Survey commenced Sept. 5, 1915 and executed with a Young and Sons light mountain transit No. 8572, with 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.

The instrument was approved for use in this survey by the Assistant Supervisor of Surveys for this district. I examine the adjustments of the transit and find them 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 made on Polaris, I proceed as follows:

At the cor. of T. 19 N., Rs. 36 and 37 E., in approximate latitude 39° 27'N., longitude 117° 52'W., I set off 6° 57½' N. on the decl. arc; 39° 27'N. on the lat. arc; and, at 3h 59m p.m., l.m.t., determine with the solar a meridian and mark the direction of the line thus determined by a nail driven in a stake, set firmly in the ground, about 7 chs. N. of my station.

At 8h 37m p.m.,l.m.t., by my watch which carries correct local mean time, I observe Polaris at eastern elongation in accordance with Manual of Instructions and mark a point in the line thus determined,on a peg driven in the ground, about 7 chs. N. of my station.

Sept. 5, 1915.

Sept. 6: At 8h 30m a.m., I lay off the azimuth of Polaris, 1° 29' to the West, and mark the meridian thus determined by a nail in the stake set Sept. 5, on which the meridian falls 1' to the right of the mark determined by the solar.

At 8h 51m a.m.,l.m.t., I set off 39° 27' on the lat. arc; 6° 42'N. on the decl. arc; and mark a point in the meridian determined with the solar, by a nail in the stake already set about 7 chs. N. of my station; this mark falls 30" to the left of the meridian established by the Polaris observation.

The solar apparatus by p.m. and a.m. observations, defines positions for the meridian, respectively 1' and 30" to the left of the meridian established by the Polaris observation; therefore as the error is less than 1' of arc, I conclude that the adjustments of the instrument are satisfactory.

The magnetic bearing of the true meridian, at 9h a.m., l.m.t., is N. 17° 20'W., the angle thus determined gives the mag. decl. 17° 20'E.

A steel tape, 5 chains long, was used in the field work, together with a clinometer for determining slope angles, and the reduced horizontal distances only appear in the field notes. The tape was tested, comparison being made with a steel tape, 1 chain long, kept and used for that purpose.

RETRACEMENT OF E. BDY. OF T. 19 N., R. 36 EAST

The cor. of T. 19 N., Rs. 36 and 37 E., I find to be a porphyry stone 24x18x12ins. set firmly in a mound of stone, properly marked, I reestablish this cor. as follows: