

## Retracement of S. Bdy. T. 39 N., R. 21 E.

1.

## Chains

Survey commenced August 31, 1914, 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 lat. and decl. arcs.

The instrument was approved by Mr. G.D.D. Kirkpatrick, Asst. Supervisor of Surveys, at Salt Lake City, Utah, April 24, 1914.

Measurements were made with a steel tape, 5.00 chs. in length, the first 100 lks. being graduated to links and the remainder to 10 lks. Vertical angles were read with a clinometer.

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

At my camp in T. 39 N., R. 21 E., sec. 26, lat.  $41^{\circ} 14' N.$ , longitude about  $119^{\circ} 36' W.$ , at 8h. 55.4m. p.m., l.m.t., I observe Polaris at Eastern elongation 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 5.00 chs. N. of my station.

August 31, 1914.

September 1, 1914; At 8 a.m. l.m.t., I lay off the azimuth of Polaris  $1^{\circ} 32'$  to the west, and mark a point in the true meridian, thus established, on a stake firmly driven in the ground, about 5.00 chs. N. of my station.

At 9h. 0m. a.m., l.m.t., I set off  $41^{\circ} 14'$  on the lat. arc and  $8^{\circ} 26.5' N.$  on the decl. arc and determine with the solar at this station a meridian, which I note differs less than  $30''$  from the meridian established by the Polaris observation.

At this station I set off  $8^{\circ} 23.5' N.$  on the decl. arc, and at about noon, l.m.t., observe the sun on the meridian. The resulting lat is  $41^{\circ} 14'$ .

At 3h. 0m. p.m., l.m.t., I set off  $41^{\circ} 14'$  on the lat. arc and  $8^{\circ} 21' N.$  on the decl. arc and determine with the solar at this station a meridian, which I note differs less than  $30''$  from that established by the Polaris observation.

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

September 2: At 10h. 0m. a.m., l.m.t., I set off  $41^{\circ} 12.5'$  on the lat. arc and  $8^{\circ} 3.5' N.$  on the decl. arc and determine a meridian with the solar at the corner of Ts. 38 and 39 N., Rs. 20 and 21 E., which is a limestone,  $15 \times 13 \times 2$  ins. above a mound of earth and stone, marked and witnessed as described in my notes of surveys executed under group No. 12.

Thence I retrace on S. bdy. T. 39 N., R. 21 E., East between secs. 6 and 31.

39.51 The  $\frac{1}{4}$  sec. cor. bears S. 7 lks. dist. the same being a porphyry stone,  $11 \times 11 \times 1\frac{1}{2}$  ins. above a mound of earth and stone, 48 ins. base, 20 ins. high, and marked  $\frac{1}{4}$  on N. face.