

Fractional Retracement of Nevada-Oregon State Line. 1.

Survey commenced October 20, 1915, and executed with Young and Sons light mountain transit No. 8390, with Smith solar attachment. The horizontal limb is provided with two double verniers placed opposite to each other and reading to single minutes of arc, which is also the least count of the verniers of the latitude and declination arcs.

All measurements were made with steel tapes 5.00 chs. in length, the first 100 lks. being graduated to links and the remainder to 10 lks.

I examine the adjustments of the transit and correct the level and collimation errors, then to test the solar apparatus by comparing its indications resulting from observations made during a.m. and p.m. hours by a meridian determined by observation on Polaris I proceed as follows:

At my camp in T. 47 N., R. 32 E., sec. 36, latitude $41^{\circ} 54'$ N., long. $118^{\circ} 22'$ W., at 6h. 54.3m., p.m., l.m.t., I observe Polaris in accordance with the instructions in the Manual, and mark a point in the line thus determined on a stake firmly driven in the ground about 5 chs. N. of my station.

Time of observation, Oct. 20, p.m. ----- 6h 54.3m.

U.C. Pol. Greenwich, p.m., ----- 11h. 37.1m.

Reduced to local longitude ----- 1.3m.

U.C. Pol. at point of observation, p.m. ----- 11h. 35.8m. 11h. 35.8m.

Time elapsed between time of observation and U. C. Pol., also time argument for table 4h. 41.5m.

Azimuth of Polaris, $1^{\circ} 27.3'E$.

October 20, 1915.

October 21: Having set up the instrument at the point of observation of Polaris, I set off $10^{\circ} 31'S$. on the decl. arc, and at about 11h. 45m. a.m., l.m.t., observe the sun on the meridian. The resulting latitude is $41^{\circ} 54'$

At this station I set off $41^{\circ} 54'$ on the lat. arc and $10^{\circ} 33'S$. on the decl. arc, and at 3h. 0m., p.m., l.m.t., determine a meridian with the solar. I then take a bearing on my stake marking the azimuth of Polaris and note that the same appears to bear N. $1^{\circ} 27'E$.

October 21, 1915.

October 24: At 8h. 25m. a.m., l.m.t., I set off $41^{\circ} 54'$ on the lat. arc and $11^{\circ} 30.5'S$. on the declination arc, and determine a meridian with the solar at my observation station, and take a bearing on the stake marking the azimuth of Polaris.

The stake appears to bear N. $1^{\circ} 27.4'E$.

I conclude therefore that the adjustments of my instrument are satisfactory.

October 24, 1915.

November 8: I find the 223 mile cor. to be a stone, 21x12x5 ins., marked and witnessed as described by the Surveyor General.

Thence I retrace East, on 223rd mile

80.37 Fall 1.95 chs. S. of the 222 mile cor., a stone, 8x16x4 $\frac{1}{2}$ ins. above a mound of stone, firmly set and mkd. and witnessed as described by the Surveyor General. Therefore the bearing of the 223rd mile is S. $88^{\circ} 37'W$. and the length 80.39 chs. November 8, 1915.

November 13: At 8h. 0m. a.m., l.m.t., I set up the instrument at the 222 mile cor., and, the sun not yet being visible, I determine a meridian with the magnetic needle, carry my line by fore- and back-sight, check the line later by solar observation, as noted, and apply the necessary correction. From this 222 mile cor. I retrace