

## Retracement of the South Boundary of T. 32 N., R. 48 E.

1.

Chains Survey commenced July 20, 1914, and executed with Young & Sons Transits, No. 8572 and 8589, both instruments provided with Smith solar attachments. The horizontal limbs are 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 lat. and decl. arcs.

The instruments were examined, tested and approved by G.D.D. Kirkpatrick, Assistant Supervisor of Surveys for the States of Utah and Nevada, by assignment Instructions, dated April 13, 1914.

The measurement on these surveys were taken with a 5-ch. steel tape and the slope angles were obtained by the use of a clinometer.

I examine the adjustments of the Transit which I find 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 observations on Polaris, I proceed as follows: At a point in camp. located near the  $\frac{1}{4}$  cor. of secs. 26 and 27, lat.  $40^{\circ} 36' N.$ , longitude  $116^{\circ} 32' W.$ ; I set off  $40^{\circ} 35' N.$  on the lat. arc;  $20^{\circ} 42\frac{1}{2}' N.$  on the decl. arc; and at 4h. 05m., p.m., l.m.t., determine a meridian with the solar and mark a point in line thereof on a hub, firmly set in the ground 10 chs. N. of my station. At 11h. 39.7m., p.m., I observe Polaris at Eastern elongation, in accordance with Manual of Instructions, and mark a point in the line thus determined by a tack driven in a hub set 10 chs. N. of my station.

July 20, 1914.

July 21, 1914. At 7h. 30m. a.m., l.m.t., I lay off the azimuth of Polaris  $1^{\circ} 31.2'$  to the west and mark a point in the line of the meridian thus determined by a tack driven in the hub already set 10 chs. N. of my station, and on which the point in the line of the meridian falls 0.2 ins. E. of the point determined by the solar on July 20.

At 8h. 00m., a.m., l.m.t., I set off  $40^{\circ} 26' N.$  on the lat. arc;  $20^{\circ} 35' N.$  on the decl. arc; and determine a meridian with the solar, which falls less than 1' to the east of the meridian determined by observation of Polaris.

The solar apparatus by p.m. and a.m. observations defines positions for meridians which vary from the meridian established by observations on Polaris by less than 1' of arc; therefore I conclude that the adjustments of the Transit are satisfactory.

The magnetic bearing of the true meridian at 8h. 10m., a.m., l.m.t., is N.  $18^{\circ} 15' W.$ ; the angle thus determined gives the mag. decl.  $18^{\circ} 15' E.$

The above observations and tests were made with Transit No. 8589. Similar tests were made on Transit No. 8572, and the instrument was found to vary less than 1' of arc, from the true meridian.

H.W.Reppert.

## RETRACEMENT OF PORTION OF THE SOUTH BDY. OF T.32N.,R.48E.

Retraced by H.W.Reppert.

July 21, 1914: At 8h. 30m., a.m., l.m.t., I set off  $40^{\circ} 35' N.$  on the lat. arc;  $20^{\circ} 34' N.$  on the decl. arc; determine a meridian with the solar at the cor. of secs. 2, 3, 34 and 35, on the south bdy. of the tp., which is a pine post, 4x4x30 ins. above ground firmly set, marked and witnessed as described by the Surveyor General.