

**REPORT ON THE EXPLORATION OF THE
YELLOWSTONE RIVER, COMMUNICATED
BY THE SECRETARY OF WAR, IN
COMPLIANCE WITH A RESOLUTION OF
SENATE, FEBRUARY 13, 1866**

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Report on the Exploration of the Yellowstone River, Communicated by the Secretary of War, in Compliance with a Resolution of Senate, February 13, 1866 by W. F. Raynolds

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W. F. RAYNOLDS

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S. C. Russell

REPORT

ON THE

EXPLORATION OF THE YELLOWSTONE RIVER,

BY

BVT. BRIG. GEN. W. F. RAYNOLDS.

COMMUNICATED BY

THE SECRETARY OF WAR,

IN COMPLIANCE WITH

A RESOLUTION OF SENATE, FEBRUARY 13, 1866.



WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1868.

REPORT
OF
THE SECRETARY OF WAR,

COMMUNICATING,

In compliance with a resolution of the Senate of February 13, 1866, the report of Brevet Brigadier General W. F. Reynolds, on the exploration of the Yellowstone and the country drained by that river.

JULY 19, 1867.—Read; ordered to lie on the table. Motion to print referred to the Committee on Printing.

JULY 17, 1868.—*Resolved*, That the report proper of General Reynolds, upon his exploration in the valley of the Yellowstone river, be printed, with the maps, but without the illustrations; and that three thousand extra copies be printed and bound for the use of the Senate; and that the Secretary of the Senate be directed to return the appendices to General Reynolds's report to the Chief Engineer of the army of the United States.

WAR DEPARTMENT,

Washington City, July 19, 1867.

SIR: In compliance with the Senate's resolution of February 13, 1866, calling for the report of Major Reynolds, United States engineers, of his exploration of the Yellowstone, and the country drained by that river, I have the honor to transmit herewith a communication of the Chief of Engineers, of July 18, with the report desired, just now completed.

Your obedient servant,

EDWIN M. STANTON,

Secretary of War.

Hon. B. F. WADE,

President of the Senate.

ENGINEER DEPARTMENT,

Washington, July 18, 1867.

SIR: Referring to letters of this department of the 14th February, 1866, and 7th May, 1867, and in compliance with Senate resolution of the 13th February, 1866, I have the honor to transmit herewith the report of Brevet Brigadier General William F. Reynolds, major of engineers, upon his exploration of the Yellowstone and Missouri rivers, just completed, and comprised in the following papers, viz:

1. Captain Reynolds' report and journal.
2. Lieutenant Maynadier's report.
3. Reports of detached parties.
4. Table of latitudes.
5. Table of chronometer errors.
6. Table of meteorological observations and barometer heights, Captain Reynolds' route, 1859.

7. Table of meteorological observations and barometer heights, Lieutenant Maynadier's route, 1859.

8. 'Table of meteorological observations and barometer heights, Captain Reynolds' route, 1860.

9. Table of meteorological observations and barometer heights, Lieutenant Maynadier's route, 1860.

10. Meteorological observations at Deer creek (winter quarters.)

11. Meteorological observations at Fort Pierre.

12. Report on geology by Dr. F. V. Hayden.

13. Report on fossil plants by Professor J. S. Newberry.

14. Report on birds by Dr. Elliott Coues.

15. Report on mammals.

16. Catalogue of plants by Dr. George Engleman.

17. Report on carices by Professor Chester Dewey.

18. List of mosses and liverworts by Professor Sullivan.

19. List of shells by Professor Binney.

Very respectfully, your obedient servant,

A. A. HUMPHREYS,

Chief of Engineers, Major General.

Hon. E. M. STANTON,
Secretary of War.

OFFICE UNITED STATES LAKE SURVEY,
Detroit, July 1, 1867.

GENERAL: I have the honor to submit herewith my report of the exploration of the "head waters of the Yellowstone and Missouri rivers, and of the mountains in which they rise."

In presenting this report I deem it proper to give a short statement of the circumstances under which it has been prepared.

The expedition returned to Omaha in October, 1860. After discharging the employes, and settling the accounts of the party, I repaired to Washington with a portion of my assistants, and commenced the preparation of the report. Good progress had been made, and I had expected to have it ready for the following session of Congress, when the breaking out of the rebellion scattered my assistants, seriously interfering with my work.

On the 1st of July, 1861, I reported that, if my services were needed elsewhere, the preparation of the report could be suspended with no other injury than that necessarily incident to delay. On the 10th of that month I was ordered to join the army in the field, and shortly after all work was suspended.

In the summer of 1862 I was prevented by severe and protracted illness from continuing on duty in the field, and in that condition applied for authority to resume the report, which was granted, "provided it did not interfere with the medical treatment I was undergoing." My physician would not consent to my attempting the work.

In January, 1863, while yet an invalid, I was again, at my own request, ordered on duty with the army, and another application was made for authority to resume the report. This time, in connection with my other duties, my request was granted, but my other duties prevented any considerable progress being made.

In April, 1864, my health not being yet restored, I was ordered to this place as "superintendent of the survey of the north and northwest lakes, and light-house engineer for the 10th and 11th districts," comprising the entire lake region. Each of these duties was, at the time and has been continually since, much more extensive and complicated than before the war, when the superintendence of the

lake survey, or of a single light-house district, was considered ample duty for one officer.

With triple duty on my hands, and instructions that forbade my devoting any time to the report that interfered with my other duties; without assistants who were engaged on the expedition, or who were familiar with such duty, I trust that it will not be considered strange that the presentation of the report has been delayed, or that I should be ready to admit its many and great imperfections.

Very respectfully, your obedient servant,

W. F. RAYNOLDS,

Lieut. Col. Engineers, and Bot. Brig. General.

Brevet Major General A. A. HUMPHREYS,

Chief of Engineers U. S. Army, Washington, D. C.

REPORT OF BREVET COLONEL W. F. RAYNOLDS, U. S. A., CORPS OF ENGINEERS, ON THE EXPLORATION OF THE YELLOWSTONE AND MISSOURI RIVERS, IN 1859-'60.

Table of contents.

1. Captain Reynolds's report and journal.
2. Lieutenant Maynadier's report.
3. Reports of detached parties.
- *4. Table of latitudes.
- *5. Table of chronometer errors.
- *6. Meteorological observations and barometer heights—Fort Pierre to Deer creek—Captain Reynolds, 1859.
- *7. Meteorological observations and barometer heights—Fort Sarpy to Deer creek—Lieutenant Maynadier, 1859.
- *8. Meteorological observations and barometer heights, from Deer creek to Fort Pierre, Captain Reynolds, 1860.
- *9. Meteorological observations and barometer heights, from Stinking river to Omaha, Lieutenant Maynadier, 1860.
- *10. Meteorological observations at Deer creek.
- *11. Meteorological observations at Fort Pierre.
- *12. Report on geology by Dr. F. V. Hayden.
- *13. Report on fossil plants by Professor J. S. Newberry.
- *14. Report on birds by Dr. Elliott Coues.
- *15. Report on mammals.
- *16. Catalogue of plants by Dr. George Engelman.
- *17. Report on carices by Professor Chester Dewey.
- *18. List of mosses and liverworts by Professor Sullivan.
- *19. List of shells by Professor Binney.

OFFICE LAKE SURVEY, *Detroit*, 1867.

SIR: After spending the greater part of the previous winter on duty at the southern part of Florida, on the 6th of April, 1859, I was summoned by telegram to Washington, where I received the first intimation that it was the intention of the department to assign to me the important duty of exploring the extensive, and then almost unknown, country drained by the Upper Missouri and Yellowstone rivers. My entire want of previous preparation for this duty is offered as an explanation of the many deficiencies that I am conscious exist in the performance of the duty assigned to me.

The following are the instructions under which the exploration was made :

“WAR DEPARTMENT, OFFICE EXPLORATIONS AND SURVEYS,

“Washington, April 13, 1859.

“SIR: Under clauses of the military appropriation acts, providing for ‘surveys for military defences, geographical explorations and reconnoissances for military purposes,’ I am directed by the Secretary of War to instruct you to organize an expedition for the exploration of the region of country through which flow the principal tributaries of the Yellowstone river, and of the mountains in which they, and the Gallatin and Madison forks of the Missouri, have their source.

“The objects of this exploration are to ascertain, as far as practicable, everything relating to the numbers, habits and disposition of the Indians inhabiting the country, its agricultural and mineralogical resources, its climate and the influences that govern it, the navigability of its streams, its topographical features, and the facilities or obstacles which the latter present to the construction of rail or common roads, either to meet the wants of military operations or those of emigration through, or settlement in, the country.

“Particular attention should be given to determining the most direct and feasible routes:

“1. From the neighborhood of Fort Laramie to the Yellowstone, in the direction of Fort Union, on the Missouri.

“2. From the neighborhood of Fort Laramie northwesterly, along the base of the Big Horn mountains, towards Fort Benton and the Bitter Root valley.

“3. From the Yellowstone to the South pass, and to ascertaining the practicability of a route from the sources of Wind river to those of the Missouri.

“To accomplish these objects most effectually the expedition should proceed by the Missouri river to Fort Pierre. Here a large number of the Dakotas will be assembled to receive their annuities, and overtures should be made to obtain their assent to your proceeding to the source of Powder river by the Shayanec and its north fork, by which a new route leading west from the Missouri river would be examined. To aid you in accomplishing this object, the clothing, *et cetera*, to be given to the Dakotas by the government, under the treaty made with them by General Harney, will be turned over to you by the Indian Bureau for distribution.

“From the source of Powder river the expedition should proceed down that stream to its mouth; thence along the Yellowstone to the mouth of Tongue river, up which a detachment should be sent to its source. The remainder of the party should continue on the Yellowstone to the mouth of Big Horn river, and ascend the latter stream to the point where it leaves the mountains. Here the two divisions of the party should be united. The approach of winter may require the expedition to pass that season in this neighborhood, or if time suffices, the expedition may ascend the Big Horn river to Wind river, where a favorable wintering place can be found.

“The next season should be spent in examining the mountain region about the sources of the Yellowstone and Missouri, to ascertain the character of the routes leading south and west from the navigable parts of those rivers. On returning one party should descend the Missouri, using skin boats to Fort Benton, where a Mackinac boat should be in readiness. The other portion should descend the Yellowstone, in skin boats, to its mouth, where it should join the party with the Mackinac boat, and all proceed to the settlements. With a pack train it would not, perhaps, be practicable to carry more than three months’ full supply of provisions, but the abundance of game in much of this region renders it unnecessary to provide the usual quantity of bread and bacon.

“The following places are convenient as depots, and you should make your arrangements accordingly, viz: The Platte Bridge, Fort Laramie, and the

American Fur Company's posts, Fort Alexander Sarpy, Fort Benton, and Fort Union. If the Dakotas should withhold their consent to the expedition proceeding up the valley of the Shayenne, and you should not deem it advisable to make that examination without their consent, the expedition will proceed to Fort Clark or Fort Union, and move to the Yellowstone near the mouth of Powder river.

"You will use your own judgment in modifying the plan proposed in the event of any unforeseen circumstances or physical obstacles preventing an adherence to it.

"You will endeavor by all the means in your power to conciliate and gain the friendship of the different Indian tribes you may meet, and will assure them of the good will of the government, and of its protection in all their rights. You are authorized to purchase Indian goods to be used in compensating the Indians for their services when required, and for purchasing from them such articles as you may need. By thus securing their friendly co-operation you will not only be relieved from danger of interruption, but be enabled to obtain from them much valuable information which would be withheld if you were obliged to enter their country in a hostile attitude.

"To aid you in the discharge of these duties, you are authorized to employ eight assistants as topographers, geologist and naturalist, astronomer, meteorologist, physician, &c., at an average salary not exceeding \$125 per month, and to pay their actual travelling expenses to and from the field of operations, and to subsist them while in the field. You will procure your assistants, employes, equipment, supplies, &c., at those points which seem to ensure the most economical and effective organization for the party. The sum of \$60,000 will be set aside from the appropriations to defray the expenses of the expedition, which amount your expenditures must not exceed.

"The colonel of topographical engineers will be directed to supply you with such instruments as you may require on your requisition.

"The commanding general of the Department of the West will be directed to detail an escort of 30 picked men of the infantry, under the command of a lieutenant, who will report to you for duty.

"Transportation for the provision and equipage of the escort, their subsistence and their necessary ammunition, will be furnished respectively by the quartermasters', commissary, and ordnance departments.

"The quartermasters', commissary, medical, and ordnance departments will be directed to furnish, as far as practicable, all necessary transportation, provisions, arms, and supplies, those required for the civil employes to be paid for at cost prices at the place of delivery, from the appropriation for the expedition.

"All necessary transportation, provisions, arms, and supplies which you cannot obtain from those departments, and all minor instruments, books, and drawing materials, will be purchased out of the appropriation for the exploration.

"You will communicate with the department through this office, to which you will make the reports and returns required by regulations of an officer of engineers in charge of a work or operation, and such other reports, transmitted as often as the means of communication will allow, as will keep the department apprised of your various movements, and the progress of the expedition under your charge. On the completion of your field duty you will return, with your assistants to Washington, and prepare the maps and reports necessary to a full exposition of the results of the expedition.

"Very respectfully, your obedient servant,

"A. A. HUMPHREYS,

"*Captain Topographical Engineers in charge.*

"Captain W. F. RAYNOLDS,

"*Corps Topographical Engineers, Washington.*"