

Retracement of W. Bdy. of T. 22 N., R. 21 E.

1.

Chains

Survey commenced October 5, 1914, and executed with a Young & Sons light mountain transit, No. 7192, with a Smith solar attachment. The horizontal limb is provided with two double verniers placed opposite to each other, reading to single minutes of arc, which is also the least count of the verniers of the latitude and declination arcs.

The instrument was examined, and tested on the meridian at Reno, Nevada, found correct, and approved by G.D.D. Kirkpatrick, Assistant Supervisor of Surveys, for Utah and Nevada, March 2, 1914.

Oct. 3, 1914: I examine the adjustments of the transit and find the levels and collimation correct; 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 Polaris observations, I proceed as follows:

At my camp in the S. E. cor. of sec. 13, T. 22 N., R. 20 E., I set off $39^{\circ} 46' N.$ on the lat. arc; $3^{\circ} 54' S.$ on the decl. arc; and at 3h 00m p.m., l.m.t., determine a meridian with the solar and mark the point on a peg set firmly in the ground 5.00 chs. N. of my station.

Oct. 3, 1914.

At 6h 46m p.m., l.m.t., I observe Polaris at eastern elongation, in accordance with the Manual of Instructions, and mark a point in the line thus determined, on a peg driven in the ground, 5.00 chs. N. of my station.

Oct. 3, 1914.

Oct. 4, 1914; At 7h 00m a.m., l.m.t., I lay off the azimuth of Polaris, $1^{\circ} 30'$ to the west, and mark the meridian thus determined, on the peg set Oct. 3, on which the meridian falls less than a minute from the mark determined by the solar.

The solar apparatus, by a.m. and p.m. observations, during the day, defines positions for meridians, respectively less than one minute east and west of the meridian determined by Polaris observations; therefore I conclude that the adjustments of the instrument are satisfactory. Measurements are made with a Lallie 5.00 chain steel tape, and slope angles are taken with a Leitz clinometer, furnished by G.D.D. Kirkpatrick, Assistant Supervisor of Surveys for Utah and Nevada.

The completion of this fractional township had been assigned to R.H. Fletcher, U. S. Surveyor and J. N. Ernst, U. S. Transitman, who subsequently reported having made such survey. The Surveyor General having made an office examination of the returns of that survey and, having found therein errors and inconsistencies requiring correction in the field, I was directed to make such corrections, and, while in the field, to examine the surveys as a whole to ascertain whether they had been properly executed, and, if necessary to make a new survey.

Oct. 13 to Oct. 22, 1914, I make such examination and find grave errors in measurement and alignment, and the corners poorly built. As provided by the instructions I therefore make a new survey.

Oct. 5, 1914: At 8h 00m a.m., l.m.t., I set off $39^{\circ} 47' N.$ on the lat. arc; $4^{\circ} 33' S.$ on the decl. arc; and determine a meridian with the solar at the cor. of secs.