

BICENTENNIAL RETRACEMENT OF THE WILLAMETTE MERIDIAN BY THE LAND SURVEYORS' ASSOCIATION OF WASHINGTON *By Honorary United States Deputy Surveyor, Dennis M. DeMeyer, P.L.S., Chairman L.S.A. W. Committee on General Land Office Surveyors*

(Continued from the November, 1985 issue)

(Ed. Note: Mr. DeMeyer received appointment as an Honorary United States Deputy Surveyor by William W. Glenn, Chief Cadastral Surveyor of Washington headquartered in Portland, Oregon at the BLM main office primarily for this specific retracement project to commemorate the Bicentennial of the Public Land Survey System (1785-1985j.)

The two and a half mile ride up the logging road on the pack horses was uneventful, but not without some anticipation on the part of the "greenhorn" riders. We got off of the horses and unpacked our gear and walked the half mile back into the section corner. We reviewed the original evidence once again and set the corner based upon the stump pattern. Together with the aluminum monument, we again blazed and scribed four new bearing trees and attached yellow metal Bearing Tree Tags to the remains of the original B. T. 'so This done, Denny left Jon and Dick to chain up to where we had left off the day before and Denny waited to see whether or not he had won the bet made yesterday afternoon at quitting time. By the time he got back to where the equipment was cached on line, everyone was there, none the worse for wear.

William Briles had taken over the running of the solar compass and the rest of the crew was busily cutting brush. Bob Landon had left the video camera at camp because of low batteries which was too bad. We missed some very good shots that day. At approximately 2:00 P.M. we arrived at the general area of the quarter corner between sections 19 and 30. We found two iron pipes, one at 39.65 chains, and 14 links west of line and another much older one at 40-plus chains and somewhat west of line also. The original bearing trees were a 30" Douglas fir to the southwest and a 20" Maple to the southeast. The only line calls in the last half mile were to an 18" fir line tree and at 39.00 chains, Ives had called for "summit of hill, steep descent North." We had tied the summit of the ridge at 39 chains, but it was a somewhat rounded-over ridge and the call was kind of ambiguous. Nevertheless, we found a 48" fir stump in the southwest quadrant with a scar and/or blaze facing in the right direction. We could not find any remains of the 20" Maple to fix any kind of stump pattern. *(NOTE: To this day, Dick Sterling and Denny believe the 48" fir to be the bearing tree and if given the opportunity, would go back and monument the quarter corner based on our chaining, our line and the scar/blaze on the fir stump. It just matches too perfectly for line and distance from the section corner to be coincidence and is the only eligible fir stump in the area to be a bearing tree.)*

We were unable at this time to agree on whether or not we could accept any of the evidence as original as to the position of the quarter corner. It was decided to continue our chaining and at 40.00 chains, we offset 14 links west into the edge of an old clearcut and continued north by the solar compass. Jon Warren took over the solar compass for the rest of the afternoon as we chained down the steep northslope. Bill Briles and Larry Signani were the only chain

ing crew because the three other men who had signed on for the second part of the project had not been able to show up due to circumstances beyond their control.

At 60.00 chains north from the corner to sections 25, 36, 30 and 31, we decided to call it quits for the night. Shortly before, we had discovered that there had been some confusion on the part of the chaining crew, Bill and Larry. From where they had taken over at 40.00 chains, they had had to almost continuously break chain to keep the Gunter's chain level. This was fine except for the fact that they thought that the two pole Gunter's chain they were using was 66 links long instead of 50 links. It was discovered too late in the day to do anything about the error and illustrated yet another way a G.L.O. crew could have messed up the chaining calls. It turned out to be every man for himself when it came time to pick the best way to walk the half mile back to camp, but we all eventually arrived at 6:30 P.M. at about the same time.

The dinner that night consisted of char-broiled steak, macaroni and cheese, salad, hot rolls and another one of June Land's fantastic cakes. Larry and Bill sat around the campfire trying to salvage their chaining calls of the afternoon. The consensus of the crew was to get up early and re-chain the distance tomorrow morning, yet another indication of the crew's determination and enthusiasm to make the retracement work and also be a meaningful experience to all involved. Two men were going to hike the one mile back up the hill to re-chain the "bad" quarter mile of line. This was quite a commitment because it was a *very* steep hike back up to the area of the quarter corner where the mistake originated.

At about 7:00 P.M. that night, Darrell Sorenson returned from his Naval Reserve Training exercise in time for dinner. At 10:00 P.M. everybody wanted to go shoot Polaris with a solar compass, so we packed the compass and tripod out to an opening where we had an excellent view of the pole star. Candles were brought out and lit having been brought along especially for this event. There are a variety of methods of obtaining a true meridian by observing Polaris and while we lacked some of the necessary manuals for an accurate determination of true north, we had one helluva lot of fun going through the motions of shooting the star. The candles weren't the only things that were "lit." Denny finished out the evening by stamping the monument for the section corner we were going to tomorrow and making out the declination pad which had to be made out daily during the retracement.

At 4:00 A.M. the next morning unknown to Denny, Dick Sterling hiked out of camp to his carry-all and drove to Centralia to get a key to the Agnew Lumber gate. This enabled the crew to drive to within 300 feet of the area of the quarter corner and where we would have to start re-chaining the quarter mile that was in error. Yet another demonstration of the dedication and camaraderie of this crew. So after a breakfast of pancakes, eggs, bacon, ham and coffee, we were ready to go. Dave Jolly and Denny were going to try and find a section corner that was one mile north of where

the crew was headed and was supposed to have two bearing trees remaining. The rest of the men drove up to the quarter corner where Larry, Dick and Darrell re-chained the quarter mile while Jon and Bill started running the line ahead with the solar compass. Dave and Denny drove and then walked into where this section corner was supposed to be, three miles north of the township corner. They found some tags but the iron pipe that was also supposed to be there had been destroyed by a fire trail built around a clearcut. Not only that, but they determined that it was not the section corner anyway, not finding the remains of any of the four Bearing Trees, one of which was a 50" Douglas fir. Also, it lay too far north of a very strong creek and ravine topog call. (This last reason lost some of its importance after they rejoined the rest of the crew later that morning.)

Dave and Denny then drove back to the parking site of our last camp and walked southerly a little over a quarter mile up the hill to where they were to meet the compass crew heading toward them. When they met at 10:30 A.M., Darrell was running the solar compass for the first time, Larry and Dick were still the chainmen, Jon was flagman and Bill was cutting brush. They had offset back over to the east onto a line that had already been brushed out some years before, thereby eliminating all of the heavy brushing that had slowed us down so much on the project.

We were again matching the original topog calls fairly well. Ives had called for streams at 46.80, 58.90, 76.40 and 78.25 chains respectively. The last call was the worst and the most disturbing difference. All creeks were in their original channels and had not been moved. I don't know how he could miss a call that close to the section corner.

At 11:30 A.M. and 79.91 chains we fell 2 links east of a very old and rusted 1-1/4" pipe marking the section corner to sections 19, 24, 25 and 30. Also found were the remains of all four original bearing trees, three hemlock and a



Bob "Capt. Video" Landon, cameraman, and during real working hours, Surveying Instructor at Bellingham Vocational Technical Institute taking a well deserved break during his many hours of hard work.

Douglas fir. The hemlock snag in the northwest quadrant still had the beautiful scribing "19" and "14". This was the bearing tree for Section "19", Township "14" North, Range 1 East, W.M. This hemlock is our candidate for the oldest scribed hemlock remaining in the state of Washington, having been marked by Ives and his crew on August 9th, 1851. The remains of an ancient fence line in the timber could barely be seen coming into the corner from the north. While digging the hole for the aluminum monument, Dick and Larry found the remains of a very old post and we became very excited about the possibility that it may have been a portion of the original post. After much scrutiny, it was decided it was most likely the remains of a fence post and not the original post set by Ives to mark the corner. Although not everyone agreed on this, it did not make any difference on where the monument was to be set. The pulls from the remains of the bearing trees all indicated the remains of the post was in the corner position indicated by the original field notes. If the post had been in a different location, then it may have been a problem.

Anyway, the aluminum monument was set about 0.3 feet north of the found 1 1/2" pipe, four new bearing trees blazed and scribed and yellow Bearing Tree Tags attached to the remains of the original Bearing Trees. We tied out the new bearing trees, taking the bearings with the solar compass and measuring the distances with the Gunter's chain, noting everything in links. While measuring the distance to the new southwest Bearing Tree, Denny asked Jon Warren if he wanted to go double or nothing on their bet by trying to guess the diameter of the Bearing Tree within 3 inches. Jon agreed and guessed 42". He was exactly right!

At 12:45 P.M. Denny interrupted the setting of the section corner in order to show the crew how to determine latitude with the solar compass. This is best done from about 15 minutes before noon standard time (12:45 P.M. our time) to 15 minutes after noon. The compass was set up, leveled and turned to the true meridian. The declination for noon, August 12th was then set off on the declination arc. The sun's image was brought between the hour and equatorial lines on the solar plate by turning the compass on its lower motion and by adjusting the latitude arc. Finally, we no longer had to adjust the latitude arc in order to keep the sun's image between the two lines, indicating that the sun had reached culmination. The latitude of our position was then read directly off the latitude arc vernier. Our reading varied only slightly from the latitude as determined from a U.S. Geological Survey Quadrangle map sheet.

By 3:00 P.M. we had finished marking up the corner and it was time to walk the quarter mile back to the parking site. Harry had already packed out all of our gear earlier that morning and then he and his wife, June together with Denny's wife, Delores headed for home. We found our duffels in a neat pile by our rigs, along with a little ice chest full of a kind of liquid refreshment the crew had grown very fond of. Various toasts were made, and last minute crew pictures taken in order to use up the last few frames of film in everyone's cameras. We then loaded up our gear and headed for Chehalis, where most of the crew's rigs were parked. Arriving at 4:00 P.M., we sorted out everyone's stuff, trying to make sure everybody had his own gear. Plans were made to get together and see everyone's pictures and slides along with the two hours of excellent video Bob Landon had filmed on the video camera. Last minute handshakes and farewells were exchanged together with

business cards. The Bicentennial Retracement of the Willamette Meridian by the Land Surveyors' Association of Washington's Historical Committee was over.

Or was it? There still seemed to be so much to do. All of the slides and pictures had to be developed and then assembled to see just what we had. Also, the two hours of video had to be copied and edited and thought given to how best to make it into an educational tool together with its potential as a public relations' tool. The slides and prints could also be made into a slide-tape program to be shown at local high school history classes, when supplemented with other land surveying topics. Stories about the project needed to be typed and edited and sent to magazines and newspapers together with news releases about the retracement. Effort had to be made to encourage use of part of the video portion in the upcoming N.S.P.S. "image enhancement" film project.

All but two of the retracement "veterans" were able to get together at the September monthly meeting of the Northwest Chapter of L.S.A.W. held at the Farmhouse Inn located just west of Mount Vernon. At this meeting, everyone had a chance to see everybody else's slides and prints and order copies of the pictures they liked. Bob Landon volunteered to make copies of his black and white pictures along with those taken by Darrell Sorenson for a very modest fee. Both of these men took excellent black and white photographs of the retracement.

A short 15 minute video presentation using much of the film footage shot by Bob Landon was shown in the exhibit area at the National Convention of the American Congress on Surveying and Mapping held in Indianapolis last September (1985). We are currently working on the possibility of having local television stations show portions of the video together with other special projects in connection with National Surveyor's Week in March of 1986.

Jerry Olson, Darrell Sorenson and Denny were asked to be the speakers at a luncheon at the Fall Convention of the Western Federation of Professional Land Surveyors held in Portland, Oregon during September. Each spoke about the retracement and a 30 minute slide presentation was shown, featuring slides taken by almost every retracement veteran. Special moments included an official "swearing in" of Denny as an Honorary United States Deputy Surveyor by Assistant

Director William Glenn of the Bureau of Land Management in Portland. Denny then asked everyone at the luncheon to stand and raise their right hands, and recite the 1851 "G.L.O. chainman's oath." This entire presentation was well received by those attending.

(Editor's Note: Denny's reflections on the retracement follow in the first person.)

So much for the "promotional" side of the retracement. Did it accomplish the "educational" purpose? That is, to make the participants in the project better retracement surveyors. Did it increase their understanding and appreciation of how the original G.L.O. Deputy Surveyors and their crews of the 1800's established the lines and corners that we still must find and use to this present day? Or did it raise more new questions than answer old ones? I would like to think that the answer to all of the above questions is yes.

Speaking for myself, I learned a great deal from the retracement. Although I have run line with a solar compass, chained with a Gunter's chain and blazed and scribed many bearing trees before the retracement, the project gave me a much better idea of how a G.L.O. crew operates, together with all of the potential for error that still exists on our day to day jobs. I don't think anyone should have to apologize for much of the work done by the Deputy Surveyors of the General Land Office in the mid to late 1800's in Western Washington in particular. Just to subdivide a typical township, the deputy surveyor and his crew had to measure 60 miles of lines, monument 85 corners, blaze and scribe 205 bearing trees, correctly note the 205 different distances, and 205 different bearings to those bearing trees besides keeping track of the width and general direction of over 100 creek calls and literally hundreds of other topographical calls. Even with our sophisticated data collectors and other improvements on measurement and recording devices, when was the last time you and your crew ran 60 miles of line, monumented 85 corners, tied to over 500 trees and topog features and did it all without an error in the field or in the recording of the notes?

The third purpose of the retracement was to also have a good time. I know in that area it was successful. Everyone of the participants when asked if they would do it again replied "yes" and "can we do it again next year?"



Sunday night, August 11: shooting Polaris, with the solar compass. Bill Briles with Jon Warren on the compass. This was one of the most enjoyable moments on the retracement.

Picture upper right - First retracement crew, Friday A.M. **Standing-** Dave Jolly, Coupeville; Jerry Olson, Vancouver; Darrell Sorenson, Friday Harbor; Denny DeMeyer, Custer; Kyle Haggith, Bellingham; Tom Starr, Friday Harbor; Bruce Raper, Ferndale. **Kneeling** - Bob Landon & Royce Hill, both from Bellingham.



Picture middle right - Second crew, Monday noon, Darrell S. taking picture. **Standing, left to right** - Dick Sterling, Hoquiam; Bill Briles, Everett; Denny DeMeyer, Custer; Larry Signani, Seattle; Dave Jolly, Coupeville. **Kneeling** Bob Landon, Bellingham; Jon Warren, Seattle.



Picture lower right - Friday A.M., August 9; Tom Starr and Royce Hill trying to remember their chaining calls of the morning run. Note leather tally counter on Tom's belt, Royce holding Gunter's chain and chaining pins, and solar compass in the background.



Picture right - Friday morning, August 9; Jerry Olson as flagman on the retracement crew. The flagman's job was to mark the line ahead of the chaining crew as indicated by the compassman.

Picture below - Camp, Thursday night where Deputy Surveyor William Ives and his crew had camped exactly 134 years ago to the day. Royce Hill, foreground and Jerry Olson, background.

Picture credit - Bob Landon.

