11645

Dependent Resurvey of part of W. Bdy. of T. 22 S., R. 8 W.

CHAINS

The resurvey and subdivisional survey of section 18, T. 22 S., R. 8 W., was executed with a Burt solar compass made by W. & L. E. Gurley, 1905 model; unless otherwise specified all azimuth determinations were accomplished with the solar compass. The Polaris observation in camp was made with a W. & L. E. Gurley solar transit No. 2350. The instruments were in good condition, having been placed in satisfactory adjustment prior to the beginning of the survey, and tested and found free from appreciable error, were approved by the district cadastral engineer on Oct. 19, 1931. I examined all of the instrumental adjustments before making the field tests hereinafter recorded.

The measurements were made with a Lallie steel tape, 2 chs. in length, graduated every link. The tape was tested by comparison with a Lufkin standard and found correct. The measurements were made on the slope, and the vertical angle of each interval was obtained with a clinometer in good adjustment; the horizontal equivalents are entered in the field note record.

The data furnished with the special instructions gives the geographic position of the W. $\frac{1}{4}$ sec. cor. of sec. 18, T. 22 S., R. 8 W. as follows: latitude 43° 39' 30" N., and longitude 123° 42' W.

October 27, 1931, in camp near the corner of secs. 7, 12, 13, and 18, Tps. 22 S., Rs. 8 and 9 W., at 5h 14m 39s a.m., l.m.t., or 5h 29m 27s by my watch, which reads correct 120th meridian time as determined by radio signals. I observe Polaris at western elongation, making two sights each with the telescope in direct and reversed positions, and place a tack at the mean point, on a peg driven firmly in the ground 5 chs. N. After sunrise, I lay off the azimuth of Polaris 1° 27' 58" and make a meridian mark on a second peg, 1° 27' 58" to the east of the mean point in the line determined by the observation.

In order to verify the latitude of this station and the reading of my watch, I make a meridian observation of the sun, first setting on the lower limb and noting the transit of the west limb, then, after reversal of the instrument, setting on the lower limb and noting the transit of the east limb, as follows:

Mean observed altitude	33°	41'	18.5"
Reduced latitude	43°	40'	
Mean watch time of observation	11h	58m	40s
Watch fast of l.m.t.		14m	39.54s
Same by reference to radio time signals and calculated difference in longitude		14m	48s

Every 30 min. from 8 to 11 a.m. and from 1 to 4 p.m., I make the proper settings on the arcs of the solar attachment and ascertain that the resulting orientation of the instrument, when compared with the meridian established by Polaris observation, has a maximum error of less than 1' 30".

I repeat the tests of the arcs daily, when the sun is visible, by noon observation, and verify the meridional indications at frequent intervals throughout the survey.

The observed magnetic declination is 19° 35' E.

Reestablishment of the boundaries of sec. 18, T. 22 S., R. 8 W., originally surveyed as follows: N. bdy. and N. half of W. bdy., by Gordon & Gardner, U. S. Deputy Surveyors, in 1855. N. half of W. bdy. resurveyed, S. half of W. bdy. and S. and E. bdys. surveyed by W. H. Byars, U. S. Deputy Surveyor, in 1874.

Retracement

From the cor. of secs. 7, 12, 13, and 18, on the W. bdy. of the Tp.

South, retracing bet. secs. 13 and 18.

25.70 Right bank of Umpqua River.