

Resurvey of 7th Standard Parallel North,
South of Sec. 31, T. 36 N., R. 57 E.

1.

Chains

Survey commenced October 31, 1915, and executed with a Young and Son's transit No. 6517, with Smith solar attachment. The horizontal limb is provided with two double verniers reading to single minutes of arc, placed opposite to each other, which is also the least count of the verniers of the latitude and declination arcs.

The instrument was approved by Assistant Supervisor of Surveys G. D. D. Kirkpatrick.

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 solar observations made during p.m. and a.m. hours with a meridian determined by observations on Polaris, I proceed as follows:

At the standard cor. of T. 36 N., Rgs. 56 and 57 E., in latitude $40^{\circ}56'N.$, longitude $115^{\circ}36'W.$, at 4 h 0 m, p.m., l.m.t., I set off $40^{\circ}56'N.$ on the latitude arc, $13^{\circ}57'S.$ on the decl. arc and determine a meridian with the solar and mark a point thereof on a stone firmly set in the ground 5 chs. N. of the cor.

October 31, 1915.

Nov. 1, 1915.

At 4 h 48 m, a.m., l.m.t., I observe Polaris at western 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 chs. N. of my station.

At 7 h 0 m, a.m., l.m.t., I lay off the azimuth of Polaris $1^{\circ}31'$ to the E. and mark the meridian thus determined by cutting a small groove in the stone set Oct. 31, on which the meridian falls 1.2 ins. west of the mark determined by the solar.

At 8 h 0 m, a.m., l.m.t., I set off $40^{\circ}56'N.$ on the lat. arc, $14^{\circ}10'S.$ on the decl. arc, and mark a point in the meridian thus determined with the solar by a cross on the stone already set 5 chs. N. of my station. This mark falls 0.9 ins. east of the meridian established by the Polaris observation. The solar apparatus by p.m. and a.m. observations defines positions for meridians, respectively, about $1'3''$ east and $0'48''$ east of the meridian established by the Polaris observations, therefore I conclude that the adjustments of the instrument are satisfactory.

The magnetic bearing of the true meridian is $N.18^{\circ}5'W.$ the angle thus determined gives the magnetic declination as $18^{\circ}05'E.$

The lines of this survey were measured with a 5 chain steel tape and clinometer.

From the Standard Corner of T. 36 N., Rgs. 56 and 57 E., East on a retracement south of Sec. 31.

Since I have but the one set of chainmen, I measure the distances twice with this one set, and take the mean of their measurements instead of using two sets of chainmen.

Difference between two measurements of 40.33 chs. measured twice by the same set of chainmen is 4 lks., position of middle point

By 1st measurement 40.35 chs.

By 2nd measurement 40.31 chs., the mean of which is

40.33 The old standard $\frac{1}{4}$ sec. cor. on line; a willow stake 1 in. in diam. by 16 ins. long, lying on the ground on an old mound of earth, marked $\frac{1}{4}$.

79.28 The old closing corner of secs. 5 and 6, T. 35 N., R. 57 E., a willow stake 2 ins. in diam. by 2 ft. long, lying on