
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**

(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 [1785-1985].)

On the evening of August 8th, smoke from a G.L.O. campfire found its way up through the forest canopy. The light from the fire reflected in the faces of the United States Deputy Surveyor and his crew, reaching into the trees where the packhorses were tethered for the night. Packed away were the solar compass, two Gunter's chains, timber scribes and axes to be used the following day. A short distance away, freshly blazed and scribed trees could be seen, witnessing the scribed post marking the corner to Townships 13 and 14 North on the Willamette Meridian in Washington State.

But the faces reflecting the campfire were not those of deputy surveyor William Ives and his crew who originally surveyed the Willamette Meridian in 1851, but of honorary United States Deputy Surveyor Dennis M. DeMeyer and his crew from the Land Surveyors' Association of Washington. They were camping in the same place on the same date as did U.S.D.S. William Ives on August 8th, 1851, 134 years ago. For the next four days, using the same type of instruments and methods as those used by the original G.L.O. crew, they would be retracing a portion of the Willamette Meridian to commemorate the Bicentennial of the Land Ordinance of 1785 and the Rectangular Survey System, 1785-1985.

The planning for this historic event was begun in March and the ideas of Dennis M. DeMeyer of Custer, Washington. Denny is the historical committee chairman of the Northwest Chapter of the Land Surveyors' Association of Washington, chairman of the State Committee on General Land Office Surveyors and is a land surveyor and logging engineer for a large timber company.

He wanted to do a project to commemorate the Bicentennial that would be of interest state-wide and even nationally. He settled upon the idea of retracing a portion of the Willamette Meridian for those reasons. The Willamette is one of the principal meridians in the United States and is the basis for all land surveys in the states of Oregon and Washington. In June of 1851, U.S. Deputy Surveyor William Ives began surveying the Willamette Meridian north from the initial point near Portland, Oregon and intersected "Puget's Sound" on August 16th that same year. He had covered 110 miles in 36 days (taking a five week break in June and July), averaging 3 miles of line a day. A review of his detailed field notes indicate that he made numerous ties to natural features and in many areas marked large Douglas firs for bearing trees. He also noted where he had camped for the night. Because of this, Denny hoped to "follow in the footsteps" of William Ives and his crew, by using the same equipment, tying to the same natural features, finding some of the original bearing trees and actually camping where they had camped 134 years ago. The portion of the Meri-

dian selected for the retracement would be based upon what particular area still maintained those original features, finding some of the original bearing trees and actually camping where they had camped 134 years before. Denny then talked with L.S.A.W. Historical Committee Chairman, Jerry Olson of Vancouver, Washington about what he thought of the retracement idea. Jerry was so interested that he immediately signed on as a crew member.

So, in April with a two man crew, Denny sent his first "newsletter" about the project to each of the individual chapter historical chairmen and a few others in the L.S.A.W. This first newsletter was a general outline about the proposed project and asked about interest and ways to accomplish its purpose. This purpose was actually two-fold. It was to be, a media event and public relations project of the Historical Committee of the L.S.A.W. to commemorate the Bicentennial of the Rectangular Survey System and the passage of the Land Ordinance of 1785. It was also intended to enhance the skills and understanding of those surveyors who are involved in G.L.O. retracement. Denny had spent over fifteen years retracing G.L.O. surveys in northwest Washington for his employer and knew it would be of great



(Friday morning, August 9, United States Deputy Surveyor, Denny DeMeyer gives line with a solar compass.)

benefit to himself both personally and professionally.

Interest began growing in his own Northwest Chapter and was helped along by the L.S.A.W. Spring Seminar held on May 3rd and 4th in Bellingham. Hosted by his local chapter, the theme of the seminar was "The History of the Rectangular Survey System", and featured C. Albert White, retired Bureau of Land Management Cadastral Surveyor and author of the book, "History of the Rectangular Survey System". By the end of the seminar, the project had signed on a total of seven people.

Later in May, Denny sent out his second newsletter indicating that he had written letters to Robert B. Todd, chairman of the National Society of Professional Surveyors Image Enhancement Media Development Committee, asking if they would be interested in shooting some film footage for the upcoming N.S.P.S. film. Also contacted were P.O.B. Magazine and Professional Surveyor Magazine, asking if they would be interested in writing an article about the project.

Support continued, with the Bureau of Surveys and Maps and the Photomap and Report Section of the Washington State Department of Natural Resources donating much needed maps, field notes and aerial photographs. Georgia-Pacific Corporation donated a very old Young and Sons Solar Compass, Arnie Kegel and Associates of Everett, Washington donated two 2-pole Gunter's Chains and the Bellingham Vocational Technical Institute loaned two sets of chaining pins to the project.

By the time newsletter number 3 was mailed during the latter part of June, Denny had heard back from both Robert Todd of N.S.P.S. and Jeanne Helsfrick of P.O.B. Magazine indicating interest in the project. He had also contacted a Seattle television station and the Western Washington State University in Bellingham about having them film portions of the retracement. He also had visited a portion of the Willamette Meridian under consideration for the project, located between Townships 5 and 9 North. Although the area around the Kalama River (Township 5 and 6 North) looked promising, there were too many clearcuts to go through. Both Wayne Brewer of Longview Fibre and Brent Carpenter of Weyerhaeuser located in Longview, Washington adjacent to the Meridian, were extremely helpful supplying maps and ortho-photos of the area. Most importantly, Harry Land and his wife, June, of Sedro Woolley, Washington and members of the Backcountry Horsemen of Washington had offered to serve as horse packers for the trip! They had all of the packing equipment and cooking facilities to serve the needs of a G.L.O. survey crew.

Mr. William Glenn, assistant supervisor of the Bureau of Land Management in Portland was contacted and asked if Denny could be appointed an honorary or temporary deputy surveyor for the project. After remarking that it was probably the first time since 1910 that someone had asked that question, he said he would look into the possibility.

A note about proper dress was included in the third newsletter. Denny wanted everyone to dress in old (1800's) stuff for the project. He realized that maybe that would not be too practical and that jeans and baseball caps would be okay for most of the project. But he felt that the effect would be much better for all pictures if they were dressed in late 1800's apparel. Also included was a tentative daily schedule of events and a note that listed all persons that had expressed interest in participating in the project. On June 30th, Denny visited other portions of the Willamette Meridian under consideration. He was also reviewing maps,

plats and corner information received from the Lewis County Courthouse, Weyerhaeuser Company, Department of Natural Resources and Agnew Lumber, all in Chehalis, Washington and had contacted all of the property owners adjacent to the Willamette Meridian about permission to cross their property. Without exception, the help and cooperation of everyone was fantastic. During the middle of July, Denny, Harry Land and Bob Landon, Surveying Instructor for the Bellingham Vocational Technical Institute went down to look at an area Denny had picked out for the retracement. Harry said it would be tough for horses, but would be okay.

On July 20th, newsletter number four was mailed to those people who had expressed interest in the retracement project. A location for the retracement was announced together with the dates of August 8th through the 12th for the project. The beginning of the project was to be the southwest township corner of Township 14 North, Range 1 East and extend northerly to "however far they got". This area is near Lucas Creek located about 11 miles east of the city of Chehalis, Washington.

Although letters had been sent by Denny to the seven larger television stations in western Washington in early July, there had been no response. So the decision was made to rent their own VCR camera from a local store at a nice discount. (THE VIDEO DEPOT in Bellingham, WA.)

Also included in the newsletter were a registration form and a menu for the retracement project prepared by Denny's wife, Delores, and the wife of the packer, June Land. It included eggs, bacon, ham, potatoes, pancakes and coffee for breakfast, roast beef, pastromi, ham and summer sausage sandwiches, fruit, chips and cookies for lunch and fried chicken, barbequed steak, ham, fried potatoes, baked beans, salads, rolls, together with cookies, cakes and pies for dessert. No salt pork and beans for this G.L.O. crew! Registration fees were \$5.00 per day or part of a day and \$25.00 for the entire project. This fee included all food and transportation from the pickup site to the retracement site and return. (An additional \$5.00 was later required to help pay the gasoline costs of the horse packer, Harry Land and his wife, June.)

The Bureau of Land Management in Portland had replied to Denny's request in June with a certificate naming Dennis M. DeMeyer an honorary United States Deputy Surveyor. This marked the first time a private land surveyor had been named a deputy surveyor since the end of the contract system of awarding government surveying contracts in 1910, 75 years ago.

On August 6th, Denny and Bob Landon, Surveying Instructor at the Bellingham Vocational Technical Institute in Bellingham, "calibrated" the two 2-pole Gunter's chains on the Northwest Chapter's NOAA certified baseline at the Bayview Airport located just west of Mount Vernon, Washington.

The opportunity to camp under the stars with pack-horses on the Meridian began to appear to be in real jeopardy. The Pacific Northwest was suffering through one of its worst fire seasons. Outdoor fires and camping were being restricted on most public and private lands. Warren Sorenson of Weyerhaeuser Company in Chehalis came to the rescue with a permit to camp and have a campfire on their company lands as long as the fire danger did not increase by the time of the retracement. Most importantly, Don and Dorothy Smith, who owned the property where the project was to start, i.e., the corner to Townships 13 and 14 North,



(Above) — Friday morning, August 9, Royce Hill, headchainman and Tom Starr, reachainman (#1 chaining crew) heading out through an open glade in the forest.

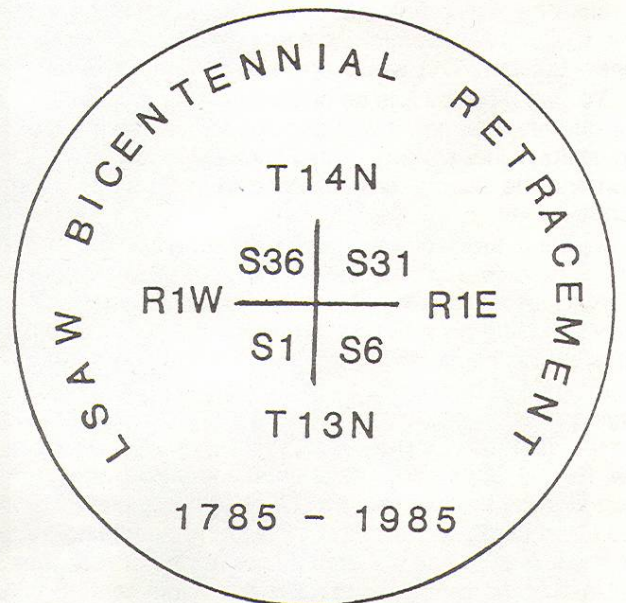
(Below) — Monday morning, August 12, Dick Sterling, Larry Signani and Darrell Sorenson re-chaining the ¼ mile that was incorrectly chained the afternoon before.



(Above) — Monday noon, Bill Briles scribes a new bearing tree — "T14NR1ES19BT" (Township 14 North, Range 1 East, Section 19, Bearing Tree)

(Below) — Rendition typical of how the monuments were stamped on the project.

Picture credits — Robert Landon



and the exact spot where United States Deputy Surveyor William Ives and his crew had camped on August 8, 1851, exactly 134 years before Denny and his crew from the L.S.A.W. gave their enthusiastic consent to camp on and cross their property. But there were still some unexpected problems. Mr. C. Albert White, author of the book "History of the Rectangular Survey System", drove all the way up from Portland, Oregon to Custer, Washington, a distance of over 270 miles to give Denny a crash course in the "care and feeding of a solar compass." Denny had read everything he could get his hands on about running a solar compass and had practised with the Georgia-Pacific Corporations' Young and Sons Solar Compass, but he felt that he needed more expert advice. After examining the Young and Sons' compass, Al declared that it could not be used to properly retrace a line. It had been damaged sometime in the past. A cry for help went to Howard Espeseth of Kegel and Associates in Everett, Washington, who had already helped so much with the project and had a Young and Sons Solar Compass. Although Arnie Kegel was in Sweden at the time, Howard said Arnie would be honored to have his compass used on the retracement project.

Denny drove to Everett and picked up the solar compass only to discover upon returning home that Arnie's compass could not be put into adjustment. The polar axis had been damaged and would not turn smoothly. Disaster! A second call for help, this time to the Bureau of Land Management in Portland, was made with the happy result that Bill Glenn, Pete Peterson and Ron Sherler were only too happy to help and loaned a W. and L.E. Gurley Solar Compass for the project.

On Wednesday, August 7th, Denny drove to Everett and returned Arnie Kegel's solar compass and then drove to Portland to pick up the Gurley solar compass at the B.L.M., returning to Longview, Washington to spend the night.

On Thursday morning he drove to Chehalis and then into the hills near the beginning of the retracement project to find a path into the Township corner where they would start. After finding the corner and marking a rough trail back to the logging road, he drove back to the Chehalis headquarters of the Weyerhaeuser Company to pick up a key to a locked gate the retracement crew would have to get through. Because he was running late, he did not take the time to drive to Centralia and pick up a key from Bob Johnstone of Agnew Lumber. This would prove to be a mistake later.

To give more people an opportunity to participate in the four-day retracement, it was decided to break the crew into two shifts. One serving from Thursday night to Saturday noon and the second crew serving from Saturday noon to Monday noon.

Meeting the first crew and the horse packer at 1:00 p.m., they drove up onto the hills east of Chehalis to a site selected for parking the rigs and unloading the gear. While Harry Land and his wife sorted through the duffel bags filled with sleeping bags, tents, personal clothing and equipment, Denny and five men walked about one mile out a grown-over logging road to begin slashing a trail for the horses to get into the campsite for the evening. Using a Stihl .032 chainsaw (G.L.O approved), machetes and axes, they made short work of the half mile trail and had it completed by the time Harry came in on his first trip with his saddle horse and the three pack horses. It would take a total of four trips to haul in all of the camping and surveying equipment, together with the duffels full of personal gear. Work immediately

began to set up a "kitchen" area for the evening meal and the best tent site was selected for the cook's tent. June Land and Delores DeMeyer soon began cooking supper. Some of the crew were busy clearing out an area for their own tents, while others started a camp fire. Soon the smell of barbequed steak and fried potatoes filled the evening air and most of the crew could be seen sitting around the fire, empty plates on their laps and contented looks on their faces. Earlier that evening, the solar compass was set up and a brief description of its use was given by Denny DeMeyer to the crew. The two Gunter's chains were also laid out and the crew had an opportunity to practice their chaining.

The afternoon had been partly sunny with a high overcast but by evening the clouds had thickened and rain threatened. All hopes of getting a shot at the sun or of the pole star, Polaris, to determine a true meridian and the variation of the magnetic needle on the solar compass vanished. They would have to guess at the declination in the morning if the sun didn't shine.

But here they all were, camped in the same spot where U.S. Deputy Surveyor William Ives and his crew camped while surveying the Willamette Meridian on August 8, 1851, exactly 134 years ago! Less than two chains away stood the remains of the original four bearing trees scribed by William Ives in 1851. One of the stumps, a Douglas fir, still had visible scribing on it. The other stumps had only old axe marks or burned-out faces where they had been blazed for scribing. As the evening wore on, the stories around the campfire became less and less believable and around 11:00 p.m. most of the crew had turned in for the night, each with his own thoughts of what it was going to be like to serve on a G.L.O. survey crew in the morning. Most of the men slept in tents, but a few hardy souls decided to sleep under the stars. They were Harry Land, the horse packer, Jerry Olson and Denny DeMeyer. Denny actually slept with only one wool blanket and no padding underneath him that first night. The crew complained the next morning that they were kept awake for most of the night by all of Denny's tossing and turning.

This first crew consisted of: **Jerry Olson**, owner of Olson Engineering in Vancouver and chairman of the L.S.A.W.'s Historical Committee; **Bob Landon**, Surveying Instructor at the Bellingham Vo-Tech Institute in Bellingham; **Dave Jolly**, retired Island County Engineer of Coupeville on Whidbey Island; **Darrell Sorenson**, with San Juan Surveying in Friday Harbor; **Tom Starr**, owner of Krabbe and Starr in Friday Harbor; **Royce Hill** and **Kyle Haggith**, both with Ray Weden and Associates in Bellingham; and **Bruce Raper**, a student at Bellingham Vo-Tech.

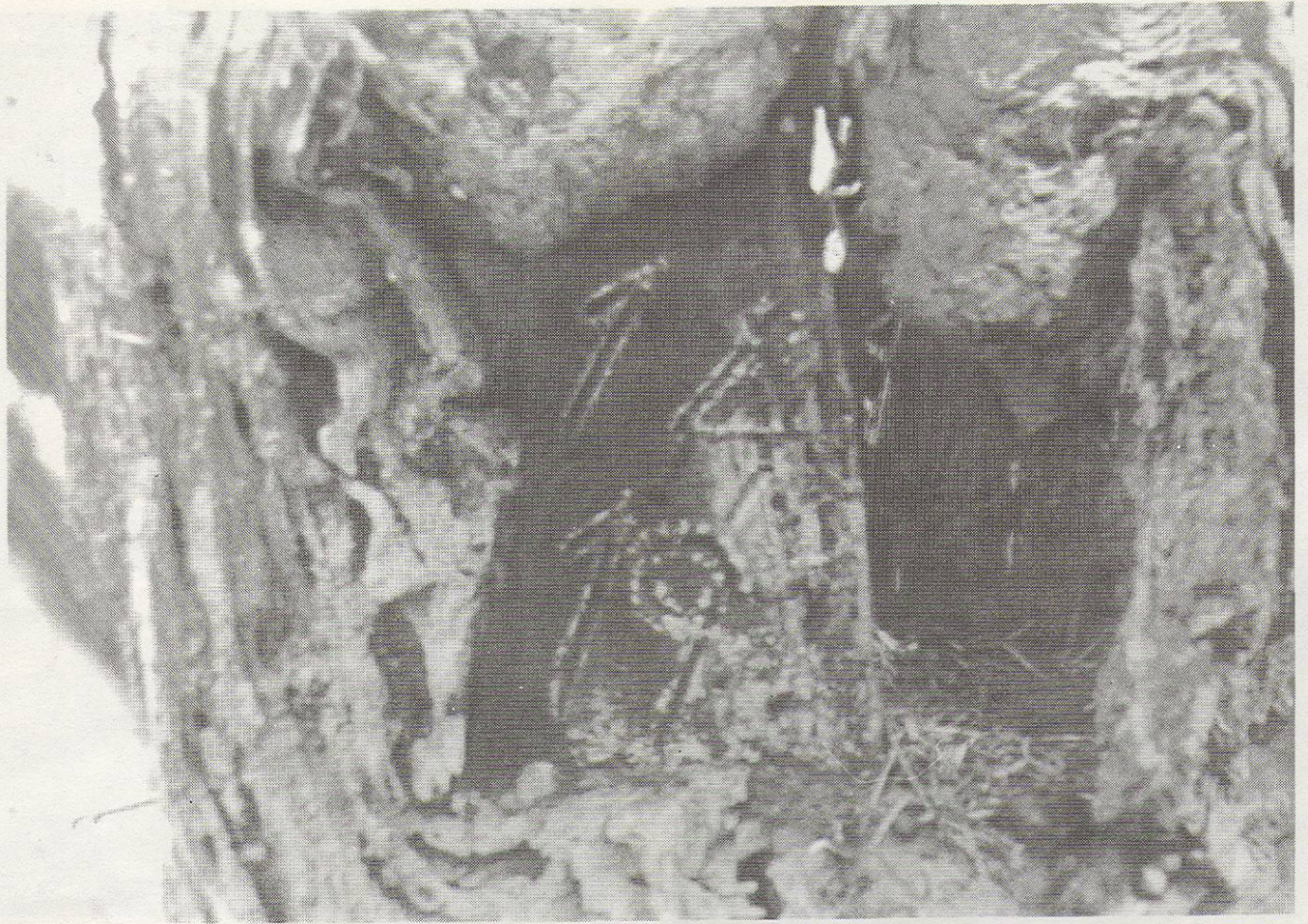
(Upper left) — Friday morning, August 9, Royce Hill rearchaining with two-pole Gunter's chain [33 feet long].

(Upper right) — Sunday afternoon, August 11, Bill Briles taking a turn on the Solar Compass. We were able to run on solar from late Saturday morning through Monday.

(Lower portion) — Monday noon, August 12, Larry Signani and Dick Sterling digging around a pipe we found at the section corner to 19, 30, 24 and 25. While digging hole for monument, they found the remains of a post. Was it the remains of the original post?

(Picture credits — Bob Landon)





Friday morning dawned cloudy with a light drizzle. A small rain shower had gone through during the night, just enough to make everything a little damp. Darrell Sorenson had gotten up around 5:30 a.m. and had started the campfire and coffee. Soon everyone in camp was up with the exception of Tom Starr. Someone ventured to his tent site and enquired if a bear had gotten him during the night. There was a grunt from the tent indicating that Tom was at least alive, if not well. By 7:00 a.m. everyone had eaten their breakfast of fried eggs, potatoes, bacon and coffee and were ready to go surveying! But first, the formalities of swearing-in the Deputy Surveyor, the chaining crew and the axemen had to be attended to. Darrell Sorenson, who is a Washington notary public and an officer in the United States Navy, assumed the responsibility of swearing in Deputy Surveyor Denny DeMeyer. Denny then swore in the chaining crew together with the axemen and the flagmen. (In the days that followed, Denny would have numerous occasion to swear at them.) There was much discussion between Denny and Jerry Olson about how much variation of the needle was in the area, hence what variation to set on the solar compass. Since it was drizzling at the time and they had not been able to shoot the sun or the star, Polaris, last night because of the clouds, they had to assume a magnetic meridian. A declination of 19°30' East was set in and away they went. The crew that morning consisted of the following people and jobs: compassman, Denny DeMeyer; flagman, Jerry Olson; axeman, Dave Jolly; photographer/axeman, Darrell Sorenson; video/axeman, Bob Landon; first chaining crew, Tom Starr and Royce Hill; and second chaining crew, Kyle Haggith and Bruce Raper.

Everyone was given instructions on how to chain with a two-pole (33 feet) Gunter's chain, and both rear chainmen were given leather tally markers on which to keep track of the number of tallies they were out. The tally markers consisted of a leather strap that could be worn on a belt. A leather string with eight knots in it was looped through a small hole in the strap and every time they had made ten pulls with their 33 foot long chain, they counted a tally, or 330 feet, and they were to pull one of the knots through the hole in the strap. When they had done this eight times they were out one-half mile or 2640 feet (8X330=264).

Each head chainman was given a set of chaining pins. When the head chainman dropped his last chaining pin, he was to call out "tally", which meant that he had dropped ten pins, so was out 330 feet. The rear chainman was to come ahead and count the number of chaining pins he had picked up which had better be nine, not counting the one still in the ground. The retracement crew lost a total of three chaining

(Upper portion) — Monday, August 12, Hemlock with original scribing at the section corner to 19, 24, 25 and 30. This is our candidate for the oldest remains of scribing on a hemlock in the state. It was scribed on August 9, 1851.

(Lower portion) — Sunday morning, August 11, this camp was within 300 feet of the Meridian and on an alder flat on the North Fork of the Newaukum River. (Left to right) Delores DeMeyer, Kyle Haggith, Jerry Olson, Royce Hill, Denny DeMeyer (sitting), Harry Land and Dave Jolly.

(Picture credits — Bob Landon)

pins on the project. Denny told the crews to not write down the topography calls but to commit them to memory. He would ask for them when convenient, preferably when they got to a corner or other stopping place. Memorizing the topog calls became one of the most difficult and interesting jobs on the crew.

The first two chains went pretty well, going across flat ground and past the cooking area where the crew could grab some of the left-over breakfast and cake from last evening's supper. The honeymoon was soon over as they descended a very steep north slope into the Lucas Creek drainage. By 10:00 a.m. they had crossed Lucas Creek at 14:00 chains, as did Ives' crew in 1851, and then hit a wall of vine maple at about 17 chains. Faced with a mutiny by the brushing crew, Deputy Surveyor Denny DeMeyer wisely chose to offset about two and one-half chains east into a field owned by Don and Dorothy Smith.

While in the field, they met Mrs. Smith and took some pictures. She also took some pictures and asked for more information about the project so the local newspaper could write a story about it. This was also an opportunity for the two chaining crews to report their topog calls. It became immediately apparent that Kyle and Bruce had made a large mistake in the first quarter mile and would have to re-chain the distance after lunch, which they did. (NOTE: *This was the crew that kind of cheated on memorizing the topog calls by storing them in Kyle's HP 41-CV!*)

At 10:30 a.m., they had to hike back up the hill to meet a photographer from "Washington Magazine." Denny's wife, Delores, had driven to Chehalis that morning to pick up the photographer and Harry Land had offered to pack him and his equipment in on horse back. He allowed his equipment to be packed in but preferred to walk, evidently being afraid of horses. It had been decided earlier to postpone the re-monumenting and re-scribing of the Township corner at camp until the photographer could be there. So after an early lunch prepared by Delores and June Land, the retracement crew went to work on the corner.

No one on the crew had ever before prepared a tree for scribing, let alone used a timber scribe. Denny selected an eleven inch diameter Douglas fir in the northwest quadrant and cut a face about 8" X 30" long onto the tree and then scribed "T14N R1W S31 BT" on the face. Denny had told them what to do, but did not go into detail about how to do it, believing that people better learn ways of doing things by trial and error and making their own mistakes. Eventually, they will come up with their own best way of doing something and at the same time answer some of the questions they may have had about why the G.L.O. survey crews did some of the things they did. Hence, everyone learned the hard way about making your faces wide and long enough to accept all of the scribing, the value of a sharp timber scribe, making a smooth surface on the face, tilting the letters and numbers on the scribing to make better use of the face area, avoiding second growth cedar for a bearing tree because its soft wood is very difficult to scribe, marking the corner post before cutting it off of the stump and many other little things that are best learned by doing. Three men blazed trees in the remaining three quadrants for scribing while Jerry Olson cut a five inch square post from a nearby cedar tree. He then had to scribe it while Tom Starr stood on it to keep it from moving. Denny was busy stamping one of the five aluminum monuments donated to the retracement project by the Washington State Department of Natural Resources Survey Branch.

The corner was currently marked by an anchor bolt about four feet long. It was going to be replaced first by the newly scribed cedar post for ceremonial purposes and then the post replaced by the new aluminum monument. Meanwhile, the new bearing trees were being scribed and yellow metal "Bearing Tree" tags, also donated by the Department of Natural Resources, were being attached to the remains of the original bearing trees. Once the aluminum monument was set, bearings were taken with the solar compass and distances measured with a Gunter's chain to the new bearing trees and noted in the field book. All of the activity was captured on the video camera and other cameras.

They finished work at the township corner at about 1:00 p.m. and walked back down to Don and Dorothy Smith's field where they had left off that morning at 17 chains. Some of the crew switched jobs and after crossing the Lucas Creek Road, they offset back to line and continued chaining north toward the quarter corner to Sections 31 and 36. At 39.86 chains (average of both chaining crews) they fell 1.33 chains (87.78 feet) west of a 1½ inch pipe marking the quarter corner, indicating that they had made an incorrect estimate of the magnetic variation of the needle. They had not been able to run on solar at all during the day so far, relying on the needle on the solar compass for north. At this quarter corner, in addition to the 1½ inch pipe, they also found two large fir stumps, one with visible scribing. The decision was made to not remonument and rescribe this corner at the time, and to let the second crew who was to arrive at 1:00 p.m. Saturday afternoon mark the quarter corner.

Continuing north from the quarter corner with Bruce Raper running the solar compass and yet another combination of chaining and brushing crews, they made it another seven and a half chains before quitting for the day, August 9, 1985, making a total of 47½ chains and finding two original corners. On the way back to the Lucas Creek Road, where they were to pick up the rigs left there earlier by June Land and Delores DeMeyer, Jerry Olson made another search for a 50" fir line tree that was called for at 24.61 chains by the original surveyor, Ives. They had been unable to find it earlier because they were west of William Ives' line of 1851. But the quality of Deputy Surveyor Ives' work was again indicated when they measured east from 24.61 chains and found the remains of a huge fir stump on line, actually at 24.66 chains.

On the drive back to the new camp on the North Fork of the Newaukum River, there was discussion of the accuracy of the original deputy surveyor's work. (Our camp had been moved by Harry and June Land and Delores DeMeyer during the day, to a spot that had been selected two weeks before.)

At the Township corner in the morning, we had been able to pull the distances and bearings from the original four bearing trees that matched within one foot the location for the corner as indicated in Ives' 1851 field notes. He had also correctly identified the species and approximate diameter of the bearing trees. Although he did not make as many topographical (topog) calls as the retracement crew did, what calls he did make appeared to be accurate. At 14.00 chains, he tied Lucas Creek (20 links wide), a 50" fir line tree at 24.61 chains, and the quarter corner at 40.00 chains. This compared with our two crew average of 13.96 chains to Lucas Creek, (variously described as 15 and 26 links wide), 24.66 chains to the remains of the 50" fir line tree and 39.86 chains to the quarter corner. At the quarter

corner we found again that he had accurately described the species, distance and bearing of the bearing trees together with the approximate diameter of them. Ives had also called for a creek, 1 link wide at 42.20 chains. We tied it at 42.50 chains before quitting for the day.

We had just pulled into the parking area for our walk into our new camp on the Newaukum River when the sun peaked through the clouds for the first time that day. We hurriedly unpacked the solar compass and tripod and set it up. I fumbled for my declination pad that I had made out the night before while Dave Jolly, Darrell Sorenson and Jerry Olson set up and leveled the compass. The latitude was set in together with the hours' declination, the solar attachment rotated and compass turned — until — PRESTO! The sun's image fell between the hour and equatorial lines on the solar plate on the declination arm. We finally had some idea of the variation of the needle in case we had to run on the magnetic needle again Saturday. The variation was 20°35' East. We had run the first half mile on 19°30' East, which accounted for why we missed the corner by 99 links. (NOTE: While we were taking this sun shot, two men in a four wheel drive pickup came roaring up and accused us of stealing cedar shake bolts used for making shingles. We tried to explain to them what our rag-tag looking bunch was doing, but they became so bewildered that they jumped back into their truck and drove away.)

As mentioned before, Harry Land, our horse packer, had moved our camp from off the ridge near the township corner to a nice alder flat near the North Fork of the Newaukum River, about two and a half miles north and near the meridian. The first part of the evening was spent by the crew picking out their individual tent sites and discussing the day's work. Supper that night was fried chicken, potato salad, baked beans, hot buns, cake and lots of liquid refreshment. The cooks just knocked themselves out again with an excellent dinner. Denny sat by the fire, making out his declination pad for the next day's run in the hope that the sun would shine, and listened to the talk around the campfire. Two of the crew would be lost first thing in the morning. Darrell Sorenson had to go to a Naval Reserve session for the weekend and Tom Starr had some personal matters to attend. Tomorrow at 1:00 p.m. was also the scheduled "shift" change. Four new participants were to arrive and work the afternoon of Saturday with an additional three people arriving at camp Saturday night. Delores was to try and make all the connections.

Jerry Olson and Denny discussed the days events and planned for the next day's work. It was hoped that we could get to the section corner one-half mile north of the quarter corner by 1:00 p.m. when we would be losing most of the crew. Bob Landon commented that he was not getting two hours of video tape from a set of batteries like we had planned and he was already on his third set, meaning that we only had two sets left. Only Jerry and Denny chose to sleep out under the stars that night with Denny making a small compromise of putting a sleeping bag under himself and the wool blanket. The weather had continued to improve since we had reached camp and by now every star in the sky was out. It was beautiful. It remained warm with a remarkable lack of insects.

Saturday morning dawned with a high overcast and a chance of sunny periods. Darrell and Tom had left about 5:00 that morning. At 6:00 a fire was started, coffee set to perking and then came the job most dreaded — waking the crew! Actually most of the crew was pretty good about ris-

ing and were up and dressed (if not fully awake) by the time the coffee was ready. But there were a couple of others we thought we would have to leave behind that second morning.

Finally, everyone was up and those of the first crew (Jerry Olson, Kyle Haggith, Royce Hill, and Bruce Raper) who were leaving to make room for the second shift were taking down their tents and packing everything into duffel bags. These duffels were left on a pile for Harry to pack out to the rigs while we were running line that morning. Breakfast consisted of pancakes, eggs, thick-sliced ham, and coffee with a few not being able to resist another piece of June's applesauce cake that we had for dessert last night. Because some of the crew had to break camp, we got a later start than the day before, not leaving until 8:00 a.m.

Driving around to the Lucas Creek Road we parked our rigs and walked in to the line cut the previous day, past the quarter corner to where we had left off (47.50 chains). The Saturday morning crew consisted of: compassman, Dave Jolly; chainmen, Bob Landon and Bruce Raper; axemen, Royce Hill, Kyle Haggith and Denny DeMeyer; and again serving as flagman, Jerry Olson. The variation on the solar compass had already been adjusted to 20°30' East at the quarter corner late yesterday so only required an additional 5 minutes to be set in to match our sun shot taken yesterday evening, i.e., 20°35' East. The morning remained cloudy with a hope of sunny break enabling us to run on solar instead of magnetic needle. At 10:30, Jerry Olson took over the solar compass and at 11:00 the clouds parted and he was able to run on solar at least part of the time. At 1:00 we were still about nine chains away from the section corner and time for the first crew to leave. But they didn't want to quit, preferring instead to reach the area of the section corner before leaving, no matter how long it took.

Denny walked the 50 chains back to the Lucas Creek Road where he met Delores and the four members of the second crew. They were **Jon Warren**, with Dodds Engineers, Inc. in Seattle, **Larry Signani**, with the Army Corps of Engineers in Seattle, **Richard Sterling**, owner of Richard T. Sterling, Inc. in Hoquiam, and **William Briles**, with the Snohomish County Planning Department in Everett. In the evening, three more new crew members were to arrive. They were **Dave Tipton** and **Glen Federspiel**, both with Thompson Land Surveying in Spokane and **John Thacker**, owner of San Juan Surveying in Friday Harbor and President of the National Society of Professional Surveyors. As will be seen, because of a faulty fuel pump, these last three would not be able to make it. Denny asked Delores if she could pick up the key to the Agnew Lumber gate from Bob Johnstone in Centralia because we would be walking out to the Agnew logging road and would like to be picked up there at the end of the day.

The five of us hiked back in to the quarter corner found on the day before and began marking it. Two new bearing trees had to be blazed and scribed together with the stamping and setting of a new aluminum monument to replace the very old and rusty 1½ inch iron pipe. Bearing Tree tags were attached to the stumps of the original bearing trees, one of which still showed the scribing "1/4". The new crew experienced the same difficulties as the first crew, as none of them had ever prepared a tree for scribing, used a timber scribe or a Gunter's chain to tie to the bearing trees. While tying out to one of the new bearing trees, Jon Warren caught one of Denny's mistakes when noting the distance to the tree as 127 links, instead of the correct 77 links. The

crew had called out one chain and 27 links as the measured distance, so I wrote down 127 links, (one chain=100 links). But we were using a two-pole chain of only 50 link "chain" plus 27 links hence the correct 77 link call. Denny thanked Jon (not really) for pointing out yet another way the original surveyors could have made a mistake in the field notes. To add insult to injury Denny had noted that bearing tree in the wrong quadrant, i.e., N 84° E instead of the correct S 84° E. It had taken us about one and a half hours to set the aluminum monument and mark up the bearing trees with this "green" crew.

At 3:30, while still at the quarter corner, we met the first crew as they were walking out the line for home. Jerry Olson indicated they had reached the area of the section corner and found an interesting stump pattern for the four original bearing trees but no scribing. Their topog calls had matched the original calls of 1851 fairly well. Ives had called for streams at 42.20, 67.20 and 69.50 chains, compared with our calls of 42.50, 67.00 and 69.00 chains respectively.

When they pulled the calls from the original Bearing Trees, the measurements indicated that the corner lay somewhere inside a circle less than two feet in diameter. Interestingly enough, a tag on an old reference tree nearby indicated that the corner was north about twelve feet. Jerry said that he liked the stump pattern best but there was no pipe, post or scribing to substantiate it. He had left Dave Jolly and Bob Landon at the corner with the solar compass to continue running line after eating lunch. Denny thanked Jerry, Kyle, Royce and Bruce for their participation and enthusiasm in the retracement project and at 4:00 we parted ways.

The second crew walked ahead one-half mile to the section corner where Dave and Bob had just finished lunch and were running line north on solar. After giving Larry Signani a crash course on the care and feeding of the solar compass, Denny turned him and the crew loose and walked back to the area of the section corner with Dave Jolly to get his impression of the evidence. Dave (and the notebook) indicated that at 80.035 chains, they had fallen 0.29 chains west of the corner location as derived from the stump pattern. The original calls were Northwest to a 20 inch Douglas fir, Northeast to a 12 inch Douglas fir, Southeast to a 12 inch cedar and Southwest to a 10 inch cedar. They found two fir stumps in the Northwest and Northeast quadrants at the right distance and bearing, a blowdown cedar in the Southeast quadrant and another partially blowdown but green cedar in the Southwest quadrant that also fit the G.L.O. calls. The cedars showed no marks but this was to be expected. The Southeast cedar had rotted to the extent that no original marks would remain and the Southwest cedar was actually a limb of the tree that had blown down, the limb becoming the terminal branch from a lateral branch and had grown into the tree we were looking at today. A decision on whether or not to accept the evidence as the remains of the original bearing trees was postponed until a further discussion that evening. Both fir stumps had old scars (blazes).

We worked to about 6:00 P.M. that day. Because of the brushiness of the line we had decided not to run a chaining crew but instead everybody but the compassman, Larry Signani, was set to work cutting brush. When we eventually quit for the day, Jon Warren proposed a bet on how far from the section corner we had gone. Denny being a sucker for punishment and forgetting how Jon had nailed him at the

quarter corner that afternoon readily accepted. All of us made an estimate of the distance, stashed all equipment except the solar compass behind a stump, and walked about a quarter mile out to a logging road where it was hoped that we were to be picked up by Delores. Upon arriving at the logging road we discovered no Delores! She had not been able to contact Bob Johnstone and get a key, the very key I did not take time to get on Thursday. We were now faced with a two and a half mile walk down Agnew Timber's logging road and then another two mile hike down the county road to our camp on the North Fork of the Newaukum River. We were all already very tired from the activities of the day and Denny was really bummed out that he had screwed up by not getting the key on Thursday. There was nothing to do but start walking the two and a half miles down the steep logging road. Denny reached the county road ahead of the rest of the crew and started walking down the road toward camp. He had only gotten about a quarter mile when a lousy, mongrel dog came running out of a driveway to a farmhouse and bit him on the leg, reminding him of how stupid it was not to have gotten a key earlier. Eventually arriving at the parking area for our camp site he hopped in his Bronco to head back up to pick up the crew. He arrived at the gate just in time to see the last of the crew coming down the logging road. We drove back to the parking area and walked into camp. Everybody was ready for the liquid refreshments awaiting them at camp that night and after a dinner of ham, baked beans, fried potatoes, macaroni salad, hot rolls and carrot cake, everything was once again right with the world. The new crew took over the tent sites of the first crew and then retired to the campfire for what was getting to be one of the best parts of the retracement, stories around the campfire. Everything from errant centers of sections to everyone's favorite corner story was discussed at one time or another around this warm and cozy podium.

Later that evening Denny drove to the Smith's house and used their telephone to call Bob Johnstone of Agnew Lumber in Centralia to ask for a key but had no luck in contacting him. It was 9:30 at night so he decided not to try him again. I drove back to the camp and we discussed what to do in the morning. It would be ridiculous to walk the two and a half miles up the logging road and then the quarter mile back into where we had left off for the day. Harry Land, the packer looked up from the fire and said he could pack us all in the two and a half miles on his horses, three at a time. None of us had been on horse for at least 20 years and Denny had the distinction of falling off of every horse he had ever been on. The crew voted unanimously to ride in the next morning on the pack horses with only one abstention, Denny. With that issue being decided we could all go to bed.

The campfire was stoked up so the three crew members scheduled to arrive that night would have an easier time finding the campsite. Maps had been left at the parking lot in Chehalis where everyone else had parked with directions on how to get to camp. It was found later that Dave and Glenn's truck broke down in Moses Lake and they were unable to get it fixed in time. They called John Thalacker, who then cancelled his plane reservations to Seattle where Dave and Glen were to pick him up. Because of this we were only able to run one chain crew for the rest of the project, when it would have been nice to have two.

Denny was also informed by Jon Warren that the distance from the section corner where the second crew started Saturday to where we had quit for the previous day

was 18.6 chains. Denny had guessed 17 chains and Jon had guessed 19 chains, so he won the bet. A big lesson was learned that night, never trust a G.L.O. chainman, honorary or otherwise. Denny then retired to his wool blanket with a sleeping bag for padding and once again appreciated the incredible amount of stars in the sky that night thinking to himself that "it was beautiful and I hate horses."

Sunday morning dawned bright and sunny. Harry was already up, had the fire going, coffee brewing and was feeding his horses by 6:00. Everyone was excited (apprehensive?) about the morning saddle trip into the Meridian. After a breakfast of bacon, eggs, potatoes and coffee, we were ready for practically anything. Harry loaded his horses into his trailer for the trip to where we would begin our journey. It was decided that Dick Sterling, Jon Warren and Denny would go in first, followed by Larry Signani and Bill Briles, and then Dave Jolly and Bob Landon coming in last. The reason for having only two people come up on the second and third trips was so Harry could ride a saddle instead of a pack horse frame. He had only brought three saddles and the prospect of making three trips up the hill on a pack frame made his you-know-what hurt.

Dick Sterling, Dave Jolly and Denny had discussed the evidence at the section corner found by the first crew. After reviewing that information, together with the information Denny had received earlier from Weyerhaeuser Company and the Washington State Department of Natural Resources, Denny decided to monument the corner based upon the stump pattern found by the first crew.

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(CONTINUED NEXT ISSUE WITH THE EXCITING CONCLUSION OF THE RETRACEMENT STORY INCLUDING MORE PICTURES AND REFLECTIONS ON THEIR PARTICIPATION FROM SOME OF THE CREW)

TAXING BUSINESS

Fighting an IRS levy. Roy Reeves owed back taxes, so the IRS issued a levy against a bank account held jointly by Roy, Ruby and Neva Reeves. The bank refused to honor the levy. *Court of Appeals:* For the bank. The IRS has to prove how much of the account belongs to Roy before the account can be seized.

National Bank of Commerce, CA-8, No.83-1218.

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No joint return. A wife refused to sign a joint tax return because she believed her husband's computations were incorrect. Later the couple divorced. Under the divorce agreement, the wife agreed to sign the return *if* the husband held her harmless for any liability that arose on it. *Tax Court:* The wife never really intended to sign a joint return, or to take the responsibility for signing one. Thus, the husband was *not* eligible to pay lower joint-return tax rates.

James B. Anderson, TC Memo 1984-82.

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Weekend tax shelter. A person who worked in the city bought a small farm that he worked on weekends. The IRS denied his deduction for farming losses, saying the farm was only a hobby. But the Tax Court allowed the deduction. *Key:* The taxpayer genuinely intended to make a profit from the farm in the long run. *Evidence:* Significant investments in farm equipment and buildings; the regular performance of labor on the land; and a lack of recreational facilities on the farm, such as a guest house or swimming pool.

Paul Farrell, TC Memo 1983-542.