

DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

GEORGE OTIS SMITH, DIRECTOR

BULLETIN 466 - 90

RETRACEMENT OF THE BOUNDARY LINE
BETWEEN IDAHO AND WASHINGTON

FROM THE JUNCTION OF SNAKE AND CLEAR-
WATER RIVERS NORTHWARD TO THE
INTERNATIONAL BOUNDARY

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RETRACEMENT OF THE BOUNDARY LINE BETWEEN IDAHO AND WASHINGTON FROM THE JUNCTION OF SNAKE AND CLEARWATER RIVERS NORTHWARD TO THE INTERNATIONAL BOUNDARY.

R. B. MARSHALL, Chief Geographer.

INSTRUCTIONS.

The retracement of the boundary line between Idaho and Washington was provided for by the Sixtieth Congress in the sundry civil act approved May 27, 1908.

The following correspondence is self-explanatory:

DEPARTMENT OF THE INTERIOR,
Washington, June 20, 1908.

THE DIRECTOR OF THE GEOLOGICAL SURVEY.

SIR: Under date of May 30 last, your recommendation that the Geological Survey be authorized to make the survey provided for under the sundry civil bill of that portion of the boundary line between the State of Idaho and the State of Washington, from a point in the center of the Snake River opposite the mouth of the Clearwater River, thence due north to the international boundary line between the United States and the British possessions, was approved, the terms of the compensation for services being fixed at \$110 per mile. Thereafter you made informal inquiry as to whether any weight should be given to the Idaho-Washington boundary line as surveyed and established by the General Land Office in 1873-74, in executing the survey of the portion of the boundary authorized by the sundry civil bill. In answer thereto you were advised on the 9th instant:

“Congress in making said appropriation did not contemplate a change in the boundary line between those States but merely the reestablishment and remarking of the line fixed by the survey of 1873, because the line had in part become obliterated.

“There is no change in the description of boundaries in the acts organizing the Territory and authorizing the admission of the State as to that part of the boundary, which is a line due north to the international boundary from a point in mid-channel of the Snake River opposite the mouth of the Clearwater River. That line was found and marked by the survey of 1873, and the purpose of the contemplated survey is to ascertain, mark, and permanently reestablish that line.”

In view thereof in your letter of the 12th instant, you state that it would be impossible to make the survey at the rate fixed, namely, \$1.10 per mile, and now recommend:

"* * * that the Geological Survey be authorized to make the survey of the Idaho-Washington boundary line for the actual cost, which may be in terms of compensation per mile as provided in the sundry civil act. I again bring to your attention the fact that the survey has men fitted both by training and actual experience in boundary-line surveys, with the necessary camp equipment and instruments already provided, and inasmuch as an inspection of the survey will not be necessary if the survey is made by the officers of the Interior Department, the cost of the survey should be much less than that for which any contractor could perform the work with the same degree of accuracy and thoroughness, added to the cost of inspection."

The provision in the sundry civil bill which provides for this survey is as follows:

"For the ascertainment, survey, marking, and permanent establishment of that portion of the boundary line between the State of Idaho and the State of Washington from a point in the center of the Snake River opposite the mouth of the Clearwater River, thence due north to the international boundary line between the United States and the British possessions, an estimated distance of one hundred and eighty-five miles, including the expense of an examination of the survey in the field, the rate of compensation per mile to the surveyor to be fixed by the Secretary of the Interior, the same to include the cost of the preparation of the plats and field notes of the survey in triplicate, twenty-five thousand dollars."

It will be seen that the Secretary of the Interior is required to fix the rate of compensation per mile for the survey, that the estimated length of the line to be surveyed is 185 miles, and that the amount of appropriation is \$25,000.

The department notes fully the advantages to the Government of having the survey made by Government officers and limited to the actual cost for the making of the survey, which, in that event, would save the expense of an examination in the field, that would be necessary were the contract otherwise awarded.

Under all the circumstances, I therefore authorize that the survey be made by the Geological Survey at the actual cost, not to exceed, however, \$25,000 for the completion of the entire survey, which is at the rate of \$135.13 per mile, based upon the estimated length of the line to be surveyed.

Very respectfully,

FRANK PIERCE, *Acting Secretary.*

DEPARTMENT OF THE INTERIOR,
TOPOGRAPHIC BRANCH, UNITED STATES GEOLOGICAL SURVEY,
Washington, June 27, 1908.

Mr. S. S. GANNETT,

Geographer, United States Geological Survey.

SIR: The following is a copy of an item in the sundry civil bill regarding the survey of the boundary line between the States of Washington and Idaho:

"For the ascertainment, survey, marking, and permanent establishment of that portion of the boundary line between the State of Idaho and the State of Washington from a point in the center of the Snake River opposite the mouth of the Clearwater River, thence due north to the international boundary line between the United States and the British possessions, an estimated distance of one hundred and eighty-five miles, including the expense of an examination of

the survey in the field, the rate of compensation per mile to the surveyor to be fixed by the Secretary of the Interior, the same to include the cost of the preparation of the plats and field notes of the survey in triplicate, twenty-five thousand dollars."

The director in his letter of May 30, which was approved by the Secretary, making recommendations regarding the survey of this line, stated that the law above quoted involved the following provisions:

"1. The ascertainment of the longitude of the point in the center of the Snake River opposite the mouth of the Clearwater River.

"2. The accurate location of the line between the State of Idaho and the State of Washington from this point due north to its intersection with the international boundary line between the United States and the British possessions.

"3. The marking on the surface of the ground by proper monuments of the boundary as determined.

"4. The preparation of the necessary plats and field notes."

The director in this same letter made the following recommendations:

"* * * that the Geological Survey be authorized to conduct this work under instructions similar to those under which the survey of the Idaho-Montana boundary line was made, as approved by the Secretary of the Interior June 5, 1897. (See U. S. G. S. Bulletin 170, pp. 11-15.) Whatever modification of such instructions may be necessary should be agreed upon by the Commissioner of the General Land Office and the Director of the Geological Survey."

The Secretary of the Interior of June 20 stated as follows:

"Under all the circumstances, I therefore authorize that the survey be made by the Geological Survey at the actual cost, not to exceed, however, \$25,000 for the completion of the entire survey, which is at the rate of \$135.13 per mile, based upon the estimated length of the line to be surveyed."

In accordance with the above, you are directed to assume charge of this work immediately.

The necessary outfit for the two parties is available—part at Lewiston, Idaho, and part at Echo, Ore.—which you should assemble at the most convenient point for use in this work.

Mr. C. L. Nelson, assistant topographer, will also be assigned to this survey, and you are instructed to generally supervise his scientific work so that it may all be done in a uniform manner.

The expenses of this survey will be paid directly in the field by Mr. Nelson, who will act as special disbursing agent. For convenience, you should approve all accounts in connection with this work.

The line should be monumented with special iron posts, set at each 1-mile interval; also with stone, or concrete posts, properly marked, at intervals of 5 miles, if practicable, and near prominent places, such as river crossings, railroads, county boundary lines, etc.

Temporary assistants should be selected, as far as practicable, from the list of applicants on file in this office. The amount of salaries to be paid will be left to your discretion, bearing in mind that the pay of teamsters, packers, and cooks should not exceed \$60 per month; and that of rodmen, chainmen, and axmen should not exceed \$50 per month.

The final preparation of the report to the Secretary should be similar in form to United States Geological Survey Bulletin 170, as referred to in the director's recommendation of May 30 to the Secretary.

The following is a copy of a letter of June 26 from Mr. S. V. Proudfit, Acting Commissioner of the General Land Office, the provisions of which you will observe in conjunction with the survey of the Washington-Idaho boundary line

as closely and carefully as conditions will permit, in accordance with the director's recommendation of May 30 to the Secretary:

"I have your letter of the 23d instant, informing this office that the honorable Acting Secretary on June 20, 1908, has authorized your bureau to make a resurvey of the Idaho-Washington boundary line which was provided for under the sundry civil bill at the last session of Congress (Public No. 141), and you request to be furnished with detailed instructions regarding the method to be pursued so that the work may be performed in accordance with the regulations and in a manner satisfactory to this office.

"In the letter of authorization to you by the department dated June 20, 1908, a copy of which you inclose, it is stated that some doubt having arisen as to whether the resurvey should be a new line or a restoration of the old boundary, it is decided to have the old boundary line retraced and remarked, and to that end the full amount of the appropriation, \$25,000, can be used, which is at the rate of \$135.13 per mile.

"In compliance with your request, I beg to recommend that the resurvey be made as follows, in order to carry out the method pursued by this office in the reestablishment of the Wyoming-Nebraska boundary line recently contracted for with Edward F. Stable, United States surveyor:

"The Idaho-Washington boundary line was run by Rollin J. Reeves in 1873, who determined the point of intersection of the Snake and Clearwater rivers as the initial point and established as his initial monument a rock 72 by 8 by 8 inches on line 32.22 chains due north thereof which is doubtless now standing.

"The ascertainment of the true point of intersection of the Snake and Clearwater rivers, as it existed at the time of the Reeves survey, does not seem to be called for specifically by the terms of the appropriation and if redetermined and found to vary considerably from the point accepted by Reeves might disturb valid existing holdings.

"It should therefore not be necessary to redetermine the point of junction of the said rivers, but the line should be taken up at the initial monument and prolonged thence by running random and true lines between original mile corners or traces thereof establishing straight lines between them, noting topography and intersections of public-land lines on each side. If necessary to locate the subdivision lines closing on the restored boundary line, the section and township lines should be retraced. Should, however, the closing corners set by the subdividing deputy be off the course found between old mileposts, the evidences should not be destroyed, but the closing corner should be placed at its proper place according to the retracement both as to distance along the line and as to alinement with the mile course.

"It will probably not be necessary to retrace over a mile each side to find public-land corners, and your notes and diagrams need only show the distance from the nearest subdivision corners, but should show the course and distance to every original closing corner, provided the traces exist.

"As the line runs through a timbered district, it is believed that no great amount of retracement for closing lines will be necessary.

"If the old closing corners are found on the line as restored, the closing lines need not be retraced to demonstrate the accuracy of the location. It would be well in this event to remove the original post or stone and to erect the iron corners over the closing point, planting the original post or stone alongside to show that the original and restored corners are practically identical.

"In the resurvey of the Nebraska-Wyoming boundary line, mile corners were perpetuated by granite monuments of cut stone 6 feet long, and closing corners by 3-inch tubular iron posts surmounted with brass caps. No half-mile corners were set by Reeves nor need be set on the restored line.

"Field notes and diagrams should be in triplicate, similar to the copy of the notes of the Reeves's boundary furnished your bureau by this office."

The matter of the expense involved in tying the Land Office closing corners to the boundary line will be taken up with the commissioner and you will be informed as soon as practicable.

You are further instructed to make such journeys and to employ such assistants as may be necessary to execute these instructions.

Any property which it may be necessary to purchase, and this should be limited as far as possible, should be paid for out of United States Geological Survey funds from the appropriation for topographic surveys.

Reports should be made in duplicate and one copy sent to Mr. T. G. Gerdine at Sacramento, Cal., and the other to me at this office. As this work lies in the Pacific division, Mr. Gerdine is, of course, in administrative charge, and I am giving these instructions direct, as it was necessary for Mr. Gerdine to leave for California before definite action could be decided upon.

Very respectfully,

R. B. MARSHALL, *Chief Geographer.*

BOUNDARY LINES.

Territorial and State lines in the northwestern portion of the United States have undergone many changes. Originally this area was included partly in Louisiana and partly in Oregon, the dividing line being the crest of the Rocky Mountains.

Oregon Territory was organized August 14, 1848. It extended from the Pacific Ocean to the crest of the Rocky Mountains and from the forty-second parallel to the Canadian line. Its area at that time included the present States of Oregon, Washington, and Idaho, and portions of Wyoming and Montana. The Territory of Nebraska, formed from a portion of the Louisiana purchase, was organized May 30, 1854. Its original area extended from the Territory of Minnesota and the State of Iowa on the east to the continental watershed on the west, and from the fortieth parallel on the south to the Canadian line on the north. It included the existing State of Nebraska and portions of Colorado, Wyoming, Montana, North Dakota, and South Dakota. The Territory of Dakota was formed March 2, 1861, from a part of the Territory of Nebraska and the portion of the Territory of Minnesota not included in the State of Minnesota when that State was admitted. On March 3, 1863, the Territory of Idaho was formed of portions of Nebraska, Dakota, and Washington Territories, the latter having been organized March 2, 1853, from a portion of the Territory of Oregon. Originally Idaho contained about 324,875 square miles, but in 1864 it was reduced 146,080 square miles by the formation of the Territory of Montana, which was taken entirely from Idaho, and in 1868 it was further reduced by the formation of the Territory of Wyoming, almost the whole of which (93,995 square miles) was taken from Idaho. Idaho to-day contains about 84,800 square miles.

The present boundaries of Washington are as follows: Beginning on the coast at the mouth of Columbia River; following up the main channel of Columbia River to its point of intersection with the forty-sixth parallel of latitude; thence east on the forty-sixth parallel to Snake River; thence down the main channel of Snake River to the mouth of Clearwater River; thence north on the meridian which passes through the mouth of the Clearwater to the boundary line between the United States and the British possessions; thence west with that boundary line to the Pacific. The present boundaries of Idaho are described thus: Beginning at the intersection of the thirty-ninth meridian with the boundary line between the United States and the British possessions, it follows said meridian south until it reaches the summit of the Bitterroot Mountains; thence southeastward along the crest of the Bitterroot Range and the Continental Divide until it intersects the meridian of 34° of longitude; thence southward on this meridian to the forty-second parallel of latitude; thence west on this parallel of latitude to its intersection with a meridian drawn through the mouth of Owyhee River; north on this meridian to the mouth of Owyhee River; thence down the mid-channel of Snake River to the mouth of the Clearwater; and thence north on the meridian which passes through the mouth of the Clearwater to the boundary line between the United States and the British possessions, and east on said boundary line to the place of beginning.

The boundary under discussion is the common one mentioned above.

In the United States State boundary lines may be grouped in two general classes:

First. Those that are defined by some natural physical feature, such as an ocean or a lake shore, the channel or bank of a stream, the summit of a range of mountains, or a watershed.

Second. Those that are defined by imaginary lines which must be traced on the earth's surface by astronomic or mathematical processes. Such a line may be a meridian of longitude, a parallel of latitude, a line between two points (such as a portion of the western boundary of Nevada, which is from the intersection of the one hundred and twentieth meridian and the thirty-ninth degree of latitude to a point on Colorado River where it intersects the thirty-fifth degree of latitude), a line defined by azimuth and distance or a number of such lines consecutively joined (such as the boundary line between Maine and New Hampshire), a line determined by a given direction from a certain point terminating at its intersection with some other line (such as a portion of the western boundary of Idaho, under consideration, which runs from a point in the channel of Snake River opposite the mouth of the Clearwater due north to the thirty-ninth parallel of latitude), or a tangent or arc of a circle (such as the western and northern boundaries of Delaware).

Generally speaking, boundary lines defined by natural features need no monuments to indicate their location, but those that are determined by imaginary lines must be perpetuated by marks of some kind after their positions have been determined.

The boundary line between Idaho and Washington is made up of two sections, falling into the two classes mentioned. The first section follows the channel of Snake River, and accordingly requires no further marking. The second section, along the meridian passing through the junction of Snake and Clearwater rivers, is the one under discussion.

ORIGINAL SURVEY.

The boundary line between Idaho and Washington was originally surveyed in 1873 by Rollin J. Reeves, under contract with the Commissioner of the General Land Office, dated June 6, 1873. The following extract from his notes describes his method of determining the initial point:

Through information gained from Capts. Stump, Coe, and Slater, all officers of the Oregon Steam Navigation Co. (the last named being present register of the land office at Lewiston), and old citizens and rivermen at Lewiston, and especially through the assistance of Mr. Silcott, the owner and conductor of the ferryboats across both rivers, I was able, after much investigation and considerable embarrassment, to determine the point "in the middle channel of Snake River, opposite the mouth of Clearwater, as it existed March 3, 1863." This was an indefinite point to ascertain, a position admitting of various interpretations and the selection of which gave me the greatest solicitude and anxiety.

Mr. Silcott aided me in making soundings to determine the channels of these rivers and in the placing of buoys.

Five different buoys of varied construction and weight were successively floated at or near the initial point. The terrible force of the water, its depth and smooth bottom, carried each of these buoys away before I could make an observation with instrument on either. I also floated a buoy (a keg) by paying out rope from a stake driven at the point of the peninsula, but the weight of the rope, which was several hundred feet long, dragged the keg under. After trying for a week, with all the assistants and all the appliances we could secure or invent, we were constrained to adopt an approximate location. I believe its location to be so nearly exact that it is correct for all practical purposes; and at any rate will not vary farther from the true position than its location by 20 engineers, acting independently of one another, and with the same data and opportunity, would all vary from one another.

Gen. Shanks, of Indiana; Gov. Bennett, of Idaho; and Gen. Milroy, superintendent of Indian affairs for Washington Territory, happening to be in Lewiston, I indicated the point selected after giving them its legal definition. They considered the location, as I had determined it, correct, although admitting the possibility of a different construction by others.

Assuming a point A on the southern shore of Snake River, in a line as nearly due south from the initial point as could be determined by sighting with solar compass to the imaginary buoy at the initial point H, I caused a stake to be driven at B on the north bank of the river, and in a line due north from A. I

now cross over to B, measure a base of 6 chains due east over the low flat surface to D. At D the line AD makes with the base BD an angle of $71^{\circ} 54'$. Therefore, since $BDA=71^{\circ} 54'$, $BAD=18^{\circ} 6'$. Now, the sine of $18^{\circ} 6'$: sine $71^{\circ} 54'$:: 6 chains : AB; or .3106764 : .9505157 :: 6 chains : AB. Therefore AB=18.36 chains.

The distance AH is equal (as nearly as can be estimated) to one-third of AB or to 6.12 chains. Therefore HB=18.36 chains—6.12 chains, or 12.24 chains, which we accordingly accept and adopt. I now cause a small stake to be driven at C, which is the "nearest permanent spot on a line due north" of the initial point (H), and where is to be built the permanent initial monument.

From B, I now measure carefully the distance BC. Returning to D, I measure the angle BDC and find it equal to $73^{\circ} 22'$. Therefore $BCD=16^{\circ} 38'$.

Now the sine of $16^{\circ} 38'$: sine $73^{\circ} 22'$:: 6 chains BC, which gives BC=20 chains. Thus, we have $HC=HB+BC=12.24$ chains+20.08 chains=32.32 chains, which is the distance of the initial monument at C from the initial point at H.

INITIAL MONUMENT.

[August 7, 1873.]

The initial monument, which stands on the "nearest permanent spot on a direct line north," and at 32.32 chains distant from the initial point, is located in a conspicuous, accessible, and durable position. It is just at the foot of the very high bluff bordering Snake and Clearwater rivers on the north, is only a few feet north of the main-traveled wagon road from Lewiston to Walla Walla, is above high-water mark, and yet as close to the river as could be safely chosen. (See Pl. I, A.) It is about half a mile west of Lewiston, and a little over three-quarters of a mile west of the guide meridian, run in Idaho, parallel to this boundary, and beginning near Lewiston. The monument was constructed in the following manner, viz: First, dug a pit at least 2 feet deep by 2 feet square, in the bottom of which deposited numerous pieces of charcoal and charred wood. In the pit then planted a shaft of basaltic stone, in dimensions more than 6 feet long by 8 inches wide and 8 inches thick, smoothly and evenly dressed and engraved in characters cut plainly and deeply into the stone near its top, as follows, viz:

On the side of the shaft facing north, the inscription "1873."

On the side of the shaft facing south, the inscription "Lat. $46^{\circ} 25' 51'' .96$."

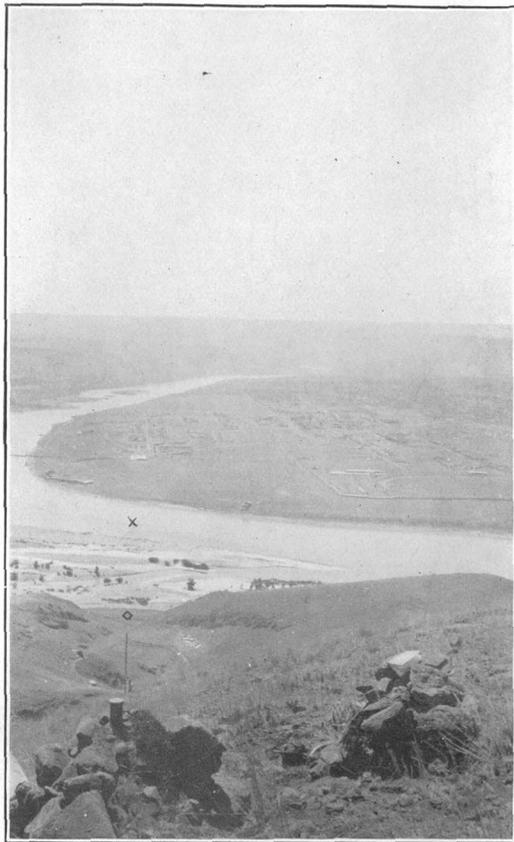
On the side of the shaft facing east, the inscription "I. T."

On the side of the shaft facing west, the inscription "W. T."

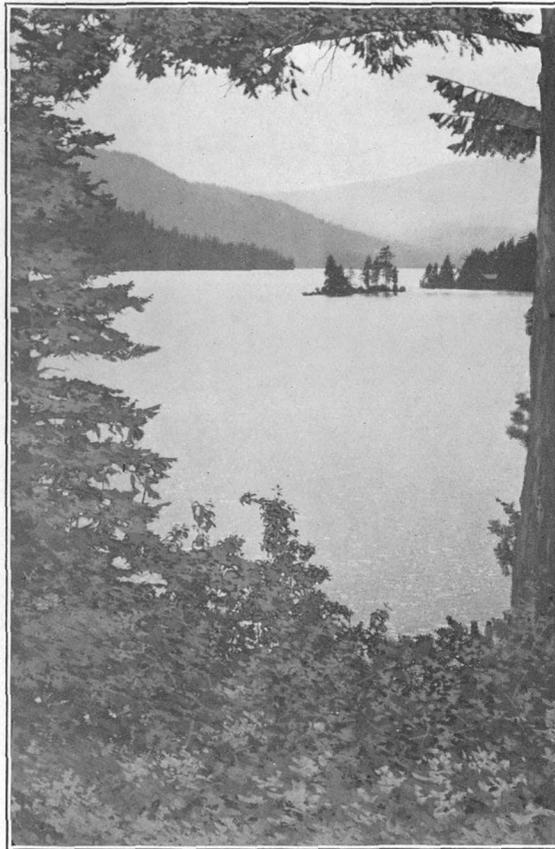
After placing the post with its sides to the cardinal points, in the foregoing manner, earth and stone were firmly packed and pounded about the foot of the shaft. Next dug four pits, each 3 feet deep and 3 feet square, each 10 feet distant from the foot of the shaft. One was dug due north, another due south, another due east, and another due west of the stone shaft. Built about the shaft a conical mound of earth and stone, the latter being carefully fitted and firmly packed together, and the earth pressed and sifted into all the interstices, making the mound firm and solid. It was built over 7 feet in diameter at the base, 3 feet high, tapering uniformly to the shaft, leaving the latter to project a little over a foot above the top of the mound. The stones used in building the mound were of various sizes, small and large, heavy round bowlders, found in great abundance along the river shore.

The initial monument is witnessed in the following manner, viz:

1. The sharp apex of the highest peak on the west bears (from the initial shaft) N. $63^{\circ} 7'$ W., estimated distance $3\frac{1}{4}$ miles.



A. VIEW AT JUNCTION OF CLEARWATER AND SNAKE RIVERS.



B. SPIRIT LAKE, IDAHO.

2. The next lower rocky peak bears N. $69^{\circ} 47'$ W., estimated distance $3\frac{1}{2}$ miles.

3. A lone pine tree near bank of Snake River, and at the mouth of a gulch, bears N. $88^{\circ} 21'$ W., estimated distance $2\frac{1}{2}$ miles.

4. Bush on point of bluff bears S. $89^{\circ} 52'$ W., estimated distance $4\frac{1}{4}$ miles.

5. The larger one of two trees situated across bend of river near its banks bears S. $83^{\circ} 25'$ W., estimated distance $3\frac{3}{4}$ miles.

6. The face of a bold bluff across Snake River, opposite the lower ferry, bears S. $69^{\circ} 58'$ W., estimated distance $4\frac{1}{2}$ miles.

7. The face of a small but prominent bluff, looking southerly across Snake River, bears S. $14^{\circ} 33'$ W., estimated distance $3\frac{1}{4}$ miles.

8. The point where the bar cuts the face of bluff opposite the last mentioned bluff bears S. $7^{\circ} 50'$ W., estimated distance $3\frac{1}{4}$ miles.

9. The highest point of land, looking southerly, bears S. $7^{\circ} 30'$ E., estimated distance 5 miles.

10. Easterly ferry-wire support on Snake River bears S. 15° E., estimated distance $7\frac{1}{4}$ miles.

11. Westerly flagstaff standing in Lewiston, estimated distance three-fourths of a mile, bears S. $35^{\circ} 59'$ E.

12. Cupola of schoolhouse in Lewiston bears S. $44^{\circ} 56'$ E., $1\frac{1}{4}$ miles distant.

13. The lone pine tree on sand bar on north shore of Clearwater River bears S. $48^{\circ} 3'$ E., three-eighths mile distant.

14. The northerly ferry post on Clearwater River bears S. $65^{\circ} 42'$ E., one-half mile distant.

15. The nearest and lowest point of bluff seen over the lower bluff at Clearwater Ferry bears S. $67^{\circ} 18'$ E., estimated distance 5 miles.

16. The anchor for ferry wire bears S. $71^{\circ} 30'$ E., estimated distance one-half mile.

17. The top of a rock lying near foot of bluff, sloping to the road, bears S. $89^{\circ} 1'$ E., distance 18 chains.

18. The highest point of bluff looking northeast bears N. $47^{\circ} 35'$ E., distance 10 chains.

19. The face of a rock lying on the easterly side of a gulch bears N. $5^{\circ} 42'$ E., 7 chains distance.

Mr. Seth G. Slater, the register of the United States land office at Lewiston, in mentioning this monument, wrote: "It is a far better job than I thought could have been accomplished. The work is well done and the monument all that could be wished for."

Even at that time the rich mesa (Palouse) country just north of Lewiston had begun to attract settlers, and Mr. Reeves speaks of scattered fenced-in holdings where grain and vegetables grew abundantly. Cattle owned by the whites and bands of horses belonging to the Indians found an excellent range on this plateau.

Then, passing through the timbered country farther north, Mr. Reeves says of milepost 121:

This post stands in a beautiful natural pine park, large open timber, with zones of pine, fir, and hemlock thickets.

On retracing the line, the bottom of this post was found in the center of a street of Newport, a flourishing town with two railroads.

Mr. Reeves made a raft of logs to cross Clark Fork at this point and at the south end of Rat Island blazed and marked a cottonwood

tree as a witness post to milepost 122. This tree was found with the blaze completely overgrown and with no sign of a scar on the bark. The illustration (Pl. II, *B*) shows the depth to which the tree had to be cut to expose the old inscription, which was then perfectly clear.

From this point northward it was a race between the party and the approaching winter, the increasing difficulty of advancing, due to rugged topography, thickets, and snow, finally compelling them to turn back when but a little more than a mile from the international boundary.

The following extracts are taken from Mr. Reeves's notes:

Mile 172. Mountainous country of the roughest character, timber nearly completely burned and fallen; the trees that remain standing are nearly all dead from the effects of fire. Many large loose bowlders lie scattered over the surface. Soil burned to ashes. Great quantities of fallen timber over the entire mile. The work is of the most discouraging character imaginable.

Mile 173. Land rises constantly but very gradually toward the north. This mile has followed along the foothills of a range whose summit is considerably west of the line, the foothills all sloping toward the east. Most of the timber has been burned and fallen, which, with large bowlders and plenty of rock, makes our progress discouragingly slow. On the last half mile there is a heavy growth of small alders. This mile has caused the greatest labor of any since leaving Lewiston. It snowed about 2 inches last night and there was a continuation of the storm during the day. The ground, brush, and trees have been covered with snow, making all hands cold, wet, and wretched during the entire day.

Mile 174. The weather has been cold and clear all day, the ground covered with snow several inches thick.

Mile 175. The line now (27.50 chains from milepost 174) follows a steep, brushy hillside which slopes toward the east at an angle of about 45° ; besides the brush the surface is covered with loose basaltic rock which, being covered with snow, renders our progress slow and almost perilous.

* * * * *

Numerous logs, stumps, and large bowlders are crossed every few chains; these, together with the abruptness of the grade, loose stones, thick underbrush, snow, cold, and general exhaustion, have rendered the establishment of this mile one of the most difficult, tedious, and painful of the entire boundary.

Mile 176. October 25, 1873. There is from 4 to 6 inches of snow on the ground and every prospect of more falling before night. * * * We are now ascending a high, steep mountain covered with small timber, dense underbrush, but much less down timber. Granite outcroppings, in area of 1 to 5 acres, are seen on the south side of the mountain. The ground is covered with snow about 4 inches deep. Everything has the appearance of midwinter.

Mile 176½. Having run out the first half mile from the one hundred and seventy-sixth milepost, it being almost dark and nearly 2 miles to camp, over a road of the very roughest character, and fearing that we would not be able to return to this point again this season, we here set milepost 176½. * * * This entire half mile has been ascending the south side of a mountain, and the post stands about half a mile below (south of) the apparent summit. The timber is scattering and of stunted growth, being mostly black pine, fir, and some alder. Soil very shallow and rocky, fourth rate.



A. VISTA CUT ALONG BOUNDARY LINE.



B. BLOCKING A WITNESS TREE.

Here ended the possibility of proceeding upon the line during this season. Last night the cook made bread of the entire quantity of flour remaining, all other provisions having been exhausted. This morning the bread was rationed out to the men, each one receiving five or six small loaves with the information that no other could be furnished until they returned to the camp where the provisions were deposited and the pack animals were left. This latter camp was near the summit of a mountain between the one hundred and sixtieth and one hundred and sixty-first miles and about half a mile east of the line, where was found the last vestige of grass on the entire route. All hands now proceeded to cut down trees and otherwise clear the view, thus enabling Mr. Dennison to make final observations for latitude. He and several assistants were engaged during the entire night in endeavoring to secure observations. The result, however, was not satisfactory. It was too cloudy and cold, the thermometer indicating 10° F.

In the morning we commenced retracing our line to the main supply camp above mentioned. A portion of the instruments, tools, and extra luggage were cached at this camp (176½ miles). After three days of unremitting toil we arrived at the main camp, our provisions completely exhausted, and our strength nearly so. By this time we were thoroughly convinced that to have remained only a day or two longer in endeavoring to push the work to its completion would have been fatal. During the last day that we worked in establishing the line, two members of the party went ahead 3 to 4 miles, prospecting for the international boundary line (latitude 49°).

Trees were found blazed and two cut square off as if for observations. These were about $2\frac{1}{2}$ miles from (north of) the last camp. From the main supply camp we were employed 10 days in retracing our line to the first white settlement at Spokane Bridge (90-mile air line), which we had left on the 2d day of September. Remaining here two days resting and getting fresh supplies of provisions, we started on our return to Lewiston, where we arrived after one week's travel, and where the party was disbanded.

With a knowledge of the country traversed, as it is to-day, one can but marvel at the persistence and hardihood of that party of men who did not falter until actual lack of food compelled retreat. At their northernmost point they were nearly 90 miles from Spokane Bridge, the nearest white settlement—90 miles of mountains, wind-fall forests, and thickets, of zero weather, and snow.

In the retracement few of these difficulties were encountered. Steamers on Priest Lake landed supplies only 20 miles from the international boundary. The northernmost end of the line, the most difficult, was retraced during August and September, the best time of the year.

DESCRIPTION OF OPERATIONS.

The retracement of the Idaho-Washington boundary line was commenced July 11, 1908, from the initial monument near Lewiston, Idaho, and continued northward. The work was begun by S. S. Gannett, geographer, using a Young solar transit No. 64, and C. L. Nelson, assistant topographer, using a Young solar transit No. 66.

METHODS.

After a careful test of the stadia interval of the instruments, the stadia method was used, as the country was in general either rolling or mountainous.

Rod levels were used on the rods. Two turns were taken for each set up, so that the results are really the average of a twice-run line. The average discrepancy between the two stadia lines was 6 feet to the mile. As the country was rough, this result was considered superior to the probable result from chaining.

Miles 1 to 3 were run by Mr. Gannett and Mr. Nelson in conjunction. Afterwards two camps were formed. Mr. Gannett ran miles 16 to 50 and 81 to 117; Mr. Nelson ran miles 3 to 16, 50 to 81, and 117 to 121. The line was run as a random line, sometimes in a northerly direction and sometimes in a southerly direction.

To avoid confusion, the lines are given in the final notes to read consecutively and on the true line. To prevent chance of error in alignment, the line was run on fore and back sights between corners and solar observations made there.

TOPOGRAPHY.

After climbing the bluff north of Snake River, the line runs northward over a rolling plateau, called locally the Palouse country. Wheat is the principal crop, but the soil is fertile and the small orchards around farmhouses prove that it could easily be made an excellent fruit country. The general impression of prosperity is such as one might expect to find in a fertile Mississippi Valley section. The physical characteristics of this district are shown in Pl. III, A, which represents a typical view in the Palouse country.

The line passes near Moscow, where the University of Idaho is located, then continues northward through rich agricultural country, passing over hills on either side of Farmington, the first rough, untilled country on the plateau.

Continuing north the State line forms the western boundary of the Cœur d'Alene Indian Reservation. The Indians live much like white settlers, with substantial frame ranch houses and barns, and buggies to take them to town. Here and there a wikiup would appear in a dooryard, but whether set up simply as a relic of the past or as an actual refuge when proper civilization becomes too onerous the writer has no knowledge.

Toward the north end of the reservation scattering pine and fir timber begin to appear, while at the northern boundary, near the State line, a sawmill is at work in the center of a very good stand. Leaving the reservation the line crosses Mica Mountain, through



A. VIEW AT MILEPOST 13.



B. VIEW AT MILEPOST 51.

timber and brush, and descends the north side into Spokane Valley. (See Pl. III, *B*.) Irrigation is being introduced into this valley, and the orchards are responding in a very encouraging manner.

The line again strikes into the hills north of the valley, on which the timber increases as Spirit Lake is approached. (See Pl. I, *B*.) The line west of this lake passes through virgin forest, into which a large sawmill at Spirit Lake has just begun to cut. Pack animals were found necessary through the mountains here, and the serious work of the axman began. Practically continuous chopping was necessary from this place northward. (See Pl. II, *A*.)

In Blanchard Creek valley small settlers' clearings begin to appear. Two small sawmills fill the local demand for timber.

As Newport is approached the hills disappear and a heavily timbered plateau, with hardly any relief, extends northward to the town. An extensive experiment is being undertaken at the northern edge of this plateau overlooking the town. The forest is being cleared, the stumps uprooted, and fruit trees planted. The trees have not yet come into bearing but are growing well. The small patches of potatoes, strawberries, etc., in this clearing have produced so well that it seems certain that the entire plateau will eventually be cleared for agriculture.

Newport was reached on October 9, 1908. Extensive rains and more recent snow flurries suggested that it would be wise to postpone the field work until the following spring. The parties accordingly disbanded here. The camp outfits were stored, the stock was turned over to a rancher for the winter, and Mr. Gannett and Mr. Nelson returned to Washington.

On May 1, 1909, Mr. Nelson, with S. G. Lunde, arrived at Newport, organized a party, and resumed work. Bayard Knock organized a party of three men to map the country traversed the preceding season by the retracement parties. Mr. Knock's party turned south, while the other party continued northward on the retracement.

The line on leaving Newport crosses Clark Fork, striking Kellys Island and Rat Island. The valley north of the river is narrow. After passing this strip and surmounting the river bluff, the line traverses a plateau, evidently on the same level and apparently of the same formation as that south of Newport. Settlers with small clearings near the shores of two beautiful lakes are the last for some 10 miles in traveling northward. The country here becomes a wilderness which, with the exception of a few meadows farther north, remains unbroken to the international boundary.

The north end of the line is the highest and the most difficult of access, and it was decided to retrace this portion during the best part of the season. Accordingly, after reaching milepost 127, the party

returned to Clark Fork and moved the wagon camp to Coolin, via Priest River. The wagon and heavier camp equipment were left there. Pack outfits and animals were put aboard a barge and steamer, taken toward the upper end of Priest Lake, and unloaded at Reeder Creek cabin.

The party then took the Granite Creek trail, carrying stadia elevations from the lake at Reeder Creek. Granite Creek was swollen by the June floods, and it was with some difficulty that it was forded.

A couple of miles farther on the trail brought the party close to the line and all blazes were carefully examined. Finally scars were found, the overgrowing rings of which showed the blaze to be approximately 36 years old. After making camp, the party followed the line to an old milepost (156) and the retracement work was resumed. The illustration of a section of a witness tree on this line (Pl. IV) shows clearly how closely the age of a blazed line may be determined from counting the rings of annual growth.

An old lateral moraine to the south and glacial striæ on exposed ledges farther to the north give very conclusive evidence of the work of glaciers in this region.

Near this camp the traverse man's path was successfully disputed for the time being by a large bear. The party continued northward without mishap, however, until the international boundary was reached on August 29, 1909. The last section of a little over a mile was original survey, as the party of 1873 did not reach the Canadian line.

This country was rugged, and the dense thickets on old burns and many windfalls made the packer's task a difficult one. Occasionally the whole force had to turn to with axes to cut a trail for the animals.

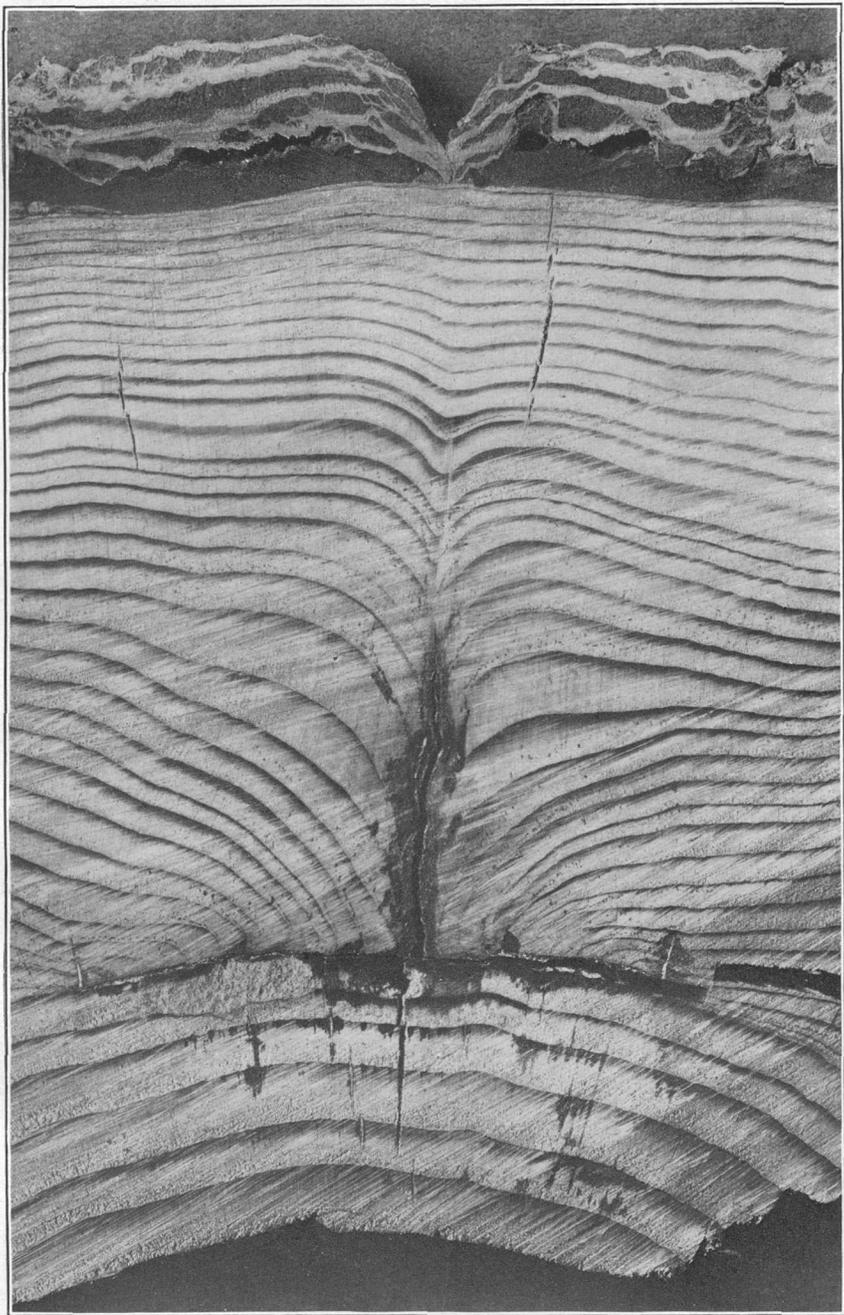
In the meantime Mr. Lunde had returned to Newport and organized a party to retrace the line northward from milepost 127. The other party, working southward from milepost 157, met his party near milepost 144 on October 17, 1909.

Mr. Knock, who had completed the strip of topography below Newport, accompanied Mr. Lunde as he retraced the line and mapped the topography covered by the party. In Mr. Nelson's party the topography had been carried on with the line work, aided by foot traverse work by Messrs. De Long and Hines.

The parties now returned to Newport, where the outfits were stored, and disbanded, Mr. Nelson returning to Washington to prepare the notes and plat and Mr. Lunde going to Sacramento, Cal., on other survey work.

MONUMENTS.

In re-marking the line it was decided to replace the old posts with more permanent ones. In general wrought-iron posts 6 feet long and 4 inches in diameter were used. (See fig. 1, e.) They were



SECTION OF FIR WITNESS TREE, SHOWING ANNULAR GROWTH.

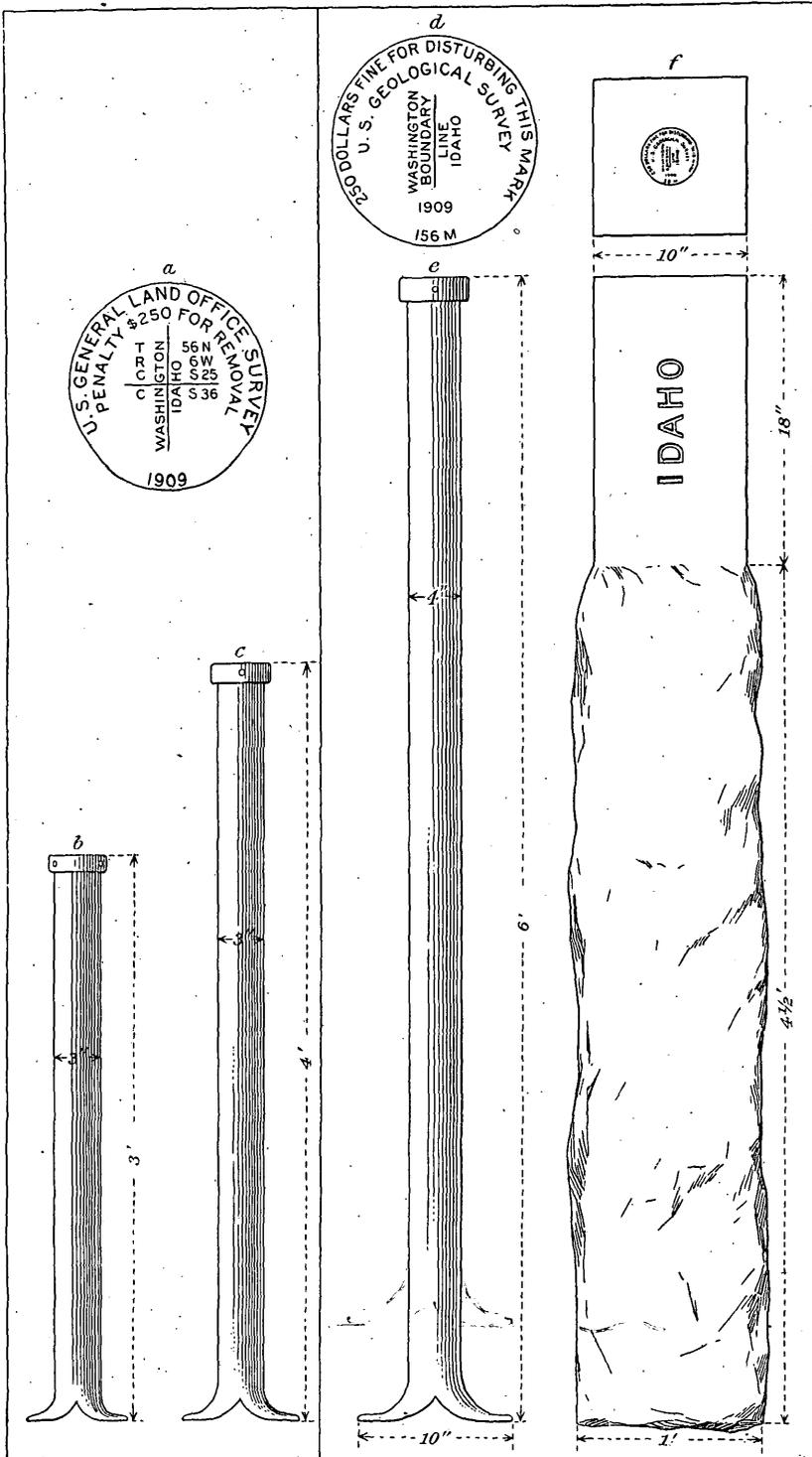


FIGURE 1.—Designs for iron post, stone monument, and iron closing-corner post. *a*, Bronze cap for iron closing-corner post, U. S. General Land Office; *b*, *c*, iron closing-corner posts, U. S. General Land Office; *d*, bronze cap for iron milepost; *e*, iron milepost; *f*, granite monument (top and side views).

flanged at the bottom and had a bronze cap on the top which bore the inscription (fig. 1, *d*). These posts were filled with concrete, so that even when the iron might rust and disintegrate the concrete would mark the spot. These posts were supplied by a St. Louis firm, at a cost of \$2.40 each, unfilled.

Wherever practicable, granite monuments 6 feet long and 1 foot square, with the upper 18 inches dressed, were erected at 5-mile intervals. They bore the inscription "Washington" on one side, "Idaho" on the other, and the number of miles from the south end of the line on the south face. (See fig. 1, *f*.) A bronze tablet was cemented into the top, carrying an inscription similar to those appearing on the bronze caps of the iron posts. These monuments came from a quarry at Medical Lake, Wash., and cost \$17 each. The weight of the granite monuments was a little more than 800 pounds, however, and this precluded their use where the position was not easily accessible. The 5-mile interval was therefore not maintained throughout the distance. With the exception of milepost 123, north of Newport, it was found to be inexpedient to use these granite monuments north of Clark Fork, as a 90-pound iron post filled with concrete often taxed the resources of the men along the rougher portions of the line.

The closing corners were wrought-iron posts, with a flange at the bottom. (See fig. 1, *a*, *b*, *c*.) They were 3 inches in diameter and of two lengths, 3 and 4 feet. These also were filled with concrete. Where the position of the old closing corner was doubtful no new corner was set, but where the position was apparent the new post was set on a straight line between the mileposts on either side and opposite the position of the old post.

In the Palouse country, where a road followed the line for a part of its length and cultivated fields and fences were encountered, the traces of the old mileposts were difficult to find. Under these circumstances the positions of the posts were determined by adjusting the distances and falling between the found posts. After this adjustment had been made, the rotten bottom of the old post was often uncovered when the hole was being dug for the new post, although there were absolutely no surface indications of its presence; as, for example, in such places as a graded road or along the ridge thrown up by plowing along a fence.

In the timber the positions of all the old mileposts were located by actual remains of the posts witnessed by bearing trees. The inscriptions on them were often completely overgrown, but were always found clear and in accordance with the old notes when exposed by chopping. In some places fire had apparently destroyed all evidences of the former survey, but careful search would invariably uncover some clue. In a few places bronze tablets were inserted in native

rock to mark the position of the milepost. At the intersection with the international boundary a rock monument was built from flat rocks found in the vicinity. Cement mortar was used, and the top was finished with a cap of neat cement with a bronze tablet inserted in the top.

DESCRIPTIONS OF MONUMENTS.

A general description of the mileposts is given below. Bearing trees were marked where the posts fall in timber, a full description of which will be found in the notes filed with the General Land Office.

Initial monument: Basalt shaft, 72 by 8 by 12 inches, 4.5 feet above surface of ground, in circular mound of rock 7 feet in diameter, 3½ feet high. Shaft is marked "1873" on north side, "W. T." on west side, "Lat. 46:25-51:96" on south side, and "I. T." on east side. Southeast and northwest barbed-wire fence, 9 links south of initial monument, marks the south side of the Oregon-Washington Railroad & Navigation Co.'s right of way. The monument is in an excellent state of preservation and was not replaced. (See Pl. I, A.)

1. Iron post 6 feet long, 4 inches in diameter, filled with concrete; brass cap stamped "1908 1 M." On account of bedrock, this post is set only 18 inches in the ground, surrounded with a rock mound, 3 feet in diameter, 2.5 feet high. Traces of milepost 1, a pile of rocks 2 by 2 feet on southeast slope of hill, and remains of old post in ground were found.

2. Iron post 6 feet long, 4 inches in diameter, filled with concrete, projecting 3 feet above ground. A mound of earth was placed around post and pits dug 6 feet north and 6 feet south. Post marked "1908 2 M." Evidences of old corner: Post not in place, 2 pits on line, 1 pit 1 foot east of line. Found squared timber 6 inches square, 4 feet high, 50 feet downhill to southwest, marked as described in old notes. In digging found rotten bottom of old post between north and south pits.

3. Iron post 6 feet long, 4 inches in diameter, filled with concrete, 1 foot north of east and west fence bearing west, and under north and south fence, projecting 3 feet above ground, marked "1908 3 M." On account of fence no pits were dug. Old corner indicated by old fence line. Remains of old post found at fence corner, not in place, only marks visible being "1873." In digging found pieces of rotted wood, apparently remains of old corner.

4. Iron post 6 feet long, 4 inches in diameter, filled with concrete, at fence corner, marked "1908 4 M." Pits 6 feet north and south of post. Fence corner was found in old mound with traces of pits to the north and south. Basalt stone 3 by 8 by 16 inches was found in top of mound, and in digging rotten base of old corner post, with charred block of wood at bottom, was found.

5. Granite monument 6 feet long, 1 foot square, with upper 18 inches dressed, marked "Idaho" on east side, "Washington" on west side, and "5 M." on south side. A bronze cap inserted in the top of monument is marked "1908 5 m." The monument is set on fence line between two grain fields, where rotten bottom of old post with charred block at the base was found by digging. There were no surface marks.

6. Iron post 6 feet long, 4 inches in diameter, marked "1908 6 M.", on north-south fence between grain field on the west and pasture on the east, with pits 6 feet north and 6 feet south. No traces of old corner were found, but position of post was adjusted between found corners 5 and 8.

7. Iron post 6 feet long, 4 inches in diameter, marked "1908 7 M.", on fence line, with mound of earth built around it and pits 6 feet north and 6 feet south. No evidences of old post were found, but position was adjusted between found corners 5 and 8.

8. Iron post 6 feet long, 4 inches in diameter, marked "1908 8 M.", on north-south fence line, with pits 6 feet north and 6 feet south. Old squared pine post marked "1873", "I. T.", and "W. T." on its respective faces, was found lying on the ground, and in digging on fence line remains of bottom of post, with charred and decayed pieces of pine at the bottom, were found.

9. Iron post 6 feet long, 4 inches in diameter, marked "1908 9 M.", in large wheat field 40 feet south of slight drain bearing east. The post stands in a grain field, and no pits were dug, but a mound was built around post. No traces of old post were found, although a double furrow 5 links to the east might have offered slight evidence of old line. Position was adjusted between found posts 8 and 14.

10. Granite monument 6 feet long, 1 foot square, with top 18 inches dressed and projecting aboveground, marked "Idaho" on east side, "Washington" on west side, with bronze cap set in top, stamped "1908 10 M." Monument is set in garden 76 feet south of Henry Mengelkamp's house and 15 feet south of south fence of second-class road at north end of willow hedge and about 4 feet east of it. No trace of old milepost 10 was found, but position was adjusted between found corners 8 and 14.

11. Iron post 6 feet long, 4 inches in diameter, marked "1908 11 M.", on north slope near top of spur. No pits were dug, as the post falls in a wheat field. Found no trace of old milepost 11; there were no fence lines or other evidences. Position was adjusted between found posts 8 and 14.

12. Iron post 6 feet long, 4 inches in diameter, marked "1908 12 M.", on fence line on top of spur sloping east between two grain fields. Pits were dug 6 feet north and 6 feet south of post and conical mound of earth placed around post. No evidences of old post were found, but position was adjusted between found posts 8 and 14.

13. Iron post 6 feet long, 4 inches in diameter, marked "1908 13 M.", in small adobe flat, with pits 6 feet north and 6 feet south, and mound of earth around post. (See Pl. III, A.) No traces of old milepost 13 were found, but position was adjusted between found posts 8 and 14.

14. Iron post 6 feet long, 4 inches in diameter, marked "1908 14 M." Post is set on south side of a buried rock that was found on fence line, evidently set in black loam. This rock was 2 by 10 feet at top and 10 by 10 feet at bottom, and its position corresponds to description of old post, as drain crossings are noted 1 chain and 4 chains north of post 14, the real distances being 0.99 chain and 4.13 chains. The course of the drains agree with those of the old notes. As new post falls on hog-proof fence, no pits were dug. A stone 12 by 12 by 4 inches was set at foot of post and a stone (quartzite) mound was built around post.

15. Granite monument 6 feet by 12 inches, square, with upper 18 inches dressed to 10 inches square, engraved "Idaho" on east side, "Washington" on west side, "15 M." on south side, with brass cap in top stamped "1908 15 M.", set on a fence line on north slope of hill. The old timber boundary post, 5 inches square, was found standing 4 feet above ground, marked "1873" on north side, "15" on south side, "I. T." on east side, and "W. T." on west side.

16. Iron post 6 feet long, 4 inches in diameter, filled with concrete, with brass cap set in top stamped "1908 16 M.", set 3 feet in the ground, at intersection of fence east with north and south fence, in clump of choke cherries on southwest slope. The land on the west belongs to W. H. Hawley, on the south-

east to John Naylor, and on the northeast to Frank Slater. Original milepost 16 was found in good condition, marked as described in land-survey notes. This post was reset by W. H. Hawley in 1898.

17. Iron post 6 feet long, 4 inches in diameter, marked "1908 17 M.," set 3 feet in ground where remains of old wooden milepost 17 were found under a north and south fence 0.65 chain north of fence east.

Though diligent search was made, no mileposts could be found between the seventeenth and twenty-second corners. The distance between these corners was found to be 391.55 chains, and the falling 0.00 chains; the true bearing is therefore due north. As, according to notes furnished by the Commissioner of the General Land Office, mile 17-18 was rechaind during the subdivision of T. 14 N., R. 46 E., and found to be 10 chains short, a measurement which agreed with the short measurement (391.55 chains) made of the total 5-mile distance between the seventeenth and twenty-second corners, 70 chains was accepted as length of the eighteenth mile, and 80.39 chains as length of each of the other 4 miles.

18. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1908 18 M.," set 3 feet in ground, 70 chains north of milepost 17, in wheat field sloping west by south; 1.5 chains from bottom of each branch of small draw, 8.05 chains north of fence corner, and 8.45 chains south of east and west fence. Bearing pits 2 feet square and 2 feet deep were dug 6 feet north and 6 feet south of post.

19. Iron post 6 feet long, 4 inches in diameter, filled with concrete, 3 feet in ground, marked "1908 19 M.," 2 links west of fence on northeast slope, near bottom of draw, with bearing pits 2 feet square and 2 feet deep, 6 feet north and 6 feet south.

20. Iron post 6 feet long, 4 inches in diameter, filled with concrete, 3 feet in ground, marked "1908 20 M.," under State-line fence on cultivated land, sloping south, about 9 chains east of a row of poplars. Partly timbered butte bears S. 85° 50' E., 5 miles; large red barn bears S. 85° E.; north tree of row of poplars bears N. 79° 20' W.; south tree of row of poplars bears S. 68° 15' W. Bearing pits 2 feet deep, 6 feet north and 6 feet south of post.

21. Iron post 6 feet long, 4 inches in diameter, filled with concrete, set 3 feet in ground, under north and south fence, marked "1908 21 M.," with bearing pits 2 feet deep, 6 feet north and 6 feet south, land on west owned by Arthur Gosselin, land on east owned by Samuel Long, cupola on Mr. Long's barn bearing N. 34° 40' E., highest peak of Moscow Mountains bearing N. 57° 8' E., Moscow water tower bearing N. 75° 40' E., chimney on small red house bearing S. 83° 5' E.

22. Granite monument, 6 feet long, depressed 10 inches square on top and on sides for 18 inches below top, marked "Washington" on west, "Idaho" on east, and "22 M." on south, with brass tablet similar to brass caps of iron posts, countersunk in center of top, stamped "1908 22 M." Iron post was set in place of old pine milepost 22, which was found in good condition, 0.5 miles northeast of house of Arthur Gosselin, marked as described in notes furnished by the Commissioner of the General Land Office.

No traces of mileposts could be found between the twenty-second and twenty-fifth corners. The distance between these corners was found to be 241.36 chains, and the falling 35 links east; the true bearing is therefore N. 5' W. and the length of each mile 80.45 chains.

23. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1908 23 M.," 3 feet in ground under State-line fence. In digging hole for this post, stump of old milepost was found.

24. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1908 24 M.", set 3 feet in ground in wheat field belonging to John Thompson, on northwest slope, about 3 chains southeast of lane, with bearing pits 6 feet north and 6 feet south.

25. Granite monument, 6 feet long, dressed to 10 inches square on top and on sides 18 inches down from top, set 3 feet in ground, marked "Washington" on west, "Idaho" on east, and "25 M." on south, with brass cap stamped "1908 25 M." countersunk and cemented in top. This monument was set in place of old milepost 25, a decayed wooden post, with most of the original marks obliterated, which was found on northeast slope, in a clump of service bushes and buck brush.

No mileposts could be found between the twenty-fifth and thirtieth corners. The distance between these corners was found to be 402.95 chains, and the falling 46 links to the west; the true bearing is therefore N. 4' E., and the length of each mile 80.59 chains, except as noted for miles 27 and 28.

26. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1908 26 M.", set 3 feet in ground in wheat field on northeast slope on land belonging to Fred Goiser, 4.2 chains south of drain, with chimney on Mr. Goiser's house about 11 chains distant, bearing N. 61° 45' W. Pits were dug 2 feet deep, 6 feet north and 6 feet south of post.

27. Iron post, 6 feet long, 4 inches in diameter, filled with concrete, marked "1908 27 M.", set 3 feet in ground at turn in lane on north side and at foot of high fill of Spokane Inland Empire Electric Railroad. Rocks were piled around post, and pits dug 2 feet deep, 4 feet north and 4 feet south. Southwest corner of red barn of P. T. Powe 1.98 chains distant, bearing N. 11° 45' E. As the true position of milepost 27, at 80.59 chains, comes on top of embankment of electric road just being constructed, the post was set 0.81 chain north in solid ground.

28. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1908 28 M.", set 3 feet in ground under west fence of lane west of Joe Beck's orchard and house, with pits 2 feet deep, 6 feet north and 6 feet south of post.

29. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1908 29 M.", set 3 feet in ground under north and south fence, 6.02 chains south of fence west, 2.03 chains south of township corner, with pits 2 feet deep, 6 feet north and 6 feet south of post.

30. Granite monument 6 feet long, dressed to 10 inches square on top and on sides for 18 inches down from top, marked "Washington" on west, "Idaho" on east, and "30 M." on south, with brass tablet marked "1908 30 M." countersunk and cemented in top. The monument is located about 3 chains northeast of house of W. A. Garrell and 1.8 chains east of his well. It is 4.75 chains south of electric car track and 12.88 chains south of main wagon road, and is on the south side and at nearly the lowest point of the valley. Traces of old rotted milepost 30 were found under State-line fence.

31. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1908 31 M.", set 3 feet in ground, with pits 2 feet deep, 6 feet north and 6 feet south. Rotten butt of old cedar milepost was found.

No mileposts were found between the thirty-first and thirty-fourth corners. The distance between these corners was found to be 241.32 chains and the falling 119 links west; the true bearing is therefore N. 17' E., and the length of each mile 80.44 chains.

32. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1908 32 M.", set 3 feet in ground under State-line fence on west side of lane, with jack pine and brush on west of lane. The land on the west belongs to Ernst Meinig, and the cultivated field on the east to Homer McClung. Pits 2 feet deep were dug 6 feet north and 6 feet south of post.

33. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1908 33 M.", set 3 feet in ground on gentle north slope about 6 chains south of drain in cultivated field, 27 chains south of road, with pits 2 feet deep, 6 feet north and 6 feet south.

34. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1908 34 M.", set 3 feet in ground, 20 feet south of fence east on line between sections 1 and 12, township 41 north, range 6 west. Land on both sides of State line is cultivated; that on the east is owned by C. W. Foster. Rotted stump of old pine post was found on land sloping south.

35. Granite monument 6 feet long, dressed 10 inches square on top and on sides for 18 inches down from top, 3 feet in ground, marked "Washington" on west, "Idaho" on east, and "35 M." on south, with brass tablet stamped "1908 35 M." countersunk and cemented in top. Remains of old square pine post were found in mound of earth.

36. Iron post 6 feet long, 4 inches in diameter, filled with concrete, 3 feet in ground, marked "1908 36 M." This post was set in place of original milepost 36, which was found in mound of earth under fence, and pits were dug 8 feet north and 8 feet south. Post is on cultivated land, sloping north, just north of top of low ridge; ground covered with low brush.

37. Iron post 6 feet long, 4 inches in diameter, filled with concrete, 3 feet in ground, marked "1908 37 M." Post is near top of low ridge and in a line of brush 8 feet wide; it is 1.71 chains south of west fence, 1.2 chains west of fence running northwest to section corner. Rotted butt of original square milepost 37 was found between indications of pits 6 feet north and south.

No mileposts could be found between the thirty-seventh and thirty-ninth corners. The distance between these corners was found to be 160.62 chains, and the falling 23 links to the east; the true bearing is therefore N. 05' W., and the length of each mile 80.31 chains.

38. Iron post 6 feet long, 4 inches in diameter, filled with concrete, 3 feet in ground, marked "1908 38 M.", 2 links west of north and south rail fence about 1.2 chains east of small grove of apple, lilac, and poplar trees, with pits 2 feet deep 6 feet north and 6 feet south.

39. Iron post 6 feet long, 4 inches in diameter, filled with concrete, 3 feet in ground, marked "1908 39 M." Post is 0.23 chains east of road and about 1.2 chains north of gate to yard in front of Mrs. Drew's house. Pits 2 feet deep were dug 6 feet north and 6 feet south. A mound, with pits 6 feet north and 6 feet south, was found 10 feet west of fence along east side of road.

40. Granite monument 6 feet long, dressed 10 inches square on top and on sides 18 inches down from top, marked "Washington" on west, "Idaho" on east, and "40 M." on south, with brass tablet countersunk and cemented in top, stamped "1908 40 M." This monument is set 3 feet in ground. Rotted stump of old square milepost was found in west edge of wagon track, 27 feet east of fence on west side of road and 27 feet west of fence on east side of road.

41. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1908 41 M.", set 3 feet in ground in place of rotted stump of squared pine post, which was found in mound about 3 chains northwest of junction of north and south road with road east. Pits 2 feet deep were dug 6 feet north and 6 feet south.

42. Iron post 6 feet long, 4 inches in diameter, filled with concrete, 3 feet in ground, marked "1908 42 M.", set in place of rotted stump of squared pine post, which was found 3 feet east of fence along west side of road. Pits were dug 2 feet deep 6 feet north and 6 feet south. Falling is 3 feet east of random line; hence, true line is 2 feet east of random line, or due north.

No mileposts were found between the forty-second and forty-fourth corners. The distance between these corners was found to be 159.74 chains, and the falling 0.00 links. The true bearing is therefore north, and the length of each mile 79.87 chains.

43. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1908 43 M." This post is set 3 feet in ground, and is located in a field used as a pasture; it is 2.83 chains north of center of east and west road, in valley south of Stratton Butte. Pits 2 feet deep were dug 6 feet north and 6 feet south.

44. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1908 44 M.", set 3 feet in ground, 0.27 chains north of a fence running east and 0.12 chains east of north and south fence. Pits were dug 6 feet north and 6 feet south. Butt of rotted pine post was found on south slope of Stratton Butte, about 5 chains below top. Traces of mound and pits north and south were also found.

45. Granite monument 6 feet long, dressed 10 inches square on top and on sides 18 inches down from top, marked "Washington" on west, "Idaho" on east, and "45 M." on south, with brass tablet stamped "1908 45 M." counter-sunk and cemented in top. Monument is set 3 feet in ground; no pits were dug. Butt of rotted pine post was found under fence on east edge of cemetery 0.5 mile southeast of Farmington, Wash.

No mileposts were found between the forty-fifth and forty-seventh corners. The distance between these corners was found to be 160.40 chains and the falling 9 links to the west; the true bearing is therefore N. 02' E., and the length of each mile 80.20 chains.

46. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1908 46 M.", set 3 feet in ground, on northeast border of Farmington. Land on east is owned by Adin Davis and that on the west by C. W. Russell. Post is set under State-line fence, with pits 2 feet deep, 6 feet north, and 6 feet south.

47. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1908 47 M.", set 3 feet in ground, with pits 2 feet deep, 6 feet north and 6 feet south. Butt of rotted square pine post was found in ground under fence, about 5.5 chains southwest of house of J. H. Chandler, 3.83 chains north of corner of fence east.

48. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1908 48 M.", set 3 feet in ground, with pits 2 feet deep, 6 feet north and 6 feet south. A stone marked "I" on east, "W" on west, and "48" on south was found set in a mound, with pits 6 feet north and 6 feet south. In digging, traces of rotted pine post were found.

49. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1908 49 M.", set 7 links east of east wagon track of road to replace bottom of old post found in the ground, badly decomposed. A conical mound was built around post 4 feet in diameter and 2 feet high, and pits were dug 6 feet north and 6 feet south of post. Mound and pits for old milepost 49 were found.

50. Granite monument 6 feet long, 1 foot square, with upper 18 inches dressed and 10 inches square, marked "Idaho" on east side, "Washington" on west side, and "50 M." on south side, with brass tablet set in top stamped "1908 50 M." This monument was set to replace old milepost 50, which was found on line 2 feet east of wagon tracks of road. The top had been graded off, but the rotten bottom remained.

51. Iron post 6 feet long, 4 inches in diameter, marked "1908 51 M.", set in old mound which was found on west side of road, with traces of pits. Mound and pits were reshaped. (See Pl. III, B, p. 16.)



A. STONE MONUMENT NO. 60.



B. STONE MONUMENT NO. 115.

52. Iron post 6 feet long, 4 inches in diameter, marked "1908 52 M.", set in place of old post, remains of which, with pits, were found on line. The post falls 26 links west of wagon track, 21 links east of west fence, half way down slope toward the south. A mound of earth was built around post and pits dug 6 feet north and 6 feet south.

53. Iron post 6 feet long, 4 inches in diameter, marked "1908 53 M.", set in place of remains of old milepost 53, which was found on a steep graded bank, 6 links east of east wagon track of road. A mound was built around post and pits dug 6 feet north and 6 feet south.

54. Iron post 6 feet long, 4 inches in diameter, marked "1908 54 M.", set in place of remains of old milepost 54, which were found on line, with traces of mound and pits 44 feet west of east fence of wagon road.

55. Granite monument, marked "Idaho" on east side, "55 M." on south side, and "Washington" on west side, with brass tablet set in top stamped "1908 55 M.", set in place of old milepost 55, remains of which were found between wagon tracks and west fence of roadway.

56. Iron post 6 feet long, 4 inches in diameter, marked "1908 56 M.", set in place of rotten bottom of old post, which was found in low mound, with traces of pits, in grainfield, 39 links east of fence. A mound was built of earth around post, but no pits were dug, as the post falls in the grainfield.

57. Iron post 6 feet long, 4 inches in diameter, marked "1908 57 M.", set in place of old milepost 57, remains of which were found 1 link west of fence. A mound was built around post and pits dug 6 feet north and 6 feet south.

58. Iron post 6 feet long, 4 inches in diameter, marked "1908 58 M.", set on east side of road just west of north and south fence, against south side of old milepost 58, a 6 by 6 inch pine post, which was found 1.5 feet above ground, marked "1873" on north side, "58" on south side, "W. T." on west side, and "I. T." on east side. A mound was built around post and pits dug 6 feet north and 6 feet south.

59. Iron post 6 feet long, 4 inches in diameter, marked "1908 59 M.", falls 123 links south of fence that bears west and 15 links east of old fence line, and 45 links east of new fence. A conical mound 2 by 4 feet was built around post and pits dug 6 feet north and 6 feet south. Old milepost 59 was not found, and position was adjusted between found posts 58 and 62.

60. Granite monument 6 feet long, 1 foot square, with top 18 inches dressed, marked "Idaho" on east side, "60 M." on south side, and "Washington" on west side, with brass tablet set in top stamped "1908 60 M." North and south fence bears east 2 links. Post is set at foot of south slope of Chicago, Milwaukee & Puget Sound Railway grade and at foot of west slope of road grade. No trace of old milepost 60 was found, and position was adjusted between found posts 58 and 62. (See Pl. V, A.)

61. Iron post 6 feet long, 4 inches in diameter, marked "1908 61 M.", on line, set about 2 feet deep in very rocky soil, with mound of rocks built around post 3 by 3 feet. Pits were dug 6 feet north and 6 feet south of post. No certain evidence of exact position of old milepost 61 was found. Rotten remains of old bearing tree were found 41 links south and 7 links west of position for milepost. Remains were not in place but lying on hillside. A stone was also found 41 links south and 3 links east of position, marked "E1" on top. As the stone would not have marked place of old milepost on account of discrepancy of bearing tree, the new post was set on adjusted distance on true line between posts found.

62. Iron post 6 feet long, 4 inches in diameter, marked "1908 62 M.", set on fence line in place of old post, rotten remains of which were found in low mound, with traces of pits on fence line. Stump of old bearing tree was

found S. 20° W., 1.72 links distant. A mound of earth 4 by 2 feet was built around post and pits were dug 6 feet north and 6 feet south.

63. Iron post 6 feet long, 4 inches in diameter, marked "1908 63 M.", set against south side of old milepost 63, which was found. Post falls 1.5 links west of west fence of road, 9 links west of west track of wagon road, two-thirds way up south slope. A mound 3 by 4 feet was built around post and pits were dug 6 feet north and 6 feet south.

64. Iron post 6 feet long, 4 inches in diameter, marked "1908 64 M.", on north side of fence post on west side of wagon road. The fence post, an extra long one, was set to mark the position of old milepost 64, the remains of which had been found by Mr. Dacknell, who lives on this place, in putting in new fence. No milepost was found between milepost 64 and milepost 67. Milepost 67 falls west 42 links; bearing of true line is N. 6' W.

65. Granite monument 6 feet long, 1 foot square, with upper 18 inches dressed, inscribed "Idaho" on east side, "65 M." on south side, and "Washington," on west side, with brass tablet inlaid in top, marked "1908 65 M.", on west side of fence. No traces of old milepost 65 were found.

66. Iron post 6 feet long, 4 inches in diameter, marked "1908 66 M.", 33 links east of west fence of road and 10 feet west of west wagon track of road. An earth mound 2 by 4 feet was built around post and pits dug 6 feet north and 6 feet south. No traces of old milepost 66 were found.

67. Iron post 6 feet long, 4 inches in diameter, marked "1908 67 M.", set in place of old milepost 67, the remains of which were found, with evidences of mound and pits, 2 feet east of west fence of road near top of north slope. A mound 2 feet by 4 feet was built around post and pits dug 6 feet north and 6 feet south.

68. Iron post 6 feet long, 4 inches in diameter, marked "1908 68 M.", set close to north side of old basalt stone milepost marked "W. I.", which was found in old mound with traces of two pits on west fence of wagon road. An earth mound 3 feet by 4 feet was built around post and pits 6 feet north and 6 feet south were redug.

69. Iron post 6 feet long, 4 inches in diameter, marked "1908 69 M.", 6 feet west of west fence of road on north side of lane into barnyard near top of north slope of hill. This post was set in place of old stone marked "W. I.", which was found. No traces of mound or pits were found, but in digging remains of old post were found.

70. Granite monument 6 feet long, 1 foot square, upper 18 inches dressed, inscribed "Idaho" on east side, "Washington" on west side, and "70 M." on south side, with bronze tablet set in top marked "1908 70 M." This monument was set in place of stone 6 feet by 12 by 12 inches, which apparently had been set for milepost 70, its position as found agreeing with remains of bearing trees described in old notes. North and south fence bears west, 9 links.

71. Iron post 6 feet long, 4 inches in diameter, marked "1908 71 M.", set on north side of old wooden squared milepost 71 which had recently been set on north and south fence line, 9 links west of west track of old wagon road, its position corresponding with bearing trees mentioned in old notes. An earth mound 2 feet by 4 feet was built around iron post, and pits dug 6 feet north and 6 feet south.

72. Iron post 6 feet long, 4 inches in diameter, marked "1908 72 M.", set against north side of old milepost 72, which was found standing 2.5 feet above ground on fence line, marked "W. T." on west side, "I. T." on east side, and "1873" on north side. An earth mound 2 feet by 4 feet was built around iron post, and pits dug 6 feet north and 6 feet south.

73. Iron post 6 feet long, 4 inches in diameter, marked "1908 73 M.", set 3 feet east of fence, where old mound and remains of old milepost 73 were found. An earth mound was built around post, and pits dug 6 feet north and 6 feet south.

74. Iron post 6 feet long, 4 inches in diameter, marked "1908 74 M.", set in place of old milepost 74, remains of which were found with charred block at bottom. The post falls in timber at top of a hill. An earth mound 2 feet by 4 feet was built around post, and pits dug 6 feet north and 6 feet south.

75. Iron post 6 feet long, 4 inches in diameter, marked "1908 75 M.", adjoining old milepost 75 on the north side. The old post was found standing 3 feet above ground, with bearing trees as described in old notes. Post is on fence line in timber. An earth mound 2 feet by 4 feet was built around post, and pits dug 6 feet north and 6 feet south.

76. Post 4 feet long, 4 inches in diameter, marked "1908 76 M.", set in place of old milepost in center of road, the position of which was checked by three bearing trees. In digging hole for new post, bottom of old one was found. New post is set just below the surface of ground. From post, road fence bears west 45 links and east 38 links; small culvert bears south 98 links; line of fence from west bears south 161 links.

77. Iron post 6 feet long, 4 inches in diameter, marked "1908 77 M.", set in center of old abandoned logging road on south slope of small spur, in place of old milepost 77, the position of which was checked by four bearing trees, and the remains of which were found in digging. A stone 3 by 6 by 12 inches was found buried, adjoining position of old post.

78. Iron post 6 feet long, 4 inches in diameter, marked "1908 78 M.", set in place of old milepost 78, which was found on east slope of hill, badly decayed, but marked as described in old notes, and with bearing trees as noted.

79. Iron post 6 feet long, 4 inches in diameter, marked "1908 79 M.", set on west slope of hill in place of old milepost 79, which was found lying on the ground at its original position, checked with bearing trees.

80. Iron post 6 feet long, 4 inches in diameter, marked "1908 80 M.", set on gentle southeast slope of hill in brush and dead timber, adjoining old milepost 80 on the south. The old post was found well preserved and still standing.

81. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1908 81 M.", set 3 feet in ground in place of old milepost 81, which was found broken off at butt, in open slashing and burn on top of ridge running west to one prong of Liberty Creek, about 1.5 chains west of spring.

82. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1908 82 M.", set in place of old milepost 82, the rotted pine butt of which was found under State line fence about 8 chains northwest of house of Mrs. Anderson, who owns land on east of line.

83. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1908 83 M.", set 3 feet in ground. Found a flat sandstone marked "W." on west side and "I." on east side, set in ground below State line fence for old milepost 83. One old bearing tree, a yellow pine 4 feet in diameter, the top of which was dead, was found S. 24° E., 150 links distant.

84. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1908 84 M.", set 3 feet in ground in place of old milepost 84, the burned butt of which was found under State line fence. Pits 2 feet deep were dug 6 feet north and 6 feet south.

85. Granite monument 6 feet long, dressed 10 inches square on top and on sides for 18 inches down from top, marked "Washington" on west side, "Idaho" on east side, and "85 M." on south side, with brass tablet stamped "1908 85 M.", countersunk and cemented in top. Monument is set 3½ feet in

ground in place of rotted butt of old square pine milepost 85, which was found in edge of cultivated field of Louis Lowentroun, 22 links west of road.

86. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1908 86 M.", set 3 feet in ground on west side of road and on east side of a cultivated field, in place of old milepost 86, a granite stone marked "I" on east and "W" on west which was found under the State line fence. One old bearing tree, a pine 3½ feet in diameter, bearing N. 28° E., 116 links distant, marked "Idaho B. T.", was found, the other two bearing trees having been cut down.

No trace of Reeves's milepost 87 could be discovered. The point for milepost 87 falls in wagon road with cultivated fields on both sides. The distance between 86 and 88 was found to be 159.38 chains and the falling 131 links to the east. The true bearing is therefore N. 28' W., and the length of each mile 79.69 chains.

87. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1908 87 M.", set 3 feet in ground under east fence of State line road and on direct line between mileposts 86 and 88. Pits 2 feet deep were dug 6 feet north and 6 feet south.

88. Granite monument 6½ feet long, dressed 10 inches square on top and for 18 inches down from top on each side, marked "Washington" on west side, "Idaho" on east side, and "88 M." on south side, with brass tablet marked "1908 88 M." countersunk and cemented in top. Monument was set 3½ feet in ground, with mound of rock piled around it, in place of rotted butt of old milepost 88, which was found in mound, with pits north and south, under north and south State line fence, 28 chains north of center of Spokane River, 2.7 chains north of Spokane-Cœur d'Alene road and Washington Water Power Co.'s transmission line, 60 links southwest of curve in irrigation ditch.

89. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1908 89 M.", set 3 feet in ground, with mound of rocks around post and pits 2 feet deep, 6 feet north and 6 feet south. A pile of rocks was found under fence, and by digging rotted butt of old pine milepost 89 was found.

90. Granite monument 6½ feet long, dressed 10 inches square on top and for 18 inches down from top, marked "Washington" on west side, "Idaho" on east side, and "90 M." on south side, with brass tablet stamped "1908 90 M." countersunk and cemented in center of top. Monument is set 3½ feet in ground one-quarter of a mile south of main line of Northern Pacific Railway, and has mound of rocks piled around it. Old mound was found under fence, with pits north and south, and by digging down in mound rotted butt of old pine milepost 90 was found.

91. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1908 91 M.", set 3 feet in ground in place of old milepost 91, the rotted pine stump of which was found under State-line fence, 30 links west of wood shack. The old bearing trees were nearly destroyed.

92. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1908 92 M.", set 3 feet in ground on north side of old pine milepost 92, which was found set in ground and now used as a fence post. Only one of the original bearing trees was found, a yellow pine, 22 inches in diameter, bearing N. 52° W., 90 links distant, marked "Washington B. T."

93. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1908 93 M.", set 3 feet in ground in place of old milepost 93, the charred top of which was found on ground, and the rotted stump by digging.

94. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1908 94 M.", 3 feet in ground. An old stone marked "W. T." on west side,

"I. T." on east side, and "94 M." on top was found set in ground, with charred remains of milepost 94 lying on ground beside it.

95. Granite post 6 feet long, dressed 10 inches square on top and for 18 inches down from top, marked "Washington" on west side, "Idaho" on east side, and "95 M." on south side, with brass tablet countersunk and cemented in top, stamped "1908 95 M." Post is set 3 feet in ground, 75 links south of road, on land rising to the north, and is one-half mile south of house of C. F. Lewis. This granite post was set to replace a new pine post 6 inches square, marked "1873" on north side, "95 M." on south side, "I. T." on east side, and "W. T." on west side, which was found projecting 4 feet above ground, with fragments of original old milepost 95 lying beside it.

96. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1908 96 M.", set 3 feet in ground, in place of a 6-inch pine post, marked "1904" on north, "W. S." on west, "96" on south, and "I. S." on east, which was found projecting 1 foot above ground, with original 10-inch square milepost 96 beside it.

97. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1908 97 M.", set 3 feet in ground on steep side of ridge facing south, from which can be seen Cœur d'Alene, Newman, Sucker, and Liberty lakes. An old pine post 8 inches square, marked "1904" on north side, "Washington" on west side, "97 M." on south side, and "Idaho" on east side, was found set in ground, with original milepost 97 lying beside it.

98. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1908 98 M.", set in place of a fir post, 6 inches square, marked "98 M." on south side, "Idaho" on east side, "1904" on north side, and "Washington" on west side, which was found set on a true line, with original milepost 98, marked "1873—I. T.—98—W. T.", lying beside it.

99. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1908 99 M.", set 3 feet in ground by the side of a white fir post 6 inches square, marked "1904" on north side, "Idaho" on east side, "99 M." on south side, and "Washington" on west side, which was found set in ground, with 3 feet projecting above ground. Four old bearing trees were also found. This post stands on a steep hillside facing north and east, elevation about 4,030 feet.

100. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1908 100 M.", set 3 feet in ground, just south of small branch of Fish Creek, at an elevation of approximately 3,530 feet. This iron post was set in place of a 12-inch cedar post marked "100 M." on south south side, "Idaho" on east side, "1904" on north side, and "Washington" on west side, which was found with old cedar milepost alongside it marked on south "1873." Two old bearing trees were found.

101. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1908 101 M.", set 2 feet in ground, resting on bedrock, with mound of rock built around it. This iron post was set in place of a granite block 6 by 8 by 20 inches, marked "101 M." on top, "W." on west side, and "I." on east side, which was found set in mound of rocks on steep ridge, sloping to Fish Creek Canyon. The post stands on side of a steep hill facing south, about halfway to summit, in comparatively open timber and brush.

102. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1908 102 M.", set in place of an 8-inch square cedar post marked "1904" on north side, "Idaho" on east side, "102 M." on south side, and "Washington" on west side, which was found set in ground with 4 feet projecting above ground, and with original milepost 102, a cedar post 8 inches in diameter, 7 feet

long, marked "1873-I. T.-102-W. T.", lying beside it. This post is on north slope of steep ridge, elevation about 3,500 feet.

103. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1908 103 M.", set 3 feet in ground on south side of a cedar post 10 inches square, marked "1904" on north side, "Idaho" on east side, "103 M." on south side, and "Washington" on west side, which was found projecting 6 feet above ground, with old fir milepost 103, 10 inches square, marked "1873-I. T. 103 W. T.", lying beside it. This post is on point of ridge between two draws which join about 1.5 chains north and is 9.4 chains south of Spirit Creek.

104. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1908 104 M.", set 3 feet in ground, on south side of cedar post 10 inches square, marked "1904" on north side, "Idaho" on east side, "104 M." on south side, and "Washington" on west side, which was found set in ground with 4 feet projecting. Old bearing trees were found. This post is about three-quarters of the way up a heavily timbered ridge and is at an elevation of about 3,740 feet above sea level.

105. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1908 105 M.", set 3 feet in ground on south side of a hemlock post 6 inches square, marked "1904" on north side, "Idaho" on east side, "105 M." on south side, and "Washington" on west side, which was found set in ground, with 3 feet projecting, with top of original milepost 105, marked "1873" lying beside it. No old bearing trees were standing except a 16-inch hemlock S. 10° E., 30 links distant, marked "105 M., B. T." This post stands on a steep slope to east about 8 chains north of crest of high ridge. It is about 4,500 feet above sea level.

106. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1908 106 M.", set 3 feet in ground, on rocky land sloping northeast. An old granite stone, marked "W." on west side, "I." on east side, and "106" on top, was found set in ground, and three old bearing trees were found.

107. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1908 107 M.", set 3 feet in ground beside fir milepost 107, 6 inches square, marked "1904" on north side, "Idaho" on east side, "107 M." on south side, and "Washington" on west side, which was found set in ground, with 5 feet projecting above. Four old bearing trees were found. This milepost stands in open timber on land sloping east.

108. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1908 108 M.", set 3 feet in ground by side of pine post, 8 inches square, marked "1904" on north side, "Idaho" on east side, "108 M." on south side, and "Washington" on west side, which was found set in ground with 4 feet projecting above. No trace of old milepost of 1873 was found. Milepost 108 stands in a burn at south edge of meadow owned by Mr. Hoffman on Blanchard Creek. Elevation is about 2,340 feet above sea level.

109. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1908 109 M.", set 3 feet in ground by side of pine post 10 inches square, marked "1904" on north side, "Idaho" on east side, "109 M." on south side, and "Washington" on west side, which was found set in ground with 5 feet projecting. Three old bearing trees were found.

110. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1908 110 M.", set 3 feet in ground by side of cedar post 8 inches square, marked "1904" on north side, "Idaho" on east side, "110 M." on south side, and "Washington" on west side. Three old bearing trees were found. This post is at head of draw running northeast and full of brush.

111. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1908 111 M.", set 3 feet in ground by side of pine post 10 inches square, marked

"1904" on north side, "Idaho" on east side, "111 M." on south side, and "Washington" on west side, which was found set in ground, with $5\frac{1}{2}$ feet projecting above, and with fragments of original 1873 milepost 111 lying near. Three old bearing trees were found. This milepost stands on south side of shallow open draw, running east.

112. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1908 112 M.", set 3 feet in ground by side of post 10 inches square, marked "1904" on north side, "Idaho" on east side, "112 M." on south side, and "Washington" on west side, which was found projecting 4 feet above the ground, with remains of original 1873 milepost 112 lying beside it. The wooden post is used as corner of fences running west and north and stands at edge of brush and timber at southeast corner of level cultivated meadow.

113. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1908 113 M.", set 3 feet in ground in place of old tamarack milepost 113, marked "W. C. 1873", "W. C. I. T.", "W. C. 113 M.", "W. C. W. T.", which was found lying down. This post is about 3 chains west of the Idaho & Washington Northern Railroad and 5 chains east of a marshy lake 160 acres in extent lying on the Washington side of the line.

114. Iron post 6 feet long, 4 inches in diameter, filled with cement, marked "1908 114 M.", set 3 feet in ground by side of tamarack post 8 inches square, marked "1873" on north side, "I. T." on east side, "114 M." on south side, and "W. T." on west side, which was found set in ground, projecting 5 feet above, and used as fence post. Three old bearing trees were found.

115. Granite monument 6 feet long, dressed 10 inches square on top and for 18 inches on each side down from top, marked "115 M." on south face, "Washington" on west face, and "Idaho" on east face, with circular brass tablet stamped "1908 115 M.", countersunk and cemented in top. (See Pl. V, B, p. 26.) This monument is set $3\frac{1}{2}$ feet in ground in place of rotted butt of old tamarack milepost which was found in ground on west side of large clearing, 150 links northwest of a barn. Three old bearing trees were also found.

116. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1908 116 M.", set 3 feet in ground in place of old milepost 116, the rotted butt of which was found in ground. Three old bearing trees were also found.

117. Iron post 6 feet long, 4 inches in diameter, marked "1908 117 M.", adjoining old milepost 117 on the north. Old post found burned off at the bottom. Pits were dug 6 feet north and 6 feet south of post.

118. Iron post 6 feet long, 4 inches in diameter, marked "1908 118 M.", set against west side of old milepost 118, which was found still standing, but charred from forest fires. Pits were dug 6 feet north and 6 feet south. A road bears west 41 links.

119. Iron post 6 feet long, 4 inches in diameter, marked "1908 119 M.", set against north side of old milepost 119, which was found still standing, but decayed at bottom, 4 links east of line. Pits were dug 6 feet north and 6 feet south of post.

120. Granite monument 6 feet long, 1 foot square, dressed 10 inches square on top and for 18 inches down sides, marked "Washington" on west side, "Idaho" on east side, and "120 M." on south side, with bronze cap stamped "1908 120 M." set in top. This monument projects 18 inches above ground, and beside it on the north is old milepost 120, a pine post which was found well preserved and in place on west fence line of road. The monument is set against the east side of straight rail fence on the west side of road, with cleared land on the east and timber on the west. The land slopes slightly toward the north. Center of track of road is due east 32 links. Combination board and barbed-

wire fence is due east 42 links. Pits were dug 6 feet north and 6 feet south of monument.

121. Broken granite monument projecting about 0.30 foot above general surface of ground, marked "Washington" on west, "Idaho" on east, and "121 M." on south side, with bronze cap stamped "1908 121 M." set in top. This post is located in a street in the town of Newport. There were no surface traces of old milepost 121. All bearing trees had been destroyed and stumps uprooted, but evidences of their positions remained from the radiating roots; positions consistent with old notes. A hole was dug in the street at the approximate position, and rotten wood of old post and charred block were found beneath the surface. In this hole the above-described broken granite monument was set, one piece $2\frac{1}{2}$ feet long, 12 inches square in the bottom of hole, and on top of that a second piece $3\frac{1}{2}$ feet long, 12 inches square in the rough, dressed to 10 inches square on top and for 18 inches down sides. This monument is 5.32 chains due east of east rail of the Great Northern Railway spur to mill.

122. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1909 122 M.", projecting about 3 feet above ground on south shore of Rat Island. Plate II, *B* (p. 14), shows one of the witness trees to this milepost.

123. Stone monument 6 feet long, dressed to 10 inches square on top and for 18 inches down sides, engraved "123 M." on south face, "Idaho" on east face, and "Washington" on west face, with bronze tablet stamped "1909 123 M." set in top. Bearing pits were dug 6 feet north and 6 feet south of monument. Old milepost 123 was found, marked "1873" on north face, "123 M." on south face, "I. T." on east face, and "W. T." on west face. This monument stands on south edge of plateau.

124. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1909 124 M.", set 4 feet in ground in place where old milepost 124 was found rotted off, but with these marks distinguishable: "124 M." on south side, "W. T." on west side, "I. T." on east side, and "1873" on north side. Old bearing trees were found as described in notes of 1873.

125. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1909 125 M.", set 4 feet in ground in place where old milepost 125 had stood. Old post was found rotted and lying on mound of rock, with bearing trees as described in notes of 1873.

126. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1909 126 M.", set 4 feet in ground in place where old milepost 126, marked "1873" on north face, "I. T." on east face, "W. T." on west face, and "M. 126" on south face, was found rotted off and lying on ground. Bearing trees were found as described in old notes.

127. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1909 127 M.", set 4 feet in ground in place where old milepost 127 was found standing, but badly rotted and charred, with no markings discernible.

128. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1909 128 M.", set in place where old milepost 128 was found rotted off and lying down, marked and witnessed as described in old notes. This milepost stands on east slope of mountain.

129. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1909 129 M.", set in ground, where old milepost 129 was found standing, marked and witnessed as described in old notes. This post stands on northeast slope of spur.

130. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1909 130 M.", set in ground in place where old milepost 130 was found standing, marked and witnessed as described in old notes. This post stands 20 links south of small creek flowing east.

131. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1909 131 M."; set in ground in place where old milepost 131 was found standing, marked and witnessed by pits as described in old notes. Post stands on east slope of mountain in dense thicket of young trees.

132. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1909 W. C. 132 M.", set in place of milepost 132 W. C., which was found standing in good condition marked and witnessed as described in old notes.

133. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1909 133 M.", set in place of milepost 133, a white pine post 10 by 10 inches, marked "Washington" on west, "133 M. P." on south, and "Idaho" on east faces, which was found standing, evidently reset since 1873. It projected $1\frac{1}{2}$ feet above ground. No new bearing trees had been marked, but old Washington and Idaho bearing trees were found. One old bearing tree was found dead and uprooted.

134. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1909 134 M.", set in place of old milepost 134, which was found marked and witnessed as described in old notes. This post stands on east slope of hill near summit.

135. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1909 135 M.", set in place of milepost 135, which had evidently been reset. It was marked "135 M." on south, "Washington" on west, and "Idaho" on east faces. No trace of original post was found, but Washington and Idaho bearing trees were located.

136. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1909 136 M.", set in place of old milepost 136, which was found rotted off and lying down. Washington bearing tree was found but no traces of others. This post stands on south slope of spur about 75 links from summit.

137. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1909 137 M.", set in place of old milepost 137, which was found standing marked and witnessed as described in old notes. This post stands on south slope of ridge.

138. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1909 138 M.", set in place of old milepost 138, which was found standing marked and witnessed as described in old notes. This post stands at the foot of a steep northwest slope in heavy timber.

139. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1909 139 M.", set in place of old milepost 139, which was found lying down with stump in ground, marked and witnessed as described in old notes. This post stands about half way up south slope of spur.

140. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1909 140 M.", set in place of old milepost 140, which was found rotted off and placed inside rotten tree stump. The witness trees were all down, but stumps were found, and the place where the post had stood was located from directions and distances as given in old notes. No trace of stump of old post could be found, however. Milepost 140 stands on south edge of a ridge about half way to summit.

141. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1909 141 M.", set in place of old milepost 141, which was found standing marked and witnessed as described in old notes.

142. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1909 142 M.", set in ground in position of old milepost 142, the stump of which was located from witness trees as described in old notes. The portion of post above ground could not be found. This post stands on southeast slope of ridge, about 4 chains from foot of hill.

143. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1909 143 M.", set in place of old milepost 143, which was found marked and witnessed as described in old notes.

144. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1909 144 M.", set in place where stump of old milepost 144 was found. The portion of old post above ground could not be found, but the old Idaho bearing tree was standing in fair condition. From it the other bearing trees were located, and the stump of the post found.

145. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1909 145 M.", set in place of old milepost 145 in bottom of gulch.

146. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1909 146 M.", set in place of old milepost 146, which was found lying on ground with rotten stump in ground.

147. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1909 147 M.", set in ground in place of old milepost 147, which was found standing in good condition, with bearing trees as described in old notes.

148. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1909 148 M.", set in place of old milepost 148. The old post was not standing, but from the old bearing trees a charred post, without discernible scribing, was found, and by digging the bottom of the old milepost was located near it.

149. Iron post 6 feet long, 4 inches in diameter, filled with concrete, stamped "1909 149 M.", set in place of old milepost 149, which was found, as were all the old bearing trees, in good condition. Post stands on north slope of mountain in open timber. About 151.5 links east of the old milepost was found an old camp of the party of 1873, with a blazed cedar tree at the camp site, marked "Saturday Camp Oct. 9, 1873."

150. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1909 150 M.", set in place of old milepost 150, which was found rotted off and lying down, but with all marks in good condition. All old bearing trees were found in good condition. This post stands on nearly level bench land.

151. Iron post 6 feet long, 4 inches in diameter, filled with concrete, stamped "1909 151 M.", set in place of old milepost 151, which was found standing in good condition.

152. Iron post 6 feet long, 4 inches in diameter, filled with concrete, stamped "1909 152 M.", set in place of old milepost 152, which was found standing. The old bearing trees were in good condition.

153. Iron post 6 feet long, 4 inches in diameter, filled with concrete, stamped "1909 153 M.", set in place where old milepost 153 was found, on southern edge of a large burn, land rising gradually toward the north. The old bearing trees were probably destroyed by fire, but the post was in good condition.

154. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1909 154 M.", set in place where old milepost 154 had stood. Old post was lying on ground, and a new balsam post was found set in hole above stump of old post.

155. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1909 155 M.", set in place where old milepost 155 was found standing in good condition.

156. Iron post 6 feet long, 4 inches in diameter, filled with concrete, stamped "1909 156 M.", set 3 feet in ground in place where old milepost 156 had stood. Old post, marked "W. T., I. T., 1873, 156," with upper part well preserved, was found rotted off and lying on ground. The bearing trees were as described in old notes. Plate IV (p. 18) shows a section of one of the witness trees.

157. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1909 157 M.", set 4 feet in ground in place where old milepost 157 had stood.

Old post marked "1873" on north face, "I. T." on east face, "157" on south face, and "W. T." on west face, was found standing and in good condition and was placed beside new iron post. Old yew bearing tree, 16 inches in diameter, marked "Idaho" and at base "B. T.", was found S. 10° E., 12.5 links distant.

158. Iron post 6 feet long, 4 inches in diameter, filled with concrete, stamped "1909 158 M.", set 4 feet in ground at point where old milepost 158 was found, standing, but charred so that no marks were discernible. A pile of rocks was heaped about 6 inches around the old post. Burned-over blaze and scribe marks were found on a bearing tree S. 30° W., 21 links distant.

159. Iron post 6 feet long, 4 inches in diameter, filled with concrete, stamped "1909 159 M.", set 4 feet in ground in place where old milepost 159 was found, standing, in good condition. Old bearing trees were found as described in old notes.

160. Iron post 6 feet long, 4 inches in diameter, filled with concrete, stamped "1909 160 M.", set 4 feet in ground on southeast slope of hill near top of ridge in brush and young hemlock, white pine, and spruce timber, in place where old milepost 160 had stood. The old post was found rotted off and lying down and the place where it had stood was determined from the witness trees, which were all found.

161. Iron post 6 feet long, 4 inches in diameter, filled with concrete, stamped "1909 161 M.", set 4 feet in ground, with rocks piled around base, on south side and against stump of tree found on line. Old milepost 161 was found lying down, apparently never having been set; in the old notes it is described as "a balsam fir 10 inches in diameter on line." Bearing trees were found as described in old notes.

162. Iron post 6 feet long, 4 inches in diameter, filled with concrete, stamped "1909 162 M.", set 3 feet in ground, with rocks piled about 1 foot high around it, in hole where old milepost 162 had stood. Old post was found lying down and rotted, with bearing trees as described in old notes.

163. Iron post 6 feet long, 4 inches in diameter, filled with concrete, marked "1909 163 M.", set 2 feet in ground to solid rock, with rocks piled about 2 feet high around it, in place where old milepost 163 was found, standing, in good condition, witnessed as described in notes of 1873.

164. Iron post 6 feet long, 4 inches in diameter, filled with concrete, stamped "1909 164 M.", set 3 feet in ground in place of old cedar milepost 164, which was found in apparently as good condition as when set, marked and witnessed as described in notes of 1873, at the head of a small gully leading from a lateral table-land about halfway up mountain side, surrounded by rather heavy cedar and hemlock timber.

165. Iron post 6 feet long, 4 inches in diameter, filled with concrete, stamped "1909 165 M.", set 3½ feet in ground in place where stump of old milepost 165 was found in ground, with old post lying beside it, marked and witnessed as described in old notes.

166. Iron post 6 feet long, 4 inches in diameter, filled with concrete, stamped "1909 166 M.", set 3 feet in ground in place where stump of old milepost 166 was found in ground, with upper part of post rotted off and lying down beside it, in good condition, marked and witnessed as described in notes of 1873. This post stands in a narrow valley.

167. Iron post 6 feet long, 4 inches in diameter, filled with concrete, stamped "1909 167 M.", set 3 feet in ground in place where stump of old milepost 167 was found, with upper part rotted off and lying beside it, marked and witnessed as described in notes of 1873.

168. Iron post 6 feet long, 4 inches in diameter, filled with concrete, stamped "1909 168 M.", set 3 feet in ground, in place where old milepost 168 was found standing in good condition, marked and witnessed as described in notes of 1873, on southwest slope of mountain about halfway to the summit.

169. Iron post 6 feet long, 4 inches in diameter, filled with concrete, stamped "1909 169 M.", set in place of old milepost 169, which was found rotted off and lying down beside stump in ground, on steep north slope about $7\frac{1}{2}$ chains south of one branch of Hughes Creek.

170. Sandy quartzite schist rock, 12 inches by 12 inches by 3 feet, with bronze tablet marked "1909 170 M.", inserted in top, set in place of old milepost 170, which was found almost rotted off and leaning on rock uphill, marked and witnessed as described in notes of 1873, on southwest slope of mountain about two-thirds of distance to summit.

171. Iron post 6 feet long, 4 inches in diameter, filled with concrete, stamped "1909 171 M.", set in place of old milepost 171, which had apparently been knocked over by a falling tree, on east slope of a hill in a dense thicket of small trees and brush.

172. Iron post 6 feet long, 4 inches in diameter, filled with concrete, stamped "1909 172 M.", set in place of old milepost 172, which was found lying down and partly rotted. The old bearing trees could not be found.

173. Iron post 6 feet long, 4 inches in diameter, filled with concrete, stamped "1909 173 M.", set 2 feet in ground to bedrock, with rocks piled around post in place of old milepost 173, which was found lying down, rotted, and showing effects of fire, all marks except "W. T.", being obliterated. The old bearing trees could not be found, probably having been destroyed by fire.

174. Iron post 6 feet long, 4 inches in diameter, filled with concrete, stamped "1909 174 M.", 2.3 links north of old milepost 174, a fir tree marked on four sides as described in old notes, still growing and in good condition. All old bearing trees were found in good condition.

175. A quartzite rock 5 feet long and 18 inches square, with brass tablet inserted in top stamped "1909 175 M.", set in hole $2\frac{1}{2}$ feet deep in place of old milepost 175, which was found rotted off and lying down, with all scribing discernible and all old bearing trees in good condition.

176. Iron post 6 feet long, 4 inches in diameter, filled with charcoal, stamped "1909 176 M.", set in place of old milepost 176, the stamp of which was found in ground, with post lying down beside it, rotted and all marks except "1873" obliterated. All old bearing trees were found. Post stands on south slope of mountain, the ridge of which bears nearly north and south.

176 $\frac{1}{2}$. Stone $3\frac{1}{2}$ feet long, 14 inches wide, and 8 inches thick, with bronze tablet set in top stamped "1909 176 $\frac{1}{2}$ M.", set 2 feet in shallow ground and rock mound built around it to make it firm, in place where old milepost 176 $\frac{1}{2}$ was found lying down and rotted, with all old marking still discernible. All old bearing trees were found as described.

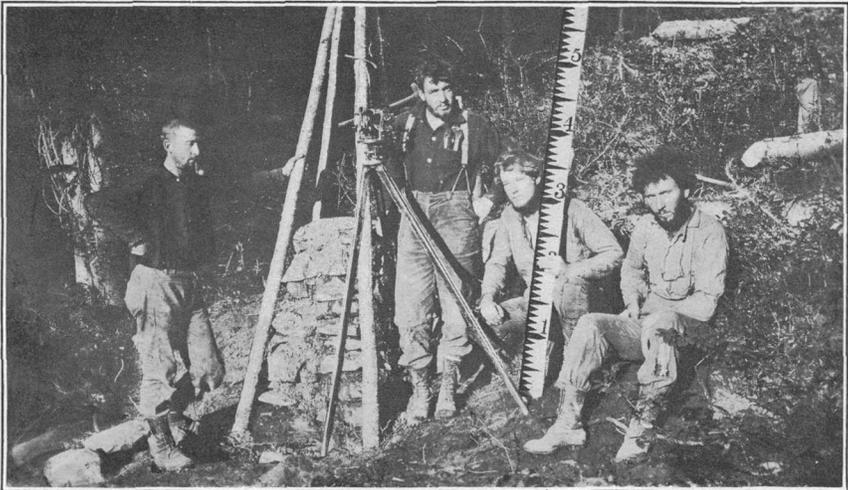
This marks the north end of the retracement of the old survey. The line from this point northward to the international boundary was run as an original survey.

177. Iron post 6 feet long, 4 inches in diameter, filled with concrete, stamped "1909 177 M."

Monument at international boundary: The position of the Canadian line was obtained in the following way. Transit was set up at boundary monument 195, (Pl. VI, A), which is on summit of a mountain 13.37 chains east of State line. The monument was sighted 2 miles to the west on the summit of another mountain. With this direction, the line was run westward until the State



A. INTERNATIONAL BOUNDARY MONUMENT NO. 195.



B. MONUMENT AT INTERSECTION OF IDAHO-WASHINGTON BOUNDARY LINE WITH INTERNATIONAL BOUNDARY.

line was intersected. A point 0.53 link south of intersection, on account of curvature of parallel, was accepted as true intersection. The direction of the line connecting the two international monuments was found to be S. 89° 42' W. At point of intersection, a pit 3 feet square and 2 feet deep was dug, and a monument built in it of quartzite rock with cement mortar, 6 feet high, 4 feet above ground, tapering from 3 feet square at the base to 1 foot square at the top, with a bronze tablet stamped "1909-Canada-United States-Washington-Idaho", inserted in top. (See Pl. VI, B.) Elevation of international monument 195 is 6,153.93 feet, elevation of State monument 6,027.10 feet; these elevations are not checked and are on vertical angle stadia line 30 miles from the bench mark.

