REPORTS

OF

INSPECTION MADE IN THE SUMMER OF 1877

BY

GENERALS P. H. SHERIDAN AND W. T. SHERMAN

OF

COUNTRY NORTH OF THE UNION PACIFIC RAILROAD

PRINTED BY ORDER OF THE SECRETARY OF WAR.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
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LIEUTENANT-GENERAL SHERIDAN'S REPORT OF A RECONNAISSANCE OF THE BIGHORN MOUNTAINS AND THE VALLEYS OF THE BIGHORN AND YELLOWSTONE UNDER HIS PERSONAL SUPERVISION DURING THE MONTH OF JULY, 1877.

HEADQUARTERS MILITARY DIVISION OF THE MISSOURI,
Chicago, October 2, 1877.

SIR: I have the honor to forward, for the information of the General of the Army, the accompanying reports of a reconnaissance made of the Bighorn Mountains and the valleys of the Bighorn and the Yellowstone, under my personal supervision, during the month of July, 1877.

Very respectfully, your obedient servant,

P. H. SHERIDAN,
Lieutenant-General U. S. A.

The ADJUTANT-GENERAL U. S. ARMY,
Washington, D. C.

HEADQUARTERS MILITARY DIVISION OF THE MISSOURI,
Chicago, September 29, 1877.

SIR: The necessity which caused the establishment of the two new military posts in the Yellowstone and Bighorn Valleys, in the heart of the hostile Sioux country, made it incumbent on me to collect such knowledge of that section as would enable me to determine, to some extent, its character, the bearing of the posts upon it, and the size of their garrisons. This information could best be obtained by a personal visit to the posts and a reconnaissance embracing as large a scope of the country referred to as was practicable. I therefore made up my mind to go from Chicago, by rail, to Green River station on the Union Pacific Railroad, thence by stage, via Camp Stambaugh, Wyoming, across the Wind River Mountains, to Camp Brown, on Little Wind River, near the agency of the Shoshone Indians; from Camp Brown, with a proper escort, to travel down the Little Wind River to its junction with the main Wind River; thence down the Bighorn, formed by their junction, to the western base of the Owl Creek Mountains; thence turning east and northeast, and passing this range by the Bridger and Sioux Pass, make my way to Painted Rock River which skirts the western base of the Bighorn Mountains, and is erroneously put down on the maps as No-wood Creek; thence down this river until I reached a point which would enable me to cross the Bighorn Mountains on the Tongue River trail, and after reaching the eastern base of the mountains, to proceed down the Little Horn River to Post No. 2, located at its mouth; from thence by steamboat I could go down the Bighorn and Yellowstone to Post No. 1, at the mouth of Tongue River, and then by steamer to Bismarck, and by the Northern Pacific Railroad back, via Saint Paul, to Chicago. The country embraced in this circuit covered nearly the

whole of the great Bighorn and Yellowstone Valleys, and is the country that was occupied by the hostile Indians during the previous summer.

The necessary escort having been ordered at Camp Brown, Wyoming, I left Chicago, June 25, 1877, accompanied by Col. D. B. Sacket, inspector-general, Lieut. Col. James W. Forsyth, military secretary, and Maj. George A. Forsyth, A. A. D. C., of my staff, Lieut. W. L. Carpenter, Ninth Infantry, and two citizen friends, Col. D. N. Welch and Col. H. W. Farrar. At Omaha I was joined by General George Crook, commanding the Department of the Platte, and on arrival at Camp Brown, June 30, by Lieutenants Schuyler and Bourke, General Crook's aides-de-camp. Everything being in readiness at Camp Brown, we started early on the morning of July 1, and on July 4 reached the western base of the Owl Creek Mountains.

The country down the Little Wind River and the valleys of the Little and Big Popoagie and Beaver Creeks were found to have good soil fit for cultivation, grass in large amount, of great variety, and not confined to the valleys of the streams named, but extending over the broken country as far east as the Rattlesnake Hills. The country from the junction of the Wind Rivers to the base of the Owl Creek Range was found to be a broken, sage-brush, bad-land region, unfit for cultivation, and without grass in sufficient quantity for grazing purposes.

On July 5 we continued our march, passing the Owl Creek Range of mountains by the Bridger and Sioux Pass, reaching the headwaters of Painted Rock River; and on July 12 arrived at the base of the Bighorn Mountains on the Tongue River trail. After leaving our camp on the morning of July 5, the country passed over changed from sage-brush and ashy soil to one carpeted with grass and flowers; and as we made our way through the passes, the grass increased in luxuriance and in area sufficient for thousands of cattle to feed on. Painted Rock River runs, in its general direction, nearly north and along the base of the Bighorn Mountains, where, for a hundred miles down it and on the east side, is the Bighorn Range of mountains, covered with bunch, grama, and other nutritious grasses and beautiful wild flowers. The valley of Painted Rock River is susceptible of cultivation throughout nearly its whole length. The snow-peaks of the Bighorn Range are visible from the Sioux Pass all the way down the valley, and elk, antelope, deer, mountain-sheep, buffalo, and trout are abundant.

On July 14 we commenced the ascent of the Bighorn Range, passing by several trout-lakes and over Shell Creek, reaching the eastern base of the mountains on July 17, near the cañon of Tongue River. The ascent was not difficult, as the summit of the general range is, say, 12,000 feet elevation, and from that down to about 5,000 feet is a succession of beautiful parks of grass, surrounded by pine timber and dotted with lakes. One park on the summit, through which we passed in crossing, was about twenty miles long, opening out to three or four miles in width at places. The views from these mountains are exceedingly grand. One especially, from near Castle Coolbaugh, looking down the cañon of Shell Creek to the cañon of the Bighorn, and then across the Bighorn Valley to the fine mountain ranges around the National Park to the north, and the Wind River Range on the west and southwest, cannot probably be exceeded on the globe. The bunch, grama, and other nutritious grasses, supplemented by innumerable wild flowers, added much to the wonderful beauty of this region.

On July 19 we crossed from Tongue River to the Little Horn, and down the valley of that river to Post No. 2 at its mouth, arriving there July 22. The country lying east of the Bighorn Range, from the heights

near the cañon of Tongue River, is very fine. Looking to the south, along the base of the mountains as far as the old post of Fort Phil. Kearney, then across to the Wolf or Rosebud Mountains, then north to the Bighorn Valley, gives a scenery of undulating valleys watered by mountain streams fringed with timber, the soil being excellent, hillsides and valleys covered with bunch, buffalo, grama, blue, and other grasses, intermixed with wild flowers. The valley of the Little Horn, at this season, was almost a continuous meadow, with grass nearly high enough to tie the tops from each side across a horse's back. This was the country of the buffalo and hostile Sioux only last year. There are no signs of either now; but in their places we found prospectors, emigrants, and tramps. The country east of the Bighorn Range is much better and less broken than that on the west side. The cattle-range here for hundreds of miles is superb.

The grass is much better than in Colorado, Kansas, or Texas, for in the latter part of summer and the fall the climate is so dry that the grass makes hay without being cut, while in the southern latitudes the alternate thawing and freezing is injurious to the cattle and the rains rot the grass.

We found Post No. 2 delightfully located by Lieutenant Colonel Buell, who was working as busy as a beaver in its erection. Five steamers coming up the Bighorn were in sight, and were soon at the landing. After one day's rest at the post we embarked in one of the steamers and proceeded down the Bighorn and Yellowstone to Post No. 1, at the mouth of Tongue River, arriving the next day. The Bighorn River is a large, swift stream and very crooked. The distance of the post from its mouth is 45 miles by water and 30 by land.

The Bighorn Valley is very large and fertile, and about 150 miles long. The Yellowstone, from the mouth of the Bighorn, is a fine, broad river dotted with beautiful islands, while its valley is a broad expanse of cultivable land. Some of these open expanses are 20 miles in length by 10 in width.

Post No. 1 is on an open prairie near the mouth of Tongue River, a fine location well selected. The post is being built under the direction of Col. N. A. Miles, Fifth Infantry, commanding the district, which embraces both posts, with headquarters at Tongue River.

On July 24 we continued our journey down the Yellowstone and Missouri to Bismarck, arriving there July 27, and at Chicago by rail July 29.

This report is limited, and chiefly for the purpose of submitting to the General of the Army the very excellent itinerary and topographical sketch of the trail, and country adjacent to it, made by Col. D. B. Sacket, the inspector-general of the division. Most of the higher peaks of the Bighorn Mountains were accurately located by Lieutenants Carpenter and Schuyler, and named by Colonel Sacket, and profile sketches of them made by Colonel Sacket and Lieutenant Schuyler. (Sketches referred to follow the itinerary.)

I also inclose and highly commend the report of Lieut. W. L. Carpenter, Ninth Infantry, on the geology and natural history of the section passed over, as well as the botanical report of Dr. Julius H. Patzki, United States Army.

I am sir, very respectfully, your obedient servant,

P. H. SHERIDAN,
Lieutenant-General, United States Army.

Brig. Gen. E. D. TOWNSEND,
Adjutant-General of the Army, Washington, D. C.

CAPE VINCENT, N. Y., *August* 28, 1877.

GENERAL: Herewith I have the honor to forward a sketch of the route marched on a reconnaissance through the Bighorn Mountains, executed under your immediate supervision; also an itinerary of this route.

I am, general, very respectfully, your obedient servant,

D. B. SACKET,
Colonel and Inspector-General.

Lieut. Gen. P. H. SHERIDAN, U. S. A.,
Chicago, Ill.

AN ITINERARY OF THE ROUTE MARCHED OVER ON A RECONNAISSANCE ALONG AND THROUGH THE BIGHORN MOUNTAINS, FROM CAMP BROWN, WYOMING, TO THE NEW POST ON BIGHORN RIVER, MONTANA.

Camp No. 1 (Departure) was located on the right bank of Little Wind River, about one mile east of Camp Brown. The course of the first day's march (July 1) was almost due east along the valley of the Little Wind River. The road for the 14 miles marched was very good. One and one-half miles from camp was passed the famous hot spring of Wyoming. One and one-half miles farther east was crossed a small, clear, rapid creek, running into Little Wind River. Five miles on from this creek the trail crosses to the left bank of Little Wind River, and six miles farther on camp was pitched on the bank of this river. The valley of this stream varies from one-half mile to two miles in width, and is well adapted to agricultural and grazing purposes, and, if necessary, the entire valley can be easily and thoroughly irrigated. Ample wood for camping purposes is to be found along the river, but very little or no timber. The altitude of Camp No. 1 above the level of the sea, 6,005 feet; of Camp No. 2, 5,541 feet.

From Camp No. 2 (Trout), July 2 (1877), 12 miles were made. The trail still continued along the valley of Little Wind River. The general course traveled, about east-northeast; the road very good. Five miles east of camp, the Popo-a-gie (Land of the Buck Elk), a clear, rapid-running stream, empties into the Little Wind River from the south, as does likewise Beaver Creek three miles farther on. The trail again crossed Little Wind River, and camp was pitched on its right bank about one mile below the ford. The ford was a good one. Between Wind and Little Wind Rivers (near their junction), wood and grass; at Camp No. 3, not plentiful. At and about this camp swarms of seventeen-year locusts were in the act of issuing from the ground. Altitude of Camp No. 3, 5,567 feet.

From Camp No. 3 (Locust), July 3, 20 miles were made. The trail led along and near the Bighorn River, over a sage-brush and grease-wood country, and through alkali bottoms, a portion of the distance over very rough and steep bluffs. A much better and shorter road might have been traveled by ascending and crossing the high table-lands after leaving camp, instead of following the bends of the river. Camp was pitched on the right bank of the Bighorn River. Wood and timber abundant; grass good. As a general thing, the road a fair one. Northeast was about the general course of the day's march. All along the Bighorn

River, which is formed by the junction of the two Wind Rivers, much fine, large cottonwood timber grows. Altitude of Camp No. 4, 5,542 feet.

From Camp No. 4 (Riverside), July 4, 18 miles were made. The trail here left the valley of the Bighorn and crossed a high and rough country, covered with sage-brush and grease-wood; the soil soft and the marching heavy. Bad water and dry creeks were crossed. Camp was pitched on Meadow Creek. Wood not abundant; grass, only fair; water from spring, good. The general course of the day's march, about east-northeast. Altitude of Camp No. 5 is 6,001 feet.

From Camp No. 5 (Independence Spring), July 5, 24 miles were made. The trail for the first six miles after leaving camp led across a country similar to that passed over the day previous. On reaching the foot-hills of the Owl Creek Mountains, and through the pass in this range, the trail was exceedingly rough and rocky. About 14 miles from Camp No. 5 Bridger's Creek was crossed, running in a southerly direction to Bad Water Creek. Bridger's wagon-road was also crossed here, and for the next two miles the trail led up an exceedingly steep, rough, and rocky mountain, then into a small valley or pass, with a clear, rapid stream running along it in a westerly course and emptying into Bridger's Creek. The remains of one George Anderson, supposed to have been killed by Indians the fall before, were found and buried on the banks of this stream, and his name given to the creek. After passing the headwaters of Anderson Creek, an easy divide was crossed, and camp pitched at some small springs which form the headwaters of Painted Rock River. Water (springs) excellent; grass short, owing to the presence of large herds of buffalo. No wood; sage-brush used as fuel. The general direction of the day's march about northeast by east. Altitude of Camp No. 6, 6,963 feet. While passing over the divide the first sight was had of Cloud and surrounding peaks of the Bighorn Mountains.

From Camp No. 6 (Stampede), July 6, 18 miles were made. The trail led this day along the valley of Painted Rock River, all the way; for the first eight miles in an easterly direction, and then to camp in a northerly direction. The general course of the day's march about northeast. Camp was pitched near where the Painted Rock River passes through a rocky cañon in the mountain, known as Bull's Nest. The day's march was over a very good road. Wood abundant near this camp, but as a general thing very little wood grows along this river. Water and grass excellent. Altitude of Camp No. 7 is 5,889 feet.

From Camp No. 7 (Larkspur), July 7, 25 miles were made. The trail led most of this day's march over a very rough and hilly country. Eleven miles from camp it crossed to the right bank of the Painted Rock River, and continued on that side to camp. The camp was a poor one, on account of the limited amount of grass, rough ground, and the great quantities of cactus. Water good but warm. Cloud and other snow peaks in view the entire day. The course marched, about north. Altitude of Camp No. 8, about 5,303 feet.

From Camp No. 8 (Cactus), July 8, 10 miles were made. The trail this day led down the valley of Painted Rock River for about six miles, when it was forced up and over high bluffs. After a two-mile march over a rather rough country, a deep swollen torrent was found, which took its source immediately under Cloud Peak, and debouched into the plain through a dark, rocky cañon, and made its way to Painted Rock River. This stream was named Sacket's Fork. It was not fordable at or near the place where the trail came to the stream. A good ford was afterward found near its junction with Painted Rock River. Camp was pitched on the right bank of this mountain-stream about one mile

above the ford. The melting snows in the mountains accounted for the great quantity of water in this stream. No doubt at other seasons of the year it can be forded at almost every point. Wood abundant; water and grass excellent. The general course of the day's march, about north. Altitude of Camp No. 9 is 4,469.5 feet.

From Camp No. 9 (Red Bluffs), July 9, 21 miles were made. The trail this day lay across a rolling country with easy grades. Six miles from camp, crossed a clear, running creek and entered a red sandstone cañon, with an excellent road leading through its entire length, some four miles. From the cañon to a stream named "Welsh's Fork," a distance of 10 miles, the road was very good, leading over a gently-rolling country. The water of Welsh's Fork was very deep and rapid and not fordable. Camp was pitched on the left bank of this stream, about one mile below where the trail came down to the stream. Like the stream left in the morning, Welsh's Fork was swollen by the melting of the snows on the Bighorn Mountains. At any other season of the year, no doubt, it can be forded at almost any point. The course marched this day was about north. Wood abundant; grass poor and short; water excellent. Welsh's Fork runs a westerly course and empties into Painted Rock River. The altitude of Camp No. 10 is 5,303 feet.

From Camp No. 10 (High Water), July 10, 10 miles were made. After much search, a rough, rapid, rocky ford was found at a point about one mile below camp, and where the stream was divided by islands into four branches. A much better ford was found, at which the pack-train crossed, some five miles farther down the stream, and below where Medicine Lodge Creek forms a junction with Welsh's Fork. From the upper ford, it is about one mile in a northerly direction over a level prairie to Medicine Lodge Creek. From this point, the ascent of the Bighorn Mountains was commenced. The trail was a very good one, and most of the way the grade easy. Camp was pitched on Lookout Peak, in full view to the northeast of Cloud and neighboring snow-clad peaks and to the west of the snow-capped peaks of the Rocky and National Park Ranges and of the valleys of the Bighorn and many of its tributaries. The general course of the day's march, about east-northeast. Wood abundant, mostly spruce; grass good; water excellent, from springs. Altitude of Camp No. 11 is 9,387 feet.

From Camp No. 11 (Lookout), July 11, 8 miles were made. Most of the day's march was along a good trail, and had the location of the lake on which it was designed to camp been definitely known, the entire march would have been made over easy grades, and the descent of a difficult and rocky mountain avoided. Camp was pitched on the shore of a lovely lake, about one mile in circumference, lying immediately at the base of Cloud Peak. Wood abundant; grass poor; at this altitude the grass was as yet young and quite short; water excellent. Much snow was crossed during the day's march. The lake was christened "Stager," its altitude being 9,995 feet above the level of the sea. The general course traveled this day was about north-northeast.

From Camp No. 12 (Lake Stager), July 13, 10 miles were made. The trail this day for a portion of the way was very rough and rocky, the other portion very hilly. Much snow was crossed over and passed by. Three or more clear, rapid-running mountain-streams were crossed, making their way in a southeasterly course to Medicine Lodge Creek. Camp was pitched about two miles south of Shell Creek, at the base of Farrar's Butte, on a small creek running in a northerly direction to Shell Creek. The general course marched this day, about north. Wood,

water, and grass good and abundant. The estimated altitude of Camp No. 13, about 10,000 feet.

From Camp No. 13 (Farrar), July 14, 7 miles were made. The trail leading from camp to the crossing of Shell Creek is steep and rough and in many places wet and muddy; the ford of Shell Creek a fair one. The ford of Bear Creek, a branch of Shell Creek, is rough and rocky. The trail leading up the mountain from Shell Creek is rocky and most of the way is very steep. Camp was pitched near a branch of Shell Creek at the base of Castle Coolbaugh. The general course of the day's march about north-northwest. Wood, water, and grass good and abundant. The estimated altitude of Camp No. 14 is about 10,300 feet. Three inches of snow fell during the night.

From Camp No. 14 (Buena Vista), July 16, 22 miles were made. The trail led this day through "The Shell Creek and Tongue River Pass," which is a beautiful valley on the summit of the Bighorn Mountains. A most excellent road from camp to the North Fork of Tongue River, a distance of fully 19 miles. Three miles after crossing the stream near camp, running southwest to Shell Creek, is crossed a small creek running in a northeasterly course to Tongue River. The divide separating the waters of these two streams is quite low, with very little rise or descent perceptible. The descent into the cañon of the North Fork of Tongue River is deep, steep, rocky, and obstructed by fallen timber. The ford of this stream is very good. The ascent out of the cañon is long, steep, and somewhat rocky. Camp was pitched at the summit of this cañon, on the left bank of Tongue River, two miles north of the crossing of the North Fork. This North Fork empties into Tongue River about one-half mile below the point it was crossed. About four miles south of the North Fork and near Tongue River was the scene of Lieutenant Sibley's engagement with the Sioux last season (1876). The general course marched this day was about north-northeast. Wood, water, and grass good and abundant. Estimated altitude of Camp No. 15, about 7,479 feet.

From Camp No. 15 (Grizzly), July 17, 8 miles were made. The trail this day on the eastern side of the Bighorn Mountains, up and down, was exceedingly steep, rough, and rocky—the most so of any day's march on the trip. Camp was pitched on the left bank of Tongue River, about one mile east of the cañon in the mountains through which the river debouches into the plain. The general course marched this day about northeast. Wood abundant; water good; grass excellent. The valley of Tongue River exceedingly well wooded. Estimated altitude of Camp No. 16 is 4,720 feet.

From Camp No. 16 (Tongue River), July 19, 21 miles were made. The trail led the entire distance over a gently-rolling, well-watered country; the road very good. Numerous running streams were crossed: Sun Dance, Little Beaver Dam, and Beaver Dam Creeks, running in a southeasterly direction to Tongue River; Boxelder and Birch Creeks (south branch of Little Bighorn) in an easterly and northerly course to the Little Bighorn River. These streams, with Ash and Snake Creeks, water the broad valley lying between the Wolf Mountains, on the east, and the Bighorn Range, on the west. With the exception of Birch Creek, very little or no wood is to be found on any of the above-named streams. Several varieties of most excellent grass cover hill and valley throughout this section of country. The general course of the day's march was north. Camp was pitched on the right bank of Little Bighorn River, a short distance below where Birch Creek enters it. Wood not abund-

ant; water and grass good. Estimated altitude of Camp No. 17, 4,660 feet.

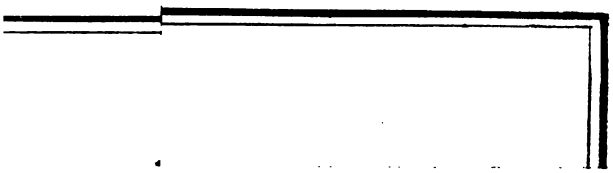
From Camp No. 17 (Greasy Grass), July 20, 14 miles were made. The trail this day led along the right bank of the Little Bighorn for 10 miles, at first over a high rolling country, and afterward along the level valley of the stream. It then crossed to the west or left bank of the river, ascended the bluff, and passed over a high table-land to the valley of Grass Lodge Creek, a fine, large, rapid stream, upon the left bank of which camp was pitched. The Grass Lodge takes its rise in the Bighorn Mountains, runs a northeasterly course, and empties itself in the Little Bighorn River. The general course marched, about north. Wood abundant; water good; grass, numerous varieties, excellent. Estimated altitude of Camp No. 18, 4,590 feet.

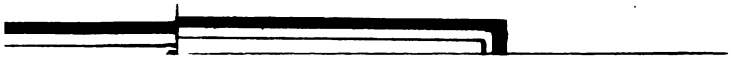
From Camp No. 18 (Grass Lodge), July 21, 17 miles were made. The trail lay along the west bank of the Little Bighorn River, at times along its valley, and then over the high land. With the exception of an occasional deep ravine, the road was a very good one. Rich and excellent grasses, such as bunch, gama, and blue, with the wild rye and pea-vine, covered hill and valley the entire day's march. Camp was pitched in a beautiful and extensive valley on the left bank of the Little Bighorn River, immediately opposite the Seventh Cavalry battle-ground of June 27, 1876. Wood abundant; grass only fair, owing to a recent hail-storm, which had almost completely destroyed all vegetation. The course of the day's march was a very little east of north. Estimated altitude of Camp No. 19, 4,524 feet.

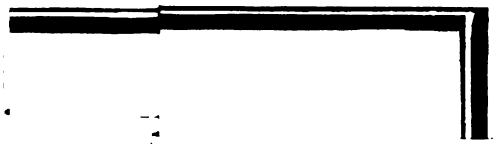
From Camp No. 19 (Seventh Cavalry), July 22, 15 miles were made. The trail this day, after leaving the valley of the Little Bighorn, ascended a high table-land lying between the Big and Little Bighorn Rivers, which it followed until the new military post on the Bighorn was reached. The road was a very good one. The general course traveled this day, a very little west of north. The valley of the Little Bighorn is covered with most excellent grass to its junction with the Bighorn; but on the Highlands, as the new post is neared, the grass becomes very short and thin, and is almost entirely eradicated by the prickly pear. Tents were pitched at the cantonment of the Eleventh Infantry (near the location of Post No. 2), near the steamboat landing on the Bighorn River, in the delta of the Big and Little Bighorns. Estimated altitude of this point, 3,965 feet.

No portion of our western country can boast of a more beautiful and well-watered grazing region than the 4,000 square miles lying between the Bighorn Mountains, on the west, and the Wolf Range, on the east, and extending along Tongue River to the forks of the Big and Little Bighorns. Nowhere does a greater variety of luxuriant, rich, and nutritive grasses grow. Also, the region of country lying within the triangle formed by the Bighorn and Owl Creek Mountains and the Bighorn River is a superior grazing country, well watered, with good shelter for stock in winter. It is more than probable that gold will not be found in paying quantities in the Bighorn Mountains; certainly not on its western slope, as the nature of the rock there is mostly of a red sandstone formation.

The stream laid down on the maps as "No-wood Creek" should, according to information derived from the Indians, be called "Painted Rock River." Along a high sandstone bluff on this stream, about 20 miles from its source and two miles north of Bull's Nest Mountain, are found numerous paintings and hieroglyphics. From these the Indians say the river received its name. "No-wood Creek" would hardly be a







proper name for the stream as, along the lower portion of its valley, a good deal of wood is found.

Along and through the Bighorn Mountains the hunting and fishing cannot be surpassed.

Respectfully submitted.

D. B. SACKET,
Colonel and Inspector-General U. S. A.

DUNKIRK, N. Y., *September* 27, 1877.

SIR: I have the honor to submit a report on the geology and natural history of the Bighorn Mountains, embodying the results of observations made while attached to the military reconnaissance through that region this summer.

Very respectfully, your obedient servant,

W. L. CARPENTER,
First Lieutenant, Ninth United States Infantry.

Lieut. Gen. P. H. SHERIDAN, U. S. A.,
Commanding Military Division of the Missouri, Chicago, Ills.

REPORT ON THE GEOLOGY AND NATURAL HISTORY OF THE BIGHORN MOUNTAINS.

GEOLOGY.

A few hasty notes were taken on the principal geological features of the route traveled over, which, although meager and unsatisfactory, may prove of some interest, as a part of the region traversed was before unknown.

Upon descending into the Wind River Valley, the most striking formations noticed are the beds of variegated argillaceous sandstone, which extend throughout the entire valley, enveloping also the Bighorn Mountains and part of the Owl Creek Range. The bed of Wind River has been cut through this formation, leaving in many places buttes and ridges composed of thick masses of clay intercalated with strata of sandstone, worn by erosion into fantastic forms, which present one of the most prominent geological features of this region. At the head of Wind River, these beds are soft, of a bright red color, and appear inclined toward the Wind River Mountains at an angle of about 45°, being in some places folded and upturned vertically. They probably once rested horizontally against the mountains, which being subsequently upheaved, threw them back, leaving a wide, deep chasm where the connection is broken off. About 30 miles to the eastward, beyond the radius of the uplifting force exerted, these beds resume the horizontal position, lying regularly and being undisturbed until the western slope of the Bighorn is reached; here the same phenomena were observed; thus they form a shallow synclinal of about 150 miles in diameter, occasionally interrupted by local flexures. The eastern slope of the Bighorn Mountains is also inclosed by red sandstones, and it is probable that these beds, although not everywhere of the same period, were, during their age, continuous; and that this range was, like the Black Hills, then an island in the great inland sea, of which the Bighorn Valley was an estuary reaching to the

head of the Wind River where the high land formed a narrow isthmus, separating its waters from the Colorado drainage, and forming the northern edge of the Green River coal-beds, which have here been interrupted by the upheaval of the intervening Sweetwater and Wind River Mountains, causing a great anticlinal sloping on the southward to the spurs of the Wasatch Range.

At the head of the valley a dark colored bituminous shale exists at an elevation of about 6,500 feet above tide water, which is about the same elevation at which the Green River shales appear on the southern water-shed. In one locality, a friable semi-bituminous coal occurs, which has been used for blacksmithing. A spring strongly impregnated with petroleum also is found near by. In traveling northward, however, all indications of coal disappear until the lignitic Tertiary beds of the Yellowstone and Powder River are reached. A species of *Inoceramus* resembling *I. problematicus*, was the only fossil found in the upper valley. It is probable, however, that the valley belongs to the Cretaceous and Lower Tertiary; being in fact transition-beds in which the inosculation shows no well-defined border, and that the sea extended northward beyond the present Missouri drainage, and eastward around the Bighorn Mountains, again to the Missouri. With the exception of well-preserved fragments of a species of turtle which occurred in a soft purple marl near Bad-water Creek, no vertebrate fossils were found in the valley, although patches of *mauvaises terres* were in many places exposed to view. A single species of *Spirifer cameratus*, a characteristic carboniferous fossil, was found near this place; but as it was water-worn, and there being no rock to be found in situ in the vicinity, it is supposed to have been washed down from some mountain. The paucity of fossiliferous remains in this region is remarkable when compared with the abundance to be found in beds of this age in Nebraska, the Bridger Basin, and Southwestern New Mexico. The marls and clays appear to have been subjected to subterranean heat until all traces of the organic life which they once contained have been obliterated. The igneous area is quite extensive and has been traced by the writer to the northeastward as far as the mouth of Powder River. Between this region and the Bighorn Mountains no fossils could be found; the lignite beds have been turned to ashes; the surface of the ground and exposed strata, to a considerable depth, baked to metamorphism, and the rock in some places actually fused. On the Little Missouri River west of the head of Heart River, and also in the vicinity of Pumpkin Buttes, burning beds of lignite still exist and have been smouldering for ages. But east of this burnt section, between Powder River and the Missouri, invertebrate fossils are common, and the head of Grand River, Nebraska, is a bad-land region of vast extent abounding in both vertebrate and invertebrate remains.

Moving down the valley near the Owl Creek Range, immense beds of white gypsum were noted. Magnesium, gypsum, and hornblende covered the surface of the ground, and limestone concretions of large size are numerous at the foot of the range. The water in this vicinity is so strongly impregnated with mineral salts as to be unfit for use. The Owl Creek Mountains are composed of porphyritic granite containing a large quantity of feldspar, which gradually gives place at higher elevations to a gneissoid granite with some ledges of white quartz. They connect the southern end of the Bighorn Mountains with the northern part of the Wind River Range, their general trend being east and west. Limestone was noted in the foot-hills, but no fossils could be found. A rim of rugged scoriaceous basaltic ridges and peaks surround the

southeastern end of the range; it is probable that these eruptive rocks extend far to the westward, but the fact was not verified. At the base of the range appear strata of red arenaceous sandstone and marly limestone, which may belong to the Jurassic, although no fossils could be found indicative of that period. The range is about 9,000 feet high and is cut through by the Bighorn River in a deep cañon, which we were obliged to leave unexplored for want of time; it would probably have afforded a fine opportunity for the study of the different strata to be found in this vicinity, as the section exposed, estimated from a distance, appeared to be at least 1,000 feet deep. On the north and south sides of this range the variegated strata show the same disturbance by the process of elevation, with a similar inclination from the mountains; but they resume the horizontal position much nearer the base of the hills than those contiguous to the Wind River and Bighorn Ranges. About 20 miles south of the cañon of the Owl Creek Mountains, they lie regularly and horizontally on both sides of the Bighorn River, and are here nearly 1,000 feet in thickness.

The Bighorn Range is composed at the base of thick masses of primordial sandstone resembling the Potsdam sandstone of the Black Hills, although the heat coeval with the upheaval of the mountains has probably obliterated the fossils which are so abundant in that region. They rest unconformably against the Archæan, inclined from the flanks, folded, and in many places upturned similarly as in the Black Hills and Colorado Mountains, above which appear thin strata of limestone sloping from the flanks to an abrupt edge where they have been broken off, in which were found numerous casts of *Spirifer cameratus*, which plainly showed the effect of igneous action. This stratum of the Carboniferous age occurs on both sides of the mountain at an elevation of about 1,500 feet above the base, and 7,500 feet above the sea-level. At an elevation of about 9,000 feet the crystalline rocks appear and compose the more elevated parts of the range. Near the summit a compact, fine-grained grayish granite predominates, which is occasionally varied by patches of mica schist. But little quartz occurs on the western slope, either *in situ* or as float. The eastern side of the range, however, shows considerable quartz in well defined ledges usually of a grayish color and often ferruginous.

The Bighorn Mountains form one of the most wild and rugged ranges on this continent. They are divided on the northern end into three nearly parallel gorges by the three branches of Tongue River that break through the mountains, and head at a great altitude near Hayes Peak, which seems to be the keystone of the range. These gorges present a picture of rugged grandeur unsurpassed by mountains of greater magnitude. Great hills of granite slope from the head of Tongue River, in rounded terraces of *roches moutonnées*, smoothed and polished by the local glacier which once moved down this wild valley with an irresistible force. The sides of the gorge show the effects of attrition for a vertical distance of 1,500 feet; and the rounded knolls extend a distance of fifteen miles down the river to a point where the gorge widens into a narrow valley, over which are spread terraces of detritus, forming a terminal moraine. This formation obtains on all the forks of Tongue River, but the *roches moutonnées* are best shown on the north or main branch, while the moraines are most prominent on the middle branch, where the valley from being narrow and deep, widens out to considerable breadth. The Middle Fork may be ascended to its source from the eastern side by a trail first traveled by General Crook in 1876, which starts from the foot of the range near the south branch, and bears southwest across the

foot-hills to this fork, and thence to the summit of the second ridge, from which point the Bighorn Valley may be reached by a steep mountain trail. The North Fork is absolutely inaccessible through the glacial gorge; the stream here rushes from the mountain in a wild torrent, leaping in cascades and falls of considerable height, extending for miles through great masses of rock, worn into the semblance of a gigantic stairway. This branch heads in a lake nearly a mile long, which was covered with ice one foot in thickness on the 1st of July, and is probably perpetually frozen. It lies in a great basin, surrounded by a wall of mountains which, towering above for 1,500 feet, so completely overshadow it that the beams of the sun can only enter for a short time in the afternoon. It seems probable that, during the period of mountain making the locality of this beautiful lake became the crater of surrounding eruptive forces which have upheaved its walls in grand disorder, forming a vast and magnificent amphitheater, which stores the snows of winter in an inexhaustible reservoir. The numerous lakes which exist throughout the mountains, many of them embowered and hidden in the dense pine-forests, were a constant surprise to our party, and greatly enhanced the beauty and grandeur of the scenery.

To the southward of the range at the head of Tongue River, and separated from it by an impassable gulf, is situated Cloud Peak, an inaccessible crag; it consists of three sharp needles which rise vertically from a thin ridge and present on the western side a rough precipice several hundred feet in height. An unsuccessful attempt was made to establish a station on Cloud Peak by climbing up a long narrow ridge, which runs from the peak to the westward and divides Sacket's Fork from Welsh's Branch. This ridge narrows down in some places to a mere edge not 3 feet wide, with almost perpendicular walls bounding an awful gulf on either side fully 1,500 feet in depth, and terminating at the foot of the perpendicular wall of the northern cone of Cloud Peak, rendering farther progress from the western side absolutely impossible. A station was here made, a monument 6 feet high erected, and bearings taken with a pocket-compass on all prominent points. From the station the Bighorn Valley appears spread out like a map, showing the drainage of the Bighorn to a great advantage, with the Yellowstone Range beyond fully 120 miles distant. About one mile south of Cloud Peak, and connected with it by a sharp ridge, lies Mount Hayes, a grand solid mountain mass with its western face torn off by some convulsion of nature which has left it a smooth precipice of 1,000 feet in depth. This vicinity is one of great interest as an illustration of the marvelous effects of the dynamical force used in mountain-making. All around are sharp spurs narrowing as they rise until they become like a knife-edge, isolated cones inaccessible to man; deep chasms, filled with snow and ice, which never melt, while huge blocks of granite, hills in themselves, obstruct the way and fill the gorges at the foot of the peaks, from which they have been hurled like pebbles. Farther down the mountain-side deep cañons exist, through which the numerous streams find outlet. These cañons appear to be fractures in the range radiating from Mount Hayes, natural fissures in the mountains resulting from upheaval along an anticlinal axis.

Sacket's Cañon, the largest of these lateral openings, is about 1,000 feet deep and 10 miles in length; near the mountain it widens out into a rugged gorge in the shape of a horseshoe, with walls nearly 2,000 feet above the chain of frozen lakes which form the source of Sacket's Fork.

On all sides are the evidences of the action of a force which, whatever the nature of its operations, whether by a slow and imperceptible evo-

lution—a foot a century—or a violent catastrophism, has resulted in the formation of a mountain-chain of unusual interest in its bearings on dynamical geology, and which altogether impress the beholder with the conviction that the former theory is utterly inadequate to explain the visible effects of the great uplifting, fracturing, and crushing process which has here taken place. The only effect which it appears reasonable to attribute to a force of slow operation, is that which may have been subsequently produced by the formation of ice in fissures and their enlargement by its expansive power.

The general trend of the mountains from where the elbow is formed with the Owl Creek Range is northwest; they slope from the head of Tongue River to the northern end, where they are cut through by the Grand Cañon of the Bighorn River. From Mount Hayes the range slopes southward, forming the water-shed of Powder River, which drains a greater area than any tributary of the Yellowstone except the Bighorn, although Tongue River discharges a greater volume of water. At the northwest end of the range is Shell Creek, a large and important branch of the Bighorn and a locality of considerable geological interest from the extensive variegated argillaceous beds to be found high in the mountains near the trail made by our party. Want of time prevented an examination of this vicinity, which trappers have reported to abound in fossil-shells. The Little Bighorn heads in the foot-hills of the northern end and drains a low valley between the Wolf Mountains and the Bighorn River.

The Bighorn Mountains are perpetually covered with snow, and are conspicuous for the total absence of vegetable life at their greatest altitudes. There does not appear to be any soil whatever on the higher peaks, and the mosses, lichens, and Alpine flowers so common at great elevations in the Colorado Mountains do not occur here. Owing to the failure of the aneroid barometer to record after reaching an elevation of 10,000 feet, the altitudes could not be determined with any degree of accuracy; the estimates of elevation were made upon their apparent height above timber-line, which is here probably about 11,500 feet above the sea-level. Judging from this basis, Cloud Peak and Mount Hayes are about 13,500 feet in altitude, and several other peaks above 13,000 feet. The highest peaks of Colorado and New Mexico do not contain such an amount of snow and ice during summer as may be found here. On the 15th day of July, from the summit of Monument Peak, down its steep side to the foot of the crag, extended a vast snow-bank fully a mile in length and of unknown depth. In several places there were huge crevasses 15 feet in depth, showing a foundation of solid ice, underneath which could be heard a torrent of water rushing down and undermining this incipient though probably short-lived glacier.

ZOOLOGY.

The zoology of the Bighorn Range does not differ materially from other parts of the Rocky Mountains, but there are some items of special interest which will be briefly mentioned. No lists of species are presented, because so much has been previously published relating to the Black Hill and Yellowstone country confirmatory of the fact, that a list of species from either locality would be almost identical with one compiled for this region.

The collection of butterflies contains thirty-seven species, one of which is new. They nearly all occur in the mountains of Colorado and New Mexico. The absence of *Chionobas semidea* is somewhat remarkable, as

it is a typical Alpine form. Further observation ought to disclose its presence here. *Argynnis halcyone* is extremely rare, while *A. alcestis* appears as common. The three varieties of *Parnassius smintheus* were numerous near timber-line.

The collection of beetles contains forty-seven species. *Podabrus lateralis* Lec. occurred above timber-line. It has also been found as far south as Taos Peak, New Mexico, where it appears to be a little larger. Three species of blister beetles (*Cantharis*), *C. salicis*, *biguttata*, and *sphæricollis* were found to be quite common. The potato-beetle was not seen, and has probably never reached this region. The ubiquitous grasshopper (*C. spretus*) appeared on the crest of the highest peaks, and was noted in vast swarms at the foot of the range on Tongue River. Observations relating to this insect have been laid before the United States Entomological Commission in a separate report. Large numbers of *Cicadia synodica* (locusts) were also observed, among which were many curious forms of albinism of a light-green tinge. The ground for several miles along Wind River was honey-combed with their burrows, which were about nine inches deep, terminating in a horizontal chamber, where the larva transformed into pupa. The change to the imago was effected on the surface, which was covered with the cast-off skins of the pupæ.

In general, it may be said that the *facies* of the Alpine insect-fauna of these mountains is similar to that existing in the ranges of Northern Colorado. But, owing to the barren and rugged nature of the mountains and the consequent sparsity of vegetation, insects do not thrive at as great an altitude as they do farther south, where lichens and flowers are more common. Very little insect-life could be found here above timber-line (11,500 feet), while it is much more abundant in the southern ranges on the summit of the loftiest peaks.

The absence of the ptarmigan (*Lagopus lucurus*) is noteworthy, because it is common above timber-line throughout the Rocky Mountains. It was looked for carefully, but nothing was observed which would indicate its residence; if present, it must be extremely rare. The titlark (*Anthius ludovicianus*), a summer neighbor of the ptarmigan, is quite common; a nest made of grass was secured, containing five eggs of a dark chestnut color. A pair of Allens' finches (*Leucostictie australis*) was seen July 14, and the female obtained. They undoubtedly breed here at an altitude of 13,000 feet. This interesting species is shy and rare in the mountains in the summer-time. About the middle of December they descend to the plains at the base, and then appear in large flocks, which seem quite tame.

The dusky grouse (*Tetrao obscurus*) is common, although not as numerous as Richardson's grouse (*T. obscurus* var. *Richardsoni*). A nest of the latter variety was found, containing eleven fresh eggs, which are fully up to the size of *T. obscurus*. The nest was collected July 12, at an elevation of about 9,500 feet; nest of grass, on the ground, under a pine-log. The eggs measure two inches in length and one and thirty-five hundredths inches in breadth, of a cream color, minutely speckled with small chocolate-brown dots, with sparse spots of larger size. An interesting fact relating to the habits of this bird was observed which it is thought has not been before noted.

An intimate acquaintance with the nature of the dusky grouse in Wyoming, Colorado, and New Mexico has conveyed the impression to the writer that its peculiar booming call, so well known in Oregon and Washington Territory in the breeding-season, is never uttered in the region east of the Rocky Mountains. It was with some surprise, then

that this identical call was frequently heard in the Bighorn Mountains during the month of July. An investigation, however, disclosed the fact that it was sounded by *Richardson's grouse*, a fine male bird of this variety being closely observed by General Crook, and shot from a pine-tree while in the act of booming. It thus appears probable that the variety *Richardson* partakes more of the habits of the Pacific-coast bird than does the true *T. obscurus* in the southeastern Rocky Mountain region, where, as before stated, close observation, which extends over a period of eight years, has failed to ascertain that this call is ever given there. This is what would naturally be expected when the laws controlling geographical distribution of species are considered. The route following up the head of the Columbia across a narrow range to the headwaters of the Missouri and Yellowstone would bring the Pacific-coast bird into the National Park and Bighorn Mountains, and thus account for the preservation of its vocal habits, although it still leaves the absence of the slate-colored tail-band to be explained by the intricacy of evolution. Several specimens of Richardson's grouse were secured, all of which, with the single exception of the tail-band, were more like the Columbia River bird than any I have ever before seen on the Atlantic water-shed, being larger, heavier, and showing the orange-colored warty patch over the eye more prominently than the *T. obscurus* found south of the Union Pacific Railroad. In a specimen of Richardson's grouse, secured early in July, which is the breeding-season in the Bighorn Range, the superciliary patch was bright scarlet, while in those obtained later it appeared of the usual yellow color. This bird is also liable to great variation in the marking of the tail-band and general color of plumage. A few individuals showed the tail-band quite distinctly, while in others it was wholly wanting. In the latter specimens the plumage was usually much darker, especially on the throat and breast. It is probable that a collection of these birds could be made, from which a series might be selected which would show an imperceptible gradation from one variety into the other. The variation observed in the plumage and the resemblance of the eggs above noted, also the contiguity of the two varieties, together with the fact that this is the eastern limit of the range of Richardson's grouse, would make it appear credible that the varieties here interbreed.

The wild pigeon (*Ectopistes migratoria*) was seen on the Little Bighorn River at the foot of the range; this, probably, is its western limit.

The mountain goat (*Aplocerus montanus*) was looked for in vain. This animal, the rarest of our large mammals, has been obtained about 150 miles northwest of these mountains, near the headwaters of the Musselshell; and, from the description of a "white sheep" which Indians assert is found here, it is probably also a resident of the Bighorn region. The mountain-sheep (*Ovis montana*) is quite numerous, and appears in large flocks near timber-line in July.

The plaintive bleat of the little cony (*Lagomys princeps*), the cotenant of the ptarmigan, was heard on all sides above an altitude of 10,000 feet.

Baird's rabbit (*Lepus Bairdii*) is found here. Several individuals of this interesting species were seen, and one full-grown female secured July 11. Upon examination, the udder was found to contain milk and gave evidence of nursing. If it be true, as reported by Hayden (Report of United States Geological Survey, 1872), that the *male* is furnished with well-developed mammary glands and *suckles the young*, then this task would appear to be divided between the parents. It is a matter of regret that no males were secured. The observations of Professor Hay

den, relating to the remarkable habits of this species, accordingly remain unverified until further facts are obtained. This animal may be looked for in the dense pine-forests at an altitude of about 9,000 feet; rarely below this elevation. It will be recognized by its large size, which is fully equal to the "jack-rabbit" of the plains; by its dark color in summer—it is probably white in winter; and the broad and remarkably thick furred hind feet, which spread out to a great breadth, thus affording the animal sure footing in the deep snow which surrounds its abode.

The buffalo was seen in large numbers at the head of Painted Rock Creek among the northeastern spurs of the Owl Creek Range; they also occur scatteringly throughout the Bighorn Mountains, mingling with the smaller and darker-colored variety known as the mountain-bison. The great northern herd which ranges through this region will probably be of considerable size long after the southern herd of Kansas has been exterminated, owing to the inaccessible nature and vast extent of its habitat.

The branches of Tongue River and all the streams and many of the lakes on the western slope of the mountains are full of mountain-trout (*Salmo pleuriticus*). In Tongue River is also found a white-fish (*Coregonus Couesii*), which is an abundant and desirable article of food.

The surface of the snow at great altitudes in the mountains was found covered with the pseudo meteoric dust or red snow, *Protococcus pluvialis* of the German, or *Palmella rosea* of the English writers, which occurred in such quantities as to tinge the snow a beautiful pink color. This curious substance is composed of microscopic vegetable spores, which, being carried by atmospheric currents over the mountains and deposited on the snow-banks, are washed down and collected in minute windrows in the deep gorges. It consists of a gelatinous translucent matrix containing numerous spheroidal bodies about the one-thousandth of an inch in diameter, composed of a transparent wall inclosing viscid protoplasm, in which are red granules, giving the color to the whole mass.

The following is a description of a new species of butterfly, named in honor of Lieut. Gen. P. H. Sheridan, United States Army. The description is kindly given by Mr. W. H. Edwards, of Coalburg, W. Va.

Thecla Sheridani, n. sp.

Size and form of *T. Dumetorum*, Bois, to which it is allied. Expanse of wings, one and one-tenth inches. Upper side uniform pale black; under side of both wings green, except along hind margin of primaries, where the color is whitish-brown. Across both wings passes an extra discal narrow white band, macular on primaries, but continuous on secondaries, and straight from costal margin to minor margin, a little above anal angle.

Habitat.—Bighorn Mountains; elevation above the sea-level, 10,000 feet. July 14, 1877.

GENERAL OBSERVATIONS.

The country from Green River, Union Pacific Railroad, to Camp Stambaugh, Wyoming, is a desert region which can never be utilized for the benefit of mankind. The soil is dry and sandy, and often so strongly impregnated with alkali as to be unfit for agricultural purposes, even if other more favorable conditions existed. But without wood, water, or grass, it is difficult to imagine a more uninteresting region than this. Camp Stambaugh is situated on the summit of a high ridge at the head of Wind River Valley. From this place northward to the

junction of the Popoagie with Wind River, the soil is fertile, the valley well watered and timbered, and, with the exception of its liability to early frosts from its altitude (about 6,000 feet), it is a good agricultural and pastoral locality. From the mouth of the Popoagie to the south side of the Owl Creek Range the desert country reappears.

The soil is full of mineral salts, which affect the water very disagreeably, and produces but a scanty crop of grass. After crossing the Owl Creek Range, the character of the country changes remarkably. From this place northward, on both sides of the Bighorn Mountains and down the Little Bighorn River to its mouth, is a magnificent grazing region. The soil is also fertile, but on account of the general high altitude agriculture must always be precarious; but as a stock region, there is none superior in any other part of our western Territories.

Tongue River and the head of the Little Bighorn are particularly fine sections; here may be found five different kinds of grass and several varieties of weeds, which cattle eagerly devour, all growing in the greatest luxuriance. The wild rye grows to the height of a horse in the valleys, while on the table-lands wild timothy and garma-grass can be cut by a mowing-machine over an unbroken country stretch of land extending for many miles. The tall bunch-grass observed gave promise of good winter-grazing even if the snow should be unusually deep. The winter climate is not as severe as would be expected from the latitude, it being very much like that of Northern Colorado, owing to the passage of a branch of the Northern Pacific isotherm through the low passes at the head of the Missouri River. The Bighorn Mountains are densely timbered with pine and spruce, and all the streams fringed with a thick growth of cottonwood and ash. The soil will make excellent adobes, and lime can be obtained from the stone in the foot-hills. The climate is healthful, and game and fish abound in profusion. With so many natural advantages, this region must soon attract the attention which it merits from a pastoral people, and will not fail to soon become a great stock-producing center.

The Bighorn River drains an area of about 20,000 square miles. Tongue River is about 150 miles in length, and Powder River nearly 300 miles. The entire drainage of the Yellowstone, east of the Bighorn Mountains, and also that of the Little Missouri River, is an excellent grazing region.

WELDON, PA., *August* 14, 1877.

GENERAL: I have the honor to submit herewith a brief report on the botanical features of that part of the Bighorn country traversed in your reconnaissance of July, 1877, and beg leave to apologize for its incompleteness; observations and collections of this kind and under such circumstances always being surrounded with difficulties, even had I been better prepared and were I less of a dilettante.

I hoped to be able to submit this report sooner, but the comparing of my specimens with the collections in the Philadelphia Academy, and the searching for information about the western flora, scattered through journals and pamphlets, consumed more time than I had anticipated.

I have the honor to be, general, very respectfully, your obedient servant,

J. H. PATZKI,
Assistant Surgeon United States Army.

Lieut. Gen. P. H. SHERIDAN,
Commanding Military Division of the Missouri, Chicago.

REPORT ON THE BOTANICAL FEATURES OF THE BIGHORN MOUNTAINS.

Traveling toward the Bighorn Mountains from the west and, skirting the Owl Creek Range, a rather cheerless country is traversed. For many miles over the slopes and plateaus the soil is either alkaline and nearly bare, formed of a pulverulent *detritus* of red sandstone, or hard and clayey, furnishing sufficient sustenance merely for such hardy plants as the sage-brush (*Artemisia tridentata*) and the greasewood (*Larcobatus vermicularis*), both important, as furnishing fuel and forage when often no other can be had; being rich in ethereal oil, they readily burn while green. The stock appears especially to like the latter, which contains many salts. Of the *Cactaceæ*, the prickly-pear (*Opuntia Missouriensis*) and the pink-flowered *Mamillaria vivipara* are abundant. The fruit of both are edible, and of the latter not unpleasant. Their leaves, freed of their spines and sliced, are useful in clearing water, the vegetable albumen precipitating earthy impurities; and they may and have been resorted to as food or as an antiscorbutic.

It is remarkable that of the few plants thriving in barren localities most combine hardiness and usefulness. This applies to some other plants found in this region, an *Umbellifera* furnishing an edible root, the "Cheyenne potato," a wild parsnip, rich in starch; the *Calochortus* (*Gunnisoni*), with its tulip-shaped white flowers, the lower half of the petals purple within, the bulbs of which, raw or roasted, are eaten by the Indians, and those compelled to imitate their mode of living; the *Yucca angustifolia*, sending up a conspicuous spike of large white, liliaceous flowers out of a wreath of narrow rigid, spinous leaves, has a saponaceous root. The *Grindelia squarroso* may also be mentioned here, the stem and calyx of which are covered with a viscal aromatic balsam used by the Indians for similar purposes as the copaiva. In more favorable localities more cheerful colors are presented by the reddish star of the *Lewisia* (*rediviva*), the bright-yellow raceme of the *Stantega*, blue and yellow *Lupinas*, while the *Delphinium* often covers acres with a purple bloom. In the valleys and along the water-courses cottonwood trees (*Populus balsamifera*), quaking aspen (*Populus tremuloïdes*), and several species of willow form a verdant belt, and the grazing is fair; but on the whole, this almost timberless, scantily-watered, dusty tract of country exercises a depressing, wearying effect, and a long breath of relief or an exclamation of joy welcomes the green and wooded landscape of the Bighorn Range beyond the foaming mountain-stream which greets the eye from the last red bluff. The contrast certainly is very striking. The soil being rich and water abundant, vegetation throughout the range is luxuriant; dense forests of yellow pine (*Pinus ponderosa*) and of a red spruce (*Abies Menziesii*) cover the slopes and ravines to the timber-line, the trees finely developed, often approaching, if not exceeding, 100 feet in height.

The pasture is most excellent. The most nutritious species of the grasses, as the buffalo-grass (*Buchloe dactyloides*), gama grass (*Bontclona oligostuchya* and *B. Cartipendula*), bunch-grass (*Festuca*). Several species of *Muhlenbergia*, *Foa Andropogan*, *Bromus*, &c., form a dense turf. Ascending the first terrace of the mountains the white flowers of the *Calochortus* are still seen in abundance to an altitude of about 6,500 feet, when they disappear, not to reappear until the same altitude on the eastern slope is reached, but then strikingly changed; the deep purple blotch within is absent, or only faintly hinted at; even the glandular hairs, dark purple at their base on the western slope, have here a yellow-

ish tinge; this variation was uniform in the numerous specimens examined, much more striking than in the dried plants, and may justify the recognition of a distinct variety (*C. G.* var. *pallidus ?*), if not species. The meadows were profusely dotted with forget-me-nots, the large purple blossoms of the *Geranium Fremontii*, the sky-blue flowers of the flax (*Linum perenne*), and many bright representatives of the *Compositae Leguminosae*, several of the latter, as well as of the *Umbelliferæ*, defying identification, the fruit not having developed yet. A favorite, the beautiful lilac, or rose-colored American primrose (*Dodecatheon Meadii*), with its gracefully-recurved petals, was abundant to the very snow, luxuriantly developed at about 10,000 feet, the petals elongated and curled and showing a tendency to umbelleferation. The purple bells of the *Anemone pateus*, with the yellow tufts of stamens, were also found to a considerable height, together with the *Clematis Douglasii*, which it somewhat resembles. *Anemone multifida* was blooming at about 11,000 feet. The hardiness of the Gentian family was demonstrated by the *Frasera splendens* being found growing in the snow, but with leaves yet undeveloped, while 2,000 feet lower its tall racemose spikes of pale flecked flowers were conspicuous.

Calmia glanced, and a perhaps new species of *Androsace*, were gathered close to snow. A characteristic feature were the dense stiff mats of *Pholos* (*Cæspitosa Canesceno*) covered with short white flowers, exhaling a pleasant odor; the only fragrant blossom besides those of *Rosa blanda* and *R. fraxinifolia*. The mountain-cowslip (*Caltha teptosepala*) was common in marshes above 8,000 feet, the leaves of which are used as "greens." Mingled with it are seen the bright yellow-blossoms of *Trollius laxus*. As this possesses the acrid properties common to most of the *Ranunculaceæ*, it is well to be able to distinguish its deeply-cleft leaves from the dark glossy ovate cordate oves of the cowslip.

The ground-cedar (*Juniperus communis prostrata*) covers rocky slopes with its dense, elastic, and fragrant growth, not ill adapted for bedding. Among the rocks at an elevation of about 10,000 feet were found the lilac aster-shaped flowers of the *Townsendia parreji*, and lower and all over the plains and foot-hills the tansy (*Achillea millefolium*), once supposed to have been imported from Europe.

Approaching the headwaters of the Tongue River, and still more when descending the eastern slope, vegetation becomes most abundant; it would be impossible to find better pasture than in these foot-hills, while the rank growth of several species of wild rye (*elymus*), barley (*hordeum*), oat-grass (*danthmia*), blue-joint (*Triticum repens*), besides the other grasses mentioned above, indicate a fertility of the valley of the Little Bighorn which may well promise rich wheat-crops in a time not far distant. Perhaps this river owes its Indian name of "Greasy Grass" to this marked fertility.

The timber along the Little Bighorn consists of fine cottonwood trees and box-elder (*Negundo aceroides*). The underbrush is formed by willows, roses, dog-wood (*Comus pubescens*), *Lymphoricarpus*, *Prunus Virginiana* (cherry), buffalo or bull-berry (*Shepherdia Argentea*), black currant (*Ribes auratum*), gooseberries (*Ribes aureum* and *R. irrignum*); all of which berries are also found in the mountains at moderate elevations and on the western foot-hills.

It may be mentioned here that from information received it would appear that a species of the *Nymphaæceæ* grows and flowers in some of the numerous lakes near the snowy range at about 10,000 feet elevation.

The following is a list of the plants observed during July, subject to revision and addition, some species not being identified yet:

RANUNCULACEÆ.

Clematis Douglasii, C. lignisticifolia.
Thalictrum alpinum.
Anemone pateus, A. multifida.
Ranunculus aquatilis, R. glaberrimus, R. alpinus, R. seeleratus, R. nivalis.
Trollius laxus.
Caltha teplosepala.
Aquilegia vulgaris.
Delphiniun elatum, D. azureum
Aconitum Nasutum.

CRUCIFERÆ.

Arabis Drummondii.
Cardamine cordifolia, C. hirsuta.
Vesicaria didymocarpa.
Draba aurea, D. alpina, D. crassifolia.
Sisymbrium ?.
Thlaspe cochleariforme.
Stanleyea pinnatifida.
Cleome integrefolia.

VIOLACEÆ.

Viola cultivata, V. patrustris.

CARYOPHYLLACEÆ.

Sileuc Acaulis.
Lychnis Acaulis (?).
Stellaria longipes.
Alsine biflora.

PORTULACACEÆ.

Calandrinia pygmaeo.
Lewisia rediviva.

MALVACEÆ.

Malvastrum coceineum.

LINACEÆ.

Linum perenne.

GERANIACEÆ.

Geranium albiflorum.
G. Fremontii.

POLYGALACEÆ.

Polygala verticellata.

SAPINDACEÆ.

Negundo aceroides.

LEGUMINOSÆ.

Thermopsis fabiacea.
Lupinus ornatus.
L. paroiflorus.
L. argentens.
Psoralea cuspidata.
P. floribundata.
Petalostemon violaceum (?).
Astragalus Canadense.
A. racemosus.
A. Jodanthus.
A. Missouriensis.
A. triflorus.
A. campestris.
A. adsurgens.
Vicia Americana.
Lathyrus palustris.
Hedysarum Mackenzii.

ROSACEÆ.

Prunus Virginiana.
P. demissa.
Rubus deliciosus.
Dryas ostopetala.
Geum macrophyllum.
G. triflorum.
Fragaria Virginica var. *Missouriensis.*
Potentilla arguta.
P. vivalis (?).
P. Pennsylvanica.
P. nivea.
P. fructicosa.
Rosa blanda.
R. Arkansana.
R. fraxinifolia.

SAXIFRAGACEÆ.

S. caespitosa.
S. adscendens.
S. debilis.
S. vivalis.
S. cerumun.
Chrysosplenium alternifolium.
Hemhera paroifolia.
Parnassea fimbriata.
Ribes irrigmun.
R. cereum.
R. aureum.

CRASSULACEÆ.

Sedum stenopetalum.

HALORAGEÆ.

Hoppuris vulgaris.

ONAGRACEÆ.

Oenothera Viennis.
O. pinnatifida.
O. Missouriensis.
O. serrulata.
Stenosiphon virgatum.

CACTACEÆ.

Mammillaria vivipara.
Opemtia Missouriensis.

UMBELLIFERÆ.

Cicuta maculata.
Sium angustifolium.
Cymopterus montanus.
Ligustrum apiifolium.
L. scropulorum.

CORNACEÆ.

C. pubescens.

CAPRIFOLIACEÆ.

Symphoricurpus occidentalis.

RUBRIACEÆ.

Galium asperrimum.
G. triflorum.
G. boreali.

VALERIANACEÆ.

Valeriana dirica.
V. edulis.

COMPOSITÆ.

Pectidopsis angustifolia.
Eupatorium purpereum.
Aster lacris.
A. ericoides.
A. multiflorus.
A. Aestivus.
A. elegans.
Townsendia Parreji.
Erigeron Canadense.
E. compositum.
E. uniflorum.
E. glabellum.
Solidago virgo-aurea.
S. Missouriensis.
S. occidentalis.
Linosgris viscidiflora.
Aplopappas rubiginosus.
A. pygmacus.
A. croceus.
Chrysopis villosa.
Zinnia grandiflora.
Helianthus petiolaris.
H. centicularis.
H. pumilus.
H. rigidus.
Thelesperma gracile.
Corcopsis tinctoria.
Achillea millefolium.
Lepachus columnaris.
Grindelia squarrosa.
Guaphalium luteo album.
G. strictum.
Arnica angustifolia.
A. cordifolia.
Senicio triangularis.
S. aureus.
S. cerunus.
Cirsium (?).
Hieraceum triste.
Taxaxacum palustre.

CAMPAUNLACEÆ.

C. uniflora.
C. rotundiflora.

ERICACEÆ.

Vaccineum myrtillus.
Pyrola rotundiflora.
P. minor.
Kalmia glauca.

PLANTAGINACEÆ.

Pl. patagonica.

PRIMULACEÆ.

Dodecatheon Meadii.
Androsace (?).
Lysimachia ciliata

SEROPHULARIACEÆ.

Pendslemon barbatus.
P. glaucus, H caespitosus.
Veronica americana.
V. serpyllifolia.
Pendicularis bracleosa.
P. Parryi (?).
Castillcia pallida.

VERBENACEÆ.

V. bracteosa.
V. stricta.

LABIATÆ.

Mentha Canadensis.
Monardo fistulosa.
Lepanthus noticafolia.
Sentellaria resinosa.

BORAGINACEÆ.

Mirtensia Siberica.

POLEMONACEÆ.

Phlox canaceus.
P. condensata.
Gilia minima.
Polemonium confertune.
P. humile.

GENTIANACEÆ.

Frasera splendens.

AS-CLEPIADACEÆ.

As-clepias speciosa.
Apocynum (?).

CHENOPODIACEÆ.

C. album.
C. hybridum.
C. glaucum.
Sarcobatus vermicularis.

POLYGONACEÆ.

Eriogonum flavum.
E. umbellatum.
Pruner venosus.
R. salicifolius.
R. acetosella.
Polygonum Pennsylvanicum.

ELEOGONACEÆ.

Shepherdia argentia.

EUPHORBIACEÆ.

Euphorbia lata.
E. montana.

URTICACEÆ.

Urticaria divica.

SALICACEÆ.

S. longifolia.
S. discolor.
Populus tremuloides.
P. balsamifera.

CONIFERÆ.

Pinus ponderosa.
Abies Menziesii.
Juniperus Virginiana.
J. communis prostrata.

LILIACEÆ.

Zygdenus glaucus.
Eulochostus Gunnisoni.
Allium (?).
Yucca angustifolium.

JUNCACEÆ.

Luzula spicata.
Juncus custaneus.
J. longistylis.
J. Balticus.
J. nodosus.

CYPERACEÆ.

Scirpus pauciflorus.
S. sylvaticus.
Cavaex nigricans.
C. Pyrenaica.

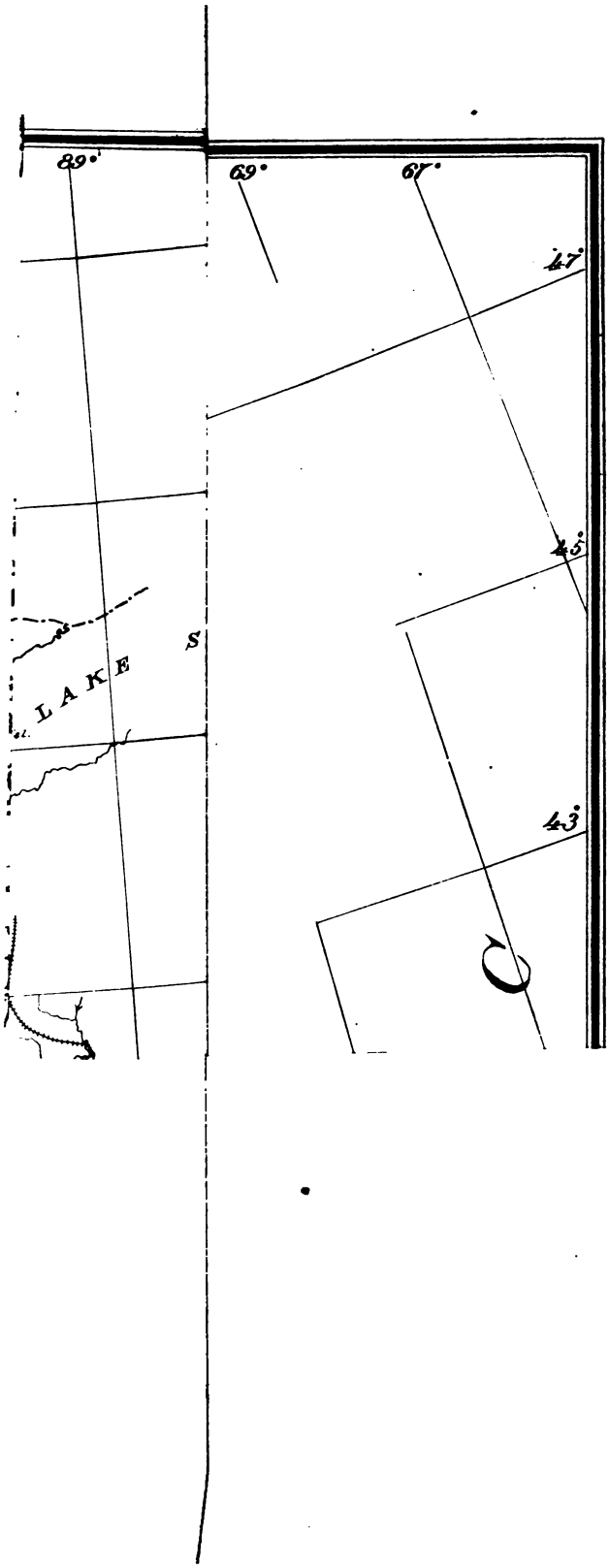
GRAMINACEÆ.

Vilpa asperifolia.
Stipa vividula.
Buchloea dactyloides.
Phleum alpinum.
Munroa squarrosa.
Tricuspis acuminata.
Poa calsia.
P. alpina.
P. serotina.
Bromus Kalmii.
Boutelona oligostacty(
B. curtipendula.
Tritica repens.
Hordeum jubatum.
H. pretense.
Avena striata (?).
Panicum capillare.
Letaria vividis.
Andropagon argenteus.
Festuca (?).
Elymus (?).

EQUISETACEÆ.

Equisetum arvense.
E. pretense.
E. lævigatum.

J. H. PATZKI
Assistant Surgeon United States A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TOUR OF INSPECTION ACROSS THE CONTINENT, ALONG THE LINE OF THE NORTH PACIFIC RAILROAD, BY GENERAL SHERMAN AND STAFF.

HEADQUARTERS ARMY OF THE UNITED STATES,
Cantonment on Tongue River, Montana, July 17, 1877.

DEAR SIR: Before leaving Washington I promised to write you, from time to time, of matters of public and private interest in my progress.

As originally appointed I left Saint Louis the evening of July 4, accompanied by my son; reached Chicago the 5th and Saint Paul the 6th. Here I was joined by my aids, Colonels Poe and Bacon; also by General Terry, his aid, Captain Smith, and the quartermaster of his department, Major Card. Leaving Saint Paul by rail the morning of the 7th we reached Bismarck the evening of the 8th. There were three steamers there, two of which, the Rosebud and Ashland, were loading for the Yellowstone, and we selected the former because she was smaller and stronger, better adapted to the strong current of the river. During the 9th we crossed over by a ferry to Fort Abraham Lincoln, and inspected the post. It is composed of two distinct parts, a small infantry post, perched on a high hill overlooking the country and valley, and a larger cavalry post on a bench below, raised about twenty feet above the bottom usually overflowed by the spring freshets. There is but a small garrison here, because its garrison, the Seventh Cavalry, had been detached, and is now out on a scout.

The Rosebud was loaded by 4 p. m. of the 9th; dropped down three miles to Fort Lincoln; took us on board and began the ascent of the Missouri River, which was full, with a strong current. It was as large, and of about the same character, as at Sioux City.

In three days we reached Fort Buford, on the north bank, just below the mouth of the Yellowstone. We stopped there over night of the 12th, making as much of an inspection as the mosquitoes would permit, and, at daybreak of the 13th, resumed the trip, entering the Yellowstone, which, for a hundred miles, seemed almost as large as the Missouri, with numerous islands and a wide valley. This valley then contracted, and the river somewhat changed its character, with less wood, and the fantastic hills, known as the "Bad Lands," coming nearer, and making short bends with a powerful current, against which we made slow headway; but in four days we reached this post on the south bank of the Yellowstone, just above the mouth of Tongue River. The troops, mostly the Fifth Infantry, still occupy the huts made last winter, but a new post is in process of construction about a mile higher up, and half a mile back from the Yellowstone, the ground being a few feet higher and less liable to overflow.

General Miles is in command here; has about three hundred Indian prisoners; says none of the boats this year have been molested; that all the hostiles which swarmed hereabouts last year are gone, the greater part having gone to the several agencies, while Sitting Bull has taken refuge across the border, about two hundred and fifty miles north. When the new post is finished, which will be before winter, the troops will be comfortably quartered, and the Indians cannot return. Already a class of frontiersmen are making ranches and settlements hereabouts, and in a few years we can make the route to Montana by way of the Yellowstone as safe as the Platte and Arkansas, thus forcing the hostile

Indians to break up into small and harmless parties. For some years, however, we will be forced to keep here a pretty strong garrison, because, besides defending this point, detachments must go out to protect other threatened points, and to follow any small parties engaged in depredations; in other words, the forts along this line must be able not only to defend themselves but be able to send out strong detachments.

There is a great deal of valuable country along the line of the North Pacific Railroad. That railroad from Duluth to Bismarck, though a financial failure, has been and will continue to work advantage to the country at large. As far as Bismarck it is finished, and well done. The next link, from Bismarck to the mouth of Powder River, is very important. It will, by a distance of 250 miles, cut off 300 miles of the Missouri River and 150 of the Yellowstone, leaving the Yellowstone, from Powder River to the mouth of Bighorn, for navigation.

The valley of the Upper Yellowstone affords lands capable of cultivation in wheat, oats, barley, and all garden vegetables, with an unlimited range for cattle, horses, sheep, &c. I do not know a single enterprise in which the United States has more interest than in the extension of the Northern Pacific Railroad from its present terminus at Bismarck to the mouth of Powder River on the Yellowstone. After that is done we can safely leave to time the extension of that road to the head of navigation of the Columbia River. After a couple of months I can speak with more confidence on that point.

I now regard the Sioux Indian problem, as a war question, as solved by the operations of General Miles last winter, and by the establishment of the two new posts on the Yellowstone now assured this summer. Boats come and go now where a year ago none would venture except with strong guards. Wood-yards are being established to facilitate navigation, and the great mass of the hostiles have been forced to go to the agencies for food and protection, or have fled across the border into British territory.

I have driven all about this post, looked into the barracks, which are as yet mere huts of cottonwood posts, with dirt floors and dirt roofs, but soon to be replaced by good frame barracks and quarters. The stores of all kinds on hand are abundant and good, so that no apprehension is felt on account of the enemy, or the severity of winter. Six small companies of infantry are here, two more are *en route* to the post above, and four mounted on captured ponies are out on a scout. The Seventh Cavalry is also near here, scouting to the north, but discover no marks of an enemy. As winter approaches part of this cavalry will doubtless be sent back to Fort Lincoln for economy of maintenance. To-morrow night we resume our trip up the Yellowstone and Bighorn to the other new post-building in the forks of the Big and Little Horn, allowing five days for the trip. There I expect to meet General Sheridan; when, with a small escort, I will make for Forts Ellis and Montana, where we will be within telegraphic communication. I expect to pass the whole month of August in Montana, and in September will cross from Missoula to Walla-Walla, depending somewhat on the state of facts in Idaho, of which I will hear in Montana.

I beg you *not* to construe this as official, as I have been constantly interrupted, and must close before midnight, as the steamboat Key West is ready to go down the river.

With great respect, &c.,

W. T. SHERMAN,
General.

Hon. GEO. W. MCCRARY,
Secretary of War, Washington, D. C.

HEADQUARTERS ARMY OF THE UNITED STATES,
On the Steamboat Rosebud, Bighorn River, July 25, 1877.

DEAR SIR: We left the cantonment at the mouth of Tongue River the evening of July 18, and reached the mouth of the Bighorn in three days. Then, entering the Bighorn, we steamed hard for three days against a powerful current, and reached the new post in the forks of the Big and Little Horn yesterday morning early. Many boats had preceded us, all, or nearly all, discharging parts of their freight on the west bank, from which the hauling to the post is comparatively easy. Our boat, which was built specially for the navigation of this and similar streams, had to land, five miles below the post, about one-third of her cargo. The water is in good stage, so the difficulty is not for want of water, but by reason of the strong current, which in the bends must be about eight miles an hour.

We found at the post the United States steamboat General Sherman, which has a good hull, a good engine, but too much and too fine a cabin for this work. She will be kept in the Bighorn as long as the water lasts, and will be employed in carrying up to the post the freight dropped on the river-bank by the contract-boats. The post has already a good supply of all essential stores, and there is no doubt but that long before the season closes, all invoiced for its use will be on hand and stored. The day before we reached the post we met General Sheridan and party, which had come across the country from Fort Stambaugh. We had a long conference, and we agree that this new post is well located, and that it can be supplied with reasonable economy in the future. The new post will be garrisoned by six companies of the Eleventh Infantry, and four companies of the Second Cavalry, under command of Lieutenant-Colonel Buell, Eleventh Infantry, an officer of great energy, and by profession an engineer. He served under me in the war as a colonel of an engineer regiment, and afterward as a brigade commander. He has been on the ground less than a month; has a steam saw-mill at work, and a large mass of cottonwood logs, rapidly being sawed up into lumber for the new post. He has about two hundred civil mechanics at work, and six buildings under progress, besides temporary shelter for his stores as received, and he entertains no fears but that he will finish his post, substantially, before winter. The location of this post is in the very heart of the old Sioux country. With this post and that at the mouth of Tongue River occupied by strong, enterprising garrisons, these Sioux Indians can never regain this country, and they will be forced to remain at their agencies, or take refuge in the British possessions.

At this moment there are no Indians at all here or hereabouts. I have seen or heard of none. General Sheridan saw none, nor any traces of any, so that the principal end aimed at by the construction of these posts has already been reached, and it is only to make this end permanent that we should persevere in their completion. The one at Tongue River can be supplied by steamboats. This one at the mouth of the Little Bighorn cannot depend on this river; the current is too strong to be navigated by ordinary boats with a fair cargo. General Terry and his quartermaster, General Card, are, at this moment, reconnoitering to select some point near the mouth of Bighorn, whereat to establish a depot, at which all freight destined for this post can be landed and hauled up to the post. We have on board a company of infantry to guard this depot, and we are nearly agreed that the best place will be a point on the Yellowstone proper, three miles above the mouth of Bighorn, whence the hauling will be about thirty miles by ox-trains. These can be hired here and will do the work more surely and better than the

steamboats, for these have been sometimes two weeks in warping up the Bighorn, and have left their loads strung along its banks, at points hard to reach by wagons. I am convinced that this is the wisest course, and thus we can maintain a strong military post in the very heart of the Sioux country, with only a haul of thirty miles, which is insignificant as compared with most of our posts south of this. The country west of this is a good country, and will rapidly fill up with emigrants, who will, in the next ten years, build up a community as strong and as capable of self-defense as Colorado.

I have a company of the Second Cavalry—Company L, Captain Norwood, which belongs at Fort Ellis, Montana—now camped on the north bank of the Yellowstone, opposite the mouth of the Bighorn, to escort me up to Ellis. As soon as we have personally examined the point of the Yellowstone three miles above the mouth of Bighorn, and have decided on its merits as the river depot for the new post, I will land and start for Ellis, leaving General Terry with this boat, the Rosebud, to return to Bismarck for a new load. I will instruct General Terry to report in full of all these matters to the Adjutant-General, so that this letter is only preliminary.

Here we have no news from Idaho or Oregon, or the world generally, but I suppose in Montana there will be need of the four companies of the Second Cavalry, temporarily taken to Tongue River, and I instructed General Sheridan to so order when he reached Tongue River. This will leave General Miles the whole of the Seventh Cavalry available, if the Indian Bureau wish to escort Sitting Bull from the British possessions to their agency.

The steamboat is under way, and trembles so that it is hard to write; General Whipple can, however, decipher this and read it to you. The weather has been intensely hot, as hot as Texas, but last night we had a thunder-squall, since which time the air has become perfect. General good health prevails here, and I am impressed with the value of this country on the Upper Yellowstone. I expect to reach Ellis about August 3, and will report thence by telegraph. There should be a post-office at the new post, and I name George N. Smith for postmaster. I do not know him personally, but his name was given me by General Buell last evening, just as we were leaving his post. On your request the Postmaster-General will doubtless make this appointment, and make his contract in connection with a mail now carried tri-weekly from Bozeman to the cantonment at Tongue River. This post is off the direct route, but the mail can easily reach the post via the depot at the mouth of Bighorn.

Also, please favor any enterprise looking to a telegraph line along the valley of the Yellowstone, either from Bismarck or from Bozeman. Such a line would be of infinite use to the military, and to the emigrants who will fill up this country.

Truly yours,

W. T. SHERMAN.
General.

Hon. GEO. W. MCCRARY,
Secretary of War, Washington, D. C.

HEADQUARTERS ARMY OF THE UNITED STATES,
Fort Ellis, Montana, August 3, 1877.

DEAR SIR: I wrote you last from the steamboat Rosebud, coming down the Bighorn in company with General Terry and others, on the

A Summer View in the Rocky Mountains.

25th July. We had concluded that the current of the Bighorn was too swift to be navigated economically, and that the garrison of post No. 2, mouth of the Little Bighorn, could best be supplied by establishing a depot on the Yellowstone, just above the mouth of the Bighorn, whence stores could be hauled 30 miles to the new post. A company of the Eleventh Infantry was left there to establish and guard the depot when the Rosebud dropped down to the point just below the mouth of Bighorn, where Company L, Second Cavalry, Captain Norwood, was camped, with our outfit. This consisted of six saddle-horses, two light spring-wagons, and one light baggage-wagon. The Rosebud landed us at 2 p. m., when she started down the river, leaving us to begin our real journey. In a few minutes the escort saddled up and we started, on horseback, up the Yellowstone.

The valley is strongly marked; about 3 miles wide; flat, with good grass; the banks of the river and of the lateral streams are well wooded with cottonwood trees. In this valley the Yellowstone, a broad strong stream, meanders back and forth, forming on both sides strong perpendicular bluffs of rock and clay, forcing the road constantly out of the flat valley over the points, and causing wide deflections in the road to head the ravines or "coolies" which flow to the river. There is a strongly-marked wagon-trail, but no bridges or cuts; a purely natural road, with steep ascents and descents, and frequent gullies, about as much as wagons could pass. We had several upsets, but no serious breaks. We sometimes shifted into our light wagons to save the fatigue of horseback travel. Thus we journeyed for four days, when we met a courier, from Fort Ellis, with a copy of General Townsend's dispatch to me, saying that the President desired my immediate return, unless I met information that the serious riots, then in full career, had ceased.

Light wagons can outtravel horses and baggage-wagons. Up to that date we averaged twenty-five miles a day; I therefore turned the courier back, with a fresh horse, with orders to reach Fort Ellis in two days, bearing answers to be sent from Bozeman, by telegraph, and with my immediate party I followed, taking one more day, leaving time for answers. On reaching Fort Ellis, the day before yesterday, viz, August 1, I was delighted to hear that the riots had ceased, and that you and the President had consented that I should go on as originally intended. The escort company came in yesterday, so that we are now all here at Fort Ellis. When we arrived there was but one company of the Seventh Infantry here, Captain Benham's, thirty men; the arrival of our escort gives an addition of sixty men. There is no seeming danger here or hereabouts, but the Nez Percés are reported to have entered Montana from Idaho, and are now in the valley of the Bitter Root, about three hundred miles west of this, reported as *en route* to the Buffalo range east and north of this point. It seems that for many years these same Nez Percés, along with some Blackfoots, from the western part of Montana, have been accustomed to come to the sources of the Musselshell and Yellowstone to gather meat for the winter, traversing the whole of Montana, doing little or no damage. But the buffalo of the great northern herds, like that of the southern, are being rapidly slaughtered for their skins, so that now they are becoming scarce. We only saw four buffaloes (two of which were killed) in our course, whereas ten years ago we would have encountered a million. The time has come when these restless Indians must cease to look to buffaloes as a means of maintenance, and they should not be allowed to traverse the scattered and exposed settlements of Montana, where hunger will, sooner or later, compel them to kill tame cattle and

steal horses, thus leading to murder and war. Besides, these Nez Percés should be made to answer for the murders they committed in Idaho, and also be punished, as a tribe, for going to war without any just cause or provocation. Hitherto all danger to Montana has come from the Sioux to the east, and the few troops stationed in the Territory were posted, as it were, at the eastern doors, or passes, through the mountains, viz: Ellis, Baker, Benton, and Shaw, but last year a new post was selected at or near Missoula, the door of the western frontier. Two small companies, not over sixty men, of the Seventh Infantry, under Captain Rawn, were sent to Missoula to build a small post there, but hardly had he arrived when this Nez Percé war begun, and when it was reported that General Howard had defeated them and they were retreating to Montana, he moved to a pass in the Bitter Root Mountains, where a trail comes in known as the Lo Lo trail, where some citizens of the neighborhood joined him for the purpose of stopping them till the troops from Idaho could come up with them.

But it seems that the Indians passed around Captain Rawn's fortified point, and have entered the valley of the Bitter Root, professing absolute peace as to the people of Montana, but in such force (300 warriors) as claim to be able, if opposed, to force their way through. The country is so large and the people so scattered, that concert of action is most difficult, if not impossible. General Gibbon, colonel of the Seventh Infantry, has command of this district, under General Terry, the department commander. He was stationed at Fort Shaw, on Sun River, 200 miles north of this. As soon as he perceived Captain Rawn's critical position, he collected about one hundred men; has gone rapidly toward Missoula to take immediate command and contro there. The governor of the Territory, General Potts, has also gone in the same direction. Deer Lodge has organized some volunteer companies; and these may be able to get ahead of the Nez Percés somewhere on Big Hole or Wisdom River, and hold them in check or turn them back toward Idaho, where General Howard must have a pretty respectable force, able to destroy them, unless, as I expect, they will scatter, when pursuit becomes impossible.

I do not propose to interfere, but leave Gibbon or Howard to fight out this fight. Too many heads are worse than *one*. I have simply sent word to Governor Potts that, if the citizens, in their own interest, will join the regular troops and act with and under them, the commanding officers will loan them arms and ammunition when possible, and may certify to beef or food taken *en route*; but that Congress alone can raise troops for any purpose. I have telegraphed to General McDowell that I expect his troops now in Idaho will follow up these Indians to the death, go where they may, regardless of boundaries. He has answered that such are still and were General Howard's orders from the beginning; so I expect soon to hear of the arrival at or near Missoula of the troops from that quarter.

The nearest point from which re-enforcements may come to Montana, from the East, is by the route I came; and when I parted with General Terry, at the Big Horn, it was understood he would detach from General Miles's command at Tongue River the three companies of the Second Cavalry which belong here. It will be two weeks before they can reach here but if they arrive in time, and the troops and volunteers now in the Bitter Root country do *not* succeed in stopping this band of Nez Percés, these three companies and the one I brought will get on their trail and change their proposed buffalo-hunt into a fight. If,

CROW INDIAN VILLAGE, AT THE COUNCIL TREE, ON THE YELLOWSTONE.

however, they escape, I see no alternative but to drive them north across the British border to join Sitting Bull.

To-morrow I will start for the park, taking only four soldiers with me, so that my presence here will not materially reduce the fighting force, for I have sent word to General Gibbon that my escort-company is subject to his orders. I do not suppose I run much risk, for we are all armed, and the hostile Indians rarely resort to the park, a poor region for game, and to their superstitious minds associated with hell by reason of its geysers and hot springs. We expect to be gone from here about fifteen days, during which we can receive or send no letters. On our return here, say August 18, I will go rapidly to Helena, where I will learn all about the movements at the west, and will be governed somewhat by them; but I still intend in all August to visit Forts Shaw and Benton, and to reach Missoula in the first week of September. It is all-important that a route of travel be opened between Missoula and Walla Walla; but I can better judge of this after I have passed over the road. We found ranches being established along the Yellowstone, and the mail-contractors have already put on a line of two-horse spring-wagons; so that soon the route we passed over will fill up with people. The land is susceptible of cultivation on a small scale, but admirably adapted to cattle-raising.

Fort Ellis is a small post built of pine logs, all the mountains around about being covered with pines. We are all perfectly well and enjoy the isolation and freshness of camp life.

Very truly, &c.,

W. T. SHERMAN,
General.

Hon. GEO. W. MCCRARY,
Secretary of War, Washington, D. C.

HEADQUARTERS ARMY OF THE UNITED STATES,
Fort Ellis, Mont., August 19, 1877.

SIR: I wrote you last from here, August 3, and now learn, by telegraph from General Townsend, that you have received that and a former letter, and that you are interested. I will, therefore, continue to keep you informed in this semi-official way of such matters in my progress as may seem worthy of note.

The Territory of Montana, though very large and surrounded on all sides by Indians liable to become hostile on the slightest provocation, has, for ten years, been a district forming a part of the Department of Dakota, and has been usually garrisoned by a regiment of infantry and a battalion of cavalry (four companies).

The danger usually lay to the east toward the Sioux, and therefore the posts were Fort Benton, at the head of navigation of the Missouri, Fort Shaw, on Sun river, Camp Baker, at the head of Muscleshell, and Fort Ellis, at this, the head of the Gallatin. The infantry regiment should be one thousand men, but the policy of reduction has gradually reduced the infantry regiments to about three hundred men; and early this spring the four companies of the Second Cavalry were, by orders of the department commander, detached to Tongue River to assist General Miles in his active campaign against the Sioux, and when I passed up the Yellowstone, in July, three of these companies had been sent by General Miles to the east of Tongue River, and one company

"L," Captain Norwood—was held to escort me to this their proper p
On reaching Fort Ellis I found that General Gibbon, colonel of t
Seventh Infantry, commanding this district, had, at the request o
General Howard, hurriedly called for every man that could be spared
and marched to Missoula, to head off the Nez Percé Indians, defeate
by him (Howard) in Idaho. Gibbon was absolutely without cavalry
and his small infantry companies marched with extraordinary spee
making 26 miles a day. Notwithstanding this energy, the Indians su
ceeded in entering the Bitter Root Valley, the westernmost of the settle
valleys of this country, where they were insolent and threatening in th
extreme; well mounted and well armed. Gibbon's force was utter
inadequate, but he seems to have hoped for large assistance from th
people whose lives and property were thus endangered by the presen
of three hundred bold warriors, who did not belong to this region
all, but who claimed to be able to march across Montana, helping thei
selves to all they wanted, till they reached the Buffalo range on th
Muscleshell and Judith, to the east and north of this post (Fort Ellis
General Gibbon got on their trail; followed it with great earnestnes
overhauled them at a place known as Big Hole Pass; got into their cam
and fought them bravely and well a whole day, inflicting heavy los
and sustaining a corresponding loss in his own command; of all th
you have full reports. If Gibbon could have had one hundred mor
men, there would now be few hostile Nez Percés left. But his forc
was inadequate, and he did all that man could do.

The next day Howard got up ahead of his command, and he now ha
taken up the pursuit, and I hope hourly to hear that he has finished u
what General Gibbon so well began. I believe these Indians are afrai
to return to Idaho, and think they will try to escape to the great plain
to the east of the Rocky Mountains, by way of the head of Wil
River, in which case they will fall to the charge of General Crook o
General Miles, either of whom is capable of running them down. Th
moment I reached Ellis I caused General Gibbon to be informed that
had reached the Territory; that I did not wish to interfere with hi
legitimate command, but on the contrary I gave him a company of ca
alry which had escorted me up from the Big Horn, and that company i
now with General Howard's command in pursuit of the Nez Percés.

Our little Army is overworked, and I do not believe the officers
soldiers of any Army on earth, in peace or war work as hard, or take
many risks to life as this little Army of ours does in what we call peac
I am proud of them, and hope you are also, or soon will be. I propo
to go to Helena Tuesday, August 21, and thence inspect Forts Sha
and Benton, returning to Helena in August, by which time I reckon th
Howard's operations in Montana will be at or near their close, when
will go to Missoula, and so on over to Idaho, &c., of all which in d
season.

Meantime I suppose you want to hear something of the National Par
or "Wonderland," as it is called here. As you know, I came from t
Big Horn here with two light spring-wagons and one light wagon, wi
six saddle-horses. Here we organized the party: Colonels Poe, Baco
my son and self, three drivers, one packer, four soldiers, and five pac
mules; making four officers, four soldiers, one citizen, and twenty-thr
animals. The packer was also guide. We had good maps, viz, l
Captains Barlow and Heap, of the Engineers, which we found very a
curate. Our rate of travel was about 20 miles a day or less. Our fir
day's travel took us southeast over the mountain-range to the valley
the Yellowstone; the next two days up the valley of the Yellowstone

the mouth of Gardner's River. Thus far we took our carriages, and along the valley found scattered ranchos, at a few of which were fields of potatoes, wheat, and oats, with cattle and horses. At the mouth of Gardner's River begins the park, and up to that point the road is comparatively easy and good, but here begins the real labor; nothing but a narrow trail, with mountains and ravines so sharp and steep that every prudent horseman will lead instead of ride his horse, and the actual labor is hard. The first day has nothing of interest but scenery of the boldest mountain character; the higher mountains marked with snow-patches, and the streams coming from them real ice-water. The sun at midday has a tropic heat, while at night water freezes in the buckets, and no reasonable amount of covering will keep one warm. There is abundance of pine wood for fires, and the mountain grasses are excellent for the animals. The next day is consumed in slowly toiling up Mount Washburn, the last thousand feet of ascent on foot. This is the summit so graphically described by Lord Dunraven in his most excellent book recently published under the title of the "Great Divide;" only his lordship assumed Mount Washburn to be the apex of this continent, which it is not, but from Mount Washburn is plainly seen, as on a map at one's feet, the whole of the National Park and the mountains to the south of the Yellowstone Lake, whence flow the waters east, west, north, and south. This is demonstrated by Captain Barlow's maps, but takes from the narrative of Dunraven not a particle of interest, for 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*. I do not propose to try it again.

Descending Mount Washburn, by a trail through woods, one emerges into the meadows or springs out of which Cascade Creek takes its water; and following it to near its mouth you camp, and walk to the Great Falls and the head of the Yellowstone Cañon. In grandeur, majesty, coloring, &c., these probably equal any on earth. The painting by Moran in the Capitol is good, but painting and words are unequal to the subject. They must be seen to be appreciated and felt.

General Poe and I found a jutting-rock, about a mile below the lower falls, from which a perfect view is had of the lower falls and the cañon. The upper falls are given at 125 feet, and the lower at 350. The cañon is described as 2,000 feet. It is not 2,000 immediately below the lower falls, but may be lower down, for this cañon is 30 miles long, and where it breaks through the range, abreast of Washburn, may be 2,000 feet. Just below the lower falls, I think 1,000 feet would be nearer the exact measurement; but it forms an actual cañon, the sides being almost vertical, and no one venturing to attempt a descent. It is not so much the form of this cañon, though fantastic in the extreme, that elicited my admiration, but the coloring. The soft rocks through which the waters have cut a way are of the most delicate colors; buff, gray, and red; all so perfectly blended as to make a picture of exquisite finish. The falls and cañon of the Yellowstone will remain, to the end of time, objects of natural beauty and grandeur, to attract the attention of the living. Up to this time we had seen no geysers or hot springs, but the next day, eight miles up from the falls, we came to Sulphur Mountain, a bare, naked, repulsive hill, but of large extent, at the base of which were hot bubbling springs, with all the ground crisp with sulphur; and six miles farther up, or south, close to the Yellowstone, we reached and camped at Mud Springs. These also are hot—most of them muddy water slushed around as in a boiling pot— some were of

muddy water, and others thick mud, puffing up just like a vast pot of "mush."

Below the falls the Yellowstone is a rapid, bold current of water, so full of real speckled trout, weighing from six ounces to four and a half pounds, that, in the language of a settler, it was no "trick" at all to catch them. They will bite at an artificial fly, or, better, at a live grasshopper, which abound here; but above the falls the river is quiet, flowing between grassy banks and finally ending, or rather beginning in the Yellowstone Lake, also alive with real speckled trout. Below the falls these trout are splendid eating; but above, by reason of the hot water, some of the fish are wormy, and generally obnoxious by reason thereof; though men pretend to distinguish the good from the bad by the color of the spots. I have no hesitation in pronouncing the Yellowstone, from the Big Horn to its source, the best trout-fishing stream on earth.

From the Mud Springs the trail leads due west, crosses the mountain range which separates the Yellowstone from the Madison, both tributaries to the Missouri, descends this tributary to the West Fork of the Madison, and here is the Lower Geyser Basin. It would require a volume to describe these geysers in detail. It must suffice now for me to say that the Lower Geyser Basin presents a series of hot springs or basins of water coming up from below, hot enough to scald your hand, boil a ham, egg, or anything else; clear as crystal, with basins of every conceivable shape, from the size of a quill to actual lakes a hundred yards across. In walking among and around them, one feels that in a moment he may break through and be lost in a species of hell.

Six miles higher up the West Madison is the Upper Geyser Basin—the "spouting geysers," the real object and aim of our visit. To describe these in detail would surpass my ability, or the compass of a letter. They have been described by Lieutenant Doane, Hayden, Strong, Lord Dunraven, and many others. The map by Major Ludlow, of the Engineers, locates the several geysers accurately. We reached the Upper Geyser Basin at twelve noon, one day, and remained there till 4 p. m. of the next. During that time we saw the "Old Faithful" perform at intervals varying from 62 minutes to 80 minutes. The intervals vary, but the performance only varies with wind and sun. The cone or hill is of soft, decaying lime, but immediately about the hole, which is irregular, about six feet across, the incrustation is harder, so that one can look in safely when the geyser is at rest. So regular are its periods of activity that we could foretell its movement within a few minutes; sometimes we stood near enough to feel the hot spray, and at others we sat at our camp, about three hundred yards away. Each eruption was similar, preceded by about five minutes of sputtering, and then would arise a column of hot water, steaming and smoking, to the height of 125 or 130 feet, the steam going a hundred or more feet higher, according to the state of the wind. It was difficult to say where the water ended and steam began; and this must be the reason why different observers have reported different results. The whole performance lasts about five minutes, when the column of water gradually sinks, and the spring resumes its normal state of rest. This is but one of some twenty of the active geysers of this basin. For the time we remained we were lucky, for we saw the Bee-Hive twice in eruption, the Riverside and Fan each once. The Castle and Grotto were repeatedly in agitation though their jets did not rise more than 20 feet. We did not see the "Giant" or the "Grand" in eruption, but they seemed busy enough in bubbling and boiling. One is fairly bewildered by the variety, extent

and activity of these boiling and bubbling caldrons of hot water. They do not seem to me to be volcanic, but rather the result of the action of water on lime, or the result of chemical action underneath, which generates heat and gases, which give force and activity to these geysers. Externally they are not as beautiful as described. The rims of their several basins are the formation of lime under water; exquisite in form, but crumbling in the hand and slaking when dry. The specimens gathered by the curious and carried off amount to nothing. The real thing is the quantity, variety, and form of action of these geysers.

In our return trip we again visited points of most interest and some new ones, and on approaching our wagons at the mouth of Gardner's River we took in the mammoth spring called Soda Mountain. This, also, is the result of hot spring and geyser action, but not comparable with the Upper Geyser Basin. We got here yesterday, bringing back every horse and mule in good order. The reason was, our party was small and we carried nothing but the smallest possible baggage, with soldiers' rations only—no luxuries, no superfluities. The whole distance traveled was about 300 miles, and the time fifteen days. I would give these data as about the least time needed to see these great natural curiosities. The trip is a hard one and cannot be softened. The United States have reserved this park, but has spent not a dollar in its care or development. The paths are mere Indian trails, in some places as bad as bad can be. There is little game in the park now; we saw two bear, two elk, and about a dozen deer and antelope, but killed none. A few sage-chickens and abundance of fish completed all we got to supplement our bacon. The whole park is high, healthy, with abundance of good grass and water at this season of the year. The general elevation above the sea is from 7,000 to 12,000 feet, and in winter must be simply uninhabitable and unapproachable. We found good weather, and were highly favored in every respect. In some parts the mosquitoes and horse-flies were active, but not as bad as described before we started. We saw no signs of Indians, and felt at no moment more sense of danger than we do here. Some four or five years ago parties swarmed to the park from curiosity, but now the travel is very slack. Two small parties of citizens were in the park with us, and on our return we met several others going in, but all were small.

This is Sunday, a real day of rest, and I have endeavored to give this rude and rapid sketch in hopes to account for a fifteen days' absence from duty at this period of military activity, but I have faith that there are plenty of good officers on duty, at their posts, to do all that is demanded of the Army. I now propose to go to work to study closer the present condition and future prospects of Montana, as bearing on the great military problem; all of which will be duly reported.

With great respect, &c.,

W. T. SHERMAN,
General.

Hon. GEO. W. MCCRARY,
Secretary of War, Washington, D. C.

HELENA, MONT.,
Wednesday, August 29, 1877.

DEAR SIR: I wrote you last on the 19th at Fort Ellis, since which time I have been on the go, and must now endeavor to give you the

benefit of my observations in general terms, reserving the more specific facts for my return.

For the transportation of my party I had brought with me up the Yellowstone six saddle-horses and three light spring-wagons, each drawn by four mules. At Ellis we turned in to the quartermaster the six horses, reserving the wagons; but Mr. Clarke, agent and proprietor of the stage-line between Ellis and Helena, offered to bring us to Helena, 106 miles, in one day instead of the three or four by our own wagons, and we accepted. Accordingly at 3 a. m. of the 21st we took his stage-coach, drawn by four horses, driven by Mr. Clarke himself, and came through by 6 p. m. in splendid style. Relays of horses were taken every 15 or 20 miles, and the three last relays our coach was drawn by six horses, so that we made from 8 to 11 miles the hour, though at this season of the year the horses are not fed grain, but depend on grazing, the grasses (bunch and gramma) being considered very nutritious. The road generally is the natural road, improved here and there by cuts along the sides of hills, with bridges across rivers and considerable streams. The road from Ellis (and Bozeman) follows the valley of the Gallatin, gradually crossing its flat valley, and at 14 miles crosses the stream itself by a bridge, thence crossing the low foot-hills to the junction of the Gallatin, Madison, and Jefferson, the three great tributaries of the Missouri; it passes the Madison and Jefferson by good toll-bridges. All these valleys contain farms or ranches, which produce oats, wheat, garden vegetables and potatoes of good quality, but better adapted to grazing, so that the whole way we saw herds of cattle, horses, and sheep. From the junction of the three rivers (Gallatin City) the road follows the valley of the Missouri River, which here runs north; but instead of keeping close to the river the road lies back among the foot-hills, near the base of the Rocky Mountains, to accommodate the small mining towns and gulches. These mining-gulches head in the Rocky Mountains, and flow eastward to the Missouri River. The gravel-banks hold placer-gold, which is gathered by washing the gravel, necessitating hard labor and making ditches to bring the water from the higher levels to the banks. Ten years ago some of these produced well, but now they seem to be pretty nearly exhausted, and much of the water is used for irrigating gardens and farms.

At 6 p. m. we reached this place, the capital of the Territory. It also was begun some ten years ago, as a mining-gulch (Last Chance), just where the small stream of that name leaves the mountains and emerges upon a sort of table-land which extends east to the Missouri River, 18 miles distant, yet plainly visible. The town is built on both sides of the gulch, the main street being in the bottom, and the better houses on both sides reached by steep streets. It contains good hotels, stores, shops, an United States assay-office, court-house, and many most excellent houses, some of brick, but mostly frame, and not a few would be good dwelling houses in Washington.

There must be three or four thousand people here, who seem to live as comfortably as they would in Iowa. I am the guest of Governor Potts; my son, of Mrs. Major Walker, a sister of Hon. James G. Blaine. Colonels Poe and Bacon are at the hotel, though they also were offered the hospitality of Mr. Broadwater. We have all been entertained by dinners and parties, though I have endeavored to escape these trying kindnesses.

It was my intention on reaching Helena to go right on to Forts Shaw and Benton; but we found only a tri-weekly stage, and had to stay here two days, when by arrangement with the stage company we took Fr

day's stage, to return on Tuesday, which gave us one full day to see Fort Shaw. The distance to Fort Shaw is 84 miles, and thence to Benton 62, usually taking two days each way.

Accordingly on Friday last, at 5 a. m., we started. The road is well traveled because Benton is the head of navigation of the Missouri River, and that is found the cheapest route for freights to this mountain region. The hauling is all done by ox and mule teams, the wagons being joined in twos and and threes, so that six yoke of cattle or pairs of mules will haul these trains with three or four tons of freight. The advantage of thus distributing the load is that in steep places each wagon can be hauled separately, avoiding the old way of doubling teams, or unloading and reloading so often. All these animals depend for food on grass by the way. We carried in the stage two muskets, but no guard, as we apprehended no danger, although the country is unusually alarmed by recent events, and some croakers are predicting terrible calamities from the Indians to the north and east. We saw no Indians and heard of no facts that justify such fears.

The road led north, with the mountains to the left and Missouri River to the right. Slowly ascending, we struck the head of the Little Prickly Pear, down which the road leads for about 20 miles through a cañon of great beauty, with heavy sandstone cliffs overhanging the valley; but the road was built at heavy cost of labor and money, and is regarded as the handsomest place in the Territory. Emerging from this cañon, within a mile of the Missouri River, the road again turns north, and crosses hills till it reaches the Dearborn at right angles; crossing it by a bridge we again crossed a series of high hills, passing near many singular buttes, spoken of by Lewis and Clark as Birdtail, Crown, Fortification, Square, and the Nipple. We reached Fort Shaw, on the Sun River, about eleven at night. The telegraph reaches that point, and no farther. This is the most important fort in Montana; is the headquarters of General Gibbon, now here (Helena) wounded, but temporarily commanded by Major Freeman, who met me with a bunch of telegrams; so I stopped long enough to answer them, and, intending to stop on the return-trip for a whole day, we pushed on all night and the next day until about 2 p. m., when we reached Benton. The road from Shaw to Benton is devoid of interest because it is a part of the great prairies, which look alike from our northern boundary to Texas. This reach of prairie lies within the northern buffalo-range, and I mention it only because the telegraph-line used to reach Benton; but the buffaloes found the poles so handy to rub or scratch themselves like hogs, that they actually rubbed the poles down. Some ingenious man suggested the remedy of driving the poles full of nails; but this was just what the buffaloes wanted; so that it was found impossible to keep up the line at all.

Benton is a small group of houses and stores on the river-bank, at the head of navigation of the Missouri River, nearly, if not quite, 4,000 miles from the sea. Each year the navigation improves, so that, for three months, boats carrying 300 tons can reach it. We found the stores well stocked with all staple articles, and we passed many trains of wagons hauling to and fro. But there were no boats then at Benton, and none expected. The season of navigation is passed, but we heard only of two boats discharging cargo at Cow Island, 125 miles below, whose cargo will have to be hauled to Benton.

The place is called Fort Benton, after a fort established there, long ago, by the American Fur Company. It still stands on the lower edge of the town; is built of adobe, in the form of a rectangle, with two-story block-houses at the diagonal corners. It contained the necessary store-

houses and dwellings for a good trading-post. When the military authorities first occupied Montana this post was rented and occupied, but now its walls are cracked and washed so as to be insecure, and it has been abandoned by the military, and is only occupied by a few half-breed families. The present garrison is Maj. Guido Ilges and *five* men, who occupy rented houses in town; the real garrison is one company Seventh Infantry, which General Gibbon had with him in his fight at Big Hole, and it had not yet returned. I understand the same company will return to Benton.

I was waited on by a very respectable delegation of citizens, who represented their exposed situation; who wanted a larger garrison for their own locality than we have in the whole Territory. They handed me a petition, which I will send with this, as it states their case from their stand-point better than I can. There is no doubt Benton will become a large depository of goods for trade to the great Northwest, embracing the British possessions.

Already quite a trade has sprung up with Fort McLeod, Canada, around which important settlements are being made, not unlike ours in Montana. In time we will be forced to build some military establishment on the Marias, north of Benton, but for the present Forts Shaw and Benton must suffice, only they should have garrisons not only capable of self-defense, but of sending help to exposed interests outside. The question is not so much the mere defense of Fort Benton, a single point, easily covered, but the long road leading to and from; as also the scattered farms, ranches, and herds, without which the occupation of the country could have no national interest.

We spent Saturday afternoon and night at Benton, and on Sunday returned to Fort Shaw, reaching there at 6 p. m., and staying over twenty-four hours. This is a well-built, well-supplied, and creditable post good for four full companies. General Gibbon had built a ditch seven miles long, which brings water enough to irrigate good gardens and to flow all through the garrison. The post is well described in the report of the Surgeon-General on military posts. The present garrison is very small and was much cut up in Gibbon's last fight. I want the Adjutant General to send recruits to this regiment as soon as possible, as it is very small in numbers, with many wounded men left at Deer Lodge and here at Helena. The troops of this regiment are good and well cared for; have worked hard and fought hard. No one who has not seen and felt the extent of Montana, and traveled its roads, can appreciate its labors and exposures. The officers, as a whole, are a fine body of gentlemen, who are a credit to the service; refined and temperate. I would enter more fully into a description of Fort Shaw, but find all I would say in the document to which I allude. On Monday night we took the stage; reached Helena at 2 p. m., and are now busy preparing for our departure to Missoula and the Pacific.

I still retain a high opinion of this Territory, and think it merits the fostering care of the general government, especially of the military. Its extent is an empire, the greater part of which is exclusively adapted to the rearing of cattle, horses, and sheep. There is abundance of valley-land and of bench-land, which can be irrigated by springs, to produce all the wheat, oats, barley, and garden vegetables needed for a million of people, but not for export. For this the people must depend on cattle, wool, and their mines. There is abundance of timber, exclusively pine, for lumber, with willow and cottonwood in the valleys. Of the mines I cannot speak of my own knowledge. I see, here and elsewhere, where miners have left piles of gravel in gulch and placer mining; and

at the banks I have seen samples of gold, but these seem insignificant in comparison with California in my day. I also hear of silver-mines that need only capital to develop, but I suppose the day is gone when men in England and New York will venture their money in such speculations. Still, the mountain that runs the whole length of Montana is the real "Rocky," the real backbone of the continent, whose gulches right and left all contain more or less gold and silver, so that the matrix is here, and sooner or later will be found, when machinery will accomplish what the naked hand cannot—the reduction of this ore. With one-third the population employed as miners and the balance in farms and in raising cattle, we will have right here a most valuable State. All dream of a railroad, but I discourage the thought, and believe for many years the people must content themselves with the Missouri River, navigable as high as Benton; the Yellowstone as high as Bighorn, with teams to haul thence and from the Pacific Railroad, 400 miles distant.

My conviction is also that the best interests of this people and of the nation call for a closer relation with the Pacific States and Territories, and it is with this view that to-morrow I turn in that direction. There was once a wagon-road hence to Walla Walla—the Mullan road—on which a good deal of money was spent. For years it was traveled, but now it has gone into disuse; its bridges are all gone, and fallen timber so obstructs it that I expect to drop my wagons at or near Missoula and to take to horses and packs. The probability is that we will go via Missoula, Cœur d'Aléne, Spokane Bridge, Lewiston, &c. When passed over, I will write you again.

Meantime, I am, as ever, truly yours,

W. T. SHERMAN,
General.

Hon. GEO. W. MCCRARY,
Secretary of War, Washington, D. C.

FORT MISSOULA, MONTANA,
September 3, 1877.

SIR: My last was from Helena, August 29, somewhat hurried by reason of the many interruptions by callers, but I trust it was sufficiently plain to be understood.

The next morning, viz, August 30, we started in our own "outfit," which had come up from Fort Ellis, consisting of two light spring-wagons and one baggage-wagon, each drawn by four mules; for escort, we had one corporal and one private. The road was marked by heavy travel, and led from Helena north to the mouth of the valley of Ten-Mile Creek (or of the Hot Springs). Three miles out is a small inn, where General Gibbon was staying with his family, by reason of the hot baths, which he thinks are advantageous to his wounds. We stopped an hour with him. He is doing well, though his wound through his left leg above the knee had become more painful than was agreeable. Still, his purpose was to start for his post at Fort Shaw the same day that we left. Having arranged all matters of business, we parted and resumed our journey, ascending the valley of Ten-Mile Creek, due west; in about ten miles we came to the foot of the real Rocky Mountains, the divide between the waters of the Atlantic and Pacific. The ascent is easy, gradual, and well arranged, by a toll-road, graded and bridged, through a pine forest for about five miles, where there is an open prairie, a glade, from which

a magnificent view is had east and west. One standing on this summit could cast one chip that would float to the Gulf and another to the Pacific. The road descends rapidly and follows the valley of the Little Blackfoot to its junction with the Deer Lodge, and thence on to Missoula. But I wanted to visit Gibbon's wounded men at the town of Deer Lodge; therefore we followed the road to that place, crossing the high peninsula that separates these two streams. Our first night out we camped on Dog Creek, where some men were working a coal-vein. The coal was of poor quality—a sort of lignite—but they said they could sell it in Deer Lodge for $3 a ton. The need of coal in Montana is not great, for wood abounds everywhere except about Forts Shaw and Benton.

On the morning of September 1 we arrived at Deer Lodge, quite a pretty little town, with a good hotel, stores, dwellings, churches, and school-house. The town-site is in the middle of the valley, with abundance of the purest and most beautiful water. On the edge of the town, upon the plateau, is a good stone Catholic church, with a hospital behind. This is a good two-story frame house, well arranged, clean, and well furnished; indeed, as good a hospital as can be found anywhere, in charge of six Sisters of Charity. Here I visited all of the wounded men, soldiers and citizens, of Gibbon's command, who had been brought up from his fight of August 9 a distance of about 90 miles. They are in charge of a citizen, Surgeon Mitchell, who is esteemed highly, qualified, and devoted, and I trust in due time he will be properly compensated. All the wounds are healing well except of two men, wounded in the foot, who may have each to lose a leg. The case of one citizen, badly wounded through the hip and groin (Lockwood), deserves special mention, for he was a pure volunteer, lost his brother in battle, and had his farm pillaged by the Indians, and stock mostly, if not all, used by the pursuing troops. General Gibbon speaks in high terms of his courage and services, and will do all that is possible to secure him pay for what he has lost, and mean time will pay his charges at the hospital during convalescence, which may be slow, and make him a cripple for life. This Lockwood is unmarried, but the brother who was killed in the battle leaves a wife and children, who should have a pension.

We left Deer Lodge at noon, and drove by a good road down the valley of the river, fording it occasionally where bluffs shut off the valley; crossing various tributaries more or less "muddied" by the washing of the gold-miners, till we had made our distance, by which time the Deer Lodge, from a beautiful, clear, trout stream, had become a dirty, foul river, as muddy as the Missouri. The next morning we resumed our course down the Deer Lodge, passing many ranches and one embryo town, "New Chicago," at the crossing of the Flint, and so on down, the valley closing in and forcing the road over the high promontories, till we reached camp. Yesterday we came the rest of the distance, viz, 134 miles from Helena; the road in its whole extent being good, with some excellent bridges, and it is manifest a great deal of work has been expended on it by the county, all the bridges but one being free of toll, and only two places on the road for tolls: one at the main divide, and the other in the last cañon before reaching Missoula. The Deer Lodge, as shown by the map, rises in the south, flows north through a fine valley for farming and grazing till about 12 miles north of the town of Deer Lodge it receives the Little Blackfoot, when it turns *west* and breaks through several ranges of mountains. In this reach it has many cañons and little valleys, but where there is space there are ranches with good wheat, oats, and excellent gardens of potatoes, cab-

bage, beets, turnips, beans, pease, &c. Of all these there is abundance all the way, and the farmers only regret that for these they have no market, save to the few passing travelers and to the miners. Judging from the muddy water coming in, I think the miners must be numerous and busy, if not very successful. Our road lay in the valley, or as near as it could get, while the miners are up the side gulches, accessible only by steep roads, and sometimes mere paths. Therefore of the mines we saw nothing. The lower reach of the Deer Lodge is called Hell-Gate, or Missoula, and a little farther down becomes Clark's Fork of the Columbia. Just before emerging from the last cañon, the Big Blackfoot comes in from the northeast, and it is along this that Lewis and Clark went east, also Cadotte; and it was by this route that General Gibbon came from Fort Shaw last month. Emerging from the mountain, on the north bank of the stream (Deer Lodge, Hell-Gate, Missoula or Clark's Fork, at pleasure) stands the new town of Missoula, as new as pine boards fresh from the mill, with its main street of stores and hotels, and side streets with good frame dwellings, churches, and schools, already a fair-sized town, destined to become much larger. It has a fine flouring-mill; a good bridge across the river, pointing up the Bitter Root, and many saw-mills up the ravines; the mountains behind which are covered with pine, hemlock, and varieties of fir. The valley of the Bitter Root opens up from the south, bounded to the west by another range of wooded mountains. In the angle of intersection of the Bitter Root with the main river is a plateau of drift-gravel some twenty feet above the rivers, perfectly level to the eye, and extending from the foot-hills of Missoula to the Bitter Root River, some five or six miles to its juncture with the main river.

The town is admirably situated at the outlet of the cañon, just where a beautiful, clear-water stream, the Rattlesnake, comes out of the mountains from the northeast. The site selected for the fort is on the Bitter Root, about four miles from the town, on the gravel plateau before described, level and treeless, so that the town and fort are plainly visible the one from the other; but in the valley of the Bitter Root there is abundance of timber—willow, cottonwood, and pine—and on the mountains to the west abundance of pine of every size and variety easily obtained. We reached here shortly after noon yesterday; found Major Rawn, Seventh Infantry, with his own company and a detachment of three others, in all about one hundred men, in tents, building the "New Post." The orders are for a one-company post, and the amount of money is limited to $20,000. The site was chosen by Colonel Merritt when acting as inspector-general on General Sheridan's staff. The site does very well, and was somewhat forced on Merritt by the fact that many settlers got ahead of him and had got claims to the sites, made more eligible by the fine streams that come out of the mountains, with head enough to be led anywhere on the plain below. Still, this site has for use the whole water of Bitter Root, a bold stream of pure water, only it is too low to be raised to the plain except by some artificial power. The troops use spring-water, which abounds under the gravel-bank, and there is no doubt an abundance can be found anywhere by digging. Timber is on all sides. Hay, oats, flour, beef, and vegetables can all be bought and hauled here as cheap as at any of our frontier posts. Beef is 4 cents a pound; oats about 3 cents.

The plan of the fort is signed by General Gibbon; was designed for one company, on the old stereotyped plan of a square, of 250 feet—good enough and large enough for one company, but this cannot remain a one-company post. Had there been four companies here last year the

Nez Percés would not have dared to revolt. There remain of the same type and class of Indians the Flatheads, Pend d'Oreilles, Spokanes, and Cœur d'Alénes; all of whom claim the natural right to go where they please through Montana to the buffalo regions on the headwaters of the Missouri. The agent of the Flatheads came to see me last night, with a most intelligent priest who has charge of the mission of Saint Ignatius, 42 miles north of this. They describe the Indians as numbering seventeen hundred, disposed to peace, and who refused to go in with the Nez Percés, but offered to fight against them in their own way. The agent has not a dollar, and no authority to promise them meat. They won't work or lay in a stock of winter food; they hear of buffalo *near*, *i. e.*, 300 or 400 miles northeast, and are bound to go for meat. They promise to keep well north, to avoid the white settlements, but once out and hungry, they will steal tame cattle, and the first thing will be shooting and war. They complain because the traders are forbidden to sell any and all kinds of ammunition. They have forgotten the use of the bow and arrow, and all want powder, lead, and caps. These they cannot get now, and discontent is natural. The agent said he had tried to dissuade them from *this* hunt at this particular time, but without effect. Some have gone, others were waiting to see if I would visit them and repeal or modify the President's order. I told the agent that I would not meddle with his business. I had no knowledge of the state of their finances, and would not take on myself the responsibility of buying beef on credit for Indians, when he could in one day go to Deer Lodge, represent (by telegraph) to the Commissioner of Indian Affairs the state of facts, and receive instructions. These Indians, the Flatheads, are friendly, but they must go for buffalo or starve. If they go for buffalo they *may* come in contact with white settlers who know not the difference between Nez Percés and Flatheads, and trouble may result. I instance this case to show why we need here more than one small company. One company can defend itself in a block-house and afford a rallying-point for the settlers, but this is not the only office of troops. They must defend the post and *also* be able to send relief to threatened points, as in this case to the Flathead agency. Therefore I have ordered four companies of the Third Infantry *en route* to occupy this place, and that the present garrison be relieved, so as to strengthen Forts Shaw and Ellis on the east of the Territory.

As before stated, Major Rawn has orders to build a one-company post, and has made fair progress. He has the quartermaster and commissary store-house, of sawed logs, 6 by 8 inches, built and roofed in; one set of officers' quarters up, but not roofed, and the company quarters started; but all on a plan that does not admit of enlargement. General Poe and I have carefully examined the ground, and I have modified the plan so as to admit of an enlargement for four companies, using the buildings as far as erected, and providing for the troops building huts for this winter, but next year to go on and complete a good four-company post, which, in case of necessity, will suffice for a small regiment of infantry on a pinch. I will furnish Major Rawn a modified plan, and send a copy of it to General Sheridan. I regard Missoula as a strategic point that will remain forever, made so by the conformation of the rivers and mountains. These will force all roads to converge here, and four hundred men here will equal a thousand at any point within 400 miles. The valleys of the Deer Lodge and Bitter Root are already pretty well settled, but capable of giving homes to ten times as many. While laborers are suffering in the East, here almost any man can get $40 a month, with food cheaper than in Pennsylvania. It is only groceries and man-

ufactured articles that are dear, because they must be hauled from the Pacific Railroad or the Missouri River.

Before leaving Helena I instructed General McDowell, in San Francisco, to send a small escort for me to Missoula. It reached here the same day I did, by the Lo Lo trail, in seven days from Walla Walla. We are all taking one day's rest, and to-morrow will resume the journey by the old military road known as the Mullan road, via the Cœur d'Aléne mission and Spokane bridge. The escort is composed of fifty-eight men of the First Cavalry, Captain Winters commanding. We will take our wagons along with the knowledge that the road in places is *very much* obstructed with fallen trees, all the bridges gone, and many difficulties to encounter. These only add zest to the undertaking; we will therefore take along axes, spades, and everything necessary, and expect to reach Walla Walla in fifteen days, during which time it will be impossible to communicate. Once at Walla Walla, we will be at home, for all else is plain sailing, full rations, and no chance of accident or adventure.

With great respect, yours, truly,

W. T. SHERMAN,
General.

Hon. GEO. W. MCCRARY,
Secretary of War, Washington, D. C.

PORTLAND, OREG.,
Sunday, September 23, 1877.

SIR: My last was from Missoula, Mont., September 3, intstant. As therein narrated, a detachment of cavalry, composed of parts of companies E and L, First Cavalry, fifty-seven men and three officers, viz, Captain Winters and Lieutenants Forse and Shelton, had reached Missoula on the 2d, having come from Walla Walla by the Lo Lo trail. They had a pack-train of twenty-nine mules. All accounts, from Lewis and Clarke's down to the day of our departure, agree that the Lo Lo trail is not practicable to wagons and cannot be made so. The time seems to have come when there should be intercourse between Montana and Oregon, and by universal agreement the best road is by way of the Cœur d'Aléne mission. Years ago, viz, between 1854 and 1859, a wagon-road was opened along this route, under the supervision of Lieutenant Mullan, United States Artillery, for which purpose a large sum of money was appropriated by Congress, some say as much as $165,000, and the road was much traveled in those years, but being neglected, it has become so obstructed by washes and by fallen timber that for years it has not been traveled by wagons at all, and reverted to the condition of a mere pack-trail. In and about Missoula we found many persons who had crossed by this route, all of whom thought we could not possibly come with wagons over to Walla Walla without infinite labor; still I thought the attempt necessary, and, therefore, arranged to take our wagons along. We had three, and I authorized the quartermaster to hire two more in which to carry the necessary tools, axes, spades, picks, &c., as well as to convey back to their posts six sick men, convalescing, who had been left at Missoula by General Howard. Two dozen axes and half a dozen picks and shovels were procured, and, with eighteen days' provisions, we started on the 4th of September.

Our route lay along down Clark's Fork of the Columbia, there known as the Missoula, northwest for 80 miles, thence west for 75 miles to the

Cœur d'Aléne mission; another 40 miles down the Spokane to a bridge, and thence 160 miles south by west to Walla Walla. This is known as the "Military" or Mullan road, which I will endeavor to describe more in detail.

The new post of Missoula is in fact located on the Bitter Root, about 2 miles above its mouth, and 4 miles from the town of Missoula. The road leads directly across the grand plateau from the fort to the bridge which spans the main river (Deer Lodge) at the town, and thence down the valley on its north or east side for 18 miles to "Frenchtown," all the way passing good farms with fields of wheat, oats, and garden-vegetables. Frenchtown is so called by reason of its founders and chief occupants being Canadian French, with a sprinkling of Americans, Chinese, &c., and is a thriving town with good saw and grist mills, stores, shops, &c. From Frenchtown, settlements—save at long intervals—ceased; the valley closes in and space for farms in the valley proper is very scant. The pine forest up to this point usually kept on the mountain tops and side ravines, but from there it invaded the valley, though the trees were open, *i. e.*, far apart, so as not materially to interfere with the road; but wherever the pine grows the grasses are thin and unsuitable for grazing. The valley also becomes so narrow that the river, here swollen into a stream too deep and with a current too strong to be forded, forces the road over high hills and mountains to avoid the cañons. In the first three days of travel we made 72 miles, and had two heavy mountains or "grades" to pass; but the Mullan road here was plain, comparatively good, needing little repairs to make it practicable.

On the fourth day we crossed the river by a good ferry-boat kept by a white man, who said we were the first wagons for this year—only one last year. He said he had a charter procured of Congress by Lieutenant Mullan, and though repeatedly stampeded and driven off by Indian scares, he clung to his ferry, which is really an excellent one, with a good wire rope, and capable of crossing fifteen or twenty horses at each load. All our party crossed in a couple of hours. From that point we turned due west into a dark pine forest, and the work of cutting trees began. The road still remains plain, but all bridges have been swept away by winter avalanches, and is obstructed by fallen trees. In some instances we could work our way around trees, but the forest became more and more dense, so that the logs had to be cut and moved aside or bridged; that is, a tree too large to be cut was passed by piling other logs and chunks alongside and going over all with our wagons. Of course, this was at first awkward to our mules, who gradually became more used to it, and may at last be said to have performed the feat of climbing a tree.

For thirty miles from the ferry the road ascends the valley of the Regis Borgia, crossing it some forty times; all the bridges long since gone, and the nature of the road often forcing us for miles to follow the bed of the stream itself with its beautiful, pure water running like a mill-stream about two or three feet deep over rough bowlders. Individually, we walked much, or swapped off with the troopers for their riding-horses. These were kept ahead with axes and handspikes to cut and remove the logs. At the source of the Regis Borgia the road crosses the summit of the mountains. Descending this mountain by a very steep pitch, the road plunges into a similar dark forest, and follows the Cœur d'Aléne River, similar in all respects to the Regis Borgia, only *more so*. I never knew men work with more spirit than did those of our escort, and though we met pack-trains on the way, whose conductors ridiculed our undertaking with wagons, our men persevered in a tangled wood that

almost made me resolve to send our wagons back; yet each day and each hour left behind so much bad road that it necessarily compelled us to go ahead or to abandon our wagons, which would never do. By perseverance we reached the mission in five days from the ferry—wagons, mules, horses, and men all in good order.

This mission is one of those Catholic missions established in early days for the conversion of the heathen; the church stands on a hill close to the river, and round about it are the huts or houses built in regular order by the Indians themselves. Up and down the valley are gardens and fields well fenced and well cultivated. The crop had been gathered, consisting of wheat, oats, and timothy-hay, all of good quality. We here renewed our supply of forage, fresh meat, and vegetables; all the product of Indian labor, and all of excellent quality. We found there the founder of the mission, an old Swiss priest named Father Joset, assisted by a younger one, an Italian named Diomedi, who seemed delighted to see any one coming from the East. They explained to me that the mission was founded in 1843; that the Indians were most willing to be taught the ruder arts, and showed me much carpenter-work done by the Indians. There are only about five hundred Cœur d'Alénes in all, and many of them own horses, cows, pigs, chickens, and, as the priest said, some had money out at interest. The mountains come clear down to the valley in which this mission is built, leaving a meadow—doubtless the bottom of a former lake—for cultivation, about two or three miles long and a half a mile wide, too small for this number of people, and they have agreed to move about sixty-five miles southwest to the head of Hangman's Creek, where there is more room. Nearly all the Indians had already gone, and the priest, Diomedi, was in the act of starting to establish a new church. They want to sell their present farms and improvements, and I believe they will have no difficulty in doing so, provided we will do something toward reopening and encouraging travel on this (Mullan's) road.

We spent the greater part of the day at the mission, and the next morning resumed our journey. The road leaves the valley at the mission and bears to the north over very broken ground so as to pass the north end of the lake. We found less fallen timber, but a road made difficult and hard to cross with wagons, by reason of following the bed of mountain torrents with hard and massive bowlders. We had about thirty miles of such road, but made it safely and debouched at the north end of the lake. I had supposed this lake to have grassy and swampy margins, but was most agreeably disappointed to find it a magnificent mountain lake, not unlike Lake George, only much more beautiful. I was really captivated by it, and doubt not at some future day it will be a place of resort to the lovers of beautiful scenery, and of those who are fond of fishing. The lake and its many affluents abound in beautiful trout, some of which attain large size. At the mission, the soldiers caught any number with alder rods and common twine lines. From the end of the lake to Spokane Bridge, twelve miles, the road is perfect. At the bridge we came to the first mail-station on this side of the continent, and from there had the choice of three good roads to Walla Walla.

Captain Winters chose the most direct one, by way of Texas Ferry across Snake River, and we traveled by it 160 miles in five days, reaching Walla Walla in perfect order and condition in fifteen days from Missoula. We sent back the two hired wagons from the mission. Our route brought us in contact with the Flatheads, Cœur d'Alénes, Spokanes, and Snake River Indians. All these were agitated by the recent Nez Percé outbreak, for they are of the same type and class; are intermar-

ried, and have common grievances. All see that the whites are rapidly occupying the best farming-lands, and that they are in danger of starvation. These Indians vary from our plains Indians, for they seem willing to work; many have little patches of corn, melons, and vegetables. All depend on the salmon, which are gradually being extinguished by the netting and canning in the Lower Columbia. All these Indians want in the spring to gather the camas-root, a kind of wild onion that grows on the moist and fertile spots, and all want reserved for their special use a large mountain region in which to get furs and skins for trade. Their habits were molded by intercourse with the old Hudson Bay Company, which furnished them guns, ammunition, flour, sugar, &c., in exchange for their peltries. Now, the Americans are here, slowly but surely creeping up from the south, who fence the land, make farms, erect saw-mills, and make impossible their former modes of life. The Nez Percés, located east of Walla Walla, made every effort to draw in the Spokanes, Cœur d'Alénes, and Flatheads, but they were not ready. I think by moderation and a show of justice we can prevent any further extension of trouble. Each of these tribes should be made to understand that their former nomadic life is impossible, and that all must choose, individually or by tribes, a locality, and, like the Cœur d'Alénes, *go to work*, make homes for themselves, and be content with fishing and hunting as auxiliary. Good counsel will accomplish much, but a show of force is also necessary. This they well understand. The white farmers and ranchers are wide apart, and are much exposed. The people here, as in Montana, being encumbered by families and by having much stock in horses and cattle, cannot collect for offense or defense. Soldiers must do this.

I have not time or space to describe fully the geography and peculiarities of this country, but merely state that it is vast in extent; that the best lands for cultivation are near the sources of streams, viz, along the west base of the Rocky Mountains. Walla Walla is the key-point and center. Colville is on the north, but too remote. Another post intermediate is necessary. General Canby and I discussed this problem fully when I was here six years ago; and had we been able then to act, a Nez Percé or Modoc war would have been impossible. The Indian Bureau cannot manage these Indians. They never have and never can. The military can and must. There should not be a divided responsibility, for each will, as they have in the past, throw off on the other. As these scattered bands feel the pressure of settlements they cannot but be restive; they exaggerate their troubles, often aggravated by hunger, when the memory of their old times comes up, recalling when salmon were abundant, the Camas Prairie supplied vegetables, the wood was full of deer, bear, &c., and off goes a party of young braves, murder a few families, when all become involved, good, bad, and indifferent alike. The settlers have but one mind, that the Indians are a lazy, thieving set of vagabonds, that ought to be exterminated. The Indian agents are powerless, and the consequence is war, such as the Modoc and Nez Percé, costing much life, property, and money. There is and can be no impartial umpire; but the officers of the Army are the least prejudiced, and having soldiers to sustain them can often defend the Indians against manifest wrong, and may sometimes interpose *before* war is inevitable.

In any event the Army must do what it can to prepare the way for the emigrant, and to keep the peace as far as possible during this epoch.

As I said, Walla Walla is well placed and well located as the center of this field of operations, with Colville on the extreme north and Boise

on the south. Intermediate is Lapwai, which is well, but we need and must have another intermediate place north. Spokane Bridge and Spokane Falls have often been instanced, and recently General Wheaton has named Pelouse City. I have seen all these, and prefer infinitely the outlet of Cœur d'Aléne Lake, at the point where the Spokane River issues from the lake. It is twelve miles above the bridge, or thirty above Spokane Falls. It is off the road to Colville, but is salient to that road, and is on the railroad survey to Montana by the Mullan or military road. This road should be reopened to travel. I have crossed it with wagons, which is proof that it is *possible*, and I am convinced that next summer by the labor of two detachments of *infantry*, one working west from Missoula, and the other east from Cœur d'Aléne Lake, the road can be made good enough for present wants; one of which is to me conclusive: such a road will enable us to re-enforce Montana from this quarter, or to re-enforce this department from Montana, should a necessity arise. Had the Mullan road been open Howard could have reached Missoula before the Nez Percés, and would not have been forced to follow them across mountains from Lapwai to the Muscleshell.

General Wheaton, at Lapwai, had advised General Howard (absent on the Yellowstone) that he would dispose of his regiment for this winter, six companies at Lapwai, two at Mount Idaho, and two at Pelouse City. I have informed him by letter that I prefer the two last companies should be posted at Spokane Falls this winter, ready to occupy the point I have named at the head of the Spokane River early in the spring, when the post should be re-enforced by two more companies, and a good post begun, to be of lasting importance.

If next summer prove reasonably peaceful we can put other troops at work with axes and fire to clear out the road between Missoula and Cœur d'Aléne Lake. The Second and Third Infantry, recently ordered to Montana and this department, will be amply sufficient, and I am sure they can nowhere else be better employed.

No one can comprehend the improvement in this region during the past ten years without a personal visit.

Walla Walla is a beautiful town, has a narrow-gauge railroad, built by the enterprise of Dr. Baker, thirty-two miles long, to Wallula, whence an excellent line of boats daily come to Portland, transferring freight and passengers around The Dalles, fourteen miles, and the Cascades, five miles, by railroad. At and about Walla Walla the land produces wheat in such abundance that it is estimated they will have a million bushels for sale and export. The railroad is insufficient to bring it all away before winter. Same as to fruit and vegetables. The Philadelphia market does not show better samples of plums, pears, apples, grapes, &c. Similar farms and orchards are rapidly extending south and north. My route from Spokane to Walla Walla carried me west of the prosperous settlements on Hangman's Creek, Palouse, Tucannon, &c.; but the loaded wagons and dusty roads leading into Walla Walla show that the farmers had much to sell. Meat, flour, oats, and all that is needed by a garrison are cheaper and more abundant at Walla Walla than Leavenworth. In a very few years the same will be the case at Cœur d'Aléne.

There is no help for it. The Indians must conform or be driven, like the Nez Percés, far away to the buffalo region, or, if they prefer it, to their "happy hunting-ground." I have seen some Indians willing and able to take farms, build houses, and join in the white man's ways; and

I honestly believe the Army could induce hundreds if not thousan others to do the same; but if left as now, wandering about hopin restore the old order of things, an Indian will be a curiosity he twenty years.

This is Sunday. To-morrow I go by boat to Kalama, on the Colu River; there take cars for Tacoma, on Puget's Sound, where the reve cutter Wolcott awaits me to take us to Port Townsend, Victoria, Juan Island, &c. Will be back in a week, and then to San Fran overland and home.

I will not probably have occasion to write again, but will supple what I have written by personal explanations, before it is necessa communicate with Congress. Though I have not critically inspe all the posts I have visited, in a technical sense, I have endeavore observe the conduct of the officers and men, and their relations t people generally. With very few exceptions the officers are highl spected, and are much devoted to their duties. They are, as a c most popular, and if their maintenance depended on the frontier pe there would be no question. Captain Winters, who commanded escort across from Missoula, is an officer of especial merit, whom I remember if occasion offers. The soldiers, also, as a class, are equ not superior to those of any former period.

Forts Vancouver and Walla Walla are well-built posts, needing n ing. We ought to spend something at Colville, say $20,000, and should begin the new post at Cœur d'Aléne Lake next spring, and a $20,000 to begin with. This is the limit allowed by law without a spe appropriation, and I think we can do all by the labor of the troops s not to call on Congress for anything more than the usual appropria for barracks and quarters. Much money was wasted in Oregon s twenty years ago, but I think we can do well enough by a more econ ical system.

I do not think any change is needed on Puget's Sound, but there be time enough for that when I reach Washington, which ought no be far from October 15, though I shall endeavor to neglect nothing the probabilities are that Congress will not be organized before the of October. Until then I will be in reach of telegraphs, and will resp most promptly to any wish you may convey. If you think it prud and advisable, I can return via Fort Yuma and the Gila along the M ican frontier. To me this is no hardship, for I assure you that I w rather be on the Lo Lo trail than in Washington. I will be here about October 4, when I will go to California by land, reaching Francisco by the 8th or 10th of October, ready to start East at onc

Having reached tide-water, I feel "out of the woods," and supp there is or can be nothing of interest. General Howard is, as you kn absent after Joseph, who has escaped on the great plain, but I am s he will be disappointed in his proposed buffalo-hunt, and will find n soldiers and fewer friends there than he used to find on former vi I hope that not a single Nez Percé will ever return to this country. they join Sitting Bull in British territory we cannot help it.

My party is in splendid condition, with appetites that leave li profit to the landlord.

With great respect, yours, truly,

W. T. SHERMAN,
Genera

Hon. GEO. W. MCCRARY,
Secretary of War, Washington, D. C.

HEADQUARTERS ARMY OF THE UNITED STATES,
Portland, Oreg., September 30, 1877.

SIR: When I last wrote I did not suppose it would be necessary to trouble you again, but having made the tour of Puget Sound meantime, and having leisure at this moment (Sunday), it occurs to me that I should note a few observations that may be of future use to you and to me as matters develop.

We left Portland on Monday morning, September 24, in a steamboat that runs daily hence to Astoria. The route is 12 miles down the Willamette, and 30 down the Columbia, to a new town on its north bank, called Kalama. This is a point on the North Pacific Railroad, from which a section of that road has been built 105 miles to Tacoma, on an arm or bay of Puget Sound. We reached Tacoma about 6 p. m., and found the revenue-cutter "Wolcott" awaiting us. She is a good steam-cutter of 240 tons, commanded by Captain Selden, an officer of great experience, perfectly familiar with the navigation of Puget Sound. He met us on our arrival, and we were conveyed to the cutter, anchored off the wharf, by one of his boats. After examining the charts and discussing the best routes, we got under way and steamed 30 miles up to Seattle, anchoring off the town after dark. At daybreak we all went on shore, and walked about the place before the people were up. It is a very thriving place on the mainland, with many large saw-mills and machine-shops of all kinds, with stores and markets, which indicate a prosperous business. Near Seattle are found mines of coal, which give the place much of its prosperity. Also abundance of the finest pine, fir, and cedar timber. Many of the dwellings are very handsome, and the gardens were filled with cherry, apple, and pear trees, the two last loaded with fruit.

About eight o'clock we again got under way, and steamed up the sound, following the channel on the east of Whidby's Island. These channels are wonderfully deep; 30, 50, and 100 fathoms within a stone's throw of the shores. The islands and main shore are densely covered with pines and cedars, with an occasional farm. We passed the north end of Whidby's Island, through Deception Straits, so narrow and bold, that it is universally regarded as one of the most picturesque parts of Puget Sound. These straits are so narrow, that the tides rush through with such violence as sometimes to be impassable to strong steamers; but we hit it near high-tide, and had no difficulty. Issuing from these straits we were in Rosario Straits, claimed by the English as the main channel, but now adjudged to be wholly American, the boundary-line having been established down the De Haro Channel to the west of the San Juan group.

We steamed up Rosario Straits, leaving Allan and Cypress Islands on our left, and entered Bellingham Bay, anchoring at its head, near the coal-mines, about dark, having made 98 miles from Seattle. We went ashore and spent the evening with Mr. Jones, who has charge of these mines. At one time, some twenty years ago, Bellingham Bay supplied San Francisco with much of its coal, but now the mines of Seattle and Vancouver Island are found preferable, so that Bellingham Bay is in a measure down. Also at the time of the Fraser River gold-mine excitement, a town close by, called Whatcom, rose to importance, now it is comparatively abandoned; as also Fort Bellingham, now no longer occupied. Bellingham Bay is only 18 miles south of our national boundary; its latitude, therefore, is 48° 42′ north; yet we found apple and pear orchards bearing profusely of excellent ripe fruit, and had assurances that peaches and cherries ripened perfectly, as well as all kinds of berries.

We lay in Bellingham Bay that night, and at daylight of Wednesday steamed for San Juan Island, made somewhat famous in the boundary controversy. This island is the most westerly of a large group of islands, all of which were involved in the same controversy, viz: Decatur, Blakely, Lopez, Shaw, Orcas, San Juan, &c. All are high, rocky, covered with a dense growth of pine and cedar, with very few settlements, and seemingly with but little land fit for cultivation. At one time, about 1858, both parties claimed this group, and citizens of both were on San Juan Island, claiming titles to land, and demanding protection of their respective governments. But recently, under the Washington treaty, this case was submitted to the Emperor of Germany, who awarded the whole group to us. Pending this settlement, we had a small garrison on the south end of San Juan, and the British had a similar garrison at the north end, but the moment the award was made, both parties withdrew their garrisons, and now San Juan is only occupied by a few farmers and sheep ranches, and by a company engaged in burning lime.

The present national boundary is now well defined and well understood. It runs from Georgia Sound, on the north, down the De Haro Straits, and out to sea through the Straits of Fuca.

Our course from Bellingham Bay lay north of Cypress Island, through Obstruction Pass, between Blakely and Shaw, and all around San Juan Island. We did not land, because there was no public property on the island; and now that all controversy has ended the island has ceased to be an object of interest or curiosity. In a military sense the island or group of islands, known as San Juan is of no value. All the channels are so wide that artillery would be of no use, and ships of the largest class can go anywhere or everywhere. The only possible use of any of these would be to make a harbor of refuge, and our commerce thereabouts is so small that we need not contemplate such a harbor till the necessity arises, and that will be many years hence.

From San Juan we ran for Victoria, Vancouver Island. This town or city is on a small snug harbor at the southeast end of Vancouver Island; is the capital of British Columbia, embracing the islands of the coast and all that part of British America west of Manitoba. This now constitutes part of the Dominion of Canada. We anchored in this snug harbor, which contained but few vessels, and little to indicate a busy commerce. We landed at the wharf of the Hudson Bay Company, at which was a large warehouse, and above and around it has grown the city of Victoria, with regular streets, and a population of four or five thousand inhabitants. When the gold-mines of Fraser River and Cariboo were prosperous, the city was much larger, but now it seems to have settled down to its normal state, and people complained of dull times.

We found our consul, Mr. Francis, an old gentleman of great intelligence, recently restored to a place held by him during our civil war. We visited his family, and then drove out into the country about a mile to a handsome country mansion known as the government house, to call on the governor (Richards), who received us with great courtesy. He is from Brockville, Canada, has been recently appointed, and his wife is a lady of Pittsburgh. He is familiar with our country and people; so much so, that it was difficult to regard him as a foreigner. He presented us to his wife and children, showed us through the house and grounds and insisted on our dining with them at 7 p. m. Having accepted, we then took a drive in carriages through and about Victoria—the houses grounds, and gardens as much like similar towns in the State of New York as possible—and then drove by an excellent McAdam road five miles

to the navy-yard, which is on another bay to the west, known as Esquimault, but universally pronounced Squimault. This bay is simply perfect; large, commodious, and having a depth of water that will admit the largest ships on earth. One naturally wonders that Victoria should have been built on its small harbor, admitting only at low-tide of vessels of twelve or fourteen feet draught, with a bay and harbor such as Esquimault only three miles off, equally snug, but able to admit ships of any size; but Victoria was a Hudson Bay post, meant for canoes and small boats, and when the discovery of gold at Fraser River brought the first influx of ships, they naturally clustered about the Hudson Bay post. Now, however, the English Government has selected the harbor of Esquimault as their navy-yard and as the headquarters of their Pacific fleet.

We reached the wharf about four p. m., in the midst of a heavy rain, and saw five large war-vessels at anchor, one of which, the Shah, of 6,000 tons, was the flag-ship of Admiral De Horsey. Being so near him, I thought it might be misconstrued if I did not call, so we took a shore-boat, pulled off, and boarded the Shah. It was raining hard, and was not such a day as a sailor likes to show his ship; but I introduced myself to the officer of the deck, and was soon ushered to the cabin of the admiral. Though entirely taken by surprise, he manifested every disposition to extend every possible courtesy. He showed me his ship, and begged me to prolong the visit so as to accept of proffered hospitality; but this was impossible. We staid on board about an hour; and as I had to start, he insisted on my taking his barge to go ashore, which of course I did. As we left the ship he saluted me with fifteen guns. We drove back to Victoria in the evening, and dined with the governor at 7 p. m., prolonging our visit well into the night, when we returned to our own cutter.

Victoria and Esquimault are better harbors for commercial and war purposes than any we have near the Straits of Fuca; but I am sure we should cease to regard England or her colonies as enemies, or likely to become so. We have common interests and a common destiny; both are engaged in peopling and civilizing the west coast of America, and there is ample room for both as rivals. To quarrel would be suicidal to each. The governor thinks the Canadian Dominion is committed to the construction of a Northern Pacific Railroad; said that surveys have been made and work actually begun at both ends, and that the English Government will aid the enterprise. I am sure such a road will be in the interest of the whole world, and I wish them success.

Vancouver Island is very large; similar in geology and geography to San Juan; rocky, covered with forests of pine, cedar, fir, hemlock, &c., with undergrowth of maple, alder, and ferns; occasionally open glades give a chance for farms and grazing; sheep do very well, and the same fruits that flourish on the mainland are found here. I understood that the total white population of British Columbia does not exceed twelve or fifteen thousand, with thirty thousand Indians. These are fishermen and hunters, who support themselves, and are universally peaceful.

On Thursday early we steamed across the Straits of Fuca—here 18 miles wide—to a singular harbor known as Port Angeles, behind a breakwater of gravel and drift raised by the strong current of the straits. This is on the south or American side; has a light-house and small village; affords an admirable harbor, but nothing else. Further eastward is another similar harbor with its light-house and a fishing-village, known as New Dungeness.

We simply entered each of these harbors without anchoring, and proceeded inside of Protection Island close by Point Wilson, and en-

tered Port Townshend. The town is at the mouth of this bay, and the fort is at the bottom of the bay, reversing the usual order of things. The bay itself is about five miles deep, and three miles across at its entrance—too large for a commodious harbor; yet, being more shallow or less deep than the average bays of this wonderful sound, it affords good anchorage.

We first ran to the military post, which has a good wharf, at which we lay, and from which we walked up to see the quarters. This at present is the only military post on Puget Sound, usually garrisoned by one company, but now without any garrison, which is off with General Howard. The post simply consists of five buildings facing the bay for officers' quarters, a barracks for soldiers on one flank, and a hospital on the other. The location was made before the civil war, and was determined by the fact that Point Wilson is without fresh water, whereas the present site has good springs.

The town of Port Townshend is without fresh water, and depends on rain-cisterns.

At present the military post can exercise no influence whatever in case of war. To prevent vessels of war entering Admiralty Sound to the south would require three forts with rifled artillery of the longest range, viz, Point Wilson and the Island Point opposite protecting the bay, and a third on Whidby Island at Admiralty Head. Even these are so far apart that no vessel would hesitate to pass in; besides which, they could pass around Whidby Island by Deception Pass (the same route we went), necessitating further fortifications there. But I suppose it will hardly be necessary to undertake such expensive forts to guard against danger so remote and so unlikely.

At various periods there have been forts or simply soldiers quartered at San Juan, Bellingham Bay, Port Townshend, and Steilacoom. Now the only establishment is the one described at the foot of Port Townsend. So far as war-use is concerned, even this might be dispensed with; but I suppose the part of wisdom will be to let well enough alone till time demonstrates some further necessity.

Port Townshend as a commercial place is well enough. It is the first bay with good anchorage for a vessel after having passed the Straits of Fuca on the south or American side. There are, and will continue, the custom-house and necessary town; but in a military sense it amounts to little.

After visiting the post we returned to Port Townshend and anchored off the town. We went ashore in a small boat, visited the collector, Mr. Webster, and spent the evening at his house. The rain fell in torrents, and the wind blew a gale. About midnight, with difficulty, in a heavy sea, we got off to the cutter, and started for the head of the sound. Our route lay up Admiralty Inlet, a wide, deep sea-channel, for thirty miles, till we were abreast of the town of Seattle, when we turned behind Vashon Island and through the narrows till we were abreast of Steilacoom. I did intend to land there, but the rain and wind were heavy, and we continued on to Olympia. This is the capital of Washington Territory; is at the head of Puget Sound, *i. e.*, at the extremity of the bay which is farthest south.

Strange to say, this town, the most considerable of that region, is three miles from deep water, when there are hundreds of places with ten and twenty fathoms of water within a dozen miles. Our cutter could not go, at half-tide, nearer than two miles; but the site was chosen in the old Hudson Bay times, when the sound was navigated by canoes. Anchoring the cutter, we took our final leave, and pulled

ashore in a small boat, and put up at the Pacific Hotel; thence proceeding to the governor's office we found him, (Governor Ferry,) and many friends, with whom we passed the afternoon and evening.

The town has many pleasant residences, but the business part seemed dull. A river (Des Chutes) puts into the bay there, on which are many large saw-mills, and there is a town connected therewith called Tumwater. Lumber is the chief business of Olympia, if not of all Puget Sound. The quantity of timber is simply infinite, and the facilities for loading and carrying are so great that I doubt not this trade will grow and prosper for years. Timber and lumber are carried to all countries bordering the Pacific Ocean, including China, Japan, and Australia, though San Francisco is the great market.

On our map there is a railroad laid down from a place on the North Pacific, called Tenino, to Olympia, fifteen miles. It has been graded, but is not yet built, so we had to go by stage. We started at 5 a. m. yesterday (Saturday) morning. The road was all the way through a pine forest, some of the trees 200 feet high, 8 feet at the stump, and straight as an arrow. All the country bordering Puget Sound is similarly wooded, and in time will be valuable. We reached Tenino at 7.30 a. m., and at 8.30 the train arrived from Tacoma; at 1 p. m. we were at Kalama, and last evening at 6 p. m. were back in Portland.

During my absence some gentlemen of this city had arranged for a public reception, which I had to undergo; and I confess I have a high opinion of the people of this country, having experienced their hospitality on a former occasion, and by reason of the fact that many of the most enterprising men were of the old California class of 1849.

Portland is, of course, the center of this region. It is a city which in all respects will compare favorably with any of the same size in America. It is the headquarters of the department, but the absence of its commander, General Howard, makes it rather dull to the few officers remaining.

In coming down the Columbia from Walla Walla, our boat was belated, so that I could not stop at Fort Vancouver. It has no garrison now, because all are off with General Howard. Still I will go down tomorrow, Monday, to inspect, and return on Tuesday.

On Wednesday morning we start for San Francisco, overland. There is a good line of steamers, which the traveling public usually take, but I want to see the country, and therefore go by land, the greater part by stage, requiring two days and three nights in the coach. Reaching San Francisco about October 7, I will come straight to Washington, or delay by the way, according to the necessity.

In my judgment the coast country of California, Oregon, and Washington Territory will grow and develop without much assistance from the military, except in case of foreign war, which is simply improbable. Inland, especially along the western slope of the Rocky Mountains, there will be a constant pressure and collision of our white settlers with the nomadic Indians, which will necessitate the use of the troops for many years.

Therefore the problem here lies from Fort Colville on the north to Boisé on the south, much of which I have personally seen, and will therefore impart my views and instructions to General Howard's staff here, and to General McDowell in San Francisco.

I believe, when General Howard returns with the troops he took to chase the Nez Percés, there will be enough, especially if Congress will, as they should, increase the strength of the companies. The Army now has enough officers, regiments, and companies, but the companies are too

small. In no event should a company fall below *fifty privates*, and the President should have power, at his discretion, to increase the number of privates to one hundred, in companies exposed to danger.

I believe a bill could be framed in half a dozen words, repealing some clauses of the Revised Statutes, which would accomplish this result; would never in any probable emergency increase the grand aggregate above thirty thousand, or increase the cost ten per cent. above present estimates.

I see many of the newspapers urge an increase of the Regular Army. We don't ask it—but we do want what we have to be efficient for war. It is not so now, and can only be made so by increasing the number of privates; the cheapest and best for fighting. In case you have any communication to make to the coming called session, I make the above suggestion, and if you choose you may say that such is my opinion.

The general impression in the country is that we want the Army increased for selfish ends. It is not so; and I believe I express the general sense of the profession. We are willing that the Army should be kept down to the lowest limit demanded by the interests of the nation, but we don't want it crippled and made ridiculous. We need fighting men, "muskets," private soldiers, and not any more officers. When a company is ordered to do any work, I want to know that it has fifty or one hundred muskets; and not ten or fifteen as now. The sick, the cooks, and detailed men are the same for a company of twenty-five as for a hundred; but take out ten such from a company of twenty-five, it amounts to destruction; whereas, in a company of one hundred, ten can be spared and yet enough will be left for a respectable fight.

I expect to be at Washington before Congress can get to work, but if not, the above covers all that occurs to me now.

I inclose with this a map, which will enable you to trace my course, if you feel sufficient interest to follow it.

With great respect, yours truly,

W. T. SHERMAN,
General.

Hon. GEO. W. MCCRARY,
Secretary of War, Washington, D. C.

WASHINGTON, D. C., *October* 31, 1877.

DEAR SIR: Having recently returned from a tour of the Northwest occupying four months, during which I wrote you semi-official letters which I find entered on the official letter-book, I feel constrained to complete the series, so that all, taken together, will make a whole.

As described in my last, dated Portland, Oreg., September 30, my party was composed of my two aids, Colonels Poe and Bacon, and my son, Thomas E. Sherman, and we were stopping at the Clarendon.

On Monday morning, October 1, we took the regular ferry-boat for Fort Vancouver, twelve miles down the Willamette, and eight miles up the Columbia, on the north bank of the river. This is one of the best stations of the Army. We succeeded to it from the Hudson Bay Company in 1848, and the principal buildings were erected under the supervision of Quartermaster Ingalls, soon after the Mexican war, when quartermasters had more generous notions than now. The post consists of a quartermaster's depot, an arsenal, and barracks for four companies, with a handsome row of officers' quarters, with suitable and liberal in-

tervals, improved by gardens and ornamental shrubbery. The builders of this post are also entitled to the credit of sparing on the parade-ground many of the native pines, so majestic and beautiful. The garrison consists of the band of the Twenty-first Infantry, and a small detachment of sick men left behind when the garrison was withdrawn to take part in the Nez Percé war, General Sully in command.

Fort Vancouver has fulfilled its destiny as a fort, and is now merely held as a reserve post and depot of supplies, for which it is admirably adapted, being on the Columbia River, which is and must always continue to be the main channel of communication inland. The post arsenal and depot are all in good order, needing nothing but ordinary repairs.

On Tuesday we returned to Portland by boat, and on Wednesday, October 3, began our trip, overland, to San Francisco. Here Lieut. H. T. Hammond, a graduate of West Point of the last class, joined the party, having volunteered, while on furlough, for the Nez Percé war. We crossed the Willamette to the east bank, where we took cars for Roseburg, 200 miles. The road is a good one, and the cars made about twenty miles an hour; passing due south, up the valley of the Willamette, well populated, with many towns and much cultivated country. This valley contains the principal cities, towns, and population of the State of Oregon; chief among them Salem, Albany, and Eugene City. From the latter city the railroad ascending by a grade one of the branches of the Willamette, passes the summit and descends through a heavily-wooded ravine to the waters of the Umpqua, and crosses that stream by a bridge to the town of Roseburg. Here the railroad terminates, and we found a stage-coach ready with six horses to continue the journey. It was eight o'clock at night and very dark and rainy when we started from Roseburg with seven passengers inside and three outside. We were not many miles outside of town when the driver intimated that he had a heavy hill to pull up, and it would help his team if we would walk. Having overcome that hill, others succeeded, and the rain still falling made the road slippery; the leading team fell, breaking the splinter-bar. This had to be lashed and spliced by the dim light of the stage-lantern, which lost us nearly an hour of time. In the second stage, about midnight, the driver, mistaking the position of a new bridge across a mill-race, drove his leaders square into the race, the banks of which were so steep and deep that he had to unhitch and lead the horses out at some distance up the race. This lost nearly another hour of time, and when daylight came we were nearly three hours behind schedule-time.

During the day of Thursday the road reached the valley of Rogue River, where the road was better, and we made good time, reaching Jacksonville in the late afternoon. In and around Jacksonville is a fine body of farming-land well cultivated and seemingly very productive. From Jacksonville the road follows a fork of Rogue River by an excellent road for about twenty-five miles, where it begins the ascent of Siskiyou Mountain; a long, difficult ascent. Reaching the summit near midnight of a black night we descended by a tortuous mountain-road, at a rate calculated to try the nerves of prudent men; but the driver was equal to the work, and delivered us safely at the station across the boundary-line between Oregon and California.

We reached the town of Yreka in the night, and when daylight broke, Shasta Mountain, covered with snow, was in full view. This is a peak, volcanic in appearance, of the same general form as Mount Hood in Oregon, surely one of the grandest mountains in the world. The road

bears around this mountain to the waters of a tributary of the Sacramento; winding about among the mountains by a well-constructed road which we followed all day, into the night, when we crossed Pitt River by a ferry; and about one o'clock the same night we also crossed the Sacramento River by a ferry, reaching the railroad-station at Reading about 1.30 a. m. of Saturday. The whole distance from Roseburg to Reading is 275 miles.

North of the Siskiyou Mountain we had constant rain and mud, but south of it was dust, where there had not been a drop of rain for seven months. During the whole distance the road was so rough that sleep was impossible, and we were of course delighted to find that Maj. R. P. Hammond, hearing by telegraph from his son of our approach, had come up from San Francisco with a special car for our accommodation. We were all asleep when the train started, and did not awake till aroused by friends in Marysville. We reached Sacramento at 10 a. m., and remained there till 3 p. m., when our car was hitched to the train for Vallejo, which we reached at 6 p. m., thence by boat to San Francisco, by 9 p. m. of Saturday, October 6.

We remained in San Francisco until the 12th, during which time I was in telegraphic communication with the War Department, and in daily communication with General McDowell, commanding the Military Division of the Pacific.

Having concluded all business, we took the regular train for the East Saturday morning, the 13th of October; reached Saint Louis Thursday, the 18th, and Washington October 22, 1877.

With great respect, I am, truly yours,

W. T. SHERMAN,
General.

Hon. GEO. W. MCCRARY,
Secretary of War, Washington, D. C.

REPORT OF COL. O. M. POE,

U. S. ENGINEERS,

AIDE-DE-CAMP TO GENERAL W. T. SHERMAN.

HEADQUARTERS ARMY OF THE UNITED STATES,
Washington, D. C., December 1, 1877.

SIR: In accordance with your instructions, I have the honor to submit herewith a revised copy of notes made by me while accompanying you on a tour through the northwestern portion of our territory, during July, August, September, and the early days of October, 1877.

These notes were kept in diary form, and make no pretension to more than a fair account of what occurred. The rapid rate of travel contemplated, and the various modes of conveyance which that intention involved, rendered it unadvisable to attempt to carry with us any instruments or appliances with a view to the formation of an "itinerary," or the collection of data of a scientific character, and by your direction no such attempt was made.

I have considered the tour as beginning at Saint Paul, Minn., and ending at San Francisco, because of the general familiarity with and knowledge of the portions omitted. Although I have reduced it somewhat, yet the diary is necessarily lengthy, because of the great distances covered by it. Any attempt at further condensation would eliminate any little value it may now possess. As it stands, it may possibly be of some use, as indicative of what may be done in the movement and employment of troops in the region traversed.

It includes the journey from Saint Paul to Bismarck, by railroad; from Bismarck, by steamboat, to the mouth of the Little Bighorn (Fort Custer), and back to the Yellowstone; from the mouth of the Bighorn, via the north or left bank of the Yellowstone, to Fort Ellis; from Fort Ellis to the Yellowstone National Park and return; from Fort Ellis, via Helena, to Fort Benton and back to Helena; from Helena, via Missoula, the Saint Regis Borgia and Coeur D'Aléne Rivers, Coeur D'Aléne Mission, Spokane Bridge, and Spokane Falls, to Walla Walla; from Walla Walla to Portland, Oreg.; from Portland to Puget Sound and Bellingham Bay and return; and, finally, from Portland to San Francisco; a total distance of more than four thousand miles.

Accompanying the diary is a series of maps to illustrate it. They are nothing more than an adaptation of existing maps, with the routes and camping-places indicated upon them.

There are only a few matters which are deemed of sufficient interest to warrant a reference to them in this communication. They are:

1st. The necessity for a shorter and better route than that now traveled between Fort Ellis and Fort Custer.

2d. The advisability of re-opening, as a practicable wagon-route, that portion of the Mullan road between Missoula and Spokane Bridge.

3d. The more general use of small block-houses at our frontier posts.

4th. The establishment of a strong military post in the vicinity of the outlet of Cœur d'Aléne Lake.

5th. The general encouragement by the military authorities, of railroad construction in and immigration into the vast extent of unoccupied region in the far Northwest.

I am aware that these matters have already engaged your attention, and only refer to them in this categorical way, in order to segregate them.

I am, general, very respectfully, your obedient servant,

O. M. POE,
Aide-de-Camp.

General W. T. SHERMAN,
Commanding United States Army.

COPY OF MEMORANDA MADE BY O. M. POE, COLONEL, A. D. C., ETC., WHILE ACCOMPANYING GENERAL W. T. SHERMAN ON A TRIP FROM THE MISSISSIPPI RIVER TO THE PACIFIC OCEAN, DURING THE MONTHS OF JULY, AUGUST, SEPTEMBER, AND OCTOBER, 1877.

July 7 (*Saturday*).—At 8 a. m. the party, consisting of General Sherman, his son Thomas Ewing Sherman, Col. J. M. Bacon, A. D. C., and myself, left Saint Paul via the Saint Paul and Duluth Railroad, for the junction with the Northern Pacific Railroad, using the "business-car" of the latter road, which had been courteously placed at the General's disposal. We were accompanied by General Terry, Maj. B. C. Card, quartermaster, Capt. E. W. Smith, A. D. C. to General Terry, Lieut. H. G. Sickel, Seventh Cavalry, and General Williamson, Commissioner of the General Land Office.

At 3 p. m., our car having been switched upon the Northern Pacific Road and attached to the regular western-bound train, we fairly started for Bismarck, the western (present) terminus of the road. General Williamson left us at the junction for his destination, Duluth. We had dined at Hinckley, and reached Brainerd, at the crossing of the Mississippi River, for supper.

July 8.—Travelling all night we found ourselves for breakfast at Fargo, the crossing of the Red River of the North. This being Sunday, when no regular passenger-trains are run, our car was attached to a freight-train, and we proceeded; Lieutenant Sickel left us at Jamestown (Fort Seward,) where we dined for his station, Fort Totten, 80 miles north. After a further ride of nearly 100 miles across the "Coteau de Missouri" without seeing a tree, we reached Bismarck at about 5 p. m., where for the first time in my life I saw the Missouri River.

For much of the distance from Saint Paul to Brainerd the road passes through forests of scrub oak and tamarack. The soil is not of the best quality, and the region is unattractive. From Brainerd to Fargo there is said to be much good country, with some remarkably fine farms, but as we passed during the night I could not verify these statements by actual observation. For the entire distance across the "Coteau" the soil is much better than I had supposed, and with a sufficient supply of moisture is susceptible of the highest cultivation.

July 9.—Breakfasted at 7 a. m., and at 8 started for the landing, 1½ miles distant, where we transferred to the steamer Rosebud, Capt. Grant Marsh, master. A steamer from Fort A. Lincoln was to have met us at 9 a. m., for the purpose of taking us to that post, but it was

nearly twelve o'clock noon before it reached a point a quarter of a mile below where the Rosebud was taking on freight, having been *four hours* in making the *four miles*, against the strong current. Going on board of her, we easily made the run down stream to the post in a few minutes—less than half an hour. The post was in command of Maj. J. G. Tilford, Seventh Cavalry. We fully inspected the post, and at 4½ p. m. were glad to take the Rosebud, which had dropped down for us, and after making a landing at Bismarck, at 7 p. m. started on our journey up the river.

At Fort Lincoln we first encountered the Missouri River musquitoes in all their glory. They appeared in clouds and were annoying beyond description. We lunched at Major Tilford's, and although there was netting at all the windows and doors, we found it difficult to eat.

July 10.—Making good progress up the Missouri. Reached the landing at Fort Stevenson at 4½ p. m., and after discharging some freight, continued the journey. Beds of lignite were frequently seen exposed on the sides of the bluffs. At 8½ p. m., passed the Mandan village and Fort Berthold agency. The village is peculiar, in that the Indians live in huts, the roofs of which are composed of earth thrown up in a domical form. It is said that the village has not changed, either in location or appearance, since visited by Lewis and Clarke, in 1804. The point upon which it is situated projects boldly into the river, and seems to be composed of material so hard as to resist the impact and erosive action of a very swift current which impinges directly upon and sweeps around it with very great force.

The scenery along the river is remarkable for its uniformity and monotony. An occasional shrub upon the protected side of a hill, and cottonwoods and willows on the low grounds, with a very infrequent occurrence of ash, hackberry, and box-elder trees, constitute the foliage. Wild roses are seen on the lowlands, and the hills are well covered with grass. The erosive action of the weather has exposed the stratification, which is marked by horizontal layers of varied color and degrees of hardness.

July 11.—Slowly steaming up the river, which has a current so swift as to frequently bring us down to a rate of speed which tries our patience.

July 12.—Continuing our slow progress up the river we finally reached Fort Buford at about 8½ p. m., or 73½ hours, including all stops, after leaving Bismarck, 303 miles distant, and this is a much better trip than the average. We looked around the post in company with General W. B. Hazen, commanding. Situated as it is on the left bank of the Missouri, nearly opposite the mouth of the Yellowstone, it has a direct and important bearing upon the question of the successful navigation of the latter and the supply of the troops in the Upper Yellowstone and Big-horn regions. It makes a convenient depot at which to accumulate supplies, which may be hurried forward whenever the stage of water in the Yellowstone will admit. The hay in this region seems to be very fine, and in the post garden we saw fine-looking corn, potatoes, and other vegetables.

From the force at Fort Buford a guard of ten men, under command of Lieutenant Penney, Sixth Infantry, was obtained to accompany us to the end of our steamboat-trip.

July 13.—At 3 a. m. the Rosebud drew out from Buford, and headed up the Yellowstone; the scenery along which during the whole day greatly resembled that along the Missouri, but the bluffs partook more and more of the nature of the Bad Lands. The channels of the river were good, but the currents were swifter than in the Missouri, and our

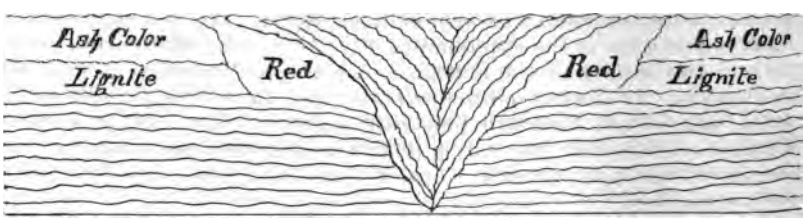
progress correspondingly slower. At 10 p. m. we were compelled to tie up to the bank and wait for daylight, at Coulson's Island, distant from Fort Buford, by steamboatmen's estimate, about 80 miles.

July 14.—Left Coulson's Island at 3½ a. m., gradually clearing ourselves of the terrible plague of musquitoes which had annoyed us so greatly from the time of our arrival at Bismarck, and culminated at Buford. Why they should diminish in number and rapacity as the Yellowstone is ascended is a problem which remains for the entomologists to solve. We were only interested in getting rid of them. The river was frequently so divided by islands that the resulting channels were somewhat confusing, yet the stage of water was so good as to render the navigation comparatively easy. In the forenoon a high wind sprung up, and when the course of the river was such as to bring us "head into" it, it had sufficient force to materially impede our progress.

At 6 p. m. we arrived at Glendive Creek, where we found a detachment of thirteen men of the Second and Seventh Cavalry, under command of Lieut. E. J. McClernand, of the Second Cavalry. General Miles, with an escort of eight men, had left on horseback, two hours before our arrival, going up the river on the north bank.

During the day there occurred a fine opportunity to observe the probable cause of the red color of some of the strata. At a point on the left bank of the river where it had been worn away, leaving a bluff almost perpendicular and about 100 feet in height, the stratification was well exposed. The bluff was cut by lateral ravines extending a short distance back from the river, and at the immediate margin cutting down to the water's edge. The upper stratum of lignite was thus interrupted, and at some time its edges must have been exposed along the ravines, and liable to take fire from any sufficient cause, such as the burning prairie or fire designedly applied directly to them. For a distance of some 40 or 50 feet horizontally from the sides of the ravines the lignite has disappeared, and the red formation has taken its place, extending, however, to the top of the bluff. But at the end of that distance the lignite appears in its full thickness, and the superincumbent mass is no longer red. The inference is quite natural that the stratum of lignite took fire at the exposed edges, burned inward, as indicated by its absence, and by the heat of combustion "burned" the overlying mass of earth, the iron in it forming the coloring matter.

Below is a section showing the present appearance of the bluff in the neighborhood of one of the lateral ravines:



Surface of water.

Top of second bed of lignite exposed at surface of water.

July 15.—We continued under way all night. At about 2 a. m. we overhauled the steamer Key West, and took on board General Miles, who had caught up with and taken passage on her. At 7 a. m. stopped at an island near Cabin Creek for wood. The wind again rose and blew a stiff breeze, which detained us until 4 p. m.; but we took advantage

of the detention to cut and take on board a large supply of wood, which was obtained from the "horse-wood" of an Indian encampment and winter corral. This wood is sought for by steamboatmen because dry, and therefore burns readily. During our stay at this point Lieut. Edward Maguire, United States Engineers, visited the general. He was a passenger on a steamer bound down, and was requested by the general to report our progress.

July 16.—At 2 a. m. met the steamer Tidal Wave and took on board Lieutenant Baldwin, Fifth Infantry. At about daylight we passed Wolf Rapids, where an attempt is being made by Lieutenant Maguire to improve the channel, the funds for the purpose being supplied by the Quartermaster's Department. Soon afterward we passed the mouth of Powder River, and later surmounted Buffalo Rapids with some difficulty, and reached the cantonment at the mouth of Tongue River at about 6 p. m.

July 17.—In the morning General Sherman, General Terry, General Miles, and myself drove to the new post being built under the superintendence of Captain Heintzelman, of the Quartermaster's Department, where the plans and grounds were inspected. The site selected is on a "bench" above the highest indications of river-floods, and about 1½ miles above the mouth of Tongue River. The plans provide for complete sets of quarters for six companies of cavalry and five companies of infantry, with all their adjuncts for a permanent post.

The quarters are arranged in an irregular hexagon of 60 feet × 800 × 800 × 200 × 875 × 875. Good water is readily obtained by sinking wells to a depth of 15 to 20 feet.

The "cantonment" is much nearer the mouth of Tongue River. It is built of cottonwood logs, to accommodate sixteen companies of infantry; is well supplied with quartermaster and commissary store-houses. Water from the river is supplied to the cantonment by water-carts.

The cantonment is built facing an open quadrangle of about 150 × 200 yards. The quarters, though rude, are comfortable, except during heavy rain-storms, when the water finds its way through the flat earthen covering.

The buildings at the *new* post are all of frame (balloon) covered with shingles, and will be more roomy and better ventilated, but colder in winter and warmer in summer.

It was suggested that the new post be placed in a better condition for defense by a small force, by building a block-house at each of the two intersections of the four long sides of the hexagon. The garrison was in command of Maj. George Gibson, Fifth Infantry, and was composed of a portion of that regiment.

July 18.—At Cantonment Tongue River all day. At 6½ p. m. the Fifth Infantry was reviewed by the General, at which there were present four companies on foot, and four companies mounted on captured Indian ponies. During the ceremonies General Sherman presented to certain enlisted men, entitled to them, medals of honor, for gallantry in battle. The mounted companies presented a motley appearance, but gave the impression of great efficiency, especially in the rapidity of their movements as skirmishers. During a skirmish-drill blank cartridges were fired without in the least disturbing the ponies, and it would seem that if possible to get a sufficient number of ponies it would be well to mount upon them the greater portion of the infantry serving in this region, since their ability to go without other food than the grass found here, together with their great endurance, would warrant dispensing with forage-trains.

At about 10½ p. m. we again got under way, but upon reaching the upper landing (that used for the new post) tied up for the night. Major Bartlett with two companies of the Eleventh Infantry had been taken on board at Tongue River for transportation to the mouth of Little Bighorn.

July 19.—After an early start and without incident we passed the mouth of the Rosebud, at 4 p. m., and at 11 p. m. tied up for the night. Whilst in the neighborhood of the Rosebud, the events of last summer were topics of conversation, as it was from their camp just below the mouth of that stream that the Seventh Cavalry started on the march which culminated in Custer's disastrous fight of the 25th June, 1876, on the Little Bighorn.

July 20.—Continuously under way from daylight until 10 p. m.

July 21.—Resumed our voyage at daylight, and reached Pease City at 10 a. m. Fort Pease (old), situated about 5 miles below the mouth of the Bighorn, remains in name only. The stockade has been used for fuel by steamboats, and for camp-fires. A couple of miles below the site of Fort Pease we first encountered rapids which the steamer could not surmount with her own power, and a line was taken ashore, manned by the crew and soldiers. With their assistance the steamer worked her way up the rapids. While engaged at this the men started up, on the south side of the river, a buffalo-calf, the first that we had seen. It galloped off in an ungainly manner, much to our disappointment, for it looked as though it would not have been bad eating.

Pease City, situated about 2 miles below the mouth of the Bighorn, is composed of two log huts, an exceedingly small "block-house," a small corral, and a vegetable-garden in which was seen growing a fine promise of potatoes, corn, cabbage, and oats. At 12½ p. m. we entered the mouth of the Bighorn River. This retained the characteristics of the Yellowstone, while the latter, above the junction, was apparently clear; indeed, it seemed to us that the Bighorn was really the upper part of the Yellowstone. After making about 18 miles up the Bighorn, we tied up at 10 p. m., having encountered no navigation of unusual difficulty.

July 22.—At daylight we got under way, the difficulties of navigation increasing at every mile. These are principally due to the rapid current, the tortuous course of the stream, and the number of channels into which the water is directed. It was only by considerable effort, and the use of spars and lines on several occasions, that we were able to make about 23 miles, and at 9 p. m. we tied up for the night. For two or three days the temperature had been very high, and especially to-day, when the heat was really distressing. The river winds from bluff to bluff, through bottoms upon which is usually seen a fine growth of cottonwood-trees, in many places presenting all the aspects of a fine park. Along the banks of the river were constantly seen trees which had been cut down by beavers; at one point trees more than 2 feet in diameter had been felled by these animals. Near the same point, a strip 5 rods wide and 30 or 40 rods long, upon which had stood a dense growth of young cottonwoods of about 5 inches in diameter, had been as neatly cleared off by them as if done by man.

July 23.—At daylight began warping up the stream, which continued to be the practice during the day. At 1 p. m. met the steamer Silver City bound down with Generals Sheridan and Crook and portions of their respective staffs on board. Both steamers stopped, and a conference of nearly two hours' duration was held on board our steamer, when each went its way. This took place about 8 miles below the mouth

of the Little Bighorn. Soon afterwards we met the steamer Bighorn with General Buell (lieutenant-colonel Eleventh Infantry) on board, who was transferred to our boat. When we reached a point 5 miles below the Little Bighorn, General Sherman and General Buell, taking horses which had been brought down with him by the latter, started on horseback for the post known as No. 2, at the junction of the Bighorn and Little Bighorn Rivers. After discharging the greater portion of our freight on the left bank of the river we tied up for the night. Both yesterday evening and this evening the weather looked threatening, but cleared off without rain. The experience of the last two days has shown that the Bighorn cannot be considered a navigable stream for more than 20 miles above its mouth. It was evident that without discharging most of our cargo we were going to have hard work to reach the post, 5 miles distant, in all of the next day.

July 24.—Were under way again as soon as it was light enough to see. Unloading so much of her burden lightened the steamer sufficiently to enable us, without difficulty, to reach the landing at the junction of the Bighorn and Little Bighorn Rivers at 8 a. m. Soon afterwards, General Sherman and several of the party started for the top of the hill, upon which the permanent post is being built, and after reaching there were joined by a detachment of the Fifth Cavalry with led horses, which gave us a mount.

The new post known as No. 2, now being built under the supervision of Lieut. Col. G. P. Buell, Eleventh Infantry, is situated upon a plateau at an elevation of about 125 feet above the surface of the water, at the junction of the Little Bighorn with the Bighorn, and between the two streams; that is to say, on the right bank of the Bighorn, and the left bank of the Little Bighorn. The site seems to have been well chosen by Colonel Buell; indeed, no other in the vicinity is comparable with it. A portable saw-mill was at work which cut about 10,000 feet of lumber per day, and it was expected that another saw-mill would be in operation in a short time. A large number of cottonwood logs were on hand and more were expected. These were cut upon the Little Bighorn, some 8 or 10 miles from the post, and floated down. A brick-yard was also well under way, and it was expected that enough bricks would be burned for use in the buildings. The post is intended for a garrison of six companies of cavalry and five of infantry, and consists of wooden buildings of sufficient capacity for the use of such a force. The officers' quarters were under way and progressing as rapidly as the supply of materials would admit. They are being built upon a somewhat novel plan. All the walls, outside and partition, are composed of scantling 2 inches by 4 laid upon their side and spiked down, each to those immediately below. Inside these the plastering is furred off 1½ inches, and the outer walls are battened on the outside. The floors are double. This construction gives great strength to the buildings, and will render them very comfortable. Under all the circumstances this mode of construction is the very best possible, but the buildings are more costly than if constructed in the ordinary way, because of the large amount of lumber required, and the greater length of time skilled workmen must be employed. The durability of the cottonwood lumber used will be very short, so that if it had been possible, it would have been better to have used more lasting materials, even at a greater prime cost. But in this region, at this time, it was simply a question of cottonwood or nothing.

The location of this post, in the heart of the Indian country, taken in connection with that at Tongue River, must exert a powerful influence

upon future operations in the region; not only those of the Army, but those of the settlers as well. As always happens, it will determine the points where the earlier settlements will be made, and one cannot but think there will be little delay in occupying the magnificent agricultural lands of the vicinity. But it is certain that supplies cannot be delivered at the site by steamboats, with any degree of certainty, because of the difficulties of navigation. Depots must be established, at points as near the post as practicable for steamboats, and the supplies hauled from there. In this connection, a large depot at Fort Buford, which can be kept full, and drawn upon during the season of good navigation upon the Yellowstone, must play an important part.

For several days in succession, the temperature at mid-day ranged at about 110° in the shade. Were it not for a cooling breeze which prevailed, the heat would have been almost unendurable. But the nights were delightfully cool.

July 25.—At daylight we left the post on our return to the mouth of the Bighorn, and at 10.20 a. m. we had reached the Yellowstone; traversing in 6½ hours a route which, up-stream, had occupied three days. All saw that the navigation of the Bighorn could not be depended upon for the supply of the post, and that it would therefore be advantageous to establish a temporary depot at or near the mouth of the Bighorn. After much discussion of the subject, and on examination of the left bank of the Bighorn, near its mouth, as well as of the right bank of the Yellowstone above the junction, a site was definitely determined upon, located on the right bank of the Yellowstone, about 3 miles above the junction, whence the distance to post No. 2, by a good trail, is about 30 miles. The distance by river from the mouth of the Bighorn to the post is about 50 miles.

A company of the Eleventh Infantry, which had been transported with us for the purpose, was landed as a guard for such depot as might be established, after which we again headed down stream (the Yellowstone) and landed at Pease City (or New Fort Pease), where we found Captain Norwood's company (L), Second Cavalry, which had been designated as our escort thence to Fort Ellis, and bade adieu to General Terry and the officers of his staff. As soon as our horses could be brought to the landing and the escort prepared for the road, we took up our march, moving out in a northerly direction for a little more than half a mile, then rose to the plateau, crossing it for three miles in a direction nearly parallel to the Yellowstone, then descended to the prairie and crossed it to a point near the river, a short distance above that on the other side selected for a depot. Here a ferry has been established, a town laid out, (called Bighorn City), and the ferrymen have built a log-hut as the legitimate beginning of the prospective metropolis of the region; almost literally putting the hostile Indians and the buffalo out of the way in order to do so. We made our camp near the only building in the "city," upon ground which had been made muddy and sticky by the rain of the afternoon, as only the soil of an alkali plain can be. Distance marched during the day estimated at five and one-half miles.

July 26.—At 6 a. m. we fairly made our start, taking the Montana trail, and after a progress of about 6½ miles we stopped, at 9.15 a. m., to rest, as the road had been heavy. The whole column consisted of the four persons composing General Sherman's party, of Captain Norwood and his company as escort, two ambulances, and a light wagon, each drawn by four mules, being the wheeled transportation of the General's party, and of a two-horse ambulance and three six-mule teams

belonging to the escort. Colonel Broadwater, of Helena, accompanied the General's party as an invited guest.

At 11.30 we again took the road, and, with occasional short stops for rest, we reached a point opposite "Pompey's Pillar" at 6.45 p. m., leaving our escort some distance in the rear to come on at slower pace. After the stop at 9.15 no water was found along the road. The distance marched during the day was estimated at 28 miles.

Pompey's Pillar is a detached mass of sandstone rock on the south or right bank of the Yellowstone, which flows between it and bluffs of the same material. The effect is very striking, as one would naturally expect the river to flow on the other side of the pillar. The river was too high to ford, hence we were compelled to content ourselves with a view of the pillar from the north (or left) bank alone. We went to the top of the corresponding bluff on our side and immediately opposite, from where we had a fine outlook over the country to the southward. It was evident that the mass of rock forming the pillar had once been connected with this bluff, but how it had become detached, or how the river had come to cut a channel through the point of the rock formation rather than maintain its old channel around it, and gradually wear it away to the northward, can only be guessed at.

One who had preceded us some years in visiting this place says that "Pompey's Pillar was thus called by Captain Clark, and is a high, isolated rock of yellow sandstone, standing in a level valley on the right-hand side of the river. The Indians believe that it fell from the bluff on the opposite side and rolled across the stream to its present place, but the real mode of its formation is plain to a more educated eye. It was formerly the point of a sandstone ridge, forming the bluff on the other side and running into an abrupt bend in the channel just below the point where a small stream enters the Yellowstone, and in time of freshet contributed toward wearing away the point on the lower side, while the stronger current of the Yellowstone was undermining the upper. Thus in time a cut was made. The Yellowstone usurped for a short distance the channel of its tributary and left the point of the ridge to become Pompey's Pillar." Doubtless this theory is in the main the correct one. There may be some difference of opinion as to the details.

July 27.—Resumed the March at 6.15 a. m. During the greater portion of the day the route led over a high ridge, whence a magnificent view was had of the country in all directions. The Bull Mountains to the northward, and the Bighorn Range in the southwesterly distance, stood out in bold relief. The latter, which could not have been nearer than 100 miles, were especially fine, the snow-clad tops glistening like silver. Between our route and these ranges lay broad expanses of what we knew to be very broken country, but which looked like almost level meadows, occasionally interspersed with scattering trees. The trail was a very good one, but very indirect, making a great détour around the head of an immense ravine (or coulé). The distance traveled from where we first struck this ravine to our camping-place must be twice the air-line distance.

After a march of about 24 miles, we encamped at 2½ p. m. at the mouth of Razor Creek, nearly opposite the mouth of Pryor's Creek. During the day frequent "squalls" were seen passing around us, but only a couple of them reached us; unlike the day before, when we were treated to a constant recurrence of them.

July 28.—At 6 a. m. we took our way along an excellent trail leading directly across a level prairie, from which we descended to the river bottom, passed "Baker's battle-ground," rose to the prairie again, and at

11 a. m. halted at "Point of Rocks" to "noon;" estimated distance 13 miles. While traversing the prairie, after leaving Baker's battle-ground, a large buffalo crossed our trail, and some of the men of the escort gave chase. It was a splendid sight. The buffalo, conscious of his danger, exerted himself to the utmost to escape, but his pursuers steadily gained upon him and finally shot him.

Our afternoon's march began at 2 p. m., the trail leading over level prairie, and at 5½ p. m. we went into camp at Rouse's Point, about 2½ miles west of Cañon Creek, distance about 12 miles, and for the day 25 miles.

July 29.—Started at 6 a. m., passing without incident over a level prairie and fine road for a distance of about 14 miles, when we halted from 10½ a. m. until 1 p. m., then marched about 10 miles farther over a similar road, and at 3 45 p. m. went into camp at old Camp Supply; whole distance made during the day 24 miles. At about 8½ p. m. a violent thunder-storm broke over our camp. While "nooning" to-day, a courier arrived from Fort Ellis, bringing to General Sherman a telegram, informing him of the riots in the East, and a request from the President that he would return to Washington. It may well be believed that the day was not a cheerful one for us.

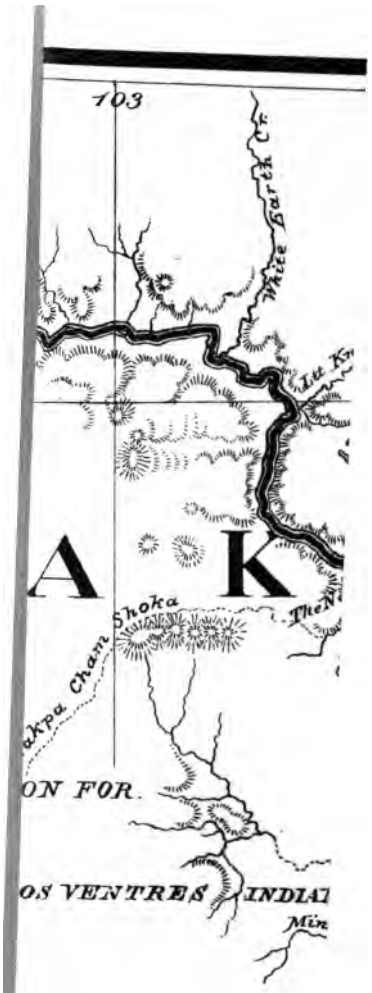
July 30.—Our usual starting-hour of 6 a. m. found us on the road, plodding along through a heavy rain, with mud and discomfort everywhere. After a hard drag of 10 miles, we reached "Countryman's Ranche" at 9 a. m. For the next 5 miles, the road followed the Yellowstone bottom and was excellent. After "nooning" for two hours, resumed the march along a good trail, at 7 miles passing White Beaver Creek, and 5 miles farther camped upon West White Beaver, a branch of the other. Whole distance marched 27 miles. Frequent rain-squalls prevailed and a little snow fell during the day.

July 31.—Taking the two ambulances and the light wagon belonging to the General's outfit, we started at 5.40 a. m. at a rapid pace, leaving the escort behind and aiming to make Fort Ellis, said to be 88 miles distant, in two days. At 8.30 a. m. we made Sweet Grass Creek, 13 miles, and after a short halt of 10 minutes again started, reaching Big Timber Creek, 10 miles, at 11 a. m., when we halted for "noon." The trail thus far was very good, especially the last 14 miles, and the weather cold, with high wind.

At 2 p. m. we resumed our march, and without incident reached Hunter's Hot Springs at 6.30 p. m., where we went into camp. Distance, 19 miles, or a total for the day of 42 miles. Hunter's Hot Springs consist of two series, which are some three or four hundred yards apart, and which differ considerably in temperature, and appear to differ in composition. The warmer of the two series have a temperature of about 150° (estimated) and the other 120° F. The latter are led to a rude bath-house, mixing on the way with cold water, until the temperature is about blood-heat. We all tried the baths and were greatly pleased with them. The distance of these springs from the Yellowstone River is about a mile.

(NOTE.—Among all the thermal springs which we saw in our subsequent journeyings, we encountered none which furnished waters so delightful to bathe in as these. In a region readily accessible, where visitors could have some of the comforts of life, and where there was no danger to be apprehended from Indians, these waters would soon become very popular.)

August 1.—This morning we got started at 5.30, and reached Carpenter's, 14 miles, at 8.30. Here, over Shield's River, we saw the first bridge since leaving the railroad. It was a rude but substantial struct-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ire. We stopped for half an hour, then resumed our journey, and at 1.30 stopped for "noon" at a point 6 miles east of the summit in Bozeman's Pass, and 12½ miles from Carpenter's. At 2 p. m. again started, and at 5.30 p. m., after passing through Rock Cañon, the most impressive we had yet seen, we arrived at Fort Ellis, 16 miles. Whole distance traveled during the day 42½ miles. Adding together the distances (estimated) for each day's travel, the sum is 219 miles for the distance from Pease City to Fort Ellis. This is usually reckoned at a little more, say 227 miles.

The region between the Bighorn and Fort Ellis has been so minutely described, notably by Captain Clark, of the Lewis and Clark Expedition, by Lieut. H. E. Maynadier, of the Raynolds Exploration, by Maj. J. W. Barlow, United States Engineers, and by Lieut. E. J. McClernand, Second Cavalry, of the column commanded by Colonel Gibbon in 1876, that nothing further seems to be necessary.

Although a steamboat carrying a party under command of Lieut. Col. J. W. Forsyth, of General Sheridan's staff, ascended the Yellowstone, in 1875, to a point about 80 miles beyond the location of the temporary depot near the mouth of the Bighorn, yet the obstacles encountered were so great, that, for all practical purposes, this depot must be considered the head of steamboat navigation, and any communication from there to the Upper Yellowstone, Fort Ellis, and the Gallatin Valley must be by land transportation.

Bateau navigation down the river is practicable, however, probably from the foot of the Grand Cañon. The Tongue River and Bighorn posts could be supplied in this way with all the grain and flour needed, but it will probably prove to be more satisfactory to rely upon wagon-trains, at least for the supply of the Bighorn posts. With this in view, I would suggest an examination of the country thence due westward to the Yellowstone, aiming to select a route by which the distance may be greatly shortened.

If a crossing of the Yellowstone be made at the mouth of Cañon Creek, or some point above or not far below, and the most favorable route taken thence to the post, at least 50 miles can be saved in the distance from Fort Ellis, and wagons be enabled even to land freight destined for Tongue River or below, at the temporary depot, in a less distance than by the route we traveled on the left bank of the Yellowstone. But it may be safely predicted that for only a short time will these posts have to depend upon distant points for the requisite supplies of grain and meat. The capacity of the Yellowstone Valley for producing nearly all the cereals and grasses is very great, apparently limited only by the amount of moisture and the number of settlers. Irrigation must be resorted to for the former, and the latter will rapidly follow the protection afforded by the military forces.

In this, as in all similar regions, the amount of moisture increases, and the pasturage improves as the mountain ranges are approached. The whole valley, from Tongue River to Yellowstone Lake, is now one vast pasturage, subject to this law.

The principal affluents of the Yellowstone come from the south, and e within the limits of the Crow Indian reservation. Their valleys are e most fertile, and they would be more easily irrigated and cultivated, t not being open to settlement, immigration for the present must cessarily be confined to the north side, where, owing to the compara- e sparsity of affluents of any size, irrigation will be more difficult.

Now that the two posts have been established, nothing more is re- red than a constant, rapid, and cheap means of communication, such railway would afford. All else would quickly follow.

From Fort Ellis to the Yellowstone National Park and return to Fort Ellis

The tour, as originally planned at Washington, contemplated a visit to the wonders of the Yellowstone National Park. The dispatches requesting the General's return to Washington on account of the railroad riots were likely to interfere with the further continuation of our journey. By our rapid marches, during the last three days before reaching Fort Ellis, we had gained an entire day, and this was spent in anxiously waiting a reply to the general's dispatch saying that he was ready to return if necessary, but hoping that the emergency had passed. Before night we knew that the request for his return had been recalled, and the next day was spent in writing letters, looking about the neighborhood of the post, and preparing for the trip to the Park, which was intended more particularly to gain a personal knowledge of the geography of the region and its relations to possible military operations, and in no sense partook of a scientific character. We were provided with no instruments except a prismatic compass and a pocket aneroid, and for guidance depended upon the sketch-map of "Yellowstone Lake and the Valley of the Upper Yellowstone River," by Captains Barlow and Heap, United States Engineers, in 1871, and the map of the Upper Geyser Basin, by Captain Ludlow, United States Engineers, 1875, which we found perfectly trustworthy; however, our packer, Anderson, had previously made one trip into the park and supplied many details of information which could not be shown on a map. The narrative which follows is intended only to give an idea of our route, rate of march, and some passing impressions made upon us, or more particularly the narrator. For all matters of scientific interest in regard to the region in question, reference may be made to the admirably written reports of the several government explorations, and the writings of tourists. Of the former class, the following may be studied by the inquirer with perfect assurance that they are trustworthy and intelligent accounts, viz:

1. "Report of Lieut. Gustavus C. Doane upon the so-called Yellowstone expedition of 1870.—Senate Ex. Doc. No. 51, third session Forty-first Congress."

2. "Report of a reconnoissance of the basin of the Upper Yellowstone in 1871, by Capt. J. W. Barlow, assisted by Capt. D. P. Heap, Corps of Engineers.—Senate Ex. Doc. No. 66, second session Forty-second Congress."

3. "Preliminary report of the United States geological survey of Montana and portions of adjacent Territories, being a fifth annual report of progress, by F. V. Hayden, United States Geologist. 1871."

4. "Sixth annual report of the United States geological survey of the Territories, embracing portions of Montana, Idaho, Wyoming, and Utah, being a report of progress of the explorations for the year 1872, by F. V. Hayden, United States Geologist."

5. "Report upon the reconnoissance of Northwestern Wyoming, including Yellowstone National Park, made in the summer of 1873, by William A. Jones, Captain of Engineers, U. S. A."

6. "Report of a reconnoissance from Carroll, Montana Territory, on the Upper Missouri, to the Yellowstone National Park and return, made in the summer of 1875, by William Ludlow, Captain of Engineers, &c., U. S. A."

And of the latter class, the following will be found to give in popular language some information not conveyed by the former, viz:

1. "Langford's articles in Scribner's Monthly on the wonders of the Yellowstone."

2. "The Great Divide; travels in the Upper Yellowstone in the summer of 1874, by the Earl Dunraven."

3. "A trip to the Yellowstone National Park in July, August, and September, 1875. From the journal of General W. E. Strong. Washington, 1876."

And a very good resumé of what had been written upon the subject, up to that time, may be found in a book entitled "Wonders of the Yellowstone, edited by James Richardson."

The party organized for the tour through the Park was made up as follows, viz:

General W. T. Sherman, commanding United States Army; Col. O. M. Poe, Col. J. M. Bacon, aides-de-camp; Mr. Thomas E. Sherman; David L. Brainerd, Samuel Hendrickson, Philip Loos, Wade H. Young, privates in Company L, Second United States Cavalry; and Alexander Anderson, a citizen, late first sergeant of Company ——, Second Cavalry, employed as packer. Eleven saddle horses, five pack-mules, and in addition, two ambulances, and one light baggage-wagon, each drawn by four mules driven by a citizen teamster, with Corporal ——— Moeller, Seventh United States Infantry, in charge. These vehicles and their personnel were to be taken only so far as the road would admit. Anderson's horse was a "cayuse," belonging to himself; the others were public animals, which had (except the pack-mules) come through from the Bighorn with us. These pack-mules were the refuse of what had been at the post of Fort Ellis—left there because deemed unfit for the expedition which was then out under command of General Gibbon. We took with us provisions for eighteen days, comprising only such articles as were essential, and as much oats (less than half rations) as we could carry on the vehicles. Our camp equipage was of the simplest possible character, including a tent-fly to sleep on, and one to shelter us. A good supply of bedding, our overcoats, and a change of under-clothing, with towels and soap, six tin plates, as many tin cups, four sets knives and forks. Tables, camp-stools, wash-basins, &c., were only taken as far as the vehicles went, from which point nothing was permitted which, by any stretch of imagination could be considered a luxury. Accordingly, at 10 a. m., on

August 4.—We took the road leading through Rock Cañon, and over the divide to Trail Creek by a pass of about 1,100 feet above Fort Ellis; gaining this by a very gradual ascent. The road was a very good one and we made good progress, stopping an hour for "noon," after reaching the waters of Trail Creek, and at 7 p. m., after making about 20 miles, went into camp at a beautiful spot just beyond the last crossing of Trail Creek, with plenty of grass and water at hand. The supply of wood was limited, but sufficient.

August 5.—Started at 6.30 a. m., the road continuing down Trail Creek for about three miles, when it entered the immediate valley of the Yellowstone and turned sharply up that stream, and was nearly level from there to the end of the day's march. At 11 a. m. we had reached Bottler's Ranch, where we stopped for "noon," on the bank of the river, about three-quarters of a mile beyond the house. The reach of the Yellowstone here is a very fine one, the banks high and the channel straight, looking very much like a canal. Just before reaching Bottler's we had been met by Colonel Norris, Superintendent of the Park, who gave us marvelous accounts of the numbers of trout thereabouts, and as soon as we had halted, Colonel Bacon and Tom Sherman got out their fishing-tackle and made for the river with all the spirit of true sportsmen. Both met with a remarkable degree of success, and the result was all the fish

required to feed the whole party. The bait used was grasshoppers, the handsome artificial flies, with which the anglers were provided, proving but little temptation to the fish. The bank of the river was perhaps 25 feet high, and standing there I could distinctly see the trout in immense numbers swimming around in the clear water. Those caught varied in size from one to two and a half pounds. The sport was the best I had ever seen of this kind, and it is doubtful if it could be excelled upon earth.

The brothers Bottler, now well known through the official reports of the several exploring expeditions to the Park, and Dunraven's account of his tour to that region, have a beautifully located farm, and by irrigation are raising satisfactory crops upon what was a short time ago only a prickly-pear flat. One field of wheat contained 90 acres, and was the best I had ever seen up to that time. General Sherman and myself walked into it, in company with one of the Bottlers who estimated the yield at 40 bushels to the acre, an estimate which did not seem to us at all extravagant. We also saw growing oats which was correspondingly fine.

After resting until 2.30 p. m. we resumed our march and at 5.30 went into camp about one mile south of Second Trail Creek, sometimes called Miner's Creek. Distance made, 15 miles to Bottler's, 11 miles to camp; total 26 miles for the day. The supply of wood and water at this camp was ample, but the grass was not as abundant as we would have liked. The road from Fort Ellis to this point is excellent.

August 6.—With a south wind, the temperature this morning was not above 40° F.—A courier came in from Fort Ellis with the mail, bringing letters of as late date as the 22d of July. At 6.30 as usual, we got off, finding the road rough for the first two miles, then tolerably good and with the exception of about two miles more (distributed throughout the day's march) it continued to be so. After making about 18 miles we went into camp at the mouth of Gardner's River at 11.30 a. m. This was the limit of wagon-road in this direction, and the remainder of the day was spent in arranging packs, &c., for our further journey. At this point we were just on the northern boundary line of the "Park." In the spring, a wagon laden with machinery for the mines on Clark's Fork and drawn by oxen, had crossed Gardner's River here, and was taken to and over Baronet's Bridge over the Yellowstone just above the mouth of the East Fork. The temptation to try to take our vehicles further was very great, but fortunately for us we decided otherwise, and they were left here in charge of Corporal Moeller, who was instructed to take them to the Mammoth Spring, four miles above on Gardner's River, so as to have them there to meet us on our return the tenth day after our leaving them. On the south side of Gardner's River, well up toward the heads of the ravines putting out from the mountains, were fine spots of grass where the team mules were to be pastured meanwhile.

August 7.—At 7 a. m. we took the trail from the mouth of Gardner's River directly for the mouth of East Fork. It is a good one for a pack train, but notwithstanding the fact that the wagon referred to above actually passed over the route only a few months before us, it cannot be recommended for pleasure driving. When we reached the vicinity of Black Tail Deer Creek, we crossed directly over, instead of turning to the right and crossing it near its head. By doing this we saved some distance, and except just at the crossing had an equally good trail which joined the one coming from the Mammoth Spring just as the latter reached a small but muddy creek, the name of which we did not learn. At 2 p. m. we reached Strawberry Brook (Colonel Barlow's camp of

July 24, 1871), and went into camp, all hands being very tired. The distance made was about 20 miles. We found good grass here, and good water, but wood is not very easily obtained. During the evening Anderson "cached" one sack of oats, for use upon our return, thus lightening the load of the pack-mules to that extent.

August 8.—When we turned out in the morning we found the weather cold and clear, frost being quite apparent. By 6 o'clock we were on the road, which we found quite rough. It led past Tower Falls and over a spur of Mount Washburn, thence through a cañon and over the spurs of mountains on either side, and finally down into the valley of Cascade Creek, where we camped by the middle of the afternoon, about a mile north of Yellowstone Falls. Distance, about 18 miles.

About midway of the day's march we left the trail, just where it reaches its highest point on the spur of Mount Washburn, and following up this spur reached the top of the mountain, to which point we led our horses, though it is quite possible to ride the entire distance to the summit. At present there is no well-marked trail to the summit, but the location for one is very evident, and the ascent could be easily improved by a little work in throwing out of the way some of the pieces of lava which are thickly scattered about and impede a horse's movement. At no place is the ascent dangerous. The distance from the main trail to the summit, measured along the route we went, is probably one and a half miles. The top of the mountain is quite limited in area, the most of it being occupied by ten men and the same number of horses, which comprised those of our party who ascended, and a few belonging to another party which happened there at the same time. The main trail crosses the spur at so great an elevation that snow was still seen in sheltered ravines below it, and the snow increased as the summit was approached, though not in quantity to interfere with the ascent, and none at all was found at the summit, or on the side of the mountain near it.

I had with me a small aneroid barometer, not very trustworthy, which indicated an elevation of 11,900 feet; Professor Hayden's map, of 1871, makes it 10,575 feet; Norton says it is 9,996 feet; Captain Jones, United States Engineers, reports it at 10,105 feet. The probability is very great that the elevation of the summit is about 10,500 feet above the level of the sea.

From the summit a very extensive view of the surrounding country is had. This has been so well described by Doane, Hayden, Barlow, Dunraven, Jones, Langford, Ludlow, and others, that it is quite unnecessary to attempt it here; but I may say that every tourist into the Park from the northward should ascend the mountain on his inward journey, for, by doing so, he will see spread before him a map of the Park upon the full scale, and will get a knowledge of the general features of the topography such as he will not be able to obtain in any other way.

We followed the custom of previous visitors and left our cards in the tin mustard-box cached there for the purpose.

In descending from the summit, much discussion arose as to whether it would be better to return by way of our up-trail to the main one, or attempt to find a new one which would cut off a part of the main trail. To return by the up-trail would carry us out of the way at least three miles. The impulse was very strong to endeavor to find a way which would avoid a part of this détour. It was finally decided to retrace our steps. However, Colonel Bacon thought he could find a shorter if not a better trail, and by going west from the first bench below the summit,

he certainly succeeded in reaching a point on the main trail before the rest of the party attained the same point, and reported his experience as satisfactory. The descent from the summit has been made in other directions also; but upon the whole I am inclined to believe that the best way to get down is to retrace the upward trail.

After ascending to the high ground beyond Tower Falls, and from thence to the spur of Mount Washburn, the trail passes over ground that is almost constantly rising, with extensive views of open ground and woods on both sides of the Yellowstone. The scene is one of the greatest beauty, the whole having the appearance of a well-kept park, and one finds himself involuntarily looking for the chateau of the owner. An occasional band of antelope, feeding upon the open ground, adds to the impression that the surroundings are those of an imperial residence. We saw much grander scenery in the Park, but we saw nothing more beautiful.

August 9.—The morning was very cold, ice a quarter of an inch thick having formed during the night. Nevertheless we got our usual start at 6.30, and soon reached the Lower Fall, where we spent about an hour. The maps we had with us are authority for saying that the descent of this is 350 feet. Looked at from above it does not seem to be so great. The cañon (well named Grand) is a mighty gorge, and the effect produced by it upon the beholder probably detracts from that produced by the falls, which are, nevertheless, worth a long journey to see. The Yellowstone pours through a channel very much narrower than its ordinary width, and pitches over the ledge in an almost solid mass of water, which is much broken by the mere force of descent, and hidden by mist before it reaches the bottom. An excellent view of the falls was obtained from a point on the left bank of the cañon, about four hundred yards below. From there we returned to the trail, and passed the cañon through which Cascade Creek empties into the river, between the Upper and Lower Falls. The descent into and ascent from the cañon of Cascade Creek are steep but not difficult. Following the trail without stopping to get any other view of the Upper Fall than that obtained from near the Lower Fall, we soon reached the river abreast a small cataract constituting a part of the rapids above the Upper Fall. Above what may be properly termed the rapids there are some extremely beautiful reaches of the river, broad, clear, and placid, but with a current which showed that it was rapidly changing its level. The banks are only a few feet high, and the whole appearance reminds one of anything else rather than the torrent the river becomes just below.

For a short distance the trail leads up a small creek, so strongly impregnated as to be unfit for drinking, then across a minor divide and down to Alum Creek, thence very directly across the prairie to Sulphur Mountain. Whilst approaching SulphurMountain we caught sight of a large bear (Cinnamon) with two cubs. Colonel Bacon, Tom. Sherman, and three of the soldiers gave chase. The ground was open, but literally honey-combed by the works of moles, mice, &c., and over this the bears made good progress, while the horses were much impeded. The bears made for a forest of pine timber, and the chasers seeing that they were going to gain its shelter before they could be headed off, dismounted and fired several shots without effect. The bears having disappeared in the woods, the hunters reluctantly gave up the game, and soon rejoined us at Sulphur Mountain, which we had reached meanwhile.

Here we spent an hour examining and talking about the wonders before us. Sulphur Mountain takes its name from the sulphur jets, or

rather vents, situated principally about its base and low down on its sides. The number of these vents in action at any one time is not very great, but in every direction are seen extinct vents, with deposits of sulphur crystallized in the most beautiful forms and in great quantity, but so delicate in structure that it is impracticable to remove the most characteristic specimens. The largest and most important of the vents is situated just at the base of the bluffs, in the midst of the others. It is probably 15 feet wide by 25 in length, somewhat irregular in outline, but resembling a horizontal section of an egg along its longest axis. Within this, and perhaps three feet below the general surface, the water (which is here seen, but only heard at the other vents) is in a state of violent ebullition, and the heat apparently at the boiling-point for this elevation. Steam, laden with the fumes of sulphur, rises to a considerable height and is carried away by the wind. Indications were abundant that this vent sometimes overflows and pours out a large volume of water, but no overflow of any consequence occurred while we were there. While we were looking at it, the water was thrown as much as six or seven feet above its level in the caldron, but at no time did it *run* over the edges. What went beyond was simply splashed out, and was not in sufficient quantity to flow away in streams as it evidently had done not very long before. There was nothing to show whether the overflows were periodic or only spasmodic.

The scene in the vicinity of the vents is one of the greatest desolation. Vegetation, wherever touched by the waters, was killed, and the whole hill (not high enough to be fairly called a mountain) presented the general appearance of a mass of slag in the neighborhood of an iron-furnace.

From Sulphur Mountain we took our way toward the Mud Volcano. The trail winds for most of the way over open prairie, and is quite good. Finally it enters the woods, and after a short distance brings one directly upon that supreme specimen of the infernal regions, known as the Mud Volcano. This consists of a crater-like cone of about twenty feet in height, sticking against one side of a ravine. Volumes of vapor constantly rise from the crater and drift off with the wind. Everything in the immediate vicinity is covered with a deposit which has evidently been ejected from the crater. This deposit does not seem to be especially destructive to vegetation, as living pine trees, covered with it as if with dried mud, stand within 200 feet of the so-called volcano. By ascending the cone and looking over the sharp edge of the opening a view may be had of the seething mass within. This view is not one that is very likely to enchain the beholder for any great length of time, especially when he remembers that the rim of the crater is composed of loose material, is very treacherous, and to fall into the pit would mean a complicated death from boiling, smothering, and stench. The volcano really appears not to be such, and gave no indication of volcanic characteristics while we were in the neighborhood, except the evolution of vapor, which was like smoke only in appearance. It gave the impression that it was merely a vent for an under-ground stream of water highly charged with matter, and heated to the boiling-point or near it.

Around the Mud Volcano are numerous objects of interest, the most prominent of which are the Devil's Den and a Geyser with a well-defined period, but feeble action.

The former consists of a small but beautiful cavern, from which issues a jet at intervals of about a second, the water in the basin being remarkably clear and limpid, and resting upon a pebbly bottom. The impulses are accompanied by a splashing noise, as if caused by machinery, and

convey the idea that great volumes of water are being ejected as if from a periodic pump. But the amount of water actually expelled is small. Its heat is great, as was demonstrated to us by a small snake which very mistakenly sought shelter in the basin, where it was killed so suddenly that its convolutions remained after death. In further test, we boiled a ham in the basin as thoroughly and as quickly as it could have been done in a camp-kettle over a vigorous fire. The water seemed to be very pure, and the ham was as good and sweet as it would have been if cooked in the best of spring-water.

The latter is in the midst of a pond from which issue a great number of jets of vapor. It would not be suspected of geyser action unless one happened accidentally, as we did, to witness its operation. It has an interval of somewhat more than an hour, and rises above the ordinary level to a height of five or six feet, with considerable disturbance. It had an especial interest for us because it was the first true geyser we had recognized.

Hot springs are very numerous in the vicinity—some rising directly in the bed of the Yellowstone.

Trout are plenty in the river and caught with little trouble, but nearly all of them are wormy, as has been noticed by all who have visited the lake and the river above the falls. Why the fish above the falls should be infested with these parasites, while none are found in those taken from the river below the falls, has never yet been satisfactorily explained.

Other visitors to this locality have observed an active Geyser between the one referred to above and the Mud Volcano, with a period of about six hours. We saw the pond in which this is situated, and saw indications of the eruptions, but if any occurred while we were in the vicinity they were unobserved.

We made our camp for the night at a point about midway between the geyser observed and the river, going in a southeasterly direction, having arrived upon the ground, after a march of about ten miles, at 11 a. m.

August 10.—It had been decided by the General that we would omit so much of the complete tour as would include the Yellowstone Lake. Consequently, at 6.30 a. m. we took the trail for the Lower Geyser Basin. This led almost due west, and until the divide between the Yellowstone and East Fork of Madison is reached is very good. From there to our camp on East Fork of Madison the trail is at first steep, rough, and much obstructed by fallen timber. Springs break out along the base of the mountain and form extensive marshes. To turn these the trail makes quite a détour, thus increasing its length. In passing some of these swamps the trail became very obscure, and we found difficulty in following it. The day's march was almost devoid of interest, the only point of interest being the sulphur steam-jets, near the crest of the divide. Here the internal forces were at work, and the stench of sulphur filled the atmosphere. Elsewhere these jets would have claimed our attention, but we had become accustomed to such wonders, and passed them without even reining in our horses. After striking the East Fork of the Madison we passed for some distance over a lumpy prairie, intersected at intervals with small water-courses, which were difficult to cross, because of their marshy character; and, lower down, encountered numerous thermal springs. The latter half of the trail was so difficult that at 1.30 p. m. we went into camp, men and animals being tired out. The estimated distance of the day's march was 23 miles, and our information located the camp about five miles above the Lower Geyser Basin. A

GIANTESS GROUP OF GEYSERS.

more direct route after striking the East Fork of Madison would have reduced the march at least two miles.

August 11.—Full of eagerness to reach the greater wonders now so near us, we were prompt to start as usual, and at 9.15 a. m. had reached the Lower Geyser Basin by a trail which was tolerably good except the last mile, which was marshy, from the outflow of the geyser-water over the Madison Valley. The trail had led past numerous hot springs, and in view of some fine scenery, but we did not stop, either to examine the one or admire the other. Having gained the immediate vicinity of the geysers themselves, which, with the surrounding hot springs, covered an area of hundreds of acres, we dismounted in a little grove of pines near the trail, and walked up the slope formed of matter deposited by the waters, and were soon in the midst of geysers and hot springs innumerable. Many of the springs are very beautiful, the waters being as clear as water possibly can be, and usually showing to great depths the throat through which they rise. Ordinarily they exhibit the most beautiful bluish green tints, growing darker as the depth increases. Some were boiling, some sputtering, and some were perfectly calm, but all were *hot*. All these springs have been described in general terms, and the geysers in detail, by the expeditions sent out for the purpose. To us the most interesting, perhaps, of all was the mud spring on the top of the hill, around the base of which most of the other springs are found. I call this a mud spring, not that its characteristics are at all different from those of the others, but because the material in a state of ebullition is mud instead of clear water. It reminds one of a bed of mortar in which the lime is still slacking. The spring consists of several pots, separated from each other by mud walls. The color of the contents of the several pots varies from white to light red, but is perfectly uniform in each pot. The mud is so finely comminuted by the constant motion that it would seem to be fitted for the finest purposes of pottery. There is no visible outflow, but particles of the mud are occasionally thrown out of the pots and gradually harden on the rim. We walked at will, though very gingerly, over the walls separating the pots, the connecting isthmuses being usually only a couple of feet in width at the narrowest part. While it seemed perfectly safe to do this, yet there was uppermost a feeling that a bath in the boiling, pasty mass was not beyond possibility.

After a couple of hours spent here we resumed the march. At first the trail led over the grayish white deposit of the springs formation, which sounded hollow under the hoofs of the horses, and gave one a decided feeling of insecurity, though it was apparent that there was no danger. Farther on we passed vast numbers of extinct springs, winding among their cavities, then over spurs where the trail was badly encumbered with fallen pines, over marshes bordering the Fire-Hole River, the country growing wilder and wilder until at 8 miles from the Lower Geyser Basin we suddenly entered the Upper and more wonderful one; making our way without difficulty or doubt to the spot within a thousand feet of "Old Faithful," selected for our camp before starting from Fort Ellis. This we reached at 12.30 p. m., and within a few minutes after our arrival had the pleasure of seeing that geyser in full operation. Our camp was in a central position about midway between Old Faithful and the Castle, and nearer the Beehive and the Giantess, with the river intervening between us and the last two. The columns of steam rising from hundreds of openings have been compared, when looking down the river, to a fleet of steamboats at a levee all blowing off steam. To me the appearance more resembled that of some of the immense iron-manu-

facturing establishments of the country, such as that at Johnstown, Pa., for instance, though dissimilar in not showing any flame. During the afternoon Old Faithful continued its accustomed eruptions at intervals which, in seven instances observed, varied from 62 to 80 minutes, with an average period of about 67 minutes. The Saw Mill also gave examples of what it could do; its jet, though not large nor high, being remarkably beautiful and quite characteristic. Old Faithful threw its column of water to an estimated height of 125 to 130 feet and held it there for two minutes, while the Saw Mill sent up a series of puffs much like the exhaust of a high-pressure engine, but to a greater height than an engine would, and of water instead of steam, though there was much of the latter sent far above the water. None of the other geysers did more during the afternoon than to sputter and stew with an occasional spurt on a small scale, as if to indicate that they were ready to do their work when the proper time should come. We were constantly in hopes that both the Giantess and Castle would pass into activity, but neither got beyond violent ebullition. We had with us a copy of Ludlow's detail map showing the exact location of each of the prominent geysers, and had no difficulty in locating even the most obscure.

August 12.—We had our breakfast at 5.30 a. m., ready to visit and examine the entire series of geysers in the Upper Basin, and were so fortunate as to see the Castle, the Grotto, the Riverside, and the Fan in action before 9 a. m. The Little Giant, a small geyser, located near the base of the Giant, did its best, and was quite interesting, but is a small affair in comparison with what the latter must be when in full action, if the accounts of it are faithfully given. The Riverside astonished us by the duration of its eruption, which was more than ten minutes. The Fan was very beautiful, but not so long sustained. We also visited the Pyramid, the Punch-bowl, and the Blacksand. The last gives no indication of geyser action in recent times, but is a spring of wide area, great depth, and as beautiful water as it is possible to conceive of. It is nearly surrounded by a pile of black sand, which fact serves to give it a name. The discharge of water from it is unusually great.

At about 1 o'clock this morning we were awakened by an eruption of the Beehive, which was grand even in the darkness of midnight, and created a hope that we would be so fortunate as to see it in full action by daylight. By 10 a. m. the Giantess was much disturbed and gave indications of an eruption, which we greatly desired to witness.

At 3.20 p. m., after a stay of twenty-seven hours, we struck our camp and started upon our return to Fort Ellis. After making about six miles we went into camp at 6 p. m.

Just as we were about starting the Beehive sprung into full activity, throwing a splendid column to a height greater than any we had yet seen. The force of ejection was so great that the mass of water was broken so as to be almost indistinguishable from steam, of which the column was largely composed. When in action the column is thrown as directly upward as if shot from a gun with its axis vertical, and is graceful and beautiful to such a degree as to warrant its being rated with the geysers of the first class. It appears to have an interval of about fourteen hours, as determined by observing two intervals.

Our stay in this locality was full of interest, and we were so fortunate as to see every prominent geyser in action except the Grand, the Giant, and the Giantess. All are beautiful, some are grand, and a few almost sublime, while all are interesting. The mere tourist will naturally derive more pleasure from the well-named Old Faithful than from

"BEEHIVE" IN ACTION.

"Old Faithful" in action.

y other, because of its great beauty, and the frequency and regularity its action. It is cordially recommended as worthy of all confidence. The region of these geysers has been aptly named Fire Hole, and one most wonders that in this country, where the tendency is to name atural objects after men who have a temporary prominence, this interesting place and its assemblage of wonders should have so completely escaped, and in general and in particular received names so very appropriate.

On our way to our new camp we crossed the river and visited the Hot Spring Lakes, situated on the left bank and about five miles below Old Faithful. These are chiefly remarkable for their dimensions and the volume of water flowing from them. One of them is situated in a chasm, the surface of the water, except on the side next the river, being about 10 feet below the surface of the rock. The outlet is on the side next the river, where the upper surface finds the level of the lower. The discharge is very great, far beyond that of any other spring we saw. The sides of the chasm, and for 20 feet back from the edge, give positive indications of geyser action. To see it in full play must be the event of a life-time, and dwarf into insignificance all the other geysers of the region.

August 13.—At 6.30 a. m. we resumed our march, passing the lower Geyser Basin soon afterward without stopping. At that early hour the whole region was covered with steam. Numbers of wild geese were seen, and a short distance beyond we started three elk, the first we had seen. To these Colonel Bacon and one of the soldiers gave chase, but without success. Upon reaching the point where we had entered the marshy prairie, near the head of the East Fork of Madison, we diverged from our previous route and bore off to the left, surmounting with much labor the steep hill to the westward of Mary's Lake, and passing along the northern side of that beautiful sheet of water, the outlet of which is to the westward. Soon afterward we passed the divide between the waters of the East Fork of Madison and those flowing into the Yellowstone by way of Alum Creek. Upon the headwaters of the latter we passed numerous hot springs and sulphur jets, which we took to be part of the same series passed on the outward trail a few days before, and which aid in impregnating the waters of Alum Creek, so as to make them unfit for drinking purposes.

At 12.30 p. m., after making about fourteen miles, we went into camp in a ravine, in the dry bed of which were occasional pools of good water which had filtered through the rocks. We had plenty of good grass for the animals, and wood for fires, but found the mosquitoes and flies quite annoying for the first time since coming into the Park, though from the accounts of previous visitors we had been led to think we would be constantly disturbed by them.

August 14.—At 6.30 a. m. we took our course for the mouth of Alum Creek. The trail, if any existed, was so obscure that we did not pretend to follow it, but kept our way along the north bank of the creek. Our way led past the point marked "Hot Springs" on Barlow's map, and we struck our former trail just north of where it crosses Alum Creek, and taking that we went into camp at 10 a. m. in a point of woods on Cascade Creek, near our camp of August 8. It was the site of Colonel Sudlow's camp of August 17, 1875, as ascertained by marks on one of the trees. Distance made during the march, about twelve miles. We rested during the greater part of the day, and taking an early supper, the general, Tom. Sherman, and myself walked down to the Falls of the Yellowstone to take another look at them. Tom. went to the Upper Fall,

while the general and myself walked along down the brink of the cañon to a projecting rock which we reached by an isthmus of great height, but little breadth. From this rock we had a splendid view of the Lower Fall and the cañon, and, fortunately for us, the setting sun, which had been obscured by a thunder-cloud, broke through and lighted up the cañon, giving to the sides of it all those brilliant hues which others have so enthusiastically described. It is probable that the cañon and falls were never seen under more advantageous circumstances. No description can do justice to the beauties of the scene, and no painter has pigments of sufficient brilliancy and delicacy to depict them. They are exceptionally grand and incredibly wonderful. The rain which had fallen made all the vegetation wet, and we returned to camp thoroughly soaked and uncomfortable, but feeling well repaid for our discomfort.

We made no attempt to descend into the cañon, a feat which has been accomplished at different points by several individuals. The labor of a successful descent into its depths must be very great, and the compensation quite inadequate. For the purpose of obtaining data in regard to the vicinage, the attempt is warranted; for the mere gratification of curiosity, it is not.

August 15.—The morning broke very cold. Frost covered the ground in all directions, and ice of considerable thickness had formed upon the water in our only water-pail. It was more particularly remarked, because the morning of the 9th, in our camp within a few rods of the spot where we were now in camp, had opened with a similar experience. The consequence this morning was, that we did not move with our usual promptitude, it being 6.50 o'clock when we got fairly started. We followed our outward-bound trail without deviation, reaching the crest of the spur of Mount Washburn at 10.15 a. m., where we rested for half an hour, and then struck out at a lively pace for our camp of the 7th on Strawberry Brook, which we reached at 1.10 p. m., distance 18 miles. Colonel Bacon went hunting without success, while Tom. Sherman went fishing and brought back a fine string of trout, caught at the junction of the East Fork with the Yellowstone. General Sherman and myself walked down the trail about a mile, to a point where a very respectable wooden bridge had been built across the Yellowstone by the well-known Jack Baronet. This bridge is about half a mile below the bridge indicated upon Barlow's map. The latter had been destroyed, only traces of the abutments remaining, and the former was the one in use by the miners of Clark's Fork.

During the day frequent squalls of rain occurred. The clouds looked very threateningly, but the rain-fall was little more than a heavy mist. When no clouds interposed to cut off the direct rays of the sun the temperature was very high, but no sooner were the sun's rays obstructed than the temperature fell so much that the air was chilly. At night, the use of four blankets was necessary, and even then did not always prevent cold sleeping.

August 16.—It was 6.40 a. m. when we started for the Mammoth Springs of Gardner's River. The trail was the same as the outward one, to the crossing of the muddy creek referred to under date of the 7th. On the return, it was a hard road from the head of Pleasant Valley to the top of the ridge, the ascent in about two miles being between 1,800 and 1,900 feet. From that point to where it strikes Falls Creek, or the East Fork of Gardner's River, the trail is good enough, but from there to the springs, especially that portion leading down the cañon of Falls Creek, it is very bad. At 1.30 p. m., having marched about eighteen miles, we reached the Mammoth Springs, and found our wagons already

there, and our camp comfortably established. After we had rested a little and had some lunch, we started out to see the spring which had been well named "Mammoth." The mineral constituents of the springs have formed hills which almost rise to the dignity of mountains, the faces of which are fashioned most curiously into successive basins, by the deposition of material to form rims, the interior being usually shallow and filled with water of a temperature depending upon the distance from the source of supply. The basins have a comical resemblance to bath-tubs, and are arranged like steps, the lower ones being filled by the overflow from those above. Tom. Sherman and myself strolled some distance up the face of the spur upon which the formation occurs, and found it to consist of a number of parallel ridges rising to a height of from 10 to 30 feet, with a direction nearly northeast and southwest. Upon examination we found that every one of these ridges was cracked along the crest, and frequently views of hot water were had through the cracks. In some places the hot water appeared as springs, and had deposited material so rapidly as to inclose or surround trees, and in one case that we noticed, some of the branches of a *yet living* tree were so included in the deposit. Where such deposition had taken place, numerous little springs, rigidly following the direction of the crack in the other portions of the ridge, marked the line. This is notably the case at the so-called "Cookery." We thought the parallelism of the ridges a remarkable feature, as well as the *cracks* along their crests, extending to unknown depths. The material composing the ridges was itself originally deposited by hot springs, but evidently not exactly as we now find them, for the cracks are the result of subsequent action of some kind. What this was, others must determine. We also fancied that we could trace the same law of direction in the present active springs of large size, but we did not carry the investigation far enough to verify this.

At the base of the hot springs formation, but somewhat detached, and composed of altogether different material, stands the "Liberty Cap," apparently the cone of an extinct spring—possibly geyser. It is probably thirty-five feet in height, and is a notable object.

Mr. J. C. McCartney with laudable enterprise has erected a "hotel" upon a small branch of Sweetwater on the northern side of the hill, and a couple of bath-houses near the eastern base of the "bath-tub" formation. These bath-houses are supplied through troughs leading from the hill-side. We tried the baths, of course, but found them less agreeable than those at Hunter's, 45 miles east of Ellis. Judging from appearances the hotel-keeper has scant patronage—discouragingly so. Besides McCartney there were two persons there at the time of our visit: one an invalid taking the waters and baths, the other his attendant. One branch of McCartney's business is the sale of baskets and other objects which have been encrusted by exposing them to the action of the waters. These trinkets looked beautiful, but seemed to be very frail.

When we were near Black Tail Deer Creek, we met a couple of citizens who gave us the first information of General Gibbon's fight with the Nez Percés, at or near Big Hole, on the 11th instant. As told us, Gibbon and others had been wounded, Captain Browning and others killed, and Gibbon's supply-train captured. The information disturbed s much, for the meager details indicated disaster.

(NOTE.—It was at this spot that a few days later Mr. Dietrich was lled by these same Nez Percés, who had attacked Dietrich's party in e park and scattered them. He had escaped, but delayed at the

Mammoth Spring, for some purpose, where the Indians again came upon him with fatal result.)

August 17.—Anxious to get within reach of further news of General Gibbon's fight, we got started at 6 a. m., and at Henderson's Ranch about seven miles below found a package of newspapers awaiting us with telegrams of the latest date, as well as dispatches from the commanding officer of Fort Ellis. These gave more definite information, and relieved our minds as to Gibbon's safety, though it was evident he had had a hard fight and had lost heavily. When we reached Second Trail (or Miner's) Creek, we halted for lunch and an hour's rest, and then pushed on to Bottler's, 34 miles, reaching there at about 2 p. m., and went into camp, intending to make Fort Ellis next day.

August 18.—At 6.15 a. m. we left our camp at Bottler's, traveling along rapidly, with, the usual rests, and reached Fort Ellis at 3 p. m. of the appointed day. Distance, 35 miles.

While *en route*, at about the point where we camped on the evening of the 4th of August, we met a party of tourists going into the park under the general direction of a Mr. Dietrich, of Helena. We halted in the road for probably twenty minutes and gave them what information we had concerning the movements of the Indians, as well as some suggestions concerning their proposed tour. They gave us newspapers of later date than any we had, and we parted with mutual good wishes.

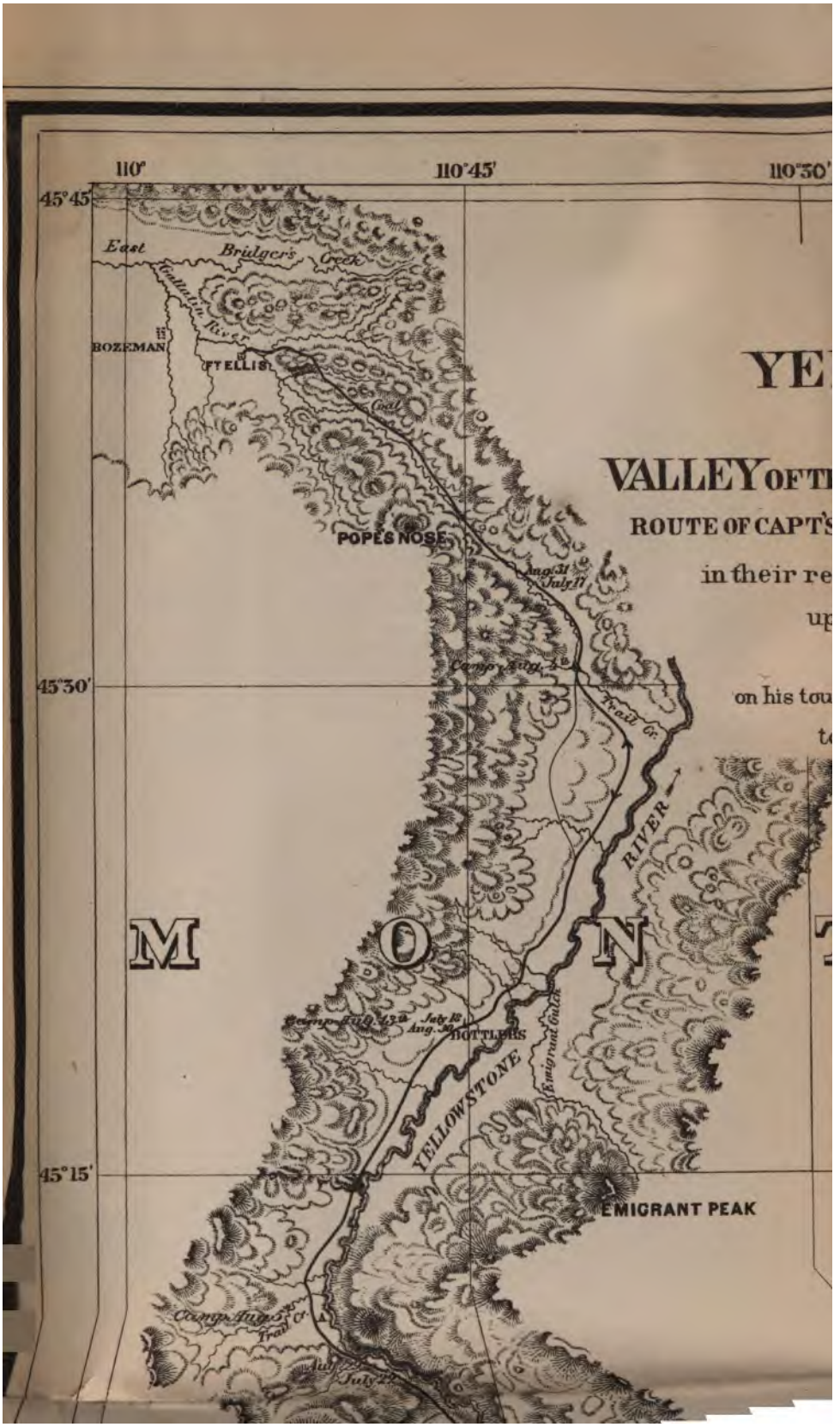
(NOTE.—This party was attacked by the Indians in the Park and scattered, one of the number, Mr. Weikert, being killed. Mr. Dietrich was afterward killed at the Mammoth Spring, as related in the note under yesterday's date.)

The distances given above are all estimated, and foot up 285 miles. I think this too small in the aggregate, for the whole distance travelled by us cannot have been much, if any, less than 300 miles.

The trip was made as easily as it is possible to make it at present, yet it was a very hard one, especially upon the *personnel* of the party. The animals fared much better. Everywhere, except at the Upper Geyser Basin, there was plenty of grass, and some grain was fed them, except on one night and morning. This was done by the exercise of foresight in caching a sack of oats at Strawberry Brook, and another at Cascade Creek, as we were going to the geysers, and picking them up on our return. This assured us the oats, and obviated the necessity of carrying them any further than absolutely necessary. The pack-mules were inferior animals, but lightly loaded and well cared for, which enabled them to make the trip and return to Ellis in better condition than when they left. They made 69 miles in the last two days, without the slightest symptoms of distress.

We saw but little game in the Park, though the grazing appeared to be of the very best, and the mingling of glade and forest, of mountain and prairie, just that which game would be likely to haunt.

It is evident that, under the present system, it will be a long time before the roads into and through the park will be improved so that vehicles can make the tour. At this time they can be taken by a good road from Fort Ellis to the northern boundary of the park, and they have been taken from Virginia up the Madison to the Lower Geyser Basin by a road the exact character of which is not known to me. The whole park being reserved, individuals will not go in and improve the routes, or put up and maintain the lodging-places required to enable tourists to dispense with pack-trains and camp-outfit. But if the laws establishing the National Park were so modified as to reserve only the natural objects of interest, and the lands be thrown open to settlement,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improvements through private enterprise would follow. And it is not likely that they will ever be made in any other way. It is improbable that Congress will make such appropriations as would be required to open up roads, even if persons could be found who would then be willing to go in and build lodging-places upon lands of which they did not own the fee, and supply means of transportation from point to point. If I am correct in this, those who want to see the undoubted wonders of that region will do well to go at once, instead of waiting for better facilities, which may and probably will be long deferred.

From Fort Ellis to Helena, thence to Fort Benton, and return to Helena.

The 19th and 20th of August were spent at Fort Ellis, turning in to the proper department our saddle-horses and such other property as we did not care about taking any further with us, and in necessary preparation for the continuation of the journey, which for a couple of weeks was to be within the limits of a comparatively settled country. The two ambulances and the light baggage-wagon were to follow us to Helena, while we were to go there by stage, the proprietors of the line volunteering to carry us the whole distance, 106 miles, in one day, our vehicles meanwhile moving at a slower rate, aiming to reach Helena in four days. Accordingly, the Helena stage had been driven out to Fort Ellis to remain all night of the 20th, and we were called on at 2 a. m. of *August* 21.—After an excellent breakfast at Major Benham's, we mounted the stage at 3.30 a. m., one of the proprietors of the line, Mr. Clarke, himself occupying the box, and acting as driver; we started at once, and it soon became evident that Mr. Clarke was going to put us through at unusual speed. Additional stock had been put upon the road, and preparations made which indicated a determination to give us a lively ride. The coach carried eigh persons: our own party of four, Mr. Wilson of Bozeman, a gentleman from Helena who was returning to that place, Mr. Clarke, and the regular driver. The time passed rapidly and pleasantly; the roads were good and the day fine. At Cockrell's we took another breakfast, dinner at Radersburg, and supper at Mitchell, a station 15 miles east of Helena, expecting to reach that town at about 7 p. m. Here Mr. Blaine Walker, with his two sisters, met us, and took Tom. Sherman from the stage, to carry him into town and to their house, where he was to be a guest. Subsequently two more carriages met us, in one of which was Governor Potts, Major Maginnis (Delegate in Congress from Montana), and Mr. Broadwater. General Sherman and myself were taken into this one, while Colonel Bacon got in another, with its occupant, Mr. Meyendorf.

We reached Helena coincident with the stage, thus making the trip in fifteen and one-half hours, including all stops. For about half the distance from Fort Ellis, the stage was drawn by four and for the remainder by six horses. General Sherman became the guest of Governor Potts, while Colonel Bacon and myself, declining an invitation from Mr. Broadwater, went to the Cosmopolitan Hotel.

Although the road from Fort Ellis to Helena passes through a mountainous region, yet it is located upon comparatively level ground; it is hard and good, and just enough rain had fallen to lay the dust, which cannot be great at any time, however. Much of the scenery along the route is very fine, especially the view of the valley of the Missouri obtained from the Crow Creek Divide. In the evening we all visited the wounded officers of General Gibbon's command, who had been brought thus far on their way to Fort Shaw. These were Captain Williams, and

Lieutenants Coolidge and Woodruff, of the Seventh Infantry. Lieutenant English, more seriously wounded, had been left at Deer Lodge, and General Gibbon himself was staying at the Helena Hot Springs, about four miles from the town. We saw the three first named, and found them remarkably cheerful, making light of wounds which were far from trivial.

August 22.—In the morning Major Maginnis and Mr. Maclay drove Colonel Bacon and myself to the Hot Springs, to call upon General Gibbon and family, where we found General Sherman. Afterward we visited the gold-diggings, just north of the town, the smelting-works, and the assay-office. The diggings were especially interesting, since neither Colonel Bacon nor myself had ever seen the process of placer-mining before. The latter part of the afternoon was spent in obtaining some rest, which was sadly needed.

August 23.—The day was spent in driving about the neighborhood of the town, and in responding to the hospitality of the citizens, tendered us in every direction.

August 24.—Having made a special arrangement with the stage-line to Benton, by which we were to leave that place on Sunday, on our return, instead of Monday, and spend the day thus gained at Fort Shaw, we left Helena at 5 a. m., the stage drawn by four horses carrying our own party of four, and in addition Major Maginnis, who was going to make the round trip with us. The stage started at the moderate pace of about five miles per hour, which was maintained with great uniformity throughout the trip. The "stages" varied from 18 to 28 miles, and as the stock of the line was not fed grain, but depended altogether upon grazing, we had to wait at each station until the relief stock was brought in from the pasturage. If the horses were found without difficulty, this usually took about an hour, but if they had strayed any, a greater length of time was required to get them up and make the change—in one case as much as three hours. We took breakfast at Helena, dinner at Wolf Creek, and supper at Eagle Rock, reaching Fort Shaw, 82 miles from Helena, at 11 p. m. This was the northern terminus of the telegraph-line, and the general stopped for an hour to receive telegrams and send others, after which we continued our journey.

During the day the ride was devoid of any special interest, except through Prickly Pear Cañon, where we had been informed we would find the finest scenery in Montana. But because our expectations had been unduly excited, or from some other cause, we were somewhat disappointed. The cañon is beautiful, almost grand, but no more so than the scenery at many other points we had visited. Nearing Fort Shaw, there are many so-called buttes, which give evidence of violent volcanic action in times long past. Among these, one of the most striking is the Bird Tail, a sharp detached mass of rock, which is conceived to resemble a bird's tail erect and spread out in fan-shape. It gives a name to the divide between Flat Creek and Bird Tail Creek.

August 25.—We left Fort Shaw only a few minutes after midnight for Fort Benton, and reached Twenty-Eight Mile Springs in time for breakfast.

Except in the immediate vicinity of Sun River, the entire road from Fort Shaw to Fort Benton, 63 miles, is over a rolling and generally treeless plain, with plenty of grass, but long stretches without good water. Although it was dark when passing it, we could see in the Sun River region indications of a better country, good farms with creditable improvements. At 1 p. m. we reached Benton, which is a small village, but seems to be a somewhat busy one, situated at the head of steamboat

navigation on the Missouri. Freight to the amount of over five thousand tons was brought to this place by steamboats during the season of high water, and distributed to the surrounding country by the method of "freighting" in vogue throughout all this region. The river had fallen so low that no more steamers were expected, and subsequent freights would have to be landed at Cow Island, about one hundred and twenty-five miles below, and hauled thence to their destination. The quantity of freight delivered at Benton by steamers is yearly increasing, and the point must always be an important one to the shipping interests not only of our own territory within reach, but of the British territory to the northward. The population of the place was said to be about twelve hundred, but it is doubtful if there are more than six hundred permanent residents.

The name of the village is derived from a fort many years ago established upon the site by the American Fur Company. This was built of adobe, upon a rectangular trace, with block-houses at two of the diagonal corners, and inclosed the storehouses and dwellings required in their business. The fort was subsequently occupied for some years by United States troops, but falling into dilapidation, it has latterly been abandoned for such purposes, and the troops are quartered in hired buildings in the village. The garrison consisted of half a dozen enlisted men of the Seventh Infantry, under command of Maj. Guido Ilges. The garrison was supposed to consist of one company, but the remainder had been detached for the campaign of General Gibbon against the Nez Percés, and had not yet returned. We staid in the public quarters, the guests of Major Ilges.

On the way up a portion of the party had been made quite ill by drinking the water of Twenty-Eight Mile Spring. Strangers passing over the road between Shaw and Benton should carry drinking-water with them.

The whole afternoon was spent in looking about the village, in inspecting the buildings occupied by the garrison and those comprised in the old fort, and inquiring into the business and resources of the place, with a view to their relations to military operations. Because of its relation to the navigation of the Missouri, and its proximity to the border of the British possessions, it must for many years be an important point; and pending the construction of a railroad into the heart of Montana, it must necessarily be the *entrepôt* of a considerable portion of the freight intended for Helena and points to the westward.

August 26.—At 6.30 a. m. we left Benton for Fort Shaw. The day was cold enough to require heavy overcoats, and those who rode on the outside of the stage found it necessary to wrap in double blankets in addition. Very tired and dusty, we reached Fort Shaw at 6.30 p. m. The view of the Sun River country by daylight did not fully confirm our expectations, still the region was about the best we had yet seen in Montana. The soil is very fertile, but of course requires irrigation, when it produces enormously, especially wheat and oats, of which sixty bushels of the former to the acre is not an unusual crop. The immediate valley is comparatively narrow, but has considerable length. The river itself is one of the principal branches of the Upper Missouri; and where we crossed it is perhaps 200 feet in width, with water as clear as crystal, running over a gravel bottom. It affords the very best of drinking-water, a great relief after the alkaline water, which alone is found between Fort Benton and Sun River crossing.

August 27.—After a good night's rest and breakfast after sunrise (almost an exceptional case), Major Freeman, commanding the post of Fort

Shaw, at 9 a m. drove us about 6 miles up the valley of Sun River, the head of the irrigating-ditch which supplies the post with water, a back to the post again. This system of irrigation was projected General Gibbon, and the labor involved was performed by the troo It has been of the greatest benefit, enabling trees to grow on the para flowers about the quarters, and rendered possible the cultivation of fine post garden, said to be the only successful one on "bench land" Montana. There were fine potatoes, beets, turnips, cabbages, onio &c., growing when we were there, and in fact everything can be gro that will ripen in the same latitude in the States, and usually of t finest quality. We were deeply impressed with the magnitude of the u dertaking and the value of this ditch to the post. Looking up the vall of Sun River, the main range of the Rocky Mountains is seen, some or 40 miles away, and without "foot-hills" or outlying ranges of mou ains, a condition of things not elsewhere met with (it is said) betwe Denver and this point. The morning sun was brilliant; and the mou ains, seen through the clear atmosphere, seemed no more than five mi distant, so distinct were the ravines and rocks, and so bold were t lights, shades, and shadows.

For an admirable description of the post, the accuracy of which w verified by us on the ground, reference is made to the paper prepar by Surgeon F. L. Town, United States Army, and published in Circ lar No. 4, Surgeon-General's Office, 1870.

At 6 p. m. the stage left Fort Shaw on its regular time, and we climb into it with vivid anticipations of the discomfort of an all-night's ri in the cramped position inherent to that mode of travel.

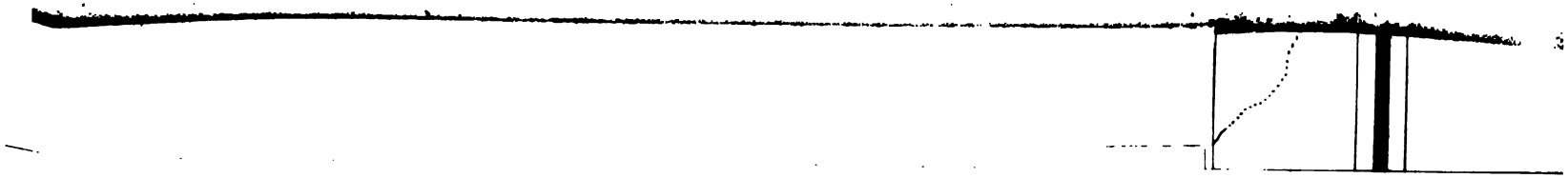
August 28.—Much of the journey from Fort Shaw back to Helena w devoid of interest. We breakfasted at Wolf Creek soon after daylig and reached Helena at 12.45 p. m., distributing ourselves to quarters before.

Previous to leaving for Fort Benton we had heard startling rumo of discontent among the Indian tribes to the northward, the defini statement being made that the stage-stock at Twenty-eight-mile Spri had been stolen by them. We took no precaution, however, beyond carr ing a couple of rifles, with ammunition, for our inquiries failed to confir these rumors, and when we reached Twenty-eight-mile Spring we fou the people there as ignorant of any outrages by Indians as we we ourselves.

Although we travelled through a country which a few years ago w famous for the abundance of the game frequenting it, yet we saw not ing more than a few sage-hens. In the neighborhood of the mouth Sun River, and for some distance below, the expedition of Lewis a Clark had been so much annoyed by bears that they found it necessa to organize a regular campaign against them. We did not even he of a bear.

The great plains between Sun River and Fort Benton (extending f to the northward of that point), once the haunt of countless numbers buffalo, will become the grazing-ground of equal numbers of cattle a sheep, and the country from Sun River to Helena will rival it in th regard; and this remark applies equally well to the region between Fo Ellis and Helena. though there is more farming-land along the road b tween these two places, especially in the Gallatin Valley and its neig borhood.

Along our route we occasionally passed the site of previous minin operations, but with few exceptions these have been abandoned.



From Helena, Montana, to Walla Walla, Washington Territory.

The afternoon of the 28th, and the whole of the 29th of August, were spent at Helena in preparation for the next stage of the tour, which was to be made as far as Walla Walla with our two ambulances and the light baggage-wagon which we had left at Fort Ellis, but which had reached Helena by easy drives during our absence at Fort Benton. We aimed to practically follow the line of the Mullan wagon-road from Helena to Walla Walla, and gained information from every source within our reach in regard to the nature of the route. At the best this was but meagre, the most definite being a sketch of the route from Missoula to Spokane Bridge, with a few memoranda, furnished by Lieutenant Woodruff, Seventh Infantry, who had passed over it three years before in company with Lieutenant Van Orsdale of the same regiment. All agreed in general terms that we would have but little difficulty as far as Missoula (or Bitter Root) Ferry, 90 miles west of the town of that name; that our trouble would begin there and continue to Coeur D'Aléne Lake, whence we would find the traveling easy. Expecting to gain further information at Missoula, we left Helena on—

August 30, at 8.30 a. m., stopping at the Hot Springs to see General Gibbon. Governor Potts, and Mr. Hauser, of Helena, accompanied us that far, and Major Maginnis joined us there to go with us as far as Missoula. The road was dusty but not otherwise bad, and at about 10 miles from Helena we began the ascent of the main divide between the waters of the Atlantic and those of the Pacific. A very good road (toll) has been made over the mountain-range, the highest point of the pass being at an elevation of about 6,000 feet above the level of the sea. At 2 p. m. we attained the crest and began the descent, making good progress until we reached Frenchwoman's Ranch, where we were detained for an hour by a hot box on the General's ambulance, and at 6 p. m. went into camp at a beautiful spot on Dead Dog Creek, in the vicinity of coal-mines, whence coal of an inferior quality was then being mined. The distance made during the day was 35 miles. The road on the western side of the divide was even better than on the eastern, and from where it struck the Little Blackfoot was excellent. A singular instance of sagacity came to our knowledge during the day. Corporal Moeller, who accompanied us to Gardner's River, and was left there in charge of our vehicles and their teams, was still with us. He had left a shepherd dog securely tied at Henderson's Ranch, 7 miles north of the Mammoth Spring. Some days afterward the dog escaped from Henderson's, followed our trail to Ellis, 62 miles, and through that post to Helena, a distance of 107 miles farther, where he rejoined the teams, being quite a week on the road, which had meanwhile been traversed by many other teams. It was not so remarkable that he should have found his way from Henderson's to Ellis, his home; but how he there ascertained the route which the teams had taken, and how he continued to follow it to Helena, is a mystery.

August 31.—Left our camp at 6.20 a. m., taking the road for Deer Lodge, distant about 10 miles. From the top of the ridge overlooking Deer Lodge Valley the view is magnificent, the valley opening to its full extent in all directions, with the village of Deer Lodge seemingly at our feet, yet it required an hour and twenty minutes of hard, downhill driving to reach the town, which we did at 8.40 a. m., and found it quite a brisk little place, with evidences of prosperity on all sides. The most seriously wounded of those who had been in General Gibbon's fight of the 9th instant with the Nez Percés, at Big Hole Pass, had been

left here for treatment at a hospital established by the Sisters of Charity. We found this a handsome two-story frame building, a very model of neatness and comfort, and the wounded doing remarkably well under the kindly care and attention they were receiving. Each of the wounded men was questioned by the General, and without exception they expressed themselves satisfied with their treatment. The requisite surgical and medical attention was being given by Drs. Mitchell and Mussigbrod. Most of the wounds were severe, and in at least two cases amputation of the foot was likely to be necessary.

We lunched at the hotel in the village, and at 12 m. again took the road, keeping directly down Deer Lodge Creek by what is known as the river road, which we found good and level, with the exception of Cedar Hill, 11 miles from Deer Lodge, which was very steep. After making 35 miles for the day, we encamped on a ranch, near where the road crosses by a bridge from the north to the south side of the creek or river.

September 1.—Started from camp at 6.30 a. m., and at 8.45 reached New Chicago. At 11 a. m. we stopped for "noon" at Whitesides', just below the head of Hell Gate Cañon, distance 22 miles, and rested until 1.30 p. m., when we again took the road, and at 5.30 p. m. went into camp a couple of miles below Newman's. Whole distance 36 miles.

The road during the day was generally good. The portion over Flint Creek Hill is steep, though smooth and easy of travel at this season of the year. In the wet season there are few good roads in Montana. But per contra to this remark, it may be said that the natural roads in a fertile country are *always* bad at certain seasons. At Whitesides' we saw a very fine garden, filled with the largest and best-looking vegetables we had yet seen. The cabbages were especially noteworthy; large, solid, and with a flavor and delicacy never known in the Eastern States. After some experience in Montana vegetables, as well as those of the Territory of Washington, and the States of Oregon and California, it may be safely said that the championship should be awarded to those at Whitesides'.

The river is called the Hell Gate from some point below the junction of Deer Lodge Creek with the Little Blackfoot. But many do not accept this name, and continue that of the Deer Lodge. The result has been a certain amount of confusion, which will be found to increase farther on, and to which reference will be made at the proper time.

September 2.—Starting at 6.20 a. m. we reached Baker's at 7.35, and by 10 had crossed Big Blackfoot at its mouth, after a march of about 18 miles. A portion of the road is made around some mountain-spurs, running well up on them, and though always narrow, and occasionally steep, is smooth and hard. The bridge over Big Blackfoot near its mouth was gone, but we forded the stream without difficulty. Its volume appears to be very nearly as great as that of the Hell Gate, and is tolerably clear, while the latter is made muddy by the washings from miners to such a degree as to almost unfit the waters for drinking. Resting on the west bank of the Big Blackfoot until 12 m. we again drove ahead and reached the town of Missoula, 6 miles distant, at 1 p. m., and the post of Missoula, 4 miles farther, at 2 p. m. Whole distance travelled during the day about 27 miles.

The town of Missoula is a brisk little place of three or four hundred inhabitants, situated on the north (right) bank of the Hell Gate River just below the mouth of Rattlesnake (or Observatory) Creek, and only a short distance below the western end of Hell Gate Cañon, which has a total length of about 38 miles. It has a bank, a weekly newspaper,

several fine stores for general merchandise, a tavern or two, a grist-mill driven by the water from Rattlesnake Creek, and is connected with the south side of the river by a truss-bridge of wood, the largest structure of the kind we had yet seen in Montana. About 6 miles below (west from) this bridge the Bitter Root River, coming from the south, joins the Hell Gate, their valleys forming what is called Hell Gate Ronde. The village is therefore at the eastern edge of the ronde, which is about 25 miles in length from east to west, with a breadth varying from 3 to 5 miles.

September 3.—Was spent at the post of Missoula. In the morning the General examined the ground upon which the post is being built, and the buildings in process of erection under the supervision of Captain Rawn, Seventh Infantry, commanding the post. The original design contemplated quarters for one company of infantry and the store-houses and other buildings required for the service of such a garrison. The result of the General's examination was an enlargement and re-arrangement of the plans, so as to provide for a garrison of four companies of infantry. This grew out of the fact that the real importance of the point for military purposes had apparently been underestimated, judging from the preparation being made for its occupation. The site of the post is on the right (east) bank of the Bitter Root River, two or three miles above its junction with the Hell Gate. It occupies a central position with reference to the Bitter Root Valley, the Hell Gate above and below, the Jocko, and the Lo-Lo trail, which débouches into the Bitter Root Valley in plain view only a few miles to the southward. A strong force stationed here can readily operate in any direction in the most efficient manner.

After deciding upon the character of the post to be established, a rough sketch of the new arrangement was made and copies sent to the proper persons. The force intended as an escort for the General, from this point to Walla Walla, had preceded our arrival by an hour. It was composed of parts of companies E and L, of the First Cavalry, under command of Captain Winters, First Lieutenant Forse, and Second Lieutenant Shelton, of that regiment, and numbered 56 men, with pack-mule transportation. It had came over the Lo-Lo trail from Mount Idaho, 165 miles distant, in five days, and upon inspection was found to be in good condition, notwithstanding its hard march.

Inquiries concerning the nature of the several routes to Walla Walla confirmed the General in the belief that it was possible to take our wheel transportation over the Cœur d'Aléne route (Mullan road) and indicated the impossibility of doing so by the Lo-Lo trail. Several persons who had been over the Cœur d'Aléne route spoke very discouragingly of it, but nevertheless preparation was made for the attempt. A good supply of axes was obtained, and what picks and shovels were deemed necessary. Among other articles which it was thought best to take along was a grindstone, and this afterward proved to be of great service; indeed was so much so, that without it our other preparations would have availed nothing. Crosscut-saws were entirely forgotten; a serious oversight.

Information pointed to the difficulty of obtaining forage for the animals between Missoula and Cœur d'Aléne Mission. Therefore two four-horse teams were hired to carry oats for the animals of the escort, our own vehicles carrying what was required for our teams. Before night every thing was in readiness for a start next morning. Accordingly we left the post of Missoula on—

September 4—at 8.30 a. m., the "outfit" being composed of our own

party of four, with each of the three vehicles driven by the same citizen-teamsters that had been with us from the Bighorn, the escort with its pack-train of 29 mules, and the two four-horse teams referred to above. We also undertook to carry with us four men of the Fourth Artillery and two of the Twenty-first Infantry, who had been left behind sick by General Howard's command, but who were now convalescent and were to go to their respective posts. We stopped an hour at the village of Missoula to make some necessary purchases, and at 10.30 were fairly off for Walla Walla, the escort and pack-train having gone ahead without halting. Traveling rapidly down the river by a good road we soon passed the escort, and reached Frenchtown, 17 miles from Missoula, at about 1.30 p. m. Here we stopped for about three-quarters of an hour to have a shoe drawn from the foot of a lame mule and to let the teams rest.

Frenchtown is so called because the original settlers were Canadian-French, but its hundred and fifty inhabitants are now sufficiently cosmopolitan for a much larger place. We saw there Indians of the Flathead, Spokane, Nez Percé, and, possibly, Kootenay tribes, Canadian-French, Irish, Germans, Yankees, Chinese (both Cantonese and Tartar), Negroes, and Spaniards. How many other nationalities were represented in this small population we did not ascertain, but these we saw. The village has a store, some saloons, &c., and a fine grist-mill. The storekeeper, a Canadian-Frenchman, is the principal property-holder. He showed us through his establishment, wherein he had quite a stock of goods and a quantity of furs, showing that this is a point where the fur-trade still lingers. We looked more closely at the village, because it was the last one in the direction we were going until we should strike the settlements in Washington Territory, many a weary mile ahead of us. After this, we made six miles farther, and at 3.30 went into camp, on the west side of Six-Mile Creek, opposite Schaeffer's ranch, the day's march being 27 miles. The road thus far was continuously in the valley of the river, which below the mouth of the Bitter Root is now sometimes called the Bitter Root and sometimes the Missoula. It is first called Deer Lodge, then Hell Gate, then Bitter Root or Missoula, according to fancy, and lower down Clark's Fork of the Columbia. The result is a constant confusion of names. Probably the correct name is the only one no longer given it, namely, that by which it was known to the Indians previous to the Lewis and Clark expedition. But if the Indian name is thought to be too barbaric, certainly all might agree upon some one of the many names now used, and none would be prettier than Missoula.

September 5.—Started at 7.10 a. m., having waited in camp until the escort got well ahead. For about 12 miles the road closely followed the river bank and was tolerably good, then for a couple of miles was more difficult. It rose to the mountain-side at a point nearly opposite the mouth of Moose Creek, and for 8 miles was very bad, especially the ascent to the mountain and descent to the "bench" again. In ascending it was necessary, for the first time on our trip, to double teams on the wagon, and in descending to lariat each of the vehicles to prevent an upset. After making 22 miles, we went into camp at 2.30 p. m. at a fine spring on the river-bank, where there was plenty of wood and water, but no grass.

September 6.—Started at 6.30 a. m. For the first three miles the road was fair. It then became necessary to diverge from the river, keeping the original location of the Mullan road, in order to avoid a bad "slide" on what is known as "Brown's cut-off," which follows the river-bank. The route was up a steep and high mountain, following a small stream

nearly to the summit, and then down an equally steep slope, where the track was badly washed in some places, to "Cayuse ranch." This détour was about 5 miles in length. Loisseau's ranch, 14 miles, was passed at 11.30 a. m., and Berry's, 19 miles, at 12.30 p. m. We reached Halpine's, 26 miles, at 2.30 p. m., and went into camp. Here we were able to obtain plenty of hay and oats, and made a splendid camp. The amount of timber has been constantly increasing ever since we struck the eastern end of Hell Gate Cañon, and we now found pine-trees of four and five feet in diameter.

September 7.—A pioneer party, under charge of Lieutenant Shelton, started soon after daylight, and we followed at 7.15 a. m. At 9.30 we reached the ferry, 8 miles, by a good road, and found the ferry in good working condition. It is of the kind known as a "rope ferry," the rope being of iron wire. The boat has a capacity of 13 horses, or a four-horse team with a few extra horses, at a trip. By 10.15 the whole command had been ferried across the river. Just below the ferry there is a ford, and another a short distance below that. Either of these is passable in low water, but both are said to be difficult, and should never be attempted by a stranger.

For some miles from the ferry the road followed a gentle slope through a very dense forest, then for a mile the grade was steep to the top of Camel Hill, making it necessary to double teams. From the top of Camel Hill the road descended rapidly to a spring branch, and along that to the foot of the hill, from which, until Regis Borgia Creek was reached, it was comparatively level, but was somewhat obstructed by fallen trees. Then the road led up the creek, crossing it six times to the "Crow's nest," 20 miles from the ferry. It is level, and if much traveled would be good; but, when we passed over it, it was rough and much in need of repair.

After making 28 miles we went into camp at 5.25 p. m. at "Crow's nest," so called, not from any topographical peculiarity, but because at one time there was a crow's nest in a tall pine-tree at the spot. A ranch had been located here some years ago, but the owner had abandoned his buildings and improvements, and they were rapidly going to decay. We found plenty of wood, water, and grass at this place.

September 8.—A pioneer party, under command of Lieutenant Forse, started out on the road at 6 a. m., and we followed at 8 a. m. The road was found to be much obstructed by fallen timber, and a good deal of hard labor was required to clear it for the passage of wagons. The first 5 miles carried us to the "Packer's ranch," and was made in 1½ hours; but our progress afterward was much slower. We reached the summit of Cœur d'Aléne Mountain at Sohon's Pass at 3.40 p. m., 17 miles from our last camp, and 246 from Walla Walla by the Mullan road. The elevation of this pass is 4,932 feet above the level of the sea, and 2,804 feet above the level of the plain at the Cœur d'Aléne Mission. The ascent to the top of the mountain from the east was very steep and rocky, and the descent to the westward was still steeper. Just after leaving the foot of the mountain an ugly swamp was passed, and then the road wound along the north side of the north branch of Cœur d'Aléne River through a very dense forest. The large cedars of the Pacific coast began to make their appearance. At 6.30 p. m., after a very hard day's march, we went into camp at a point about 5 miles west of the summit and about 22 miles from our last camp. The woods were so thick that we could not turn the vehicles out of the road, but unhitched there, leaving the wagons standing where they were. We had plenty of wood

and water, and a picturesque camp, but there was no grass for the animals.

September 9.—The forest continued to increase in density, and the difficulties of the road were hourly becoming greater. It was reported that we might find it impracticable to take our wagons through a cedar swamp a few miles in advance. To fully satisfy himself on this point the General sent me ahead to examine the obstructions and report to him my opinion. Accordingly, Captain Winters and myself, passing the working parties, went down stream until we reached the "Jo Davies" trail, at the upper end of the swamp, followed this trail over the mountain spur to its débouche into the valley at the lower edge of the swamp, our examination showing this trail to be impassable for wagons, and that it could not be materially improved by the time and force at our disposal. We then worked our way back through the swamp, keeping as near as possible to the location of the Mullan road, and found that by following the bed of the river for the greater portion of the way, it was possible, without very great labor, to take the wagons by that route; a fact which was duly reported. Although the road was very bad, yet it proved to be practicable. The same difficulty was encountered at the next swamp, a short distance below, and was overcome in the same way. Many of the cedars in these swamps were as much as 10 feet in diameter, and they stood so close together, that it was impossible for a wagon to pass between them. Their size precluded any attempt to open a road by cutting them out of the way. The men worked very hard all day, but were only able to open the road for about twelve miles. After making 11 miles with our wagons, we went into camp on the south side of the river just after cros ing, again unhitching in the road because unable to turn from it, and having all the wood and water wanted, but no grass for the animals.

September 10.—For the first two miles from camp the road was comparatively unobstructed. For the next three miles, the labor involved in clearing the fallen timber out of the way was very great, and then for four miles more there was less to be done. Altogether the day's march was a hard one, and we were glad to get into camp at 5.30 p. m. at the upper edge of Mud Prairie, tired, wet, and hungry, having made a distance of about twelve miles. During the greater part of the day a drizzling rain had been falling, which added to the discomfort, and made pioneering a burden. At Mud Prairie we found good camping-ground, with plenty of wood, water, and grass.

September 11.—We started at about the usual time in the morning. The road led directly across Mud Prairie for about a mile, and then passed into the timber. This portion of the road was good enough when we were there, but in wet weather it must be almost impassable. The remaining portion to the Cœur d'Aléne Mission was good, and but little obstructed by fallen timber. There was one slough where the crossing was bad, and required a good deal of work to fit it for passing the wagons; and at another place it was necessary to pass into the bed of the river, and along it for two or three hundred yards, and then out on the same side. With a good deal of labor a road might have been made through the fallen timber and brush along the bank of the stream. At 11 a. m. we made the Mission, 10 miles distant from our last camp. Another has said of this Mission that "it has always proved to the weary traveler and destitute emigrant a St. Bernard in the Cœur d'Aléne Mountains." This remark was verified by us in the character of the weary traveler, and with thankful hearts we went into camp at the northwestern base of the hill upon which the Mission church stands.

By the Mullan road the Mission is 208 miles from Walla Walla and 75 from Missoula or Bitter Root ferry. It consists of a church, beautifully situated on a knoll of perhaps 20 acres which rises 82 feet above slack-water in the river at its base, or 2,280 feet above the level of the sea, and occupies a central position with reference to the mission valley. About the church are clustered the log-houses of the Fathers and their Indian converts in such a manner as to leave a rectangular plaza of perhaps 400 by 250 feet. The church is a frame building, and was erected entirely by Indians under supervision of the whites. The weather-boarding, as well as all other sawed lumber, was cut from the logs with a whip-saw. The valley in which the mission-farms are situated is about three-fourths of a mile wide (from north to south) and about three miles long. This is now too small and too difficult of access. For these reasons most of the Indians had gone to Camas Prairie, on the head-waters of Hangman's Creek, and the main mission would necessarily follow. Preparations were in progress to do so at an early day, though this will still be kept up as a branch of the mission for the benefit of the Indians who remain. From here to Lake Cœur d'Aléne the river has but slight fall, indeed, is but an arm of the lake, and therefore has a sluggish current. It is navigated by the mission people by means of a flat-boat, which was built in 1859 by Captain Mullan for a ferry-boat at the first crossing of the river above the mission. Although so old, the boat was still in good condition, and was to start immediately with a load for the southern end of the lake. At times of unusual freshets the knoll upon which the buildings stand is entirely surrounded by water, and stock has actually been drowned in the fields.

Under the supervision of the Fathers, the Indians have made considerable progress as farmers and rough mechanics, as the comfortable dwellings built by themselves, the well-filled barns, and good-looking live stock abundantly testified. We had no difficulty in buying plenty of oats, hay, beef, bacon, butter, cheese, chickens, &c., as well as all kinds of vegetables. The condition and prospects of these people are so much better than those of Indians generally, that one cannot help admiring a system that has produced such beneficent results. Originally so fierce and intractable as to have received the designation of Cœur d'Alénes (Pointed Hearts), they have been brought by the unaided labor of the Roman Catholic missionaries to a state of semi-civilization. The question naturally suggests itself, whether the payment of annuities and the support of the missions by the government would have resulted so satisfactorily. The mission was established in 1843, and one of the persons who accompanied the first party of missionaries, Brother McGill, is still there, as is also Father Joset, who came later, and who has been well and favorably known to the United States authorities for thirty years. The self-denial of these men and their complete devotion to the interests of their charge deserve the admiration of all. The entire afternoon was devoted to resting and feeding up the animals and in putting everything in condition for the reach from the Mission to Spokane Bridge. Late in the afternoon a two-horse team, drawing a light spring-wagon and carrying two men, drove into our camp, having followed us from Missoula; the first to use the road which we had reopened. Here the two four-horse teams which had been hired at Missoula to carry forage for the horses of the escort were discharged.

September 12.—From all the information we had been able to obtain at the Mission, we were led to believe that the road toward Spokane Bridge was very bad as far as the lake. In order to get them well in advance, the pioneers were started out soon after daylight, but we did

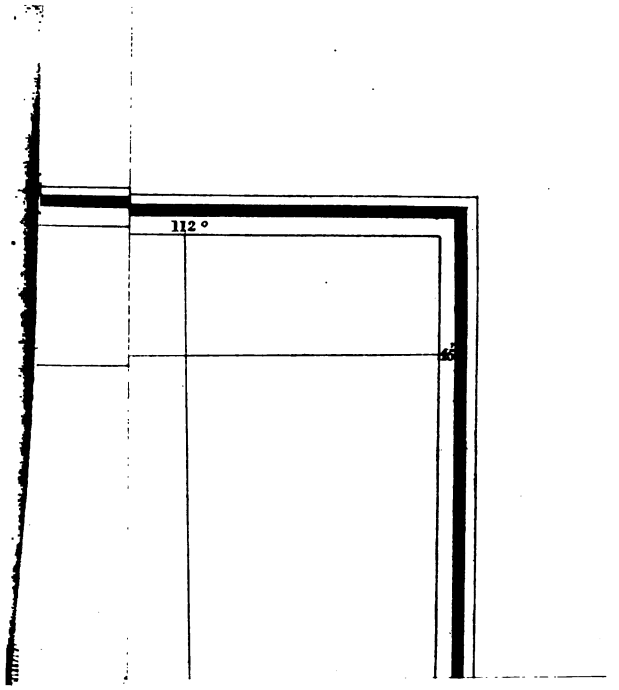
not move until 8 a. m., when by a mistake in the road we became some what involved in the marsh a short distance to the northwestward of the Mission. The leading team floundered in the mud, but succeeded in pulling through and making the hard ground beyond. The other two teams turned squarely to the right, thus avoiding the worst place, and reaching the road at the base of the hill, which we ought to have followed. In the spring the Mission people had opened the road for about seven miles to a place called "The Cedars," and we encountered but little difficulty that far, but soon afterward we struck a place where the road was located up a ravine, along the bed of a small stream. The water had carried away all the loose earth, and we were compelled to make our way, by the worst road we had yet found, over a bed of bowlders of all sizes, from 6 inches to 3 feet or more in diameter. This, with some bad road of another character, extended for about three miles. Beyond the rocky ravine there were some steep hills, where it was necessary to double teams. Progress was slow and the labor severe, but we finally at 6.30 p. m., reached our proposed camp at Wolf Lodge Creek, after a march of 18 miles, very tired and hungry.

September 13.—The morning was cold and wet, but we nevertheless got an early start, aiming to get beyond the bad road during the earlier part of the day. We reached Cœur d'Aléne Lake in 9 miles, the road proving to be villainous, but not quite so bad as during the latter half of the preceding day's march. From there to Spokane Bridge, 16 miles, the road was as good as a road could be—hard, smooth, and nearly level. We reached the bridge at 2 p. m., and went into camp on the south bank of the Spokane, and a short distance below the bridge. Distance 25 miles.

Cœur d'Aléne Lake is a beautiful sheet of water, in general features greatly resembling Lake George. It has sufficient depth to be navigable for steamboats. Its waters are clear and pure, and on its northern banks, near its outlet, the ground is level and dry, studded with pine trees, with some undergroth and grass, and is altogether as inviting a spot as we found on the entire trip. A few miles beyond the outlet of the lake (head of Spokane River) the road passed out of the timber and over the southeastern corner of the Cœur d'Aléne Prairie, which stretched out to the northeastward beyond the reach of vision.

The bridge over the Spokane is of wood, rudely built, and in appearance is not particularly reassuring as to its strength. The village is wholly on the north side, and consists of a couple of dwelling-houses, a trader's store (in which is the post-office) and a stable. All are built of logs, and stand within the limits of Washington Territory, the boundary-line of Idaho Territory passing a few hundred yards to the eastward. About a mile and a half above the bridge there was an Indian village of perhaps twenty log huts.

September 14.—With a prospect of good roads ahead, we started out at 6.50 a. m., taking a route along the south bank of the Spokane, with a view to visiting Spokane Falls, 18 miles down the river. For the greater portion of this distance the road passes over drift, and is nearly level. Before reaching the falls it rises over some low spurs composed chiefly of broken-down basalt, and winds amongst singular-looking cones of the same material, which are wearing away under the action of the elements. At 10 a. m. we reached the falls, where there is a small village with a saw-mill and the usual store and post-office. A grist-mill was under construction, and when completed will be of great use to the surrounding country. The supply of water-power is sufficient to actuate any amount of machinery that is likely to ever be established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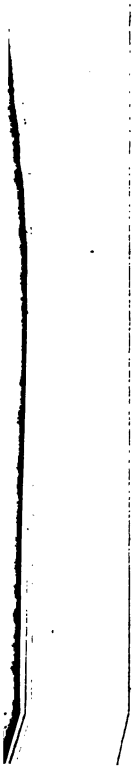


there. The falls themselves consist of a series of leaps, with intermediate rapids, the formation being basaltic lava. The total descent in about a quarter of a mile is said to be 156 feet, and completely prevents the further upward run of the salmon, the principal fishery for which, in this region, is at the mouth of Hangman's (or Camas Prairie) Creek, one and a half miles below the foot of the falls. A mission of the Presbyterian denomination is established at a distance of about one half a mile south of the falls, and was in charge of the Rev. Mr. Cowley. Upon his invitation, General Sherman and myself visited the mission, and dined with him. We found a pleasant family, with several unusually handsome children. Only one Indian family was then at the mission. Enoch, the head of this family, has built himself a house and a barn of round logs, and cultivated a garden and a few acres of ground in addition (though he was then living in a tepee near the missionary's house). In the garden belonging to the mission, Mr. Cowley had growing all kinds of vegetables, including corn, watermelons, tomatoes, &c.

Returning to the falls, we again resumed our march at 1 p. m., crossing Hangman's Creek a couple of miles above its mouth, and about three miles from the village; then we followed up its valley for a couple of miles; then up one of its branches, which headed almost south from its junction with the main creek; thence, by a winding road, to the upland, and finally struck the Mullan road, which we again left at Hoxie's, and at 5.15 p. m. camped on the eastern side of Filio's Pond, two miles beyond Hoxie's and one mile east of the Mullan road. This is probably the pond called Williamson's on Mullan's maps. Here we found plenty of water and a sufficient supply of wood and grass. Whole distance traveled during the day, 36 miles. About a mile below Spokane bridge we passed the spot where Colonel Wright, in 1858, killed the ponies captured from the Spokanes. The bones still form quite a pile, and the place is known to the people of the region as "Wright's Boneyard."

September 15.—At 7 a. m. we continued our way in a southerly direction, touching the Mullan road at a distance of about five miles from our camp, but immediately leaving it again, diverging to the eastward, and reached Pine Creek at 10.30 a. m., 16½ miles, and in 1½ miles further came to Butler's ranch, on Thorn Creek, near the southwest corner of section 33, township 20 north, range 42 east. The ranch is situated in the forks of Pine and Thorn Creeks. The Land Office map (1876) erroneously shows Thorn Creek as a branch of the Cottonwood instead of Pine Creek. Here we rested for nearly an hour, and then crossed Cottonwood Creek in 5 miles and reached our camp at Pleasant Valley in 3 miles further, or a march of 26 miles for the day. The camp was a poor one, with very little wood, water, or grass. It was a pleasant valley in name only.

September 16.—The night was very cold, ice freezing to a thickness of a quarter of an inch on the water in our bucket, and it was not until 7 a. m. that the temperature rose to 32° F. At 7.15 we resumed our journey, crossing Peluse River, 10 miles, at 8.30; Union Flat Creek, 14 miles further, at 12.45, and reaching our camp at Willow Creek, 8 miles further, or 32 miles in all, at 2.15 p. m. Here we found barely enough water, but neither wood nor grass. During the whole day the road had been very dusty, and the travel as uncomfortable as possible. At about 5 o'clock in the morning, before we had had breakfast, two Indians appeared in camp, having ridden all night from Spokane Falls to overtake us. One of these proved to be the chief, Spokane Garry (who told us he was so named because when a boy of fourteen he had been taken by

Sir George Simpson to Fort Garry and there baptized), who desired to talk with the General concerning the condition, wants, and desires of his people. He wanted a good deal—a large reservation which would include salmon-fisheries, farming-lands, hunting-grounds for both fur-bearing and food animals, &c., and to have the Cœur d'Alénes united with his people. He was very intelligent, talked English well, and stated his case as well as a shrewd lawyer could have done it. The General advised him to establish farms, and to support himself by agriculture, and to induce his people to do likewise. Another cause of complaint was that the use of nets in the waters of the Lower Columbia was destroying the fisheries of his people, and he was fearful that much suffering would ensue, because they had not been able to lay in the usual stock of salmon for the winter's food. It was explained to him that this matter was entirely beyond the General's control. It was impossible to hear this old Indian talk without feeling the greatest sympathy for him and his race. Some of us remembered that he had once tried war against the whites, for the purpose of redressing some of his grievances, but Colonel Wright had disastrously defeated him in 1858. He did not talk war now. His language was that of despair, not defiance. With the usual supply of fish cut off, it did seem as if starvation stared them in the face. No man could have spoken harshly to Garry, though his words were sarcastic at times, and even somewhat rasping. The fact is, there was too much truth in them. There is nothing for it, however, but for him and his people to forego their preference for the Camas, the salmon, and the food gained by the chase, and to be satisfied with the bread and meat of civilized men, obtained by their own labor. The General did all for them that was in his power, gave them the best of advice, and when we sat down to breakfast invited them to join us, which they did with appetites which showed that the white man's food was not altogether repugnant.

September 17.—The escort moved out at 5 a. m., and we followed two hours later, reaching McManaman's, 12 miles, at 9 a. m., and Texas Ferry (Snake River), 18 miles, at 10.20. The road was of the same general character as that for two days past, over a rolling, almost mountainous, and absolutely treeless region, and very dusty. For the last 16 miles it passed down a continuous and rapid descent along a wet-weather stream, which was then without water except in occasional holes. For more than half the distance the road was through a cañon, the sides of which afforded fine displays of basalt on each side. This was particularly the case at and near the ferry. The ferry itself is of the usual kind, a flat-boat swinging from a wire cable stretched across the river, and operated by the current. The boat was comparatively small and the crossing somewhat tedious, quite two hours being occupied in accomplishing it. For more than 2 miles after crossing, the road wound up a cañon, and was so steep that it took us an hour to make it. This ascent is a creditable piece of road-making, and, although difficult, could not readily be bettered. By 1 p. m. we had reached the top of the hill, and at 2.10 p. m. were at the crossing of Tukannon (Two Cañon ?) Creek, 6 miles from Texas Ferry. We reached our camping place, 6 miles further, at the forks of the Dayton and Waitsburg roads, at 3.45, a total distance of 30 miles. From the summit 2 miles south of the ferry to Tukannon Creek the descent was gradual, but for most of the way followed a narrow ravine. From the Tukannon to the summit on the south side is about 6 miles, but the ascent is easy. At our camping place we were met by a delegation of gentlemen from Dayton, who were provided with carriages to take us to that place, and urged the General

to accept their invitation, offering the hospitalities of the place, and pledging themselves to convey us to Waitsburg in the morning in time to intercept our escort and train. But the General, who was tired out and greatly needed rest, thanking them for their courtesy, declined to leave the main route to Walla Walla. To have accepted the invitation would have involved an extra ride of 10 miles, and he did not feel equal to it. There was not a stick of wood at this camp, and what fuel we used was hauled several miles. Water was scarce, but the grazing was good.

September 18.—The escort moved at 4 a. m. and we followed at 7, reaching Waitsburg, 11 miles, at 9.45 a. m., and Walla Walla, 30 miles, at 2.30 p. m., dismissing the escort in front of the Stine House. The road had been exceedingly dusty all day, and added its quota to that which had been accumulating for several days. Moved by a common impulse we made for a bath-house and barber-shop, whence we emerged looking much less like savages.

After leaving our camp we soon struck a settled country and frequently met teams laden with the families and goods of immigrants on their way to open new settlements. Wheat-fields took the place of the bunch grass which almost alone had met our view for four days' travel and more than a hundred miles distance. Farm-houses and barns began to dot the landscape, and trees were growing in clusters around them. For a thousand miles we had not seen an orchard nor a fruit-tree; these now became common, and were delightful as strong evidences of civilization. But when we drove into the thriving little town of Waitsburg, and saw churches, and stores, and mills, and school-houses, and shops of all kinds, we began to realize that we were "out of the woods." When we had made the distance from there to Walla Walla (which seemed longer than all the road back to Missoula), and found a county fair in progress, saw a town of city-like proportions, with telegraph-line and theater posters, and heard the whistle of a locomotive, with busy people all around us, we felt as if we were at home. For fifteen days we had journeyed along the 360 miles between Missoula and Walla Walla. We had started with a good deal of doubt as to whether we would succeed in one of the objects, namely, to carry wheeled vehicles with us, and these doubts had increased as we made our way into the fastnesses of the Cœur d'Aléne Mountains. But the faithful, unremitting toil of our escort, together with the personal exertions of Colonel Bacon, had brought us through.

From Missoula to the ferry, 90 miles, the labor had not been very great. From the ferry to Cœur d'Aléne Lake, it had been severe. Often, during that portion of the route, we remarked upon the pluck, the energy, the endurance, and the executive ability of Captain Mullan, who first made the road through that wilderness, and our admiration of the feat has not lessened by ascertaining from his report that it was done at a cost which amounted to only $230,000 for the entire distance from Walla Walla to Fort Benton. Its inception was creditable, and its execution worthy of any man's ambition. That it did not wholly fulfill the anticipations of its projector does not detract in the least from the credit due him.

Had it not been for the breaking out of the civil war, and the construction of the railroad from the Missouri to San Francisco as one of the results, the Mullan wagon-road would now be a traveled highway, instead of being blocked up with fallen timber, and its hundred and sixty bridges all gone. And such a highway it may yet become. The road is not now feasible for loaded wagon-trains, between Missoula and Cœur d'Aléne Lake, but can be made so by a reasonable amount of labor

expended upon it in removing fallen timber, in grading hillsides to avoid so many crossings of the Cœur d'Aléne and Regis Borgia, and bridging those which cannot be avoided, and in throwing the road upon grades to avoid the use of the ravines of smaller streams, notably between Cœur d'Aléne Lake and the Mission. Ninety miles of the route, from Missoula to the ferry, would require only a small amount of labor in repairing a few slopes that have been badly washed, and in reopening the grade along the river at Brown's Cut-Off, to make it a fair road; though to completely satisfy all the requirements, about two more grades should be made upon entirely new ground. Although a portion of the route presented serious difficulties, yet it was proven to be practicable for lightly-loaded vehicles even in its present condition, by the fact that upon reaching Walla Walla, the two ambulances and the light wagon, with the twelve mules that had drawn them, were turned into the Quartermaster's Department in good condition. The fine condition of the animals was in no small degree due to the foresight of Captain Mullan, who had caused grass-seed to be sown along that portion of the route between the ferry and Cœur d'Aléne Lake, at the time the road was under construction, and it was the result of this, that at some of our camps we found much better pasturage than there would otherwise have been.

From Walla Walla, Wash. Ter., to Portland, Oreg.

The evening of the 18th September, at Walla Walla, was spent in getting such rest as was possible amidst the hospitalities of the town so freely extended us by the citizens, and the whole of the 19th in transferring to the proper department the public property heretofore used by us, and in driving about the vicinity through what seemed to be endless wheat-fields, the stubble showing that the crops must have been enormous, and justified the claim that more than a million bushels had been raised beyond what would be required for home use. Wheat was then selling at seventy-five cents a bushel in Walla Walla, whence it can readily be seen what wealth must pour into the Territory from this one product. The lands appeared to be very fertile, and to produce good crops without irrigation, though this process, where used, showed its good effects. They improve in quality as the base of the mountains is approached. On every hand, too, were fine orchards, the heavily-laden trees in which testified to the excellence of the region for the cultivation of fruit. There was not a simple abundance of apples, pears, peaches, plums, grapes, &c.; there was absolute profusion, and all of the finest quality.

In returning from the drive we stopped at the fair-grounds, where the county fair was in progress. The display of stock, &c., was rather meager, though good in quality, especially the cattle. Some of the sheep were also good. Later in the day the General went out to the post of Walla Walla, where he met the officers on duty there, at the quarters of General Grover, colonel First Cavalry, commanding, and afterward received the citizens of the place in the parlors of the Stine House.

September 20.—About noon we took the cars for Wallula, on the Columbia River, 30 miles distant. The railroad is one of narrow gauge, owned by Dr. Baker, of Walla Walla, and is somewhat remarkable as an individual enterprise in a new country. The track and rolling-stock are primitive in character, but it is astonishing to see what a great convenience even this is to the community, and it is said to be correspondingly profitable to its owner. Passenger-fare to Wallula was $3, and freight at that time was $4.50 per ton, and at these rates the road had

all that it could do. The road is located in the valley of the Walla Walla River for the greater part of the way, a departure from it being made at one point where a summit is passed. The descent from Walla Walla to Wallula is 600 feet, the rise to the summit spoken of being about 100 feet. The road was very dusty, and the time taken in going the 30 miles was three hours, not very fast as compared with railroads generally, yet a great advance upon stage-travel, both in time and in comfort. And the same advantages in greater degree marked the transportation of freight.

We reached Wallula at 5 p. m., and took our stations on the wharf-boat to await the arrival of the steamboat from below. Meanwhile we had a fair supper at a hotel of very uninviting appearance, which stands upon a portion of the site of old Fort Walla Walla, portions of the adobe walls of which were still standing.

At about 7 p. m. the steamboat Annie Faxon arrived alongside the wharf-boat. Going on board we found that we were expected, and were not long in seeking rest in the rooms which had been reserved for us, and which were welcomed as only tired men know how.

Wallula is situated on the left bank of the Columbia, a short distance below the mouth of Walla Walla River, and looks like all small towns on the bank of a river. It was a place of some importance in years gone by, but as the settlements have pushed far beyond it, it has lost all that it ever had, and now looks as if it had lost all its friends. It is at the head of low-water navigation upon the Columbia. During high water steamboats pass above it to the mouth of Snake River, and up the latter to Lewiston. Whatever business is made by the connection between the steamboats and railroad is controlled by these interests, and the town, as such, has neither part nor lot in it.

September 21.—The night was devoted to such sleep as we could get amidst the noise of unloading the up-cargo and taking on a new one to be carried below. At 4 a. m., all being in readiness, we headed down stream for Celilo, at the head of The Dalles, 105 miles distant.

The morning was cold and the wind strong, but our whole party was so much interested that most of the time was spent on deck in full enjoyment of the scenery. The river was neither so wide nor so clear as was expected by those of us who were then on it for the first time. At times the current was rapid and the turns short, but the steamboats used in navigating it are of fine model, and with large wheels at the stern and plenty of steering-power, are readily handled. We reached Celilo at about 12 m., and there transferred to cars for transportation to the lower end of The Dalles, 14 miles, the railroad being of five feet gauge. A long detention occurred, but we finally got started, and in three-quarters of an hour afterward reached the town of "The Dalles" at 3.30 p. m. The steamboat which we were to take here for the next reach of the river was not yet in, and General Sprague, superintendent of the Oregon Steam Navigation Company, drove us out to Fort Dalles, about one and a half miles from the village. The buildings at this post were erected in ———, and are of a much better and more costly class than usual, the foundations and chimneys being of cut-stone, while the buildings themselves are of wood (frame). The commanding officer's quarters were occupied, as were one or two other buildings, but by whom or by what authority we did not learn. The unoccupied buildings are rapidly going to decay.

At 6 p. m. we took dinner at the Umatilla House, the guests of General Sprague, and afterward went on board the steamboat Mountain

Queen, preparatory to leaving at an early hour in the morning for the Cascades and Portland.

The Dalles consist of a rocky gorge of about fourteen miles in length, with occasional falls, the formation being basaltic. In times of high water it is possible for a steamboat to run through them down stream, but never up. The rise of water is very great, so that much of the village of The Dalles has been at times overflowed; and on at least one occasion the water has been eight feet deep in the Umatilla House. It is a wild, rugged looking place, the resort of great numbers of salmon at the proper season, and the highest point to which the seals ascend. At intervals, along the pass, the sand is formed by the wind into most fantastic shapes, a peculiarity which was noticed by Lewis and Clark when they were there in 1805, and again in 1806. The Indians, too, still hut in the same manner, and their fishing outfit lies piled up on scaffolding just as then, quite undisturbed by the scream of the locomotive as it rushes along, or the jar of trains laden with the products of civilization.

September 22.—At 5 a. m. the fine steamboat Mountain Queen was under way. We had slept on board, and the disinclination to leave our beds was very strong; yet the prospect of fine scenery impelled us, and we were on deck shortly after sunrise. The day was as nearly perfect as could be, and we enjoyed it to the full. The run to the Upper Cascade, 52 miles, was made by 9.30 a. m. The route was one scene of grandeur, the most magnificient views constantly appearing in succession. Mount Hood, which was first seen between Wallula and Celilo, rose higher and higher as we approached it, until, in its grandest proportions, it was in full view when we were off the mouth of Hood's River, every spur and ravine being distinctly marked, though 20 miles distant. Mount Jefferson was sometimes seen, its snow-clad top appearing like a white triangle above the darker lines nearer us. Our attention was directed to the stumps of trees standing in the water along the shore for some distance above the Upper Cascade. Some of them were broken off only a short distance above the surface, while others rose to a height of many feet above it. Their number was great, and they seemed to extend to considerable depths in some instances. Of course they never grew in the water; hence, the ground upon which they stand has subsided, or the river has been dammed so as to raise its surface. The resemblance to the remains of trees in an old mill-pond is so striking as to force the conclusion that the waters have been dammed at the Upper Cascade at no remote day. When Lewis and Clark were there, in 1805, they remarked these remains, and from their description but little change seems to have taken place in the seventy-two years which have intervened. Still, the process of decay must have been going on, the slight changes indicating the slowness of the rate, and the probability that the dam may have been formed quite two centuries ago. A tradition exists that a portion of the mountain on the northern side of the river fell or slid into the channel, and by the *débris* thus deposited formed the obstruction. The appearance of the mountain, together with certain phenomena now observable at the Cascades, give great force to this tradition, and induce the strongest belief in its truthfulness.

Arriving at the Upper Cascade we transferred to a portage railroad of six miles in length, located on the northern bank. From the steamboat landing a locomotive started with six loaded freight-cars, taking them about three miles, and then, switching them on a side-track, returned for the rest of the train including one passenger-car, and upon reaching the first section united the whole and continued the trip.

Upon the first trip General Sprague, Tom Sherman, and the writer, accompanied by the engineer of the road, got on the locomotive and rode about two and a half miles, to a point at the Middle Cascade, where a remarkable sliding of both banks of the river is now and has for years been going on. This is also the site of a block-house which was built there many years ago (probably by Maj. G. J. Rains, United States Army). All trace of the block-house, except a portion of the foundation, has disappeared. This one must not be confounded with the one built by Captain Lugenbeel at the Upper Cascade, and which is still standing.

The sliding referred to is on an extensive scale, the whole hillside on each bank of the river gradually moving into the stream, though the extent of the movement appeared to be greater on the southern than on the northern bank. This must prove a serious obstacle in any attempt to make a canal around the Cascades. It was stated that the subsidence on the southern side has amounted to as much as twenty feet in a single year. This may have been an exaggerated statement, but the abrupt scarps made by the movement of the soil were plainly visible on that side at a distance of half a mile from the water, and indicated the great extent of the movement. It is probably due to the presence of a stratum (or strata) of soft material underlying the formation, which is readily eroded by the action of ice and other floating bodies, perhaps to some extent by the water itself, thus permitting the superincumbent mass to sink, and its material to be washed away by the water. The theory was advanced that a bed of quicksand formed a part of this soft material. If that were the case the movement would be still more rapid than it has been.

The transfer over the portage occupied about three hours, the steamers which connect for Portland having their berth at the site of the old military post at the Lower Cascade.

The post was arranged for and formerly was occupied by one company, but it has for some years been abandoned for military purposes. The buildings are still standing. The location is a beautiful one, and in its day the station must have been very pleasant.

By 1 o'clock p. m., the transfer from the cars to the steamboat Emma Hayward was completed, and we were soon afterward fairly under way on the last reach to Portland, 63 miles distant, passing an isolated mass of basalt on the right bank, said to be 850 feet in height, but, as determined by Lewis and Clark, only somewhat more than 700. For some distance the route lies directly through the main range of the Cascade Mountains, which rise on either hand to heights varying from 2,500 to 4,000 feet, and the scenery is of the grandest character.

Upon reaching Fort Vancouver, 18 miles short of Portland, we stopped at the wharf for a moment, and the General was received with a salute of artillery and other appropriate honors. General Sully, colonel Twenty-first Infantry, who had accompanied us from Walla Walla, here left us, this being his station, and the headquarters of his regiment.

Some idea of the accessibility of this region from the eastern coast may be gained from the fact that when we touched at the wharf, we met an officer (Colonel Hodges of the Quartermaster's Department), who had started from Washington on the day before we left Missoula, and had been at Fort Vancouver a week, making the entire trip via San Francisco and the sea-coast in eleven days. We had been almost as long in going from Missoula to Spokane Bridge, yet we thought we had traveled very rapidly.

We reached Portland at 6.30 p. m., and were soon afterward comfortably quartered at the Clarendon Hotel.

During the journey of 270 miles from Walla Walla to Portland, the interruptions to and changes in modes of travel and transportation occur no less than five times, namely: From railroad to steamboat, at Wallula; from steamboat to railroad, at Celilo; from railroad to steamboat, at The Dalles; from steamboat to railroad, at the Upper Cascade; and from railroad to steamboat, at the Lower Cascade; and freight brought to Walla Walla for shipment to Portland has been handled no less than twelve times, by the time it is deposited in the latter place. When the amount of travel and transportation was small in comparison with what it is now, this was of much less consequence, though a burden even then. Now it is serious and yearly becoming more so. With the rapid increase of population and products upon the so-called Great Plains of the Columbia, and especially in the region to the eastward of the Columbia, between the Spokane and the Blue Mountains, some better arrangement will be demanded, and must be adopted. With a canal around the Cascades, the difficulty would be slightly ameliorated, but so little relief would be afforded that it is doubtful whether the improvement would be worth a tithe of the cost, unless a further improvement be made by a canal around The Dalles. This would be longer and very much more costly than the one at the Cascades, but would be necessary to give full value to the latter. With these two canals there would be sufficient depth of water for continuous steamboat navigation to Wallula at all seasons; but in the winter it would probably be somewhat interrupted by ice, at least at the canals. For a considerable portion of each year, navigation would be practicable to Lewiston, on Snake River.

The canals, though remedial, would not be entirely satisfactory, since they would not overcome the last link, from Wallula into the interior. A railroad, though more costly than the canals, would give results so much more satisfactory as to warrant its construction in preference. Complete relief can only be obtained in this way, and, if attempted, should be in no half-way spirit, but the road should be built to connect the heart of the section in question with some point on tide-water accessible to ships at all times. The location of this point is not for me to indicate.

From Portland, Oreg., through Puget Sound, to Bellingham Bay, and return.

September 23 was Sunday, and we remained quietly at Portland all day, intending to start for Puget Sound next morning. The steamboat Dixie Thompson was to leave at 6 a. m., and in order to avoid such early rising as would otherwise be necessary we went on board and slept there.

September 24.—At the appointed time the Dixie Thompson got under way, and, after making numerous stops on both the Willamette and Columbia Rivers, reached Kalama, 40 miles, at 10 a. m. There we took the Northern Pacific Railroad at 11.20 for Tacoma, 105 miles distant. Forty-three miles south of Tacoma we passed the highest point on the line, 750 feet above tide-water. The road is quite as good as eastern roads, but the time is slow, because there is no necessity for speed. We reached Tacoma on time at 5.30 p. m., where we found the revenue-cutter Oliver Wolcott, Captain Selden, in waiting for us, and going on board we started for Seattle, 30 miles distant, reaching the anchorage at that place at 9 p. m.

September 25.—Daylight found us at anchor in Dwamish Bay (harbor of Seattle). The site of the town is on a hill-side looking toward the bay, and from our anchorage it presented a most picturesque view. The newness of many of the buildings indicated recent construction, say within the last three years. At 6 a. m. we went on shore and walked about the streets, which had been rendered somewhat disagreeable by a heavy rain which had fallen during the night. We ascended the hill to the so called university, and returned by a different route, visiting a saw-mill and a sash, door, and blind factory on our way to the landing. The early hour unfortunately prevented our seeing much of the people of the town, but we got an excellent idea of the town itself, which appeared to be a busy and thriving one. Nearly all the buildings are of wood, standing upon lots of such size as to generally admit of lawns and the terraces required by the nature of the site. Fruit-trees are abundant, and of these the cherry-trees gave evidence of having borne abundantly, while the apple and pear trees were fairly loaded down with large and fine-looking fruit. The principal industries are coal-mining and lumbering. Bituminous coal of fair quality is mined a few miles back from the town and brought in by a steam railroad for shipment.

After a little more than an hour spent in walking about we returned to the vessel, and before 8 a. m. were under way for points farther north. Our route was taken along the main shore of the eastern side of Puget Sound, through Possession Sound, leaving Gedney Island on the starboard hand; continuing down Saratoga Passage, passing Point Demock close aboard, and thence along the somewhat intricate channel on the northeast side of Whidby Island into and through Deception Pass between Deception Island and Fidalgo Island; keeping Fidalgo Island on the starboard, with Allan and Burrows Islands on the port hand, running near to Green Point; thence down the Bellingham Channel, and passing Vendovi and Eliza Islands on the starboard and Viti Rocks and Carter Point on the port hand, ran into Bellingham Bay, and at 6 p. m. anchored off Sehome, about a mile from Whatcom. Afterward we all went ashore at the coal-mine, where we were met by Mr. Jones, who is in charge, and entertained at his house for a couple of hours. He gave us some splendid apples grown in his garden, which is in latitude 48° 45′. The coal mined here is not of as good quality as that at Seattle, though it is used to some extent. The seam crops out on shore, a few rods from the water-line, and dips to the northward and westward, so that the incline, which is now about nine hundred feet long, carries the operations under the bay, probably not far beyond the water-line, however. The seam is said to be fourteen feet in thickness, but of this the lower seven feet are of a quality so inferior that for the last three years it has not been mined. Captain Selden stated that the coal was a lignite, not well adapted to steaming purposes, but answered very well for blacksmithing. At 9 p. m. we returned on board. Captain Selden estimated the day's run, from anchorage to anchorage, at 84 miles. All day we had anxiously watched for a view of Mount Baker, but the clouds hung so heavily about it that we were disappointed.

September 26.—At 6 a. m. we were again under way, headed for San Juan Island and Victoria. We passed back into Bellingham Channel by the route by which we had entered the bay; thence ran between Sinclair and Cypress Islands, across Rosario Straits, through Obstruction Pass, between Shaw and Lopez Islands, up San Juan Channel far enough to open the village on San Juan Island, at the head of Griffin Bay, through the northern arm of San Juan Channel to and through Spieden Channel, around the northwest side of Henry Island, up the

Canal de Haro until Baynes' Channel was well open, then through that channel and between Chain Islands and Vancouver Island, outside the Trial Islands, and followed the land around into the harbor of Victoria.

At 12.30 p. m., after a run of fifty miles, we reached our anchorage.

After lunch, all went ashore and called upon the United States consul, Mr. Allen Francis, at his office, and afterward at his house, and then, accompanied by him, called upon the governor, Mr. Richards, a native Canadian, who, however, married a lady from Pittsburgh, Pa. After accepting an invitation from the governor to return to dinner, we drove over to Esquimault Harbor (pronounced *Squimalt*) three miles distant, where the British fleet was at anchor, and called upon Admiral De Horsey, commanding. It was raining very hard when we boarded the flagship Shah, and we were dripping wet when we went up the ladder. The General announced his name to the officer of the deck, and his visit being evidently unexpected, caused a momentary excitement, but the discipline of a man-of-war immediately asserted itself, and after the requisite preliminaries we were ushered into the admiral's cabin. Admiral De Horsey expressed his regret that the General had not given him formal notice of his visit, in order that the courtesies usually extended to officers of his rank might have been duly shown, and added that it would have given him personally great pleasure to have extended such recognition. The General thanked him, saying at the same time that the visit was purposely made informal in order to avoid all that. We were offered wine, and then shown something of the ship. We took a special interest in her because of her recent attack, in conjunction with the Amethyst, upon the Peruvian iron-clad Huascar. The Shah is a very large ship, having a displacement of 6,000 tons, and engines of 7,500 horse-power. Her usual speed is from 10 to 12 knots per hour, but the admiral thought she could be worked up to a speed of 16 knots. After an hour spent on board very pleasantly, we started to go ashore, when we found the admiral's barge ready manned for the purpose of taking us. As we left the ship's side, the inevitable salute which the General had tried so hard to avoid broke out over our heads, and by the time the 15 guns were fired the smoke was so thick as to almost hide the ship from our view.

Landing, we again took carriages, and returned to Victoria by the same road—an excellent one; and after a half an hour spent at the house of Mr. Francis, reached the governor's at 7 p. m. for dinner, where we remained until 10 p. m., and then returned to our vessel.

Victoria is a very pretty place, but very quiet when we were there. It has a permanent population of perhaps four thousand, and in the winter, when the miners all come in, an additional population of possibly six thousand. The streets are macadamized, as are all the roads in the vicinity, and we were told there were some fine drives in the neighborhood, notably that to Beacon Hill and the Park. It rained continuously from the time of our arrival in the harbor, but even if it had not, the time at our disposal would not have admitted of our driving about much. From what we saw during the drive over to the harbor of Esquimault, we could readily believe all that we heard in praise of the others.

The government buildings are of wooden frame, filled in with brick, and are quite picturesque. There are many substantial buildings in the town, but there appeared to be but little business going on. It was said that this was due to the falling off of the mining interests on the main-land.

Much to our astonishment, we were informed that Vancouver Island

does not raise sufficient of the necessaries of life to supply its population; not even of wheat, meats, &c.

The harbor of Victoria is not deep enough for large vessels, and the channel into it is crooked and difficult. Work was going on with a view to its improvement, by the removal of some of the most dangerous rocks. It is not in this way that the former prosperity of the place can be revived, but by inducing more cultivation of the back country. All ordinary farm products grow well and mature, except corn. The best sheep can be raised either for wool or for mutton. All fruits thrive except grapes. We saw splendid-looking apples and pears growing in the gardens.

Esquimault has a fine harbor, perfectly protected, and with a depth of water sufficient for any purpose. It is the station for the British fleet on this coast of America, and is provided with store-houses and other necessary public buildings. The Provincial government has begun the construction of a dry-dock, but expects that the Imperial government will take the work off their hands and repay them what sums they have expended. It is the old story, as applicable here as in the United States. But there seems to be much reason in it in this case, since the harbor must always be an important naval station; it is not likely to ever be anything else; and a dry-dock of large capacity is certainly a necessary adjunct.

The public-school building at Victoria is well worthy notice. From the outside it looked as if it had been transplanted from Michigan or Iowa, so closely does it resemble the typical free schools of the United States.

From information gained at Victoria, it seems that the white population of British Columbia is probably between twelve and fifteen thousand; and that of Indians is probably between thirty and forty thousand.

September 27.—At 5 a. m. we got under way, and leaving the harbor of Victoria, stood directly across the Straits of Fuca to Ediz Hook and the harbor of Port Angeles. Into this we simply ran a sufficient distance to get an idea of its extent and capacity; then followed the coast eastward to New Dungeness, and thence through the passage between Protection Island and the main-land and along the coast to the entrance to Admiralty Inlet, when we rounded Point Wilson and Point Hudson, and at 1 p. m. tied up to the wharf at the post of Fort Townshend. Upon going ashore the usual salute for the General was fired; but as the garrison then present consisted of only one officer and eight enlisted men, and the armament of only one gun, the saluting business was slow work. Colonel Stone, first lieutenant Twenty-first Infantry, commanding the post, met us on the wharf and accompanied us about the post. After an hour spent here we left, running over to Port Townshend, and at 2.30 p. m., after a total run for the day of 55 miles, anchored off the town, which is a village of perhaps seven hundred inhabitants. The business part of the town is situated on low ground between the bluff and the bay, while the residences are on top of the bluff, which is ascended both by a wagon-road and by stairways, the height being probably about 80 feet. The supply of water for household purposes is collected mainly in cisterns, from the rain-fall. Any additional quantity that is needed is brought from a tank erected on the wharf at Fort Townshend, three miles distant, at the head of the bay; the tank itself being kept full through pipes leading from a spring which supplies the post.

The question of the defense of the harbor of Port Townshend, is that of the defense of Admiralty Inlet and Puget Sound. The harbor is a very capacious one, so much so that its defense from the shore alone

would be difficult, if not impracticable, and the main reliance must, therefore, necessarily be upon a naval force, which would be available right at the inlet. In case of war with Great Britain, the proximity seaward, of the British naval station at Esquimault, would lock up at Port Townshend any inferior force of ours, where it could easily be destroyed. A superior naval force upon our side would as effectually blockade theirs in Esquimault Harbor; but in a position where it could not be so readily destroyed, because the harbor is smaller and can be defended from the land without difficulty. The problem, then, resolves itself into the very simple though costly plan of having a superior naval force available at the spot. And I do not hesitate to express the opinion that in case of attack those waters and their dependencies can be successfully defended in no other way.

September 28.—At midnight we left our anchorage at Port Townshend and by daylight were well up Admiralty Inlet, heading for Olympia. A severe gale which had set in during the previous afternoon continued to blow, but did not in the least interfere with the navigation of Puget Sound, and, following the most direct channel, we reached the anchorage off the town of Olympia at 12 noon. Distance, 96 miles.

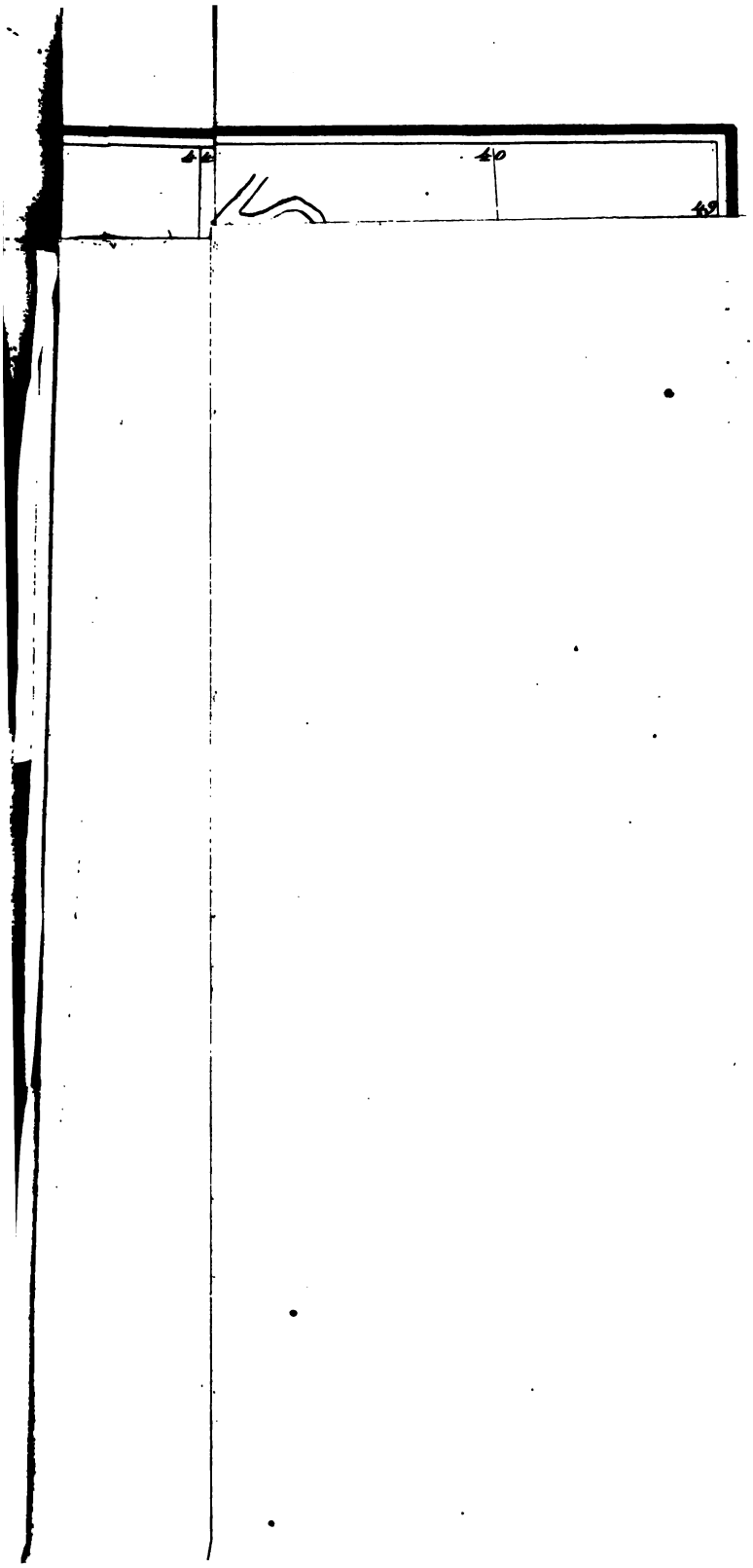
After lunch we bade good-bye to the officers of the Wolcott, by whom we had been shown every courtesy, and landed at the town. The anchorage, owing to shoal water in the bight of the bay, is at a distance of two miles from the town—a remarkable fact in a region where good harbors and plenty of water can be found at every turn. After a short delay at the hotel, we called upon Governor Ferry at his office, and at 6 p. m. attended a reception at his house, which lasted until 9 p. m.

Olympia, the capital of Washington Territory, is a neat town of probably fifteen hundred inhabitants. Why it is a town at all, or why it is the capital of the Territory, it is difficult to see. Certainly not for its harbor facilities; possibly for the reason that few towns have been located where a subsequent generation would have put them.

September 29.—We were called at 4 p. m.; had a light breakfast, and soon after 5 a. m. started by stage for Tenino Station, 15 miles distant. The morning was damp and the roads were muddy, but we nevertheless enjoyed the drive. The "stage" was an open wagon with two seats, the body mounted on thorough-braces; and we rode as comfortably as was possible for five persons to do in a vehicle intended for four. There being no protection against the mud, we were all well splashed before we reached Tenino.

The first two miles the road was planked; that is to say, nearly to the crossing of the Tumwater, a small stream which empties into the bight at Olympia. The crossing of this stream was made by a bridge situated just below a mill, with manufacturing establishments above and below, the rapid descent of the Tumwater furnishing the requisite power to actuate the machinery. For some distance after crossing, the road ascends the stream, and then diverges, passing for a large part of the way through forests composed principally of large firs of the most graceful form and majestic proportions. Here, the alder of the eastern swamps attains the magnitude of a tree, some being quite a foot in diameter; and all the vegetation visible, of whatever kind, was of correspondingly remarkable dimensions.

Approaching Tenino, the road passed over what is called Mound Prairie. The name is derived from a series of mounds varying from 5 to 25 feet in diameter and 2 to 8 feet in height. The area covered by the mounds within sight of the road is perhaps as much as four square miles; they are thickly and uniformly scattered over the prairie,



without anything like a systematic arrangement. The wagon-road, and the grade for the branch railroad from Tenino to Olympia, both pass directly across the prairie, and give frequent sections of the mounds, showing them to be composed of finer material than the soil intervening between them. A careful examination might fail to confirm this observation. Their number is so great and they cover so great an area that it seems highly improbable that they are the result of other than natural causes. What the cause may have been was not apparent at the time, but we subsequently saw similar mounds in process of formation on the deserts of Nevada, and concluded that those on Mound Prairie originated in the same way, that is to say, by the action of wind eddying around a clump of sage-brush, or other deep-rooted vegetation. The bush occupied the summit of the mound, the earth between adjacent clumps of bushes being blown away. On Mound Prairie, all signs of protecting vegetation had disappeared from the summits of the knolls, and rendered the manner of their formation quite obscure.

At Tenino we took the railroad for Kalama, 66 miles distant, and arrived there in time for dinner, after which we took the steamboat Dixie Thompson for Portland, 40 miles, arriving there at 5 p. m., and resumed our former quarters at the Clarendon Hotel.

During our absence on Puget Sound, the citizens of Portland had arranged among themselves to greet the General's return with appropriate ceremonies. Consequently, at 8 p. m., the militia companies of the city, headed by the band of the Twenty-First Infantry, marched to the front of the hotel where he was stopping, and there formed into line, accompanied by a large concourse of citizens. Fire-works were exhibited, and in response to urgent calls the General made a short speech, which was well received, and then the crowd dispersed. One of the most beautiful and appropriate of the pieces of fire-works consisted of an arch within which the word "Sherman" was displayed at the height of the springing lines; the arch being supported on either hand by fire-works of various kinds. Afterward the General received until 9.30 p. m., in the parlor of the hotel, all who saw fit to call. The occasion was one of much good feeling.

Altogether a week had been consumed in the trip to the northward, but we had accomplished a good deal, notwithstanding the fact that the rain had poured down for more than half the time. We had made a very complete tour of the waters of Puget Sound, Admiralty Inlet, and the passes, channels, and harbors beyond. The most northerly limit reached was Bellingham Bay, distant from our northern boundary only about fifteen miles in a straight line, and we had gone and returned by different routes, so far as those waters were concerned. Distant scenery was obscured by clouds and mists to such an extent that we failed to see either Mount Ranier or Mount Baker throughout their full extent, but the occasional glimpses we got of portions of them impressed us with the grandeur of their dimensions.

I have already expressed my opinion in the most decided terms concerning the proper defense of the remarkable region, and no further reference seems to be necessary.

The navigation is extensive, and very easy; the depth of water all that is required, and the safety from destructive winds or seas is perfect. The whole system is one immense harbor, the only difficulty being to find water sufficiently shallow to anchor in.

The immediate resources are timber and lumber, coal, and the salmon fisheries. But the time will come when agricultural products will constitute an essential part.

Sunday, the 30th of September, was spent in rest, and on Monday, the 1st of October, we visited Fort Vancouver, spending the night there as the guests of General Sully, colonel Twenty-first Infantry, commanding. A good description of this post has been given by Surgeon J. H. Hill, United States Army, and may be found on page 421 et seq., Circular No. 4, Surgeon General's Office, December 5, 1870.

On the morning of the 2d of October we returned to Portland, reaching there at 11 a. m. The remainder of the day was spent in letter-writing and other pressing duties, in preparation for the journey to San Francisco.

October 3.—The morning was rainy as usual. At 8 a. m. we took the president's car of the Oregon and California Railroad, which had been sent to the northern terminus at Portland to take us to Roseburg, the southern terminus, 200 miles distant. The vice president of the road, Mr. Kohler, accompanied us to Roseburg, and by his courtesy added much to the pleasure of the day's ride. Along the line of the road the people had gathered to greet the General, especially at Salem, Albany, and Roseburg, and by their hearty cheers expressed a warm welcome.

We reached Roseburg at 7 p. m., and an hour later were seated in a crowded six-horse stage, and through mud and rain, started for Reading, Cal. The night was very dark, and accompanied, as it was, by fog, it was difficult to see the road. Once one of the leaders fell, and his mate jumped over him, breaking the lead-bar, to repair which detained us half an hour. Later the driver mistook the road, and instead of striking a bridge over a mill-race missed it and the leaders plunged into the ditch, causing some excitement, but no damage. Another delay ensued due to difficulty in rescuing the horses from the ditch, and getting straightened around so as to resume the journey. The night passed slowly away, and when daylight of

October 4.—broke, we had made only 39 miles, and were three hours behind time. It was after 9 a. m. when we reached Grave Creek for a breakfast, which was largely composed of cake of various kinds, the remains of a wedding-feast of the night before, and therefore quite unsuited to such a lot of hungry men as we were.

Although we had made only 54 miles from Roseburg, we were nearing the southerly limit of the rain; the mud was rapidly disappearing, and by the time we had made 13 miles farther all traces of rain were missing, and dust had taken the place of mud. This fact shows how sharply the line of the rainy region on this coast is defined.

After daylight we made faster time and reached Rock Point, 84 miles, for dinner. Here a famous driver named Hanks took the reins, and although the team now was reduced to four horses (as it had been for the last 15 miles), yet they were good ones, and we went at a lively pace to Jacksonville.

At a point between Rock Point and Jacksonville, not far beyond the crossing of Rogue River, we first caught sight of the valley about the headwaters of that stream, and we surely had seen nothing more beautiful. Grain-fields, orchards, and vineyards, where only a few years ago the Indians and whites had contended for possession, showed the rapid progress of the section. The valley itself is of considerable extent, forming a picture of which the surrounding mountains constitute the frame. And no human artist ever made such a picture, nor workman

such a frame. Everything indicated thrift and prosperity among the settlers.

Jacksonville is in the very midst of this beautiful valley. From there to Casey's, 24 miles, the road follows directly up it, upon ground which is comparatively level, and we made good time, the stage from Jacksonville to Amerman's, 11 miles, for instance, being passed over in sixty minutes.

The long ascent of 6 miles from Casey's to the top of the Siskiyou Mountain was made at a slow pace *for this driver*, but from the summit to the end of the route, at Cole's, 7 miles, notwithstanding the pitch darkness of the night, we went down grades, around curves, and along sidings at a rate which was startling, to say the least of it. We simply braced ourselves in the coach, and with child-like faith sat still. It would have been sensational enough by daylight, but on so dark a night it was a mystery how the horses managed to keep the road, for of course the driver did not dare to attempt to guide them. It is certain that many times there were but a few inches between us and eternity. The outer wheels barely had room inside the edge of the precipice, and if the inner wheels had struck any obstacle at one of the many very narrow places, the coach must have gone over. It was fearful to contemplate the probable effect in case anything about the harness or the running-gear of the coach should give way, or if one of the horses should stumble and fall, or the team get beyond the control of the driver. But strange as it may seem, such accidents are of infrequent occurrence. Surely some kind Providence watches over California stage-coaches and their drivers.

During the night we passed Klamath Ferry and Yreka and daylight *October* 5—found us between the last named place and the stage station very appropriately called "Starve-out." After reaching Butteville, where we had a poor breakfast, our road bore off to the eastward for some distance, and passed near the foot of Black Butte. At Strawberry Valley we had a magnificent view of Shasta Butte at a distance of about 12 miles. The sun shone brightly upon the whole cone, causing the portion above the snow-line to glitter like burnished silver. Earlier in the day the top of the mountain had been partially obscured by clouds, but these had disappeared and there was no longer any intervening obstacle to obstruct the view. The mountain is not so beautiful nor does it seem to rise to so great a height as Mount Hood. The cone is not so regular, for which reason, as well as the fact that Mount Hood was seen from near the level of the sea, and therefore for its full height, while Shasta Butte was seen from an elevation of more than 3,000 feet, the latter, though the higher, was really less impressive.

At Slate Creek we took one meal for both dinner and supper, and though still an hour behind time, were assured by the driver that he would get us into Reading in time for the train, the distance being 54 miles, and only eight hours remaining to make it in. It was dark within an hour after starting from Slate Creek, and the road though smooth was mountainous and very crooked. The drive over Siskiyou Mountain had been startling, but was only 13 miles; this was equally so for 42 miles, and then for 12 miles we had it upon comparatively level ground, reaching Reading at 1.30 a. m. to find the train not yet in, but the superintendent's car of the Central Pacific Railroad, in charge of Maj. R. P. Hammond, in waiting for us. We were not long in transferring to it, and found its clean, comfortable beds exceedingly grateful after our weary ride on the stage-coach, where we had been painfully cramped and completely tired out. We were soon fast asleep, and were

not aroused by the starting of the train. By 8 a. m. we were at Marysville, where quite a crowd of people, headed by the mayor, had assembled at the depot to pay their respects to the General. After a short stop, the train started again, and at 9 a. m. we had an excellent breakfast on board the car, prepared through the kind thoughtfulness of Major Hammond. In good time we reached Sacramento, where we were to remain for some hours awaiting the time for the train to start for Vallejo, by which route we were going. Meanwhile we called at the State House and paid our respects to the governor (Irwin), and afterwards drove about the city, thus consuming the time until 3 p. m., when our train started for Vallejo. Reaching that place we took the steamer Yosemite for San Francisco, and by 9.30 p. m. were in our lodgings at the Baldwin House, and the journey was ended.

From Portland to a point beyond Eugene City the route lies in the beautiful and fertile valley of the Willamette, which is well settled and produces abundantly all the cereals and fruits of the region. Five miles southeast of Eugene City the valley becomes much contracted. The road is located along the Coast Fork for a distance of near 20 miles, and thence crosses over the head-waters of the Umpqua, taking advantage of the ground until Roseburg is reached. Here the difficulties in the way of the construction of a railroad become so great as to terminate it in that direction for the present.

The entire country between Roseburg and Reading is much broken up by mountains which seem to have but little system in their arrangement. A glance at a good map of the region will show how intricate this arrangement is, by the turning, twisting, and interlocking of the drainage. This is largely due to the fact that the drainage by the Willamette system on the north, and that of the Sacramento on the south, both parallel with the coast, is interrupted and separated for a long distance by lateral mountains which range east and west, and are more or less distinctly defined by the waters of Umpqua, Rogue, and Klamath Rivers, all of which have their origin on the western slopes of the Cascade Range. There can be no question but one or more practicable routes for a railroad exist between Roseburg and Reading, but it will require patient and laborious reconnoissances to develop them, and to determine which one is the least difficult. The work of construction will prove to be very costly by any route that may be selected. Owing to these facts the completion of the link between Roseburg and Reading may be delayed for some time, but the energy and enterprise of the people of the Pacific coast will eventually surmount all the obstacles.

From Reading southward, the railroad follows the waters of the Sacramento to the city of that name, where it joins with either of the routes to San Francisco. It passes through a region which has been famous for its yield of gold, but will be quite as valuable for agricultural purposes.

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