which opened out on a small valley at the confluence of the East Fork of the Yellowstone. The main stream here turns to the southwest, the branch coming in through a deep rocky valley in a course due east. The opening formed at the junction of the two streams is probably 3 miles in diameter, and of nearly circular shape. The mountains on the opposite side and toward the head of the East Fork are composed wholly of lava, heaped up in every imaginable form. In the center of the valley rises a table mountain, perpendicular on its sides, and capped with a horizontal stratum of trap rock about 50 feet in depth; standing isolated in the surrounding level valley, and between the channels of the two streams, it has a very singular and remarkable appearance. The channel of the Yellowstone, where it enters this valley, cuts to the depth of 300 feet, through a bed of gypsum, overlaid by a stratum of trap, the columns of which show great perfection of crystallization. The valley itself abounds in springs, small lakes, and marshes. The slopes and ravines to the right and beyond the Yellowstone are heavily timbered with pine, affording a strong contrast to the bare rocks on the opposite side of East Fork.

Descending from the plateau through a steep ravine into the valley, and skirting for a distance of 2 miles a swampy flat, we came to the first warm spring found on the route. This spring is on the right of the trail, and of small size; temperature, milk-warm, and highly impregnated with sulphur. Passing thence, the trail leads over a spur of the mountain coming in from the right, and through a deep ravine, crossing Warm Spring Creek, where we camped for the night, in company with the two hunters aforementioned. The remainder of the party did not arrive until the next day. We passed, a mile before going into camp near a small lake, the "wickey ups" of 15 lodges of Crows, the Indians whose trails we had been following across the plateau. Distance traveled, 18 miles.

Sixth day—August 27.—Barometer, 23.70; thermometer, morning, 46°; elevation, 6,546 feet. We remained in camp at Hot Spring Creek awaiting the arrival of the rest of the party. In the morning I rode down to the confluence of the two rivers and found the East Fork to be a smaller stream than Gardiners River. This valley showed evidence of diminished volcanic action, calcareous mounds being frequently seen, which had originated in the action of hot springs, the waters of which had now ceased to flow. The valley was full of drift, and numerous prospect holes indicated the enterprise of the miners in penetrating these unknown regions thus far. At the mouth of Hot Spring Creek we found a system of sulphurous and mineral springs distributed

for a distance of 2 miles in the bottom of the deep canyon through which the river runs. These springs were invariably small, several of them having the temperature at the boiling point; many of them are highly sulphurous, having in fact more sulphur than they could carry in solution, and depositing it in yellowish beds along their courses. Several of them were impregnated with iron, alum, and other substances. The sulphurous fumes could be detected at the distance of half a mile. The gypsum walls of the canyon were very remarkable, the excess of sulphur in the combination over the proportion of limestone giving a brilliant yellow color to the rocks in many places. The formation was usually very friable, falling with a natural slope to the edge of the stream, but occasionally masses of a more solid nature projected from the wall in curious shapes of towers, minarets, etc., while above and over all the solid ledge of trap, with its dark and well-defined columns, made a rich and beautiful border inclosing the pictured rocks below.

Standing on the margin of the stream, a few hundred yards farther down, is Column Rock, a huge pile of alternate layers of basalt and amygdaloid cement, several hundred feet in height, surmounted by a pinnacle of trap, the columns of which are exactly perpendicular, and of a perfect outline. The great curiosity of the locality, however, is the Tower Fall of Hot Spring Creek, where that stream is precipitated, in one unbroken body, from an amygdaloid ledge, a sheer descent of 115 feet, into a deep gorge, joining the Yellowstone a few hundred yards below. At the crest of the fall the stream has cut its way through amygdaloid masses, leaving tall spires of rock from 50 to 100 feet in height, and worn in every conceivable shape. These are very friable, crumbling under slight pressure; several of them stand like sentinels on the very brink of the fall. A view from the summit of one of these spires is exceedingly beautiful; the clear icy stream plunges from a brink 100 feet beneath to the bottom of the chasm, over 200 feet below, and thence rushes through the narrow gorge, tumbling over boulders and tree trunks fallen in the channel. The sides of the chasm are worn away into caverns lined with variously tinted mosses, nourished by clouds of spray which rise from the cataract; while above, and to the left, a spur from the great plateau rises above all, with a perpendicular front of 400 feet. The fall is accessible either at the brink or foot, and fine views can be obtained from either side of the canyon. In appearance, they strongly resemble those of the Minnehaha, but are several times as high, and run at least eight times the volume of water. In the basin we found a large petrified log imbedded in the débris. Nothing can be more chastely beautiful than this lovely cascade, hidden away in the dim light of overshadowing rocks and woods, its very voice hushed to a low murmur, unheard at the distance of a few hundred yards. Thousands might pass by within a half mile and not dream of its existence; but once seen, it passes to the list of most pleasant memories. In the afternoon the remainder of the party arrived, having lost the trail on the previous day.

Seventh day—August 28—We remained in camp, visiting the different localities of interest in the neighborhood. The Indians we had been following crossed the river a short distance above the mouth of Hot Spring Creek, on what is known as the Bannack Trail, leading from the headwaters of the Snake River, around by the way of the headwaters of the Madison and Galatin Rivers, and through this district to the great buffalo range between here and the Missouri. The two hunters previously spoken of followed this trail across the range to the head of Rose Bud Creek. They found on the headwaters of the East Fork the skeletons of two hunters murdered by the Indians two years ago. They also report the existence of numerous hot springs,

geysers, jets of steam issuing from the rocks, and other curiosities, at different points about the sources of that stream. They report the country beyond the range, at the distance of 70 miles, to fall off to a rolling prairie, black with buffalo as far as the eye can reach. They found strong indications of gold on the head of Rose Bud, but were deterred from prospecting for fear of the Sioux.

Since leaving Fort Ellis I had suffered considerably with a pain in the thumb of my right hand, which was now increased to such an extent as to amount to absolute torture. I had it lanced here three times to the bone with a very dull pocketknife, in the hope of relief, which, however, did not come. It proved a felon of the most malignant class, and was destined to subject me to infernal agonies. I passed the night walking in front of the camp fire, with a wet bandage around my arm to keep down the pain.

Eighth day—August 29.—We broke camp about 8 o'clock and for a distance of 6 miles climbed the divide separating Warm Spring Creek from the Yellowstone, skirting along the canyon of the former stream. The ground for that distance rises very rapidly, and is much broken by creek beds running parallel with the river. Following the highest ridges we presently came to a point from whence could be overlooked the Grand Canyon, cleaving the slopes and breaking through the lofty mountain ranges directly in front. Its perpendicular sides, wherever visible, of the yellow sulphuric tint above described, and its crest on either side of the river, mantled with heavy timber, extending beyond in an unbroken forest as far as the eye could reach. This, the upper canyon of the Yellowstone, is about 20 miles in length, reaching to the foot of the Great Falls, is impassable throughout its whole extent, and only accessible to the water's edge at a few points and by dint of severe labor. Through the mountain gap formed by the canyon, and on the interior slopes some 20 miles distant, an object now appeared, which drew a simultaneous expression of wonder from everyone in the party. A column of steam, rising from the dense woods to the height of several hundred feet, became distinctly visible. We had all heard fabulous stories of this region, and were somewhat skeptical of appearances. At first it was pronounced a fire in the woods, but presently some one noticed that the vapor rose in regular puffs, as if expelled with a great force. Then conviction was forced upon us. It was, indeed, a great column of steam, puffing away on the lofty mountain side, escaping with a roaring sound audible at a long distance, even through the heavy forest. A hearty cheer rang out at this discovery, and we pressed onward with renewed enthusiasm. Following the ridge leading to the peak nearest the canyon, and the highest of the range, we were soon at its base; then making a detour to the right, crossing several ugly ravines and through a gap in the ridge, we passed over the Elephants Back and entered the great basin of the Yellowstone Lake. Observations were taken from the summit of the peak, which we named Mount Washburn. Noon, barometer, 20.80; thermometer, 50°; elevation, 9,966 feet.

The view from the summit is beyond all adequate description. Looking northward from the base of the mountain the great plateau stretches away to the front and left with its innumerable groves and sparkling waters, a variegated landscape of surpassing beauty, bounded on its extreme verge by the canyons of the Yellowstone. The pure atmosphere of this lofty region causes every outline of tree, rock, or lakelet to be visible with wonderful distinctness, and objects 20 miles away appear as if very near at hand. Still further to the left the snowy ranges on the headwaters of Gardiners River stretch away to the westward, joining those on the head of the Gallatin, and forming, with the

Elephants Back, a continuous chain, bending constantly to the south, the rim of the Yellowstone Basin. On the verge of the horizon appear, like molehills in the distance, and far below, the white summits above the Gallatin Valley. These never thaw during the summer months, though several thousand feet lower than where we now stand upon the bare granite and no snow visible near, save in the depths of shaded ravines. Beyond the plateau to the right front is the deep valley of the East Fork bearing away eastward, and still beyond, ragged volcanic peaks, heaped in inextricable confusion, as far as the limit of vision extends. On the east, close beneath our feet, yawns the immense gulf of the Grand Canyon, cutting away the bases of two mountains in forcing a passage through the range. Its yellow walls divide the landscape nearly in a straight line to the junction of Warm Spring Creek below. The ragged edges of the chasm are from 200 to 500 yards apart, its depth so profound that the river bed is nowhere visible. No sound reaches the ear from the bottom of the abyss; the sun's rays are reflected on the further wall and then lost in the darkness below. The mind struggles and then falls back upon itself despairing in the effort to grasp by a single thought the idea of its immensity. Beyond, a gentle declivity, sloping from the summit of the broken range, extends to the limit of vision, a wilderness of unbroken pine forest.

Turning southward, a new and strange scene bursts upon the view. Filling the whole field of vision, and with its boundaries in the verge of the horizon, lies the great volcanic basin of the Yellowstone. Nearly circular in form, from 50 to 75 miles in diameter, and with a general depression of about 2,000 feet below the summits of the great ranges which forms its outer rim, Mount Washburn lies in the point of the circumference, northeast from the center of the basin. Far away in the southwest, the three great Tetons on Snake River fill another space in the circle, and connecting these two highest are crescent ranges, one westward and south, past the Gardiners River and Gallatin, bounding the lower Madison and thence to the Jefferson, and by the Snake River Range to the Tetons. Another eastward and south, a continuous range by the head of Rose Bud, inclosing the sources of the Snake, and joining the Tetons beyond. Between the south and west points, this vast circle is broken through in many places for the passage of the rivers; but a single glance at the interior slopes of the ranges shows that a former complete connection existed, and that the great basin has been formerly one vast crater of a now extinct volcano. The nature of the rocks, the steepness and outline of the interior walls, together with other peculiarities to be mentioned hereafter, render this conclusion a certainty. The lowest point in this great amphitheater lay directly in front of us and about 8 miles distant. A grassy valley, branching between low ridges, running from the river toward the center of the basin. A small stream rose in this valley, breaking through the ridges to the west in a deep canyon, and falling into the channel of the Yellowstone, which here bears in a northeast course, flowing in view as far as the confluence of the small stream, thence plunged into the Grand Canyon, and hidden from sight. No falls can be seen, but their location is readily detected by the sudden disappearance of the river; beyond this open valley the basin appears to be filled with a succession of low, converging ridges, heavily timbered, and all of about an equal altitude.

To the south appears a broad sheet of water—the Yellowstone Lake. Across the Grand Canyon, on the slope of the great mountain wall, is the steam jet seen this morning; and in the next ravine beyond it are six more of inferior volume. Still further south are others, to the number of perhaps 20, and to the southwest more of them, scattered over the vast expanse of the basin, rising from behind the wooded hills in every direction. The view in this

respect strongly resembles that from the Alleghanies, where they overlook iron and coal districts, with all their furnaces in active operation, save that one looks in vain here for the thrifty towns, country villas, steamboats, and railroad depots.

The surface formation of Mount Washburn on the northern or outside slope is a spongy lava. The body of the peak is of feldspathic granite. Its southward, or inward slope, is very precipitous, with evidence of once having been much more so; at present, however, having a talus of material broken away by the elements. Scattered over the outside slopes we found beautiful specimens of sardonyx, identical with those found on the Sierra Nevada. Descending the mountain side a couple of miles, we camped on the head of a small stream, flowing west into the Grand Canyon. Distance traveled, 12 miles.

Barometer, 23.00; thermometer, 50°; elevation, 7,270 feet.

Coming into camp in advance, passing through a grove of pine on the margin of a little creek, I was met face to face on the path by two magnificent buck elk, one of which I wounded, but lost in the woods. Shortly afterwards Mr. Smith started up a small bear, which also got away. The ground was everywhere tracked by the passage of herds of elk and mountain sheep; and bear sign was everywhere visible. In the evening, accompanied by Mr. Washburn and Mr. Hedges, I followed down the channel of the creek to the brink of the Grand Canyon. Passing for a mile down an open glade with a heavy coating of rank, green grass, and dotted with clumps of pine, we came to a bed of whitish substance extending for a hundred yards on each side of the creek and through which its channel ran. Having no chemical tests we were at a loss to classify this deposit; some thought it volcanic ashes. This formation abounds in the vicinity in deep beds underlying the ridges of the valley and overlaid by masses of lava almost entirely composed of obsidian. A mile below this point small, hot springs of sulphur, sulphate of copper, alum, and mud were found in great numbers; and soon we came to an opening in the woods, at the foot of a bluff, where there appeared a system of boiling-hot springs of muddy water, with clouds of vapor escaping therefrom. The large ones were five in number, of which the first measured 25 by 30 feet, hot, with slight ebullition in the center; water slate color, and not flowing. The second, 4 feet in diameter, boiling violently and flowing; water dark brown, muddy, but without deposit. The third, 20 by 25 feet measurement, brown, muddy water, boiling up 3 feet in the center, with an occasional violent rush of vapor to the height of 100 feet. The spring flows periodically. It lies close under a projecting bank of sulphureted calcareous formation; and in one corner of the spring rises a sort of honeycomb deposit, of beautifully variegated colorings, and composed of sublimated sulphur on a bed of metallic luster resembling silver. This deposit is several feet in height and would weigh many tons. The vapor is forced through the interstices of this honeycomb with a loud, hissing sound. Above this spring, 30 feet on the bank, is a fourth, similar, and measuring 7 by 8 feet; and beyond, another, of black, paintlike consistency, which deposits a crater from the ejected material. Around these larger are dozens of smaller springs, vapor jets, and mud spouts. The ground in the vicinity is in layers, like pie crust, which break through or settle when trodden upon, giving one a sensation of extreme uncertainty, as a rush of hot, sulphur vapor invariably rises from the fracture. It was with extreme difficulty and some little risk that we obtained specimens of the deposits.

Continuing on our way 3 miles farther we came to a dense growth of small timber on the brink of the Grand Canyon, and were stopped by its sheer wall, which fell off 1,500 feet to a bench, grown up with pines, through which ran an apparently narrow chasm so deep that the waters could not be seen nor

heard. It was a second edition of the bottomless pit. The small stream had hollowed out a channel through the lower bench several hundred feet in depth, additional; but even looking down through this fissure did not enable us to see the Yellowstone. After resting on the brink, and gazing long with wonder into the fearful gulf below, we returned to camp, having had a walk of 10 miles, profoundly impressed with the laborious nature of our undertaking and more than satisfied with the opening up of the campaign.

Ninth day—August 30.—We moved at 9 a. m., in a southerly course, with a detour to the right to avoid a marshy ravine, and in 3 miles struck the head of the low valley seen from Mount Washburn yesterday. Following its windings for several miles, we came to the lowest point, where the stream above referred to enters the canyon, and here camped. Distance traveled 8 miles. This valley is from one-half to 3 miles wide, with branches in every direction among the wooded ridges, is clothed with a heavy mantle of excellent grass, abounds in springs of pure water, and was formerly the bottom of a lake. The profile of the creek bank showed the following: Bed of the stream dark lava, surface flow; above, obsidian and granite pebbles, six feet; then quartzose sandstone 2 feet, limestone 1 foot, and volcanic ashes 1 to 4 feet; thus showing several estuary deposits above the volcanic rocks. In company with others of the party, I rode down the creek, following the brink of its canyon, which gradually deepens to 300 feet, as far as its junction with the Yellowstone. As we approached the Grand Canyon a dull roaring sound warned us that the falls were near at hand. I had been suffering greatly during the forenoon, being obliged to gallop from one spring to another to keep wet the wrappings of my hand. Following this canyon kept me away from water so long that the pain became utterly unsupportable. I abandoned my horse, and have no distinct recollection of how I got to the water's edge, but presently found myself with my arm up to the elbow in the Yellowstone a few yards below the foot of a graceful cascade. In a few minutes, the pain becoming allayed, I proceeded to explore the locality. I had descended the canyon at a point where the creek joined the river, precipitated into a gorge just above its juncture in a lovely cascade of three falls, in the aggregate 100 feet in height. This was named Crystal Cascade, and the stream Cascade Creek. In the bed of the gorge were to be found an infinite variety of volcanic specimens, quartz, feldspar, mica, granites, lavas, basalts, composite crystals; in fact, everything, from asbestos to obsidian, was represented by fragments in the bed of this stream. There were also beautiful clay stone specimens, of which we afterward learned the origin.

At the foot of the gorge and on the margin of the Yellowstone stood a high promontory of concretionary lava, literally filled with volcanic butternuts. Many of these were loose, and could be taken out of the rock with the hand; broken open they were invariably hollow, and lined with minute quartz crystals of various tints. This formation is rare, but occurs frequently in the great basin. From the outer point of this promontory can be seen the foot of the upper fall of the Yellowstone, and I climbed to the summit to obtain a view.

After ascending about 600 feet a plateau is reached overlooking the cataract, which is inaccessible at its brink without the use of ropes. The river comes down for over half a mile above over a series of lava ledges, each terminating in a fall of from 10 to 15 feet; of these there are five. Then with a tremendous current, and confined in a rocky channel, narrowed to a space of 80 feet, it is hurled from the brink of a perpendicular wall, a sheer descent of 115 feet. So rapid is the current that the great mass of foam shoots out clear of the rock and falls far out in its basin, striking upon a covered ledge at an angle which causes a portion of the water to be projected like a broad fan into the air,

with a hissing sound to the distance of 60 feet, and afterward dissolving into clouds of spray. The depth of water on the brink is about 4 feet, and the concussion of the fall is tremendous. A lava promontory overhangs the basin on either side, giving fine opportunities for observation. After watching the rushing waters for an hour, other members of the party arrived, with whom I returned to camp.

Barometer, 22.60; thermometer, 46°; elevation, 7,697 feet.

Tenth day—August 31.—The day was spent without moving camp, examining the falls and canyon. Returning in the morning to the upper fall we measured its height, given above, and followed down the canyon. The brink of the lower fall is visible from the ledges of the upper; distance between the falls, a little over half a mile. The canyon between the falls is lava, alternating with the sulphur formation; is 450 feet deep, and about 200 yards across. The stream flows over lava, granite, and boulders. The lower fall at its brink is 90 feet across, and without rapids above, though the current is very swift. It is precipitated clear of the rock a perpendicular descent of 350 feet, the canyon at its foot being 800 feet in depth. A promontory of the wall rises 120 feet above the brink, and overhanging the basin, from which the view is inconceivably grand; the heavy body of water dissolving into a sheet of foam, pours into an immense circular caldron, overhung by the gigantic walls. From the depths of the abyss comes up a humming sound, very different from the wild roaring of the upper cataract. From a projecting promontory a mile below, the finest view is obtained. Both of these cataracts deserve to be ranked among the great waterfalls of the continent. No adequate standard of comparison between such objects, either in beauty or grandeur, can well be obtained. Every great cascade has a language and an idea peculiarly its own, embodied, as it were, in the flow of its waters. Thus the impression on the mind conveyed by Niagara may be summed up as "Overwhelming power"; of the Yosemite, as "Altitude"; of the Shoshone Fall, in the midst of a desert, as "Going to waste." So the upper fall of the Yellowstone may be said to embody the idea of "Momentum," and the lower fall of "Gravitation." In scenic beauty, the upper cataract far excels the lower. It has life, animation, while the lower one simply follows its channel; both, however, are eclipsed, as it were, by the singular wonders of the mighty canyon below. This deepens rapidly; the stream flowing over rapids continually. The ground on the brink rises also to the foot of Mount Washburn, the falls being at a low point in the basin; therefore the canyon walls increase in altitude in following down the stream. Several of the party descended into the chasm a short distance below the fall, but could not reach its foot. A mile below several steam jets play across, a few feet above the water. The walls of the canyon are of gypsum, in some places having an incrustation of lime white as snow, from which the reflected rays of the sun produce a dazzling effect, rendering it painful to look into the gulf. In others the rock is crystalline and almost wholly sulphur, of a dark yellow color, with streaks of red, green, and black, caused by the percolations of hot mineral waters, of which thousands of springs are seen, in many instances, flowing from spouts high up on the walls on either side. The combinations of metallic lusters in the coloring of the walls is truly wonderful, surpassing, doubtless, anything of the kind on the face of the globe. The ground slopes to the canyon on the opposite or east side, and from it to the low valley on the west. Three miles below the fall the chasm is 1,050 feet deep. In some places masses of the rock have crumbled and slid down in a talus of loose material at the foot; in others, promontories stand out in all manner of fantastic forms, affording vistas of wonder utterly beyond the power of description. On the caps of these dizzy heights, mountain sheep and elk rest during the night. I followed down the

stream to where it breaks through the range, on horseback, threading my way through the forest on game trails, with little difficulty. Selecting the channel of a small creek, and leaving the horses, I followed it down on foot, wading in the bed of the stream, which fell off at an angle of about 30°, between walls of the gypsum. Private McConnell accompanied me. On entering the ravine we came at once to hot springs of sulphur, sulphate of copper, alum, steam jets, etc., in endless variety, some of them of very peculiar form. One of them in particular, of sulphur, had built up a tall spire from the slope of the wall standing out like an enormous horn, with hot water trickling down its sides. The creek ran on a bed of solid rock, in many places smooth and slippery, in others obstructed by masses of debris formed from the overhanging cliffs of the sulphureted limestone above. After descending for 3 miles in the channel we came to a sort of bench or terrace, the same one seen previously in following down the creek from our first camp in the basin. Here we found a large flock of mountain sheep, very tame, and greatly astonished, no doubt, at our sudden appearance. McConnell killed one and wounded another, whereupon the rest disappeared, clambering up the steep walls with a celerity truly astonishing. We were now 1,500 feet below the brink. From here the creek channel was more precipitous, and for a mile we climbed downward over masses of rock and fallen trees, splashing in warm water, ducking under cascades, and skirting close against sideling places to keep from falling into boiling caldrons in the channel. After four hours of hard labor since leaving the horses, we finally reached the bottom of the gulf and the margin of the Yellowstone, famished with thirst, wet and exhausted. The river water here is quite warm and of a villainously alum and sulphurous taste. Its margin is lined with all kinds of chemical springs, some depositing craters of calcareous rock, others muddy, black, blue, slaty, or reddish water. The internal heat renders the atmosphere oppressive, though a strong breeze draws through the canyon. A frying sound comes constantly to the ear, mingled with the rush of the current. The place abounds with sickening and purgatorial smells. We had come down the ravine at least 4 miles, and looking upward the fearful wall appeared to reach the sky. It was about 3 o'clock p. m., and stars could be distinctly seen, so much of the sunlight was cut off from entering the chasm. Tall pines on the extreme verge appeared the height of 2 or 3 feet. The canyon, as before said, was in two benches, with a plateau on either side, about halfway down. This plateau, about a hundred yards in width, looked from below like a mere shelf against the wall; the total depth was not less than 2,500, feet, and more probably 3,000. There are perhaps other canyons longer and deeper than this one, but surely none combining grandeur and immensity with peculiarity of formation and profusion of volcanic or chemical phenomena.

Returning to the summit, we were five hours reaching our horses, by which time darkness had set in, and we were without a trail, in the dense forest, having fallen timber to evade and treacherous marshes to cross on our way to camp. I knew the general direction, however, and took a straight course, using great caution in threading the marshes, wherein our horses sank in up to their bodies nevertheless. Fortune favored us, and we arrived in camp at 11 o'clock at night, wet and chilled to the bone. To me it was terribly fatiguing after the excitement had passed away, as I was becoming very weak from continued loss of rest or sleep.

Eleventh day—September 1.—We had moved out at 10 a. m., heading the Cascade Ravine through open timber, and following the summit of one of the low ridges to the river; striking a game trail along its bank at a point 2 miles above the upper fall. The stream here changes its character altogether, run-

ning in the center of an open glade, bank full, with grassy margins, a slow current, and spread out to a width of from 200 to 400 feet. The bottom is pebbly or quicksand, the water of crystal clearness, and cold again. The little valley is marshy, for which reason we traveled on the slopes of the ridges, crossing at intervals open glades between them. Through one of these flows Alum Creek, a small stream coming in from the west, its bed dyed of an inky blackness by the deposit from its strongly impregnated waters. Six miles above the falls we entered a wide valley of calcareous formation, open and branching among timber ridges on either side of the river, which runs through its center in a northeast course, an old lake bed, as are all the grassy sections of the basin. On the north side of the river appeared the great stream jets before alluded to, in ravines opening into this valley. A good-sized stream, known as Hell-roaring River, emptied in near by from the north. From the southwest a shallow stream came in also, and in front, near the center of the valley, were several large white hills to which we directed our course. Elk were feeding in small bands on the other side of the valley, and large flocks of waterfowl were frequently seen sporting in the river channel. The white hills, or the "Seven Hills," as we afterward named them, proved well worth a visit. Here is a group of large mounds varying from 200 to 500 feet in height, each of which has been deposited by the action of a single spring, and at their basis a system of nature's chemical works on the grandest scale. I climbed to the summit of the two loftiest of these hills; their formations are identical, all being composed of calcareous matter, solid within, but shelly on the exterior, and when decomposed of a snowy whiteness. The slopes were covered with shales, slid down from above. On the summits were ruins of craters of great size and former solidity, now choked up with débris. From hydrostatic pressure all the springs had burst out below at the foot of the slopes, but through innumerable small vents all over the surface of the hills hot sulphur vapor escaped, subliming around the vents in splendid crystals of large size. The rocks were everywhere warm, and in some places hot to the touch; wherever the horses feet broke through the crust hot vapor escaped. Everywhere the rocks gave forth a hollow sound beneath our tread, and in many places the intense heat caused them to bulge out in a scaly formation, which broke through on the slightest pressure of the foot, whereupon scalding vapor poured out in such volumes as to cause a hasty retreat. The greatest spring in appearance lies at the base of the highest hill and is intensely sulphurous, great clouds of vapor constantly escaping. It measures 15 by 20 feet on the inside; the water boils up constantly from three to seven feet in height, the whole surface rising and falling occasionally with a flux and reflux of 4 feet additional, overflowing its basin and receding every few minutes. The basin is built up with a solid rim or lining of pure crystalline sulphur, 4 feet in width all around the edge, probably amounting to 40 tons in weight. The water is clear, but of a whitish cast and above the boiling point, steam being evolved from its surface. The basin can not be approached nearer than 20 feet distant on account of the scalding vapors. A small channel leads down the slope and for several hundred feet its bed is incrustated with a sulphur deposit, showing that the spring occasionally flows a considerable quantity of water. This deposit is from 3 to 10 inches deep. Farther along the base of the same hill is a sulphurous cavern 20 feet in visible depth and 8 feet in diameter, out of which issued jets of vapor with a sound like the puffing of a high-pressure steamboat. These jets pulsate regularly, and the vapor is intensely hot. Scattered along the bases of the next hills near by were great numbers of small sulphur springs of the same character and deposits of the larger one, any one of which would be counted a great curiosity in any district but this. About 100 yards below is

a spring of slate-colored water, 70 by 30 feet, an immense caldron, boiling constantly. Still farther on is a basin of perhaps 4 acres, containing from 20 to 30 mud springs, varying from 2 to 20 feet in diameter, and of depths below the surface from 3 to 8 feet. The mud ejected is of different degrees of consistency, but generally about the thickness of common mortar, and mostly of an iron brown color. It boils slowly, like mush, with bubbles of gas escaping, and is spouted to various heights from 2 to 40 feet, falling with dull splashes around the edges of the craters, which are being built up continually and continually caving in, to be worked over and ejected as before. Some of the springs throw up yellow mud, others white, and a few pink. The different springs of all classes had no apparent connection with each other, though often but a few feet apart; the mud being of different colors, the basins having different levels, and the pulsations being independent; one being frequently in violent ebullition, while another near by was quiescent. A plasterer would go into ecstasies over this mortar, which is worked to such a degree of fineness that it can be dried in large lumps, either in the sun or in a fire, without a sign of cracking, and when once dry is a soft, finely-grained stone, resembling clay slate when dark, or meerscham when white. Mortar might well be good after being constantly worked for perhaps 10,000 years.

In a ravine near by was a large flowing spring of alum water, and several of sulphate of copper. Springs of this latter class are always clear and deep, with beautiful basins, raised slightly at the rim, and lined with incrustations of brilliant colors. Scattered over the whole area of one-fourth of a mile in diameter, in addition to the above, were hundreds of small spouts of vapor, water, and mud. In a basin by itself was a black mud spring, 20 by 40 feet, throwing mortar a distance of 70 feet; this substance was so strongly impregnated with sulphuric acid as to burn the tongue like fire in its intense sourness. All the mud springs are double, and most of the water springs also; each one having, in addition to its crater, and generally in the margin thereof or near it, a honey-comb vent in the ground, or rock, through which sulphur vapor escapes with a frying sound; doubtless a vent for the internal fires below. This rule applies in all localities in the basin. The amount of pure crystalline sulphur deposited in this locality is very great, probably 100 tons could be gathered in sight on the surface. The continuous supply will one day be turned to account, in the manufacture of acids on a large scale.

There being no water fit to drink in the vicinity, we moved on up the valley, about 5 miles, through grassy hills and level bottoms, passing several isolated caldrons of gray mud on the way, and camped in a group of them, on the river bank, at the head of the valley. Here trout were caught in abundance, and we fared sumptuously, with the single exception that the river water tasted strongly of chemicals, and that all other available water tasted still worse than the river. Those of the party who sported silver watches now discovered that they were no longer silver, but a greasy, pinchbeck yellow, discolored by the gases in the atmosphere of the spring. Arms were also affected, the polished surfaces becoming spotted with black. Distance, 12 miles.

Barometer, 22.75; thermometer, 60°; elevation, 7,487 feet.

Twelfth day—September 2.—We remained in camp on the river, and visited springs in the neighborhood. Along the bank of the stream there are a dozen caldrons of grayish clay mud, varying from 6 to 40 feet in diameter, and from 3 to 10 feet in depth, each with its vent of sulphur vapor and slimy crater, from 3 to 5 feet in height. Just above camp the bed of the river is full of hot-water spouts, with bubbles of gas escaping. In a ravine, over the ridge, hot vapors pour out in every direction, and here is a remarkable group. A small stream of green water flows down the ravine, having its source in a rocky cave

in the bank, with an aperture of 6 by 8 feet—a perfect grotto, lined with brilliant metallic tints of green, red, and black, from which steam escapes in regular pulsations to a distance of 40 feet, forcing out the water in waves, which break over an outside horizontal rim, about once in 10 seconds. A few yards farther down are several boiling springs of yellow, muddy water, the largest of which is 80 feet in diameter, and near it a great honeycomb sulphur vent, 100 feet in diameter, through which the vapor rushes with a loud, hissing sound. One hundred yards from the bank of the river, and below these springs, is a geyser of dark, muddy water; its basin is 200 feet across on the outer rim and about 6 feet deep, with a channel cut through one side for the passage of flood water from the hills. The area is floored with a strata of mud rock, deposited from the water, forming a circular plateau, in the middle of which is an oblong crater, 45 by 75 feet, with an irregular vapor vent, and system of stream jets adjoining, covering the whole space to the outer rim on the right. This was a periodic geyser, having eruptions every six hours, and in the following manner: The crater being full of boiling water and the vapor vent active, suddenly columns of steam shoot up through the water to the height of 300 feet. The ground trembles, the vapor hisses through the vent with increased force. The water of the crater is violently agitated, being thrown up in vast columns, to the height of 30 and 40 feet, splashing out as far as the rim of the basin with great force. This continues for half an hour, the water increasing in quantity in the crater all the while. Then the steam ceases suddenly to escape, the water settles, and commences to lower in the crater, continuing to fall to the depth of 35 feet, leaving bare the incrustated and funnel-shaped walls, which converge at that depth to the diameter of 7 feet. The water here stands for a time, the steam jets cease to hiss, the vapor vent to give forth its fumes, and all is quiet. After the lapse of an hour, the water stoutly rises again, the vents become active, and at the end of the regular period the whole performance is repeated as before.

A few hundred yards from here is an object of the greatest interest. On the slope of a small and steep wooded ravine is the crater of a mud volcano, 30 feet in diameter at the rim, which is elevated a few feet above the surface on the lower side, and bounded by the slope of the hill on the upper, converging, as it deepens, to the diameter of 15 feet at the lowest visible point, about 40 feet down. Heavy volumes of steam escape from this opening, ascending to the height of 300 feet. From far down in the earth came a jarring sound, in regular beats of five seconds, with a concussion that shook the ground at 200 yards distant. After each concussion came a splash of mud, as if thrown to a great height; sometimes it could be seen from the edge of the crater, but none was entirely ejected while we were there. Occasionally an explosion was heard like the bursting of heavy guns behind an embankment, and causing the earth to tremble for a mile around. These explosions were accompanied by a vast increase of the volumes of steam poured forth from the crater. This volcano has not been long in operation, as young pines, crushed flat to the earth under the rim of mud, were still alive at the tops. The amount of matter ejected was not great, considering the power of the volcano. The distances to which this mud has been thrown are truly astonishing. Directly above the crater rises a steep bank, a hundred feet in height, on the apex of which the tallest tree near is 110 feet high. The topmost branches of this tree were loaded with mud 200 feet above, and 50 feet laterally away from the crater. The ground and fallen trees near by were splashed at a horizontal distance of 200 feet. The trees below were either broken down or their branches festooned with dry mud, which appeared in the tops of trees growing

on the side hill from the same level with the crater, 50 feet in height, and at a distance of 180 feet from the volcano. The mud, to produce such effects, must have been thrown to a perpendicular elevation of at least 300 feet. As the diameter of the vent is small in comparison to its depth, it would admit of an initial propulsion varying little from a vertical line. It was with difficulty we could believe the evidence of our senses, and, only after the most careful measurements, could we realize the immensity of this wonderful phenomenon. In the morning I had forded the river, intending to go down on the other side and examine the steam jets on the Hellroaring River, but the day being warm I was overcome with pain and weakness, and obliged to return without seeing them, to my great disappointment.

Thirteenth day—September 3.—We forded the river opposite camp, and followed up the stream on the east side, passing several of the gray mud caldrons in the first 2 miles of our course on the river bank. A canyon of small depth here commences, impassable in many places without difficulty, and we bore off to the left on the summit of the wooded ridges. In 6 miles we struck the river again at a point where it falls over a sloping ridge of lava, in roaring rapids, in a distance of half a mile. The trail is easily passable to the crossing of a creek 7 miles from camp, and coming down through a marshy valley from the range on the left. Forging this we were caught in an impassable labyrinth of fallen timber, and obliged to retrace our steps. Recrossing the creek, we followed down its valley, over marshy ground, for 2 miles, when a broad sheet of water suddenly appeared in front. Crossing the creek once again at a miry ford, skirting an estuary 3 miles farther along the margin of a heavy forest on the left, then passing over a sand levee, grown up with sagebrush, we found ourselves on the open beach of the great Yellowstone Lake. Camped in a grove on the lake shore. At the head of the creek is a large basin covered with an incrustation of sulphur, and behind the first ridge a number of steam jets were seen rising into the air; these we did not visit. Distance, 12 miles; barometer, lake shore. Barometer, 22.60; thermometer, 58°; elevation, 7,714½ feet.

Fourteenth day—September 4.—We did not move camp. The lake lies close to the east range, in the rim of the Great Basin, and presents an appearance at once beautiful and imposing. Its eastern shore extends southward from camp in a line broken by various inlets, to the distance of 26 miles. Its general form is triangular, with apices in the south, southwest, and north points, the latter being below our camp 3 miles, and at the mouth of the creek crossed yesterday. The Yellowstone leaves the lake a mile beyond this angle, and from the west side, starting with a slow current, in a channel one-fourth of a mile wide, and deep enough to swim a horse. The shore on the east side, for 5 miles, is a broad and level beach of sand, and the lake is shallow for some distance out from the edge. This sand is composed almost entirely of obsidian and those minute crystals known as California diamonds. Near camp, on the edge of the lake, is a small boiling spring, having numerous spouts far out in the water. At the mouth of the creek are large swampy districts, flooded, and the resort of myriads of waterfowl. The sand of the beach forms a ridge on the shore, cast up by the waters, like those seen on Lake Michigan near Chicago. Farther down the south shore spurs of the range come down into the basin with bluff fronts. On the south side these promontories project far into the lake in great numbers, dividing it into bays and channels. On the west side is a low bluff of the timbered ridges, with a sand beach in front along the margins of the waters. The greatest width of open water in any direction is about 18 miles. Several islands are seen, one of which is opposite the channel of the river and

5 miles from the east shore; another is 10 miles farther south, and 2 miles from the shore, a mountain isle with a bold bluff all around to the water's edge. These islands doubtless have never been trodden by human footsteps, and still belong to the regions of the unexplored. We built a raft for the purpose of attempting to visit them, but the strong waves of the lake dashed it to pieces in an hour. Numerous steam jets pour out from the bluffs on the shore at different points. The waters of the lake reflect a deep blue color, are clear as crystal, and doubtless of great depth near the center. The extreme elevation of this great body of water, 7,714½ feet, is difficult to realize. Place Mount Washington, the pride of New England, with its base at the sea level, at the bottom of the lake, and the clear waters of the latter would roll 2,214 feet above its summit. With the single exception of Lake Titicaca, Peru, it is the highest great body of water on the globe. No shells of any description are found on the lake shore, nor is there any evidence of the waters ever having stood at a much higher level than the present. Twenty-five feet will cover the whole range of the watermarks. Its annual rise and fall is about 2 feet. Its waters abound with trout to such an extent that the fish at this season are in poor condition, for want of food. No other fish are seen; no minnows, and no small trout. There are also no clams, crabs, nor turtles—nothing but full-grown trout. These could be caught in mule loads by wading out a few feet in the open waters at any point with a grasshopper bait. Two men could catch them faster than half a dozen could clean and get them ready for the frying pan. Caught in the open lake, their flesh was yellow; but in bays, where the water was strongly impregnated with chemicals, it was blood red. Many of them were full of long white worms, woven across the interior of the body, and through to the skin on either side. These did not appear to materially affect the condition of the fish, which were apparently as active as the others. I had on the previous evening been nine days and nights without sleep or rest, and was becoming very much reduced. My hand was enormously swelled, and even ice water ceased to relieve the pain. I could scarcely walk at all, from excessive weakness. The most powerful opiates had ceased to have any effect. A consultation was held, which resulted in having the thumb split open. Mr. Langford performed the operation in a masterly manner, dividing thumb bone and all. An explosion ensued, followed by immediate relief. I slept through the night, all day, and the next night, and felt much better. To Mr. Langford, General Washburn, Mr. Stickney, and the others of the party, I owe a lasting debt for their uniform kindness and attention in the hour of need.

Fifteenth day—September 5.—We moved at 9 a. m. south, along the eastern shore, passing at intervals the extinct craters of several springs crumbling away from the action of the waves. In 2 miles we came to a low promontory, whence several steam jets arose with a loud roaring sound. Beyond is a small bay, bounded by a deposit of yellow clay, full of concretions, in curious forms of saucers, stockings, pencils, and the like. The bottom of this bay is lined with a whitish sediment which discolors the water along the shore. Hot sulphur springs and lukewarm ponds were abundant. After traveling 6 miles we were obliged to leave the beach and follow the pine ridges, in many places through fallen timber, with some difficulty. We passed several large alkaline soda springs and numerous swampy hollows between the ridges, camping in a beautiful little valley near the shore of the lake. Distance 15 miles.

Barometer, 22.50; thermometer, 44°; elevation, 7,714½ feet.

This point affords a fine view of the lake. A strong wind from the west had been blowing all day, and the waves rolled in to the height of 4 feet. The beach here is of volcanic gravel mixed with calcareous shales, among which we

found many beautiful specimens of colored rock crystals and petrefactions. The climate and vegetable growths of the Great Basin are strikingly different from those of the surrounding country. The summer, though short, is quite warm, notwithstanding the elevation of the district. Rains are frequent in the spring months, and the atmosphere is comparatively moist. All the grasses grow rank, and are not of the seeded varieties common to the country, being green and luxuriant, when the lower valleys are parched by the sun. Ferns, huckleberries, thimbleberries, and other products of a damp climate abound, all being of diminutive growth. It is a miniature Oregon in vegetable productions, the pines being about the height of those on the east Virginia shore, and other growths lessened in proportion. Mosquitoes and gnats are said to be numerous in the early summer, but we saw none at all. The snows of winter are very heavy, but the cold is not severe for such an altitude. Doubtless, the internal heat and immense amount of hot vapor evolved exert a powerful agency in moderating the rigor of the climate. The basin would not be a desirable place for winter residence. The only two men I have been able to find who ever wintered there, both came out affected with goiters in the spring. It is a disease very common among the Mountain Crows, many of the old squaws having enormous growths of the tumors, filling the whole space from the chin to the breast.

Sixteenth day—September 6.—We broke camp at 10.30, bearing eastward over the ridges for an hour, then turning south into an open valley, through which runs quite a stream of yellow sulphur water, heading in the mountain range close by. On the slope of this range, covering an area of 3 square miles, is the formation known as Brimstone Basin. The whole lower range of the slope for that space is covered with masses of either blue clay or yellow calcareous deposit, perforated by millions of minute orifices, through which sulphur vapor escapes, subliming in masses around the vents. These brimstone basins are numerous, and many of them miles in extent. They are generally found on the lower slopes of mountains, or at the foot of bluffs, but frequently occur in level districts. The latter class are always wet, and generally impassable, the crust of the earth being very thin, with a whitish mass of soft mud beneath—the most dangerous marsh imaginable. Several of our horses were scalded by breaking through in passing over such places.

From this valley our route was greatly obstructed by fallen timber, obliging us to follow the lake shore whenever practicable, and this was often miry, being a bed of soft clay, covered with coarse lava pebbles, growing larger in sizes as we advanced. In the afternoon we reached the lower end of the lake, at its southeast angle. Here a large stream comes in through a swampy valley grown up with willows, and about 4 miles in width. The whole valley is filled with pools of water, a resort for great numbers of waterfowl, but the soil bears up the weight of a horse, though muddy on its surface. The ground was trodden by thousands of elk and sheep. Bear tracks and beaver trails were also numerous, and occasionally was seen the footstep of a California lion. The lake shore was barricaded with stranded pine trees, in huge rafts of driftwood. We endeavored to cross the valley on the beach, but after struggling through the tangled willows for two hours, found the creek channel to be a wide and deep slough, impassable for man or beast. Retracing our steps, we rode along the mountain side up the valley a couple of miles, and camped on its border, at the confluence of a small stream. Distance, 10 miles. During the night we were several times disturbed by the dismal screaming of California lions, and in the morning found their huge tracks close around the camp.

Seventeenth day.—September 7.—In company with Mr. Langford, I climbed to the summit of a neighboring peak, the highest of the east range. We were four hours reaching the highest point, climbing for over a mile over shelly, feldspathic granite, after leaving our horses at the limit of pines.

Summit at noon, barometer, 20.35; thermometer, 65°; elevation, 10,327 feet.

The view from this peak commanded completely the lake, enabling us to sketch a map of its inlets and bearings with considerable accuracy. On the southwestern portion of the lake rose a high mountain of a yellow rock, forming a divide or watershed in the center of the great basin, beyond which the waters flowed south and west. The stream we failed in crossing on the previous day rises in the southeast range, running east several miles, and joining another stream from the southwest at Bridgers Lake, a sheet of water about 2 miles in diameter, at the foot of a rocky peak about 25 miles to the south, from whence the stream flows due north, in a straight valley, to the Yellowstone Lake. This valley has a uniform width of about 3 miles, is level and swampy through its whole extent, with numerous lakelets of considerable size scattered at intervals over its surface. South of Bridgers Lake, and beyond the Snake River divide, were seen two vast columns of vapor, 30 miles away, which rose at least 500 feet above the tops of the hills. These were twenty times as large as any we had previously seen, but lay a long distance out of our course, and were not visited. Looking east, one mountain succeeds another, with precipitous ravines, volcanic, rugged, and in many places impassable, as if all the fusible portions of the mountains had melted and run away, leaving a vast cinder behind. There were no ranges of peaks; it was a great level plain of summits, with the softer portions melted out, the elevations all coming up to the same level, and capped with horizontal beds of surface lava. This formation extended to the limit of vision. The deep and narrow valleys were grassed and timbered, had sparkling streams, and furnished basins for numbers of small lakes; in fact, there are lakes here everywhere, on the summits of the mountains and on their terraced slopes, in valleys and in ravines, of all sizes, shapes, and qualities of water.

Descending the mountain we followed the trail of the party, crossing the stream a mile above our camp, where it is 100 feet wide and 3 feet deep, with a moderate current. Thence we followed to the right through a beautiful open forest, across the grassy valley, passing two little gems of lakes at the foot of high ridges, on the west side. Presently the trail turned up the slope of the mountain, where night overtook us. After traveling some distance I discovered we were following a band of elk, having missed the trail in the darkness. We then struck out for the lake shore, on which our course was regained, but presently lost again after more elk. We then built a fire and examined the ground carefully for tracks, found the right direction, and at 10 o'clock at night arrived in camp on the lake shore, to the relief of our companions, who supposed us lost in the mountains. Our camp to-night is due south from the head of the Yellowstone, on the other side of the lake. Long, wooded promontories here extend out into the basin, inclosing bays several miles in length. These are so numerous as to render it impossible to give a correct profile of the shore without actual measurement, the perspective in such distances rendering appearances very deceiving. Distance, 9 miles.

Eighteenth day.—September 8.—We traveled across a high promontory running into the lake, winding among steep ravines and through fallen timber lying in heaps, with full-grown, living forest above it. This timber must have been deadened by fire, the trunks being bare of limbs and much decayed, but in such masses as to be impassable in many places, causing us to make wide

detours to find a trail. The standing forest is very dense; the pack animals ran between trees, often wedging themselves in so tightly as to require some trouble in extricating them; several of the packs burst, causing numerous delays. Our faces were scratched, clothes torn, and limbs bruised squeezing through between saplings. After a hard day's work, traveling at all points of the compass for a distance of at least 15 miles, we struck a stream leading north through a deep ravine and followed it down. Presently the ranges opened out, skirting a pretty little bottom, in which we camped. Distance direct, 7 miles.

Messrs. Hedges and Stickney wandered off from the party in the morning, but struck the shore of the lake and followed it, meeting us shortly after going into camp. In the evening a grizzly bear, with cubs, was roused by some of the party, but as they had not lost any bears she got away with her interesting family undisturbed. These animals are very numerous in the basin, the green grasses, berries, and pine nuts affording them abundant supplies of food; but our party kept up such a racket of yelling and firing as to drive off all game for miles ahead of us. The numbers of springs of water on the slopes of these ridges is surprising, large districts on the hillsides being swampy and often impassable. The water from the granite rocks is always good; from all others, bad. The small lakes are perfectly alive with otter, which may be seen playing upon their surfaces at nightfall by hundreds. Beaver, mink, and muskrat are also abundant.

Nineteenth day—September 9.—We moved in a westerly course over the summit of a high promontory, thence descending into a narrow open valley, and crossing a small stream rising in the promontory between two arms of the lake and flowing south. This creek, rising as it were in the very midst of the Yellowstone Lake, is the source proper of Snake River; 5 miles below, it empties into a stream flowing from a heart-shaped lake 5 miles in diameter. This stream is about 70 feet wide, 3 feet in depth, and is the main fork of Snake River. This explains the origin of the old story of the "Two Water" Lake, or Spring, to the effect that the two streams, the Yellowstone emptying into the Gulf, and the Snake River into the Pacific, had a common source. The proximity is truly unparalleled, the waters of one stream actually running from between the waters of the other. Passing thence westward we became entangled in fallen timbers of the worst description on steep hillsides, and among impassable ravines, but finally emerged into an open flat on the promontory, and camped at the fountain head of the Snake River. Distance, 5 miles.

Barometer, 22.65; thermometer, 45°; elevation, —.

On going into camp it was discovered that a pack horse was missing. This animal, a small Cayuse, had been uniformly unfortunate, miring down in marshes, tumbling over log heaps, and rolling endwise down steep banks; he was found a couple of miles back firmly wedged between two trees. Mr. Everts did not come in with the rest of the party, and men sent back on the trail found no traces of him. We fired signal guns, and kept watch fires during the night, but without success. Supposing that he had passed to the right or left, we moved on the next day, leaving men behind on the trail.

Twentieth day—September 10.—We broke camp at 10 a. m., taking a westerly course through fallen timber and over steep ridges, striking a long, slender arm of the lake in the afternoon; camped on this inlet—distance, 5 miles. Parties then went back on the trail, and laterally, hunting Mr. Everts. Messrs. Hauser and Langford ascended a high peak near camp and fired the woods, in hope of giving him a point of direction. We also fired signal guns during the night. In the evening large numbers of fish were caught, Private Williamson catching 52 large trout, all that two men could carry, in less than an hour.

The night passed away and the missing man did not come. In the early morning we were serenaded by a couple of lions, their melancholy voices echoing through the heavy forest with a peculiar, wild, and mournful sound. We had blazed trees at all our camps throughout the whole trip, leaving on each a record, with date, route, and distances marked on the hewn sections. Here we also hung up in sight a few rations, hoping Mr. Everts might strike our trail and follow after we had gone.

Twenty-first day—September 11.—I started in advance, with Messrs. Hauser and Langford, rounding the arm of the lake, at the head of which a narrow valley, with a small stream, comes in; thence striking due west, up a steep ridge, we reached on its summit a plateau of open woods with grassy spaces between and a perfect network of small lakes, their surfaces covered with the broad leaves of the tiger lily. These extended for miles on either side, as the promontory is very extensive, running far out into the waters of the great lake. After an easy ride in a direct line of 7 miles, we reached the extreme westerly and longest arm of the lake, a lovely bay of water, 6 miles across, and with steam jets rising at its southern extremity in great numbers. Opposite the head of this arm is the great yellow mountain seen from Mount Langford several days ago. This is the central point from which radiate double barriers, separating the waters of the Yellowstone from the Snake, and the latter from the Madison, Snake River flowing on the east side of the mountain southerly, and the Firehole branch of the Madison rising in a small lake to the west of the range, the main branch coming from Henrys Lake, south of this. This mountain may be said to be the focus of volcanic action in the basin, the greatest phenomena being observed within a radius of 30 miles from its summit. From its yellow, sulphureted appearance it can be readily distinguished and is the central and most important landmark in the great basin. We camped on the arm of the great lake 3 miles north of its extremity and on the east side. Here we remained in camp during the 12th, 13th, 14th, and 15th, searching constantly for Mr. Everts. During the night a heavy snowstorm set in, which continued at intervals throughout the next day.

Twenty-second day—September 12.—To-day parties went out in couples on the search. Messrs. Smith and Trumbull followed the lake shore around the head of the promontory to within sight of our previous camp. They returned in the evening and reported having seen human footsetps in the sands of the beach. Mr. Smith was positive he saw several Indians on foot, who retreated into the woods on being approached. They were probably white men, as a man was met in the neighborhood a few days afterward who stated that he belonged to a small party in the vicinity. In the middle of this promontory is one lake of considerable size, and at a high elevation above that of the Yellowstone. Messrs. Washburn and Langford took a southerly direction toward the base of the Yellow Mountain, for a distance of 11 miles. They saw from the divide the lake from which Snake River issues, also a small lake at an elevation of 800 feet above it. Beyond this divide they became entangled in an immense swampy brimstone basin, miles in extent, abounding in sulphur springs, small geysers, and stream jets. The ground was covered with tufa, or calcareous deposits in a thin scale, overlying hot white mud. Mr. Langford's horse broke through several times, coming back plastered with the white substance and badly scalded. They were unable to penetrate to the lake on account of the instability of the footing.

Twenty-third day.—September 13.—The snowy weather continued with intervals of hail and rain; large fires were kept up, and the search continued. I rode around the head of the lake to the steam jets visible from camp; this

was the largest system we had yet seen, located at the extreme point of the most westerly arm of the lake, and on a gentle slope, reaching along the shore for a mile, and extending back into the woods for the same distance; this system embraced every variety of hot water and mud springs seen thus far on the route, with many others heretofore unseen. Four hundred yards from the lake shore is a basin of mud having a bright pink color; this is a system of itself, being 70 feet in diameter, and projecting thick mud through small craters of a conical shape around the edge of the basin, while the center is one seething mass. The deposit speedily hardens into a firm, laminated clay stone, of beautiful texture, though the brilliant pink color fades to a chalky white. Near and around this basin are a dozen springs, from 6 to 25 feet across, boiling muddy water of paintlike consistency, in colors varying from a pure white to a dark yellow; then come several flowing springs, from 10 to 50 feet in diameter, of clear, hot water, the basins and channels of which were lined with deposits of red, green, yellow, and black, giving them an appearance of gorgeous splendor; these deposits were too friable to preserve, crumbling at the touch. The bright colors were on the surface of the rock only, not extending to its interior. Below these were several large craters of bluish water impregnated with sulphate of copper; these boiled to the height of two feet in the center and flowed large streams of water; their rims were raised a few inches, in a delicate rocky margin of a fringelike appearance, deposited from the water. Beyond these are two lakes of purple water, hot, but not boiling; these give deposits of great delicacy of coloring. Near by are two more bluestone springs, the largest we have yet seen; one, 30 by 40 feet and of temperature 173° , flows a stream into the other one about 70 feet distant, and 6 feet lower; this latter spring is 40 by 75 feet, temperature 183° ; a stream of 100 inches of water flows from it. The craters of these springs are of calcareous stalagmite, and lined with a silvery white deposit which illuminates, by reflection, the interior to an immense depth; both craters have perpendicular but irregular walls, and the distance to which objects are visible down in their deep abysses is truly wonderful. No figure of imagination, no description of enchantment, can equal in imagery the vista of these great basins. West of these is a group, of clear, hot water, which surpass them all for singularity, though not in beauty; these are basins of different sizes and unknown depths, in which float what appear to be raw bullock hides as they look in a tanner's vat, waving sluggishly about with every undulation of the water; the resemblance is complete. On examination the leathery substance proves to be a fragile texture, something like the vegetable scum in stagnant pools ("and yet it is not vegetable,") with brilliant colors of red, yellow, green, and black, on the shaded side. It is easily torn and could not be preserved, unless indeed by pressure, like rose leaves; it has the thickness and flabbiness of rawhide, and is quite heavy when wet. Digging down into the basins, I found that this singular substance filled the whole depth, layer upon layer being deposited; and stranger than all, the lower strata were solidified, turning to pure, finely-grained sheets of alabaster, specimens of which I brought in.

On the margin of the lake is a double row of calcareous springs at the boiling point (here 185°), which do not flow except at intervals. These build up craters of solid limestone from 5 to 20 feet in height; many of these stand in the waters of the lake, and several are partially broken away by the erosive action of its waves. There are two flowing ones, with low craters from 20 to 30 feet in diameter, which run as much as 50 inches of boiling water each. Of these, the walls of the craters are visible to a great depth, inclining at a sharp

angle under the bed of the lake, and separated from it by thin barriers of shelving rock. All along the shore, for a mile, runs a terrace of calcareous stalagmite, in a deposit of from 20 to 50 feet in depth, the edges of which are worn to a bluff bank by the action of the waters. This stratum has been deposited by the mingled streams of mineral waters of every sort, which flow from the springs above and flood its whole surface. The rock is stained with variegated colors which speedily fade, but specimens obtained from the lower beds and bleached in the lake are the purest of alabaster. Scattered over the surface of this terrace are masses of calcareous tufa, which, when dried, will float in water. Not less than 1,000 inches of hot water flow into the lake at this point, and numberless jets can be seen boiling up far out in its basin. In this enumeration I have described but a few of the largest springs; there are hundreds of them, including vapor vents, mud spouts, and still caldrons. They are scattered through the woods in such numbers as to require the utmost care to prevent stumbling into them at every turn.

Occasionally this anomaly is seen, of two springs, at different levels, both boiling violently; one pours a large and constant stream into the other, yet the former does not diminish, nor does the latter fill up and overflow. Most of the springs, however, seem to be independent of each other and to come from immense depths, having different levels at the surface, different temperatures, and pulsations; seldom are found the waters and deposits of any two exactly alike. It is impossible to adequately describe, and utterly impossible to realize from any description, more than a faint idea of the beauties and wonders of this group. The fire kindled on the summit of the mountain has by this time spread to a vast conflagration, before the devouring flames of which tall pine trees shrivel up and are consumed like grass. The whole summit of the mountain sends up a vast column of smoke which reaches to the sky, a pillar of cloud by day and of fire at night. I returned to camp in the evening profoundly impressed with the greatness of the phenomena we were witnessing from day to day, and of their probable future importance to science, in unraveling mysteries hitherto unsolved. Messrs. Hauser and Gillette returned in the evening, unsuccessful in their search. The snow, hail, and rain, by turns, continued, and lions were again heard during the night.

Twenty-fourth day—September 14.—We remained close in camp; the weather continued stormy; the snow was now 20 inches deep, and fell almost constantly; our pavilion tent served us admirably; without it we should have suffered great inconveniences for lack of shelter. The waterfowl of the lake deserve a passing notice. These include swans, pelicans, gulls, Canada geese, brants, and many varieties of ducks and dippers. There are also herons and sand-hill cranes. Of pelicans, immense numbers sail in fleets along the lake, in company with the majestic swan. The gulls are of the same variety as those found in San Francisco Harbor. I think the pelicans are identical with those found in the great lakes on the northern border; but am not sure, as we did not get a specimen. There are several low, flat islands in the lake which are always white with them at the close of the day. Of birds and animals of the forest, I have seen of each several, not down in the books, comprising, of birds, a sort of large mocking-birds, two varieties, belonging, I think, to the genus "*corvus*"; two kinds of woodpeckers; two or three species of grouse; also a guide-bird, resembling a blackbird, but larger. I saw but one of these—the day I went to the bottom of the Grand Canyon; it hopped and flew along from rock to rock ahead of us during the whole trip down, waited perched upon a rock while we were resting, and led us clear to the summit again in the same manner, making innumerable sounds and gestures constantly, to attract at-

tention. Others of the party remarked birds of the same kind, and acting in the same manner. The common birds of the basin are eagles, hawks, ravens, ospreys, prairie chickens, and grouse. Of animals, I saw several species of squirrels and weasels which do not appear in the books. We saw no snakes of any kind in the basin.

Twenty-fifth day—September 15.—The snowstorm abated, clouds hung overhead in heavy masses, an oppressive dampness pervaded the atmosphere, the snow melted away rapidly under the influence of a warm wind from the west. The only traces of Indians we had seen were some shelters of logs, rotten and tumbling down from age, together with a few poles standing in the former summer camps; there were no fresh trails whatever. Appearances indicated that the basin had been almost entirely abandoned by the sons of the forest. A few lodges of Sheepaters, a branch remnant of the Snake tribe, wretched beasts who run from the sight of a white man or from any other tribe of Indians, are said to inhabit the fastnesses of the mountains around the lakes, poorly armed and dismounted, obtaining a precarious subsistence, and in a defenseless condition. We saw, however, no recent traces of them. The larger tribes never enter the basin, restrained by superstitious ideas in connection with the thermal springs. A party of three can travel with perfect safety, so far as Indians are concerned, in any part of this district, by keeping close watch upon their horses at night, as the lions would make short work with them if an opportunity was afforded, horseflesh being their favorite diet.

Twenty-sixth day—September 16.—We moved around the arm of the lake to the hot springs previously described, camping near them; distance, 5 miles.

Barometer, 22.70; thermometer, 44°; elevation, 7,714½ feet.

The shore line is bordered by a levee of obsidian, lava pebbles, and calcareous fragments, cutting off and inclosing ponds of water behind it, from which the surplus waters flow out through crevices in the dike. These ponds are the accumulated waters of thousands of springs breaking from the ground all along the line of the beach. The lake bottom is everywhere free from caverns, and gradually sloping to deep water. The ruins of old spring craters appear at intervals along the shore. In the afternoon the snow had diminished to a general depth of 6 inches, and exposed locations were bare. We spent the evening in collecting specimens from the different springs and laying in a supply of fish for future use.

Twenty-seventh day—September 17.—In the morning we noticed a great commotion among the hot springs. Many heretofore quiescent were now active and flowing. Others, which previously boiled gently, sent up clouds of steam, and threw water to the height of 3 and 4 feet. Evidently they have their periods of increased action, like those we saw on the Yellowstone below. Before leaving camp a council was held, which resulted in our leaving Mr. Gillette, with Privates Moore and Williamson, to make a final effort in the search for Mr. Everts. They were provided with 1 pack mule and 10 days' rations. They were to go back to Bozeman by our former route, or at discretion make a search and follow on our trail.

Starting at 9 o'clock in a northwesterly course, we traveled up a gradual declivity through open timber 4 miles, to the summit of the divide, then descending for about the same distance, we crossed a deep, open valley, containing a headwater tributary of the Firehole Branch of the Madison. The course then lay over the summit of a very steep ridge, 1,000 feet in altitude, the face of which was covered with masses of fallen timber, through which we found a passage of the utmost difficulty. Passing the summit, a glimpse was obtained of a good-sized lake, the source of the Firehole. Skirting then a ridge

to the northward, over a country very much broken, we soon began to descend, and finally reached the bottom of an open ravine, abounding with springs of good water, where we camped. Distance, 12 miles.

Barometer, 22.65; thermometer, 50°; elevation, 7,535 feet.

Twenty-eighth day—September 18.—We broke camp at 9 o'clock, traveling along the slopes of the ridges, skirting the ravines through falling timber, and passing in many places over swampy terraces, for a distance of 3 miles, when we suddenly came upon a mountain torrent, 40 feet wide, and running through a gorge of trachyte lava 200 feet in depth. This was the Firehole River, heading in a lake a few miles to the south. Following down the course of this stream we presently passed two fine roaring cascades, where the water tumbled over rocks to the depth of 20 and 50 feet successively. These pretty little falls, if located on an eastern stream, would be celebrated in history and song; here, amid objects so grand as to strain conception and stagger belief, they were passed without a halt.

Shortly after the canyon widened a little, and on descending to a level with the stream we found ourselves once more in the dominions of the Fire King. Scattered along both banks of the infant river were boiling springs, depositing calcareous craters. These varied from 2 to 12 feet across, and were all in active eruption, the cones deposited varying from 3 to 40 feet in height, and sometimes covering a space of one-fourth of an acre. A feature of these craters is, that they gradually seal themselves up and stop the flow of their waters, by depositing around the interior edges a deep fringe of rock, the points of which finally meet across the openings of the craters, forming a sort of sieve, which finally closes entirely, forcing the waters to break out in some other place. Numbers of these self-extinguished craters are seen scattered along both banks of the stream, having now become cones of solid rock. Most of the waters are clear, and the deposits are usually calcareous, but we found a few springs of water resembling ink, from which the deposit was a black hard rock, composed largely of silica, and extremely flinty, shattering the blades of our hatchets, and giving forth showers of sparks when struck by them. The valley here descended rapidly, and we soon saw in front dense columns of steam rising above the hills. After traveling 2 miles among these springs of various kinds, and through several bogs on the slopes, we came suddenly upon an open rolling valley of irregular shape, about 2 miles in width and 3 in length. This valley is known in the wretched nomenclature of this region as the Firehole, and contains phenomena of thermal springs unparalleled upon the surface of the globe. Crossing the river we moved down to a central point of the valley, and camped in a little grove of pine timber near the margin of a small marshy lake, around which were to be seen numerous fresh signs of buffalo, driven out by the noise of our hasty intrusion. Distance 6 miles.

Barometer, 22.70; thermometer, 40°; elevation, 6,626 feet.

The valley is of triangular shape, with an obtuse angle on the south side of the river, which runs parallel with its longer side, and about 300 yards from the foot of the range. At the apex of the obtuse angle a stream 50 feet wide comes in from the south, joining the main river in the midst of the valley, below its central point. The mountain ridges on all sides are 1,500 feet in height, composed of dark lava, in solid ledges, are heavily wooded, and very steep. Small groves of timber also cover the highest points of the valley, which is a succession of ridges, and of rounded knolls capped by springs, the intervening depressions being rendered marshy by the overflow of their waters. The whole surface of the basin, to an unknown depth, is a calcareous bed, deposited from the springs. Near the head of the valley, immediately after cross-

ing to the south side of the river, we came to one of the geysers, which was at the time throwing water, with a loud hissing sound, to the height of 125 feet. In a few minutes the eruption ceased, and we were enabled to approach the crater. This had originally been a crack or fissure in the calcareous ledge, the seam of which could be traced by minute vents a distance of 60 feet, but was now closed up by deposits from the water to an opening 7 feet long by 3 feet wide in the center, from which the steam escaped with a loud, rushing sound. The hillock formed by the spring is 40 feet in height, and its base covers about 4 acres. Near the crater, and as far as its irruptive waters reach, the character of the deposit is very peculiar. Close around the opening are built up walls, 8 feet in height, of spherical nodules, from 6 inches to 3 feet in diameter. These, in turn, are covered on the surface with minute globules of calcareous stalagmite, incrusting with a thin glazing of silica. The rock, at a distance, appears the color of ashes of roses, but near at hand shows a metallic gray, with pink and yellow margins of the utmost delicacy. Being constantly wet, the colors are brilliant beyond description. Sloping gently from this rim of the crater, in every direction, the rocks are full of cavities, in successive terraces, forming little pools, with margins of silica the color of silver, the cavities being of irregular shape, constantly full of hot water, and precipitating delicate coral like beads of a bright saffron. These cavities are also fringed with rock around the edges, in meshes as delicate as the finest lace. Diminutive yellow columns rise from their depths, capped with small tablets of rock, and resembling flowers growing in the water. Some of them are filled with oval pebbles of a brilliant white color, and others with a yellow frostwork which builds up gradually in solid stalagmites. Receding still further from the crater, the cavities become gradually larger, and the water cooler, causing changes in the brilliant colorings, and also in the formations of the deposits. These become calcareous spar, of a white or slate color, and occasionally variegated. The water of the geyser is colorless, tasteless, and without odor. The deposits are apparently as delicate as the down on the butterfly's wing, both in texture and coloring, yet are firm and solid beneath the tread. Those who have seen stage representations of "Aladdin's Cave," and the "Home of the Dragon Fly," as produced in a first-class theater, can form an idea of the wonderful coloring, but not of the intricate frostwork, of this fairylike, yet solid mound of rock, growing up amid clouds of steam and showers of boiling water. One instinctively touches the hot ledges with his hands, and sounds with a stick the depths of the cavities in the slope, in utter doubt in the evidence of his own eyes. The beauty of the scene takes away one's breath. It is overpowering, transcending the visions of the Moslem's Paradise. The earth affords not its equal. It is the most lovely inanimate object in existence. The period of this geyser is 50 minutes. First an increased rush of steam comes forth, followed instantly by a rising jet of water, which attains, by increased impulsions, to the height of 125 feet, escaping with a wild, hissing sound, while great volumes of steam rise up to an altitude of 500 feet from the crater. Rainbows play around the tremendous fountain, the waters of which fall about the basin in showers of brilliants, then rush steaming down the slopes to the river. After a continuous action for a space of five minutes, the jet lowers convulsively by degrees, the waters finally disappear, and only a current of steam pours forth from the crater. When we consider that it plays through an aperture 7 by 3 feet in measurement, an idea can be formed of the vast quantity of water ejected by this great natural fountain. In the neighborhood of this are several old geysers, choked up by their own deposits to small, simmering craters, with their outside slopes decomposed and shelly.

Following the edge of the valley southward, we passed hot springs of various sizes, from 2 to 50 feet in diameter, with craters built up in rounded knolls, from 3 to 40 feet above the general level. All these were of clear water, without sulphur vents; most of them had periodical turns of violence, during which they threw off immense columns of steam and water in jets from the center of their basins to heights varying from 3 to 50 feet. Many of these springs gave evidence of having been once geysers of the first class, but their waters in such cases had burst out from excess of pressure in large springs at the bases of the old craters, where they were building up anew. Large swampy places in the hollows were formed of a greasy, calcareous slime, covered with turf, growing evergreen from the warm water below. In many localities there were large groups of standing trees in these marshes, dead and denuded of bark to the height of 3 feet, their bare trunks being of a snowy whiteness and fast turning to stone. These were always found in places where hot water flowed down at some period from geysers above. They presented, with their deadened tops and bare and white-washed stumps, a very singular appearance. No sulphur springs, nor sulphur deposits, are found in the valley; but few mud springs are seen, and these are small in dimensions. Along the margin of the stream, coming in from the south, are swampy flats, from which many partially submerged craters project. These boil violently and flow quantities of hot water, but do not throw jets. Near the mouth of the stream, and on the west side, is a lake of bluestone water, 100 feet in diameter, with steam evolving from its waters, which flow over a low rim in every direction down the slopes, depositing a yellow bed, which is now many feet in thickness. Below this, on the margin of the stream, is a spring 30 feet in diameter, boiling with great fury, and flowing a large stream into the creek. On the opposite side, at a distance of 50 yards, a fissure in the strata becomes visible, 6 feet in width and of unknown depth. It is bridged in most places with rock, but has frequent steam vents, and runs a large stream of hot water from west to east with a rapid current. This stream can be traced for a distance of 300 yards, the rush of its subterranean waters being distinctly audible from under ground. In the angle of the woods at the mouth of the creek are several large bluestone springs, some flowing, others quiescent. Whole trees fallen in the craters of these are incrustated with a white, calcareous deposit, and gradually turn to stone; leaves, pine cones, grasshoppers, and twigs, are also thus incrustated in the most delicate manner. In these springs are calcareous deposits in the shape of mushrooms, with tops spreading cut at the surface of the water. These are often 15 feet in diameter, and supported by stems 10 feet high and 2 feet thick, all of solid rock. There are two cones on the opposite bank, 40 to 50 feet in height, with small springs in their summits. The space in the angle between the streams is partially filled with a slimy marsh. Along both banks of the Firehole River are the greatest of the geysers. Our camp was a few hundred yards below the first crater described, and the most beautiful of them all. Near the bank of the river, and a half a mile below camp, rose on the farther margin of a marshy lake the Castle Crater, the largest formation in the valley. The calcareous knoll on which it stands is 40 feet in height, and covers several acres. The crater is built up from its center, with irregular walls of spherical nodules, in forms of wondrous beauty, to a castellated turret, 40 feet in height and 200 feet in circumference at the base. The outer rim, at its summit, is formed in embrasures between large nodules of rock, of the tint of ashes of roses, and in the center is a crater 3 feet in diameter, bordered and lined with a frostwork of saffron. From a distance it strongly resembles an old feudal tower partially in ruins. This great crater is continually pouring forth steam, the condensation of which keeps the outside walls constantly wet and dripping. The deposit is

silver-gray in color, and the structure is wonderful in its massiveness, completion, and exquisite tracery of outline. At the base of the turret lies a large pine log, covered with a nodular and brilliant incrustation to the depth of several inches. The wood of this log is also petrified. The waters of this geyser have burst out in a new place, near the foot of the old crater, flowing a large stream, boiling violently, and diminishing the action of the great vent, yet we saw the latter on one occasion throw water to the perpendicular height of 60 feet, with the escape of heavy volumes of steam. It had doubtless been, when intact, the greatest fountain of them all. Near by, and on the same hillock, is a bluestone spring, with an indented marginal basin, 25 feet in diameter; this stands level full. Its interior lining is of a silver tint, and the water in its perpendicular shaft appears to be of unfathomable depth.

A few hundred yards farther down the stream is a crater of flinty rock, in shape resembling a huge shattered horn, broken off halfway from its base. It is 12 feet in height, with a solid base; its sides have a curvilinear slope, ragged edges, and its cavity or nozzle is 7 feet in diameter. During its quiescent state the boiling water can be seen in its chambers at a depth of 40 feet, the action of the steam and water together producing a loud rumbling sound. Near and acting in concert with it are half a dozen smaller craters from 2 to 8 feet in height constantly full of water, and boiling violently from 2 to 6 feet into the air. This great geyser played several times while we were in the valley, on one occasion throwing constantly for over three hours a stream of water 7 feet in diameter from 90 to 200 feet perpendicularly. While playing it doubled the size of the Firehole River, running at its maximum about 2,500 inches of water. Two hundred yards below this is a grotto formation, similar in structure to the turreted spring; this is 20 feet in altitude, 40 feet in outside diameter and has side apertures large enough for a man to crawl into; these lead to cavernous craters on the interior. A large and singular pillar of stone stands in the middle of the vent. Several of the party crawled through the interior when it was quiet, but an hour afterward it was throwing a column of water 6 feet in diameter to the height of 60 feet. Near it were several large vents in which water boiled to the height of 6 feet constantly, and large streams of water ran from these down the banks into the river. Still farther below, and on the opposite bank of the stream, are two small craters, with apertures 2 feet each in diameter; these two are connected, one throwing steam, and the other water, and also alternating with another small crater below. First the steam would rush from the upper crater, roaring violently, then this would suddenly cease, to be followed by a fanlike jet of water rising from the lower crater to the height of over 40 feet, often playing for perhaps two minutes; then this would suddenly stop flowing, and the steam would rush forth again for a time. Occasionally the small crater threw a transverse stream, sometimes alternating with either of the others; and thus they played on for hours, after which all would subside to a gentle bubbling. All along both banks of the river are small craters and spouts built up in every conceivable shape; all were active except the geysers, and each entirely independent of the others. Several streams of water poured out in cascades from round holes in the rocky bank of the river, and a number of little geysers played from 6 to 40 feet at intervals.

Opposite camp, on the other side of the river, is a high ledge of stalagmite, sloping from the base of the mountain down to the river; numerous small knolls are scattered over its surface. The craters of boiling springs from 15 to 25 feet in diameter; some of these throw water the height of 3 and 4 feet. In the summit of this bank of rock is the grand geyser of the world, a well

in the strata 20 by 25 feet in diametric measurements, the perceptible elevation of the rim being but a few inches, and when quiet having a visible depth of 100 feet. The edge of the basin is bounded by a heavy fringe of rock, and stalagmite in solid layers is deposited by the overflowing waters. When an eruption is about to occur the basin gradually fills with boiling water to within a few feet of the surface, then suddenly, with heavy concussions, immense clouds of steam rise to the height of 500 feet. The whole great body of water, 20 by 25 feet, ascends in one gigantic column to the height of 90 feet, and from its apex five great jets shoot up, radiating slightly from each other, to the unparalleled altitude of 250 feet from the ground. The earth trembles under the descending deluge from this vast fountain, a thousand hissing sounds are heard in the air; rainbows encircle the summits of the jets with a halo of celestial glory. The falling water plows up and bears away the shelly strata, a seething flood pours down the slope and into the river. It is the grandest, the most majestic, and most terrible fountain in the world. After playing thus for 20 minutes it gradually subsides, the water lowering into the crater out of sight, the steam ceases to escape, and all is quiet. This grand geyser played three times in the afternoon, but appears to be irregular in its periods, as we did not see it in eruption again while in the valley. Its waters are of a deep ultramarine color, clear and beautiful. The waving to and fro of the gigantic fountain, when its jets are at their highest, and in a bright sunlight, affords a spectacle of wonder of which any description can give but a feeble idea. Our whole party were wild with enthusiasm; many declared it was 300 feet in height; but I have kept, in the figures as set down above, within the limits of absolute certainty. We were led to believe by indications on the rocks that some of these geysers do occasionally play to an altitude of 500 feet, but this we did not see. Above, on the slope of the mountain, is another great geyser which has lately broken out. It has deadened the timber on a wide space, and for half a mile between its crater and the river. It must run a perfect torrent of water at its periods of eruption.

I have now described seven of the largest geysers seen in the Firehole Basin, and the description falls far short of the reality. To do justice to the subject would require a volume. The geysers of Iceland sink to insignificance beside them; they are above the reach of comparison. We could not distinguish, on every occasion, the geysers from the other hot springs, except by seeing them play, and, doubtless, there are many besides in the valley of great size, which we saw when quiet, and classed as boiling springs. They all vary in times, force, deposits, and colors of water. The number of springs of all kinds in the valley is not less than 1,500; and, with the exception of the Bluestone Springs, scarcely any two are exactly alike. Taken as an aggregate, the Firehole Basin surpasses all other great wonders of the continent. It produces an effect on the mind of the beholder utterly staggering and overpowering. During the night we were several times awakened by the rush of steam and the hissing of the waters, as the restless geysers spouted forth in the darkness. A constant rumbling, as that of machinery in labor, filled the air, which was damp and warm throughout the night.

Twenty-ninth day.—This morning we were awakened by a fearful, hissing sound, accompanied by the rush of falling water, and, looking out, saw on the other side of the stream a small crater, 3 feet in height, and with an opening of 26 inches diameter, which had scarcely been noticed on the previous day, and was now playing a perpendicular jet to the height of 219 feet, with great clouds of steam escaping, and causing the ground to tremble as the heavy body of water fell with tremendous splashes upon the shelly strata below. Huge masses of the rocks were torn from their places and borne away into the river

channel. It played thus, steadily, for 10 minutes, giving us time to obtain an accurate measurement by triangulation, which resulted as above stated. This crater gave no notice of being a geyser; its appearance and size were altogether insignificant, compared with others. We were more than ever convinced that continued observation would develop the knowledge of geysers in greater numbers, and perhaps of greater projectile force than any we had seen. Our rations were becoming scarce, however, and seven days had been comparatively lost in searching for Mr. Everts. We sent the train in advance at 9 o'clock, and waited all the forenoon at the grand geyser, in hopes of witnessing another eruption. The waters rose gradually until the great crater was nearly filled, but did not play, and we were forced to leave without witnessing a repetition of the phenomena.

Moving down the stream on the north side, past springs and small geysers of every variety, for a distance of 3 miles, we then traversed a valley 5 miles in length, swampy in many places, and in others much obstructed by fallen timber. Thermal springs were scattered along the whole route, but none large enough to be remarkable here. In 8 miles we came to an enormous bluestone spring, nearly circular in form, 450 yards in circumference, and of unfathomable depth, boiling hot, with clouds of steam evolving from its surface. It has built up a hill 50 feet above the general level, and covering about 100 acres with a calcareous bed. The margin of the great basin is bounded by a rim 30 feet back from the brink of the crater and elevated a few inches. The waters overflow in every direction, keeping the long slopes constantly wet. The deposits are of variegated colors—a circumstance not before remarked in any springs of this class; the water boils up slightly in many places far out in the basin, but steadily and with no indication of violent or periodic action. The steam rising is evolved from the surface of the water, and does not escape through it from beneath. The margin of this lake is 150 yards from the river, which has cut away its deposit to a bluff bank, 46 feet in height, at that distance. Between this bluff and the basin, but at a lower level, by 20 feet, is a geyser with a basin 50 feet in diameter, and playing a strong jet from the center to the height of 20 feet. Just beyond this, and at a different level still, are several smaller geysers, and a bluestone spring 70 feet in diameter. Flowing from these latter over the bank into the river are five streams of boiling water, either one large enough to run an ordinary gristmill. These steaming cataracts are among the most beautiful we have witnessed on the trip. Below the Great Basin, and at a distance from the bank, are two more bluestone springs, respectively 75 and 100 feet in diameter. These do not flow. Here the valley opens out to several miles in width, being of triangular shape, and about 12 miles in length. The Madison River comes in from the south, along the west side of this valley, joining the Firehole River at its northwest angle. In this large valley has formerly been a repetition of Firehole Basin, but on a much larger scale. On the south side are two hills of calcareous deposit, having gigantic but extinct craters on their summits. These hills are for the most part bare on the slopes, but are in some places grown up with pine timber, and are 800 feet in height. Some of the fragments of the crater walls are 50 feet in altitude. The south side, between the forks of the rivers, contains innumerable extinct craters of great size, and a few small ones, in operation, but with a low grade of action. On the north side of the Firehole River the valley slopes gradually from the bluffs to the river, a space of 3 miles in width, and is a calcareous swamp, with the summits of extinct craters projecting by hundreds above its surface. This great marsh has been deposited by waters from a vast series of geysers and springs along the foothill range; though much decreased in action many

of these are still in operation, and for miles the swamp is yet flooded with their waters. These we passed at a distance, and without visiting, but saw their clear fountains and stream jets playing on the sidehill, as we threaded the swamp. The amount of water flowing down from this system is enormous, and it was with the utmost difficulty that we found a passage through the slimy morass. Along the banks of the Firehole River were seen numerous stream jets, and in the center of the valley is quite a range of hills, now grown up with timber, but which were formerly craters of immense geysers. Around their bases are ponds of tepid water, and the deposit of the great marsh rises high up on their slopes. Near the lower end of the valley a large stream comes into the Firehole from the north, just above its junction with the Madison. This stream runs through a deep and beautiful valley in the range, and judging from the color and deposits from its waters, has large systems of thermal springs somewhere on the line of its course. The Madison comes in a mile below, in a stream 50 yards wide, and 2 feet deep, a mountain torrent, running on a bed of solid lava, and having its source in Henry Lake, about 40 miles above. The whole valley has a singularly ruinous and melancholy aspect. The few groups still in activity, and the thousands of extinct and broken craters, attest the grandeur of its former phenomena. An air of desolation settles upon the landscape which renders it almost painful to contemplate.

Following down the river bank through a deep canyon of volcanic rocks, in many places broken in huge fragments, we presently came to rapids, having a fall of perhaps 40 feet in a half mile. At this point the channel narrows to 150 feet, and is shut in by perpendicular rocks. We were obliged to scale the ridge above, and follow down the stream on its summit, through dense timber and steep ravines, with considerable difficulty. In 3 miles we reached a level bottom, on the river, at the junction of a large creek coming in from the northeast. Camped at the junction. Distance, 18 miles.

Barometer, 23.50; thermometer, 43°; elevation, 6,594 feet.

Thirtieth day—September 20.—We now thought ourselves clear of the geysers, but in the morning were surprised to see a graceful column of steam ascending to the height of 300 feet on the opposite side of the creek and in the elbow of a mountain range. We did not visit this group, but forded the Madison twice just below camp, and followed down its right bank. The river is here shut in by a canyon of high lava mountains rising with a perpendicular front of from 1,000 to 2,000 feet. The bare rocks stand out in impassable walls seamed with fissures and scarred by storms of centuries. Huge fragments in many places overhang the narrow path. In others the summits of the wall are composed of trachyte, overlaid with masses of basaltic columns of immense height.

Often the grassy, narrow shelf on the margin of the stream is covered with debris, and we were frequently obliged to take to the river, which runs on a ledge of lava full of deep cavities and strewn with large boulders. After threading our way thus for 12 miles through the grandest vistas of volcanic mountain scenery, the ranges suddenly fell away to the right and left, and we entered upon a great plateau, heavily timbered, and sloping to the west. This was the upper valley of the Madison, and is within the limits of the Great Basin. We passed rapidly down this uniform slope for 10 miles, all the way through timber, in many places deadened by fire, coming in on the river bank in the center of the valley, and thence followed down to an open district, in the middle of which rise two hills of considerable altitude. Mr. Langford and myself ascended to the summit of the highest of these and obtained a full view of the

surrounding country. The valley is nearly circular, about 20 miles in diameter, with the Madison running from south to north through its center. The land slopes gradually to the river from east and west. Two large streams head in the east and west points, skirting the margin of the valley through rolling prairie lands, and joining the Madison near the north point. The land is open all around the edges of the valley, but its central portions are heavily timbered, a circumstance very unusual in this country. The timber is wholly pine, the valley being above the region of cottonwood. The river bottom is much lower than the slopes, which terminate in bluffs on both sides of the stream. The formation is *débris* washed down from the mountains, and covered by a deep loamy soil. In the narrow bottom are numerous small lakes swarming with waterfowl. The river channel is extremely crooked and full of islands, and the woods abound with game of various sorts. The great Bannack trail crosses the valley from west to east, from the Snake River to the headwaters of the Gallatin. We should have skirted the foothills on the east side, and thus have avoided the timber, but were traveling by the compass and could not see the lay of the country on account of the dense forest. We camped 3 miles north of the two hills, near the junction of one of the streams, and 8 miles from the head of the canyon through which the river flows out of the valley. Distance, 27 miles.

Barometer, 23.50; thermometer, 38°; elevation, 6,434 feet.

This district has a bad reputation, as being a place of rendezvous for the bands of horse thieves and road agents which infest the Territory; its dense forests, moderate climate, enormous range, and abundance of game rendering it a pleasant and secure retreat for lawless men.

Thirty-first day—September 21.—We moved at 9.30 a. m., down the river, traveling for 8 miles through a constantly narrowing arm of the valley, thickly grown up with sagebrush. We then entered a canyon extending for 10 miles, very crooked, with a general trend to the northwest, and breaking through a high volcanic range, heavily timbered in places. The trail was easy, and the bottom of the canyon quite hilly, heavy masses of *débris* having fallen from the lava summits on either side. The walls of the canyon are steep but seldom perpendicular, and numerous ravines, the channels of small streams, come in laterally. Numbers of large springs gush out, high up on the mountain sides, forming cascades which tumble down the rocks, glittering in the sunlight like ribbons of silver. This range forms a section of the outer rim of the Great Basin, and its summits are above the altitude of the drift. The river channel falls rapidly throughout the whole length of the canyon, and debouches at its outlet into the middle valley of the Madison, where we came once more into Montana scenery—a broad valley of bare sloping ridges, flat on their summits, and composed of modified drift, with sparsely timbered mountains beyond, to the limit of vision. The river here turns sharply to the north.

Following the slope to the great range on the right, we traveled over foothills of drift. Numerous streams come down from the range through deep ravines worn in the slopes. The summits of the peaks are Russian granite, and some of the lower ones are ground smooth by the drift-current. The ground descends with great rapidity, and in 10 miles we come to a series of bluffs, falling away northward into another and much lower terrace of the valley. The lateral streams from the range now became larger, and ran over beds of cobbles and boulders of every variety of granite, the feldspathic and Russian being most frequently found. Surface lava cropped out on the hill slopes, but the whole lower valley is one mass of modified drift. We camped in a deep wooded ravine by the side of a clear mountain torrent, sheltered completely

from a cold windstorm which had chilled us all the afternoon. Distance, 26 miles.

Barometer, 23.60; thermometer, 32°; elevation, 6,382 feet.

The night was clear and cold. Ice froze to the depth of 1½ inches on still water, by morning.

Thirty-second day—September 22.—We started at 8 o'clock, climbing the steep slopes of the ravine, and following the table-lands for several miles. The valley widened constantly, and the huge granite peaks grew higher and higher as we descended to a lower level. After following the slopes for 6 miles we went down to the river bank, and there found numerous prospect holes in the drift and wagon tracks, showing a near approach to settlements. In 24 miles the valley again fell off in steep bluffs of drift cobblestones, and we came to a lower terrace on which occasional herds of stock were seen grazing. Cottonwood timber now appeared in the place of the pines, the valley widened to 12 miles, the bottom or lowest terrace along the river being a bed of washed granite boulders lightly covered with earth for the most part, but in places bare rocks for the space of hundreds of acres. The stream ran bank-full, over a bed of the same formation. The lava no longer appeared in the valley, though huge masses cropped out from the lateral ranges. The granite peaks here tower above on the right to the height of over 3,000 feet, their bald summits glistening in the sunlight reflected from the red granite and the masses of snow. We camped on the river bank in sight of the upper settlements of the Madison. Distance, 38 miles; altitude, 4,937 feet.

Thirty-third day—September 23.—We moved down the river, crossing 2 miles below camp at a point 9 miles distant from Virginia City, and striking the road to Sterling, which follows the valley for 10 miles. The river then bends to the northeast through a deep gorge in the hills which bound the valley on the north. The level portions of this valley are well settled with numerous large farms near the head of the canyon and along the borders of a district overflowed at some seasons of the year. All crops are here irrigated and small grains produce abundantly. At the point where the road leaves the valley for Sterling I separated from the Helena party—taking a near cut over the hilly range to the Madison bridge, at the crossing of the Virginia City and Gallatin Valley road. This road passes over ridges burrowed in every direction after quartz, and through ravines with arastras and quartz mills on their streams. I halted for the night at the bridge on the Madison. Distance, 35 miles.

Barometer, 25; thermometer, 38°; elevation, — feet.

In the canyon of the Lower Madison are found large numbers of small petrefactions of great beauty. These are brought down by the current from the volcanic regions above, and are highly prized for settings of jewelry.

Thirty-fourth day—September 24.—I started for Fort Ellis at 9 a. m. The road is passable for stages, and leads over rolling hills eastward to the Gallatin Valley, which is about 16 miles across from east to west, and 30 miles in length. The west or main branch of the Gallatin River, rising in the north rim of the great Yellowstone Basin, flows northward through this valley. Its bottom lands are grown up with cottonwood, and its waters afford irrigation to fertile farms, which already support a population of over 2,000. This valley is regarded as the finest settled portion of Montana. It is superior in all natural resources to many of the most valuable districts east, and resembles in many respects the Cumberland Valley, in Pennsylvania, with the exception that nature works on a grander scale in the wilds of the West than elsewhere. The mountains are higher, the scenery is more picturesque, and the air and waters clearer than any found east of the Missouri. The formation of the

Gallatin Valley is of modified drift, in terraces falling successively to the lowest point. Wood and grasses are abundant, and stock maintain themselves at large, in good condition, without being fed at all during the winter. I arrived at Fort Ellis in the afternoon; distance $35\frac{1}{2}$ miles. Privates Moore and Williamson returned on the 2d of October. They had gone back on the trail to our second camp, on the south side of the lake, thence struck the head of Snake River and followed down the stream for a distance of 25 miles from the Yellowstone Lake. They found game plentiful and tame, and had no difficulty in obtaining an abundant supply. After an ineffectual search of five days they followed our trail, arriving without accident at the above date. Mr. Everts was found on the 10th of October by two men from the Yellowstone agency. On the first day of his absence he had left his horse standing unfastened, with all his arms and equipments strapped upon his saddle; the animal became frightened, ran away into the woods, and he was left without even a pocketknife as a means of defense. Being very nearsighted, and totally unused to traveling in a wild country without guides, he became completely bewildered. He wandered down to the Snake River Lake, where he remained 12 days, sleeping near the hot springs to keep from freezing at night, and climbing to the summits each day in the endeavor to trace out his proper course. Here he subsisted upon thistle roots, boiled in the springs, and was kept up a tree the greater part of one night by a California lion. After gathering and cooking a supply of thistle roots he managed to strike the southwest point of the lake, and followed around the north side to the Yellowstone, finally reaching our camp opposite the Grand Canyon. He was 12 days out before he thought to kindle a fire by using the lenses of his field glass, but afterward carried a burning brand with him in all his wanderings. Herds of game passed by him during the night, on many occasions when he was on the verge of starvation. In addition to a tolerable supply of thistle roots, he had nothing for over 30 days but a handful of minnows and a couple of snow-birds. Twice he went five days without food, and three days without water, in that country which is a network of streams and springs. He was found on the verge of the great plateau, above the mouth of Gardiners River. A heavy snowstorm had extinguished his fire; his supply of thistle roots was exhausted; he was partially deranged, and perishing with cold. A large lion was killed near him, on the trail, which he said had followed him at a short distance for several days previously. It was a miraculous escape, considering the utter helplessness of the man, lost in a forest wilderness, and with the storms of winter at hand.

Thus the Yellowstone expedition closed. We saw many strange and wonderful phenomena, many things which would require volumes for adequate description, and which in future geography will be classed among the wonders of the earth; yet we only followed up the Yellowstone River, passed around two sides of the lake, and down one branch of the Madison to the main stream. We did not explore one-third of the Great Basin. The district will be in easy reach of travel if the Union Pacific Railroad comes by way of the lower Yellowstone Valley. The difficulties of the journey amount to but little after the various routes had been laid down correctly. From the 1st of June to the 1st of October the climate is very mild, considering the location. As a country for sight-seers, it is without parallel; as a field for scientific research, it promises great results; in the branches of geology, mineralogy, botany, zoology, and ornithology it is probably the greatest laboratory that nature furnishes on the surface of the globe.

In one special and important particular a thorough survey of this region would be of use. It is the apex of the greatest watershed in the northwest

Territories, and such a survey would locate correctly the sources of a large number of streams, including the Missouri, Yellowstone, Big Horn, and Snake Rivers. The existing maps are all far from correct in the bearings of all these rivers near their sources, the Upper Missouri being located several miles west of its true position, and too much space being left between the heads of all these great streams, thereby shortening all their channels. By correctly locating their sources, the labor of tracing their channels would be greatly simplified, as the successive trends of the streams could then be worked up from either of two known points—the head or the mouth.

Accompanying this report are appended a table of meteorological observations taken at different points along the route, a geological profile of the country traversed, and a general map of the country. This latter has been compiled from our observations, together with those of a surveyor who went around by the north side of the lake last year. It connects on the west side with lines of territorial survey, as a base, and is believed to be as correct as a map of so large a district can be made in the absence of actual measurements of the ground traversed.

Very respectfully, your obedient servant,

G. C. DOANE,

Second Lieutenant Second Cavalry.

First Lieut. JAMES E. BATCHELDER,

First Lieutenant Second Cavalry, Post Adjutant.



