

DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

GEORGE OTIS SMITH, DIRECTOR

BULLETIN 462

RESULTS OF SPIRIT LEVELING
IN OREGON

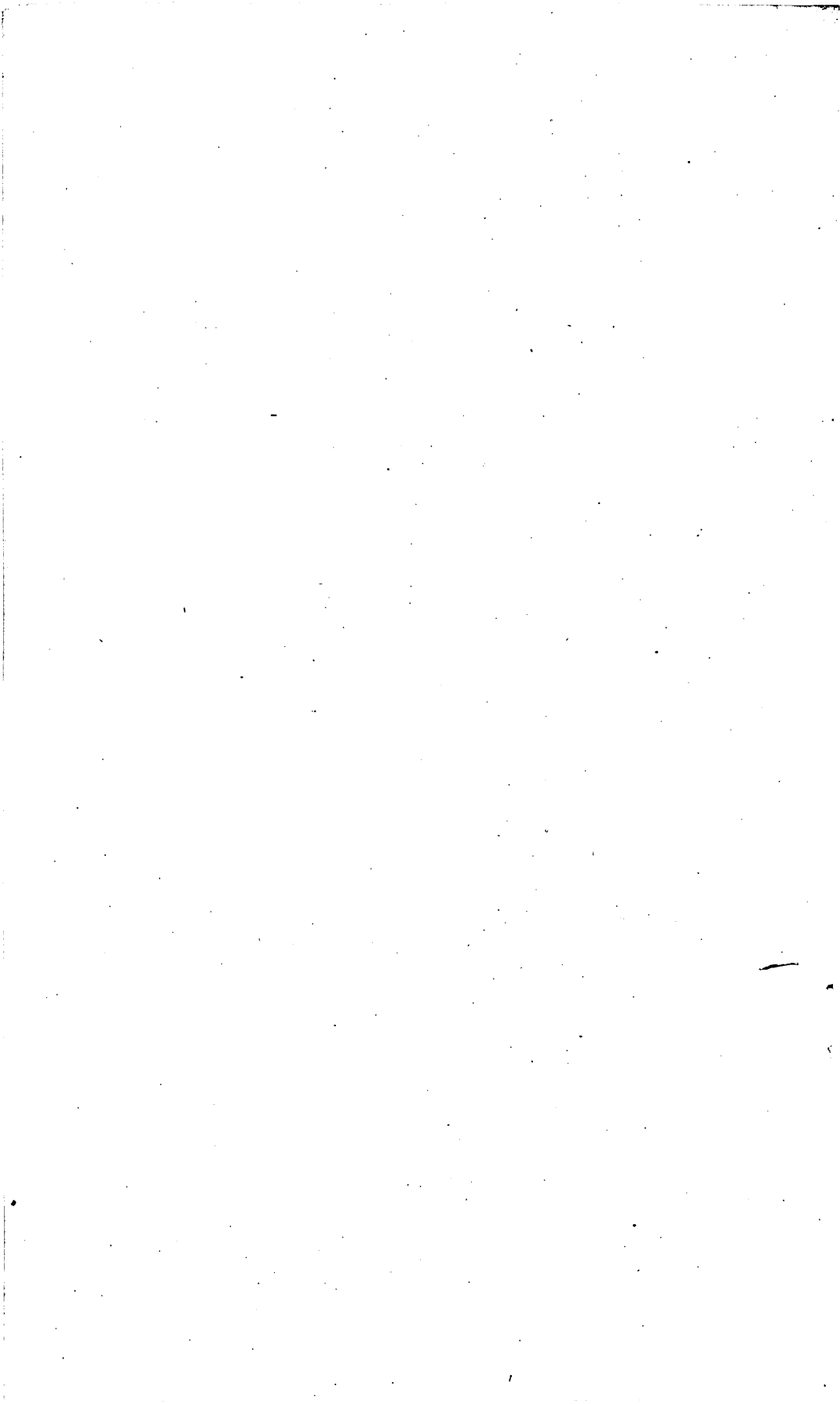
1896 TO 1910, INCLUSIVE

R. B. MARSHALL, CHIEF GEOGRAPHER

WORK DONE IN COOPERATION WITH THE STATE
FROM 1905 TO 1910, INCLUSIVE



WASHINGTON
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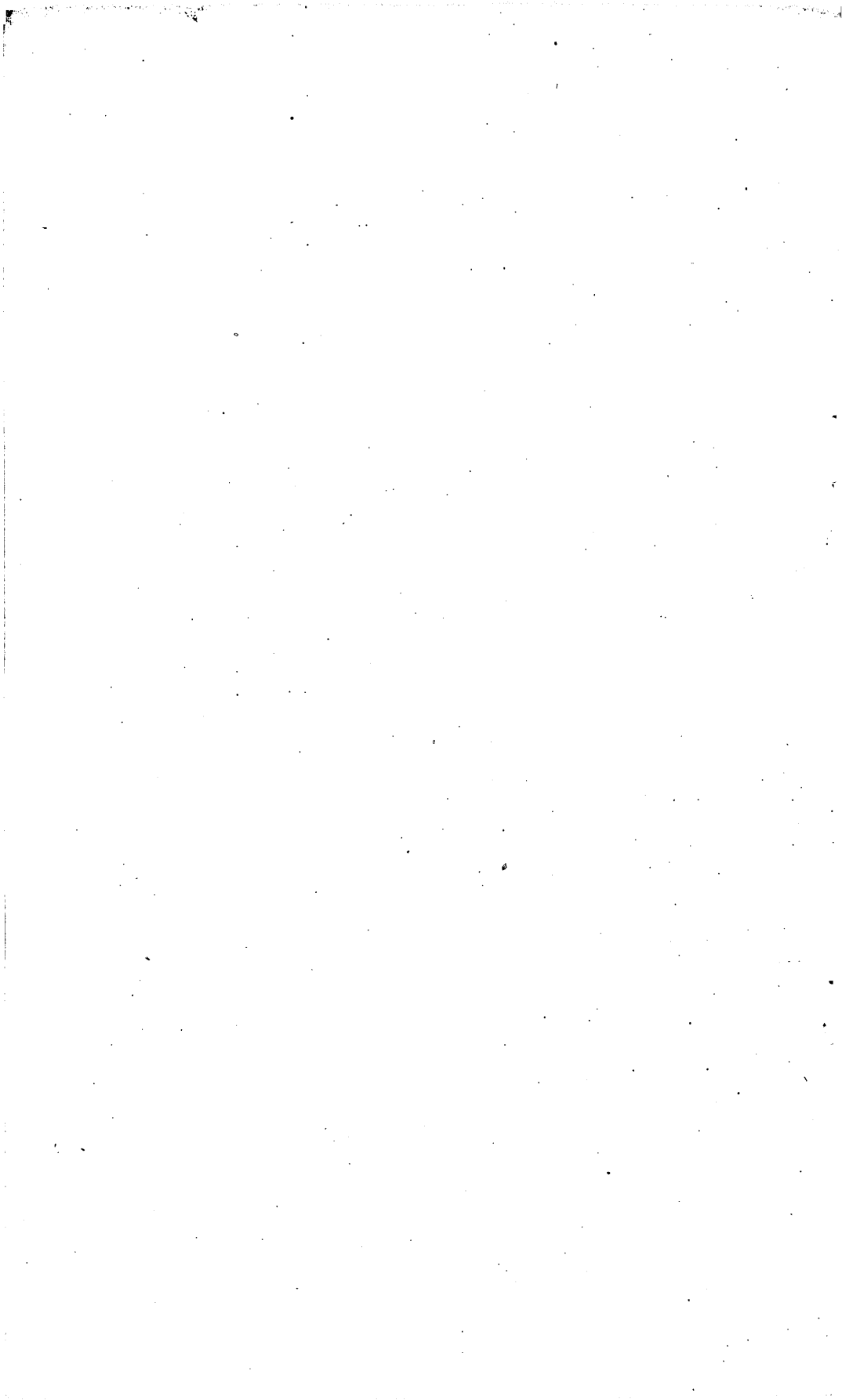


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RESULTS OF SPIRIT LEVELING IN OREGON, 1896 TO 1910, INCLUSIVE.

R. B. MARSHALL, Chief Geographer.

INTRODUCTION.

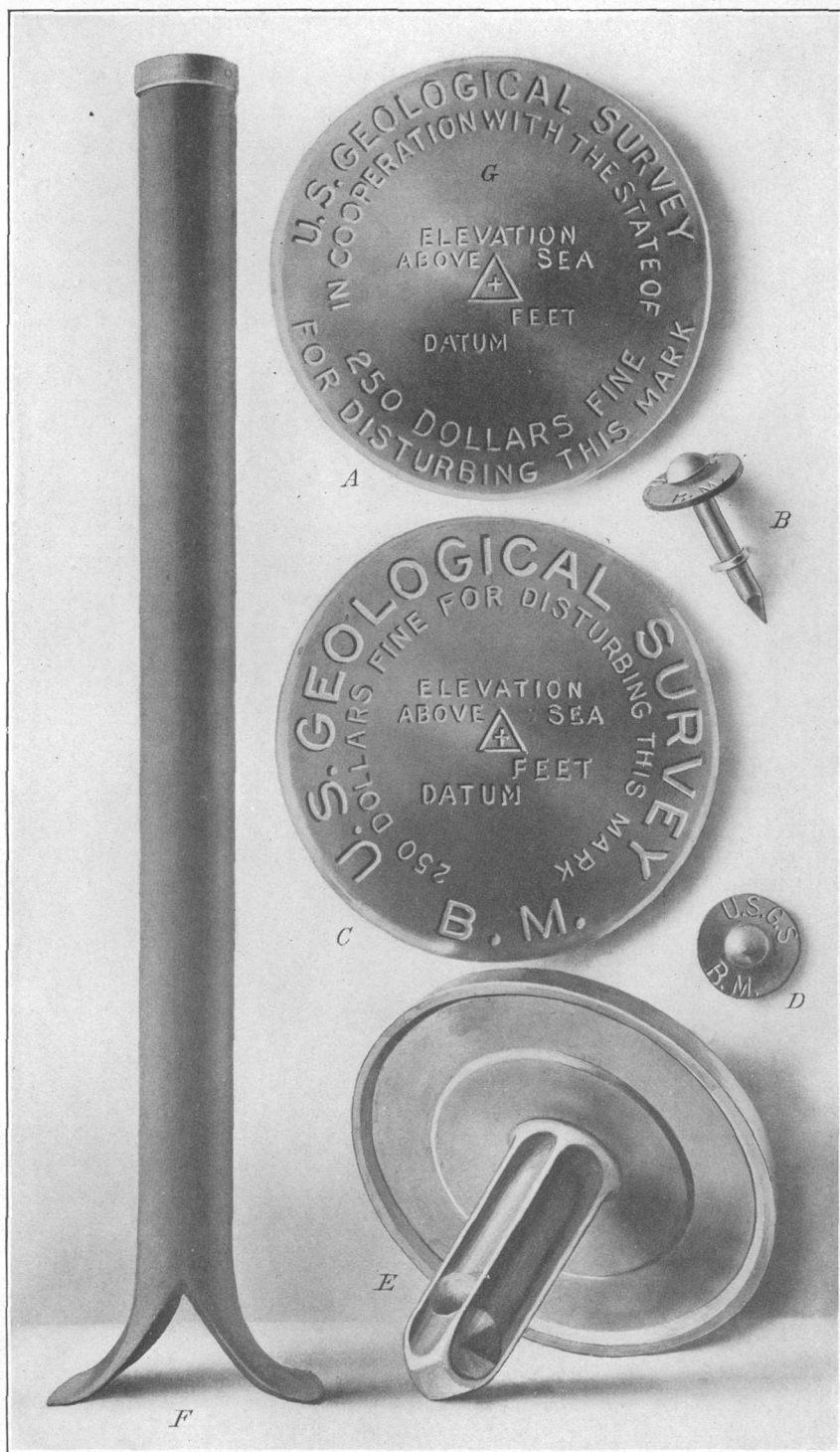
Scope of the work.—All results of spirit leveling in the State of Oregon previously published by the United States Geological Survey and all the results of later work are included in this report, rearranged by quadrangles. All elevations are based on the precise level line of the Coast and Geodetic Survey from Seattle, Wash., to Huntington, Oreg., as adjusted by that Survey in 1905, and on the precise line of the United States Geological Survey between Portland, Oreg., and the California-Oregon State line.

Personnel.—The field work previous to 1903 was done under the general direction of R. U. Goode, geographer; that for 1903 to 1906, inclusive, under E. M. Douglas, geographer; that for 1907 under R. B. Marshall, geographer; and the later work under T. G. Gerdine, geographer, under the general direction of R. B. Marshall, chief geographer. The names of the various levelmen are given in the introduction to each list. The office work of computation, adjustment, and preparation of lists was done mainly by S. S. Gannett, geographer, and D. H. Baldwin, topographer, and since 1907 under the general direction of E. M. Douglas, geographer.

Classification.—The elevations are classified as precise or primary, according to the methods employed in their determination. For precise lines instruments and rods of the highest grade known are used; each line is run both forward and backward, and every precaution taken to guard against error. The allowable divergence between the forward and backward lines in feet is represented by the formula $0.017 \sqrt{D}$, in which D is the distance in miles between bench marks. For primary lines standard Y levels are used; lines are run in circuits or are closed on precise lines, with an allowable closing error in feet of $0.05 \sqrt{D}$, in which formula D equals the length of the circuit in miles, sufficient care being given the work to maintain this standard. For levels of both classes careful office adjustments are made, the small outstanding errors being distributed over the lines.

Bench marks.—The standard bench marks are of two forms. The first form is a circular bronze or aluminum tablet (*C* and *E*, Pl. I), 3.5 inches in diameter and 0.25 inch thick, having a 3-inch stem, which is cemented in a drill hole in solid rock, in the wall of some public building, bridge abutment, or other substantial masonry structure. The second form (*F*, Pl. I), which is set in the ground where no masonry or rock is available, consists of a hollow wrought-iron post $3\frac{1}{2}$ inches in outside diameter and 4 feet long. The bottom is spread out to a width of 10 inches in order to give a firm bearing on the earth. A bronze or aluminum-bronze cap is riveted over the top of the post. A third style of bench mark with abbreviated lettering (*B* and *D*, Pl. I) is used for unimportant points. This consists of a special copper nail $1\frac{1}{2}$ inches in length driven through a copper washer $\frac{3}{8}$ inch in diameter. The tablets, as well as the caps on the iron posts, are appropriately lettered, and where States have cooperated in the work the fact of such cooperation is indicated by the addition of the State name (at *G*, Pl. I). The numbers stamped on the bench marks described in the following pages are the elevations to the nearest foot as determined by the levelman. These numbers are stamped with $\frac{3}{16}$ -inch steel dies on the tablets or post caps to the left of the word "feet." The office adjustment of the notes and the reduction to mean sea level datum may so change some of the figures that the original markings are 1 or 2 feet in error. It is assumed that engineers and others who have occasion to use the bench-mark elevations will apply to the Director of the United States Geological Survey, at Washington, D. C., for their adjusted values, using the markings as identification numbers only.

Datum.—All Geological Survey elevations are referred to mean sea level, which is the level that the sea would assume if the influence of winds and tides were eliminated. This level is not the elevation determined from the mean of the highest and lowest tides, nor is it the half sum of the mean of all the high tides and the mean of all the low tides, which is called half-tide level. *Mean sea level is the average height of the water, all stages of the tide being considered.* It is determined from observations made by means of tidal gauges placed at stations where local conditions, such as long narrow bays, rivers, and like features will not affect the height of the water. To obtain even approximately correct results these observations must extend over at least one lunar month, and if great accuracy is desired they must extend over several years. At ocean stations the half-tide level and mean sea level usually differ but little. It is assumed that there is no difference between the mean sea level as determined from observations in the Atlantic Ocean, Gulf of Mexico, or the Pacific Ocean.



GEOLOGICAL SURVEY BENCH MARKS.

A, Tablet used in cooperating States. The State name is inserted at *G*.
B and *D*, Copper temporary bench mark, consisting of a nail and copper washer.
A, *C*, and *E*, Tablets for stone or concrete structures.
F, Iron post used where there is no rock.

The connection with tidal stations for bench marks in certain areas that lie at some distance from the seacoast is still uncertain, and this fact is indicated by the addition of a letter or a word to the right of the word "datum" on tablets or posts. For such areas corrections for published results will be made from time to time as the precise level lines of the Geological Survey or other Government organizations are extended.

Topographic maps.—Maps of the following quadrangles wholly or partly in Oregon have been published by the United States Geological Survey up to April 20, 1911. They may be obtained (except as noted) for 5 cents each or \$3 a hundred, on application to the Director of the Survey at Washington, D. C.

Ashland.
 Baker City.
 Blalock Island (Oreg.-Wash.).
 Coos Bay.
 Crater Lake National Park (with descriptive text on the back).
 Grants Pass.
 Eugene.
 Ironside Mountain.
 Klamath.
 Mitchell Butte (Oreg.-Idaho).
 Nampa (Idaho-Oreg.).
 Portland (Oreg.-Wash.).
 Port Orford.
 Riddles.
 Roseburg.
 Sumpter.
 Telocaset.
 Umatilla (Oreg.-Wash.).
 Weiser (Idaho-Oreg.).
 Willamette Valley, sheets 1, 2, and 3, comprising portions of Eugene 15' quadrangle (40 cents each).

PRECISE LEVELING.

Albany, Ashland, Dothan, Drain, Eugene, Grants Pass, Halsey, Oregon City, Portland, Riddles, Roseburg, Salem, and Shelburn Quadrangles.

CLACKAMAS, DOUGLAS, JACKSON, JOSEPHINE, LANE, LINN, MARION, AND MULTNOMAH COUNTIES.

The elevations in the following list are the results of a double simultaneous precise level line run by C. H. Semper, from Benicia, Cal., in 1902, and extended through Oregon in 1903, along the Southern Pacific Railroad to Portland. The elevation accepted at Portland is that determined by a double primary level line run in 1898 by J. H. Carlock from Coast and Geodetic Survey bench marks at Astoria. A Buff & Berger precise level and two double-faced non-extensible target rods were used.

ASHLAND 1° QUADRANGLE.

California-Oregon State line to Portland, Oreg. (portion of line).

	Feet.
Cole, 1.5 miles north of, west side of railroad, 450 feet north of milepost 406, at telegraph pole; iron post stamped "2997 B 1903"-----	2, 998. 027
Cole, 4.3 miles north of, east side of railroad, 150 feet south of milepost 409, at telegraph pole; iron post stamped "3445 B 1903"-----	3, 445. 739
Coleston, in front of station; top of rail-----	3,714. 0
Coleston, 1.2 miles north of, east side of railroad, 150 feet north of milepost 412, at telegraph pole; iron post stamped "3922 B 1903"-----	3, 922. 473
Siskiyou, in front of station; top of rail-----	4, 113. 8
Siskiyou, 1.1 miles north of, east side of railroad, 300 feet north of milepost 415, at telegraph pole; iron post stamped "3918 B 1903"-----	3, 919. 351
Wall Creek flag station, 0.6 miles south of, 510 feet southeast of milepost 418, 20 feet east of east rail; iron post stamped "3486 B 1903"-----	3, 487. 464
Steinman, 360 feet south of station, 80 feet north of milepost 421, east side of railroad, at telegraph pole; iron post stamped "3036 B 1903"-----	3, 037. 341
Steinman, in front of station; top of rail-----	3, 027. 2
Steinman, 2.7 miles north of, east side of railroad, at fence line, 80 feet south of milepost 424; iron post stamped "2561 B 1903"-----	2,562. 210
Steinman, 5.6 miles north of, west side of railroad, 100 feet north of milepost 427, at telegraph pole; iron post stamped "2180 B 1903"-----	2, 180. 960
Ashland, 1,800 feet south of station, at Mountain Avenue crossing, 42 feet east of rail, south side of street; iron post stamped "1874 B 1903"-----	1, 874. 807
Ashland, in front of station; top of rail-----	1, 868. 8
Ashland, 2.5 miles north of, east side of railroad, 5 feet from milepost 433; iron post stamped "1755 B 1903"-----	1, 756. 159
Talent, in front of station; top of rail-----	1, 635. 2
Talent, northwest corner of station, 4 feet north of milepost 436, 11 feet east of rail; iron post stamped "1633 B 1903"-----	1, 634. 541
Phoenix, in front of station; top of rail-----	1, 543. 7
Phoenix, 0.8 mile north of, east side of railroad, fence line at second telegraph pole north of milepost 439; iron post stamped "1513 B 1903"-----	1, 513. 899
Medford, in front of station; top of rail-----	1, 374. 8
Medford, Nash Hotel, west face at entrance; aluminum tablet stamped "1376 B 1903"-----	1, 377. 097
Medford, 3.1 miles north of, highway crossing, 30 feet east of track, on south margin of highway; iron post stamped "1292 B 1903"-----	1, 293. 144
Central Point, in front of station; top of rail-----	1, 273. 0
Central Point, 2 miles north of, T. 36 S., R. 2 W., near center of sec. 33, at highway crossing, 11 feet east of rail, south side of highway; iron post stamped "1214 B 1903"-----	1, 215. 414
Tolo, 4.8 miles north of Central Point, east side of railroad, 150 feet south of milepost 452, at telegraph pole; iron post stamped "1164 B 1903"-----	1, 165. 507

GRANTS PASS 30' QUADRANGLE.

California-Oregon State line to Portland, Oreg. (portion of line).

Central Point, 7.9 miles north of, east side of railroad, 750 feet north of milepost 455, at telegraph pole; iron post stamped "1137 B 1903"	Fet. 1, 138. 284
Gold Hill, in front of station; top of rail	1, 084. 1
Gold Hill, 15 feet east of track, 24 feet north of station; iron post stamped "1084 B 1903"	1, 085. 056
Gold Hill, 2.4 miles north of, east side of railroad, 200 feet north of milepost 461, at telegraph pole; iron post stamped "1049 B 1903"	1, 050. 060
Gold Hill, 5.4 miles north of, east side of railroad, 3 feet south of milepost 464; iron post stamped "1018 B 1903"	1, 019. 419
Woodville, in front of station; top of rail	999. 7
Woodville, 0.7 mile north of, east side of railroad, 3 feet north of milepost 467; iron post stamped "993 B 1903"	994. 128
Woodville, 6.6 miles north of, east side of railroad, 5 feet north of milepost 473; iron post stamped "945 B 1903"	946. 287
Grants Pass, in front of station; top of rail	938. 0
Grants Pass, high school, west face, south corner; aluminum tablet stamped "956 B 1903"	956. 807
Grants Pass, 3.7 miles north of, east side of railroad, 10 feet from rail, 200 feet south of milepost 479; iron post stamped "1218 B 1903"	1, 218. 590
Grants Pass, 6.7 miles north of, 15 feet east of railroad, 25 feet south of highway, at milepost 482; iron post stamped "1050 B 1903"	1, 050. 935

RIDDLES 30' QUADRANGLE.

California-Oregon State line to Portland, Oreg. (portion of line).

Merlin, in front of station; top of rail	910. 5
Merlin, 90 feet west of railroad, 50 feet north of Mitchell's store, at fence line; iron post stamped "900 B 1903"	900. 504
Merlin, 4.2 miles north of, at highway crossing, 15 feet east of track, 15 feet south of north margin of highway; iron post stamped "1252 B 1903"	1, 253. 177
Hugo, in front of station; top of rail	1, 290. 4
Hugo, 2.4 miles north of, west side of railroad, opposite milepost 491, 25 feet from rail; iron post stamped "1459 B 1903"	1, 459. 542
Tunnel 9, 1.7 miles north of, east side of railroad, 40 feet south of milepost 494, 18 feet east of track; iron post stamped "1330 B 1903"	1, 331. 445
Leland, in front of station; top of rail	1, 191. 6.
Leland, 1.6 miles north of, east side of railroad, 5 feet north of milepost 497; iron post stamped "1098 B 1903"	1, 098. 668
Leland, 4.4 miles north of, east side of railroad, at first telegraph pole south of milepost 500, 20 feet east of track; iron post stamped "1150 B 1903"	1, 150. 878
Wolf Creek, 400 feet south of station, 40 feet east of track, near telegraph pole; iron post stamped "1289 B 1903"	1, 290. 364
Wolf Creek, in front of station; top of rail	1, 293. 8

Wolf Creek, 2.7 miles north of, 10 feet west of track, 30 feet south of trestle, 65 feet south of milepost 506; iron post stamped "1516 B 1903"	Feet. 1,516.658
Glendale, in front of station; top of rail	1,417.9
Glendale, 14 feet northeast of southeast corner of Hotel Glendale; iron post stamped "1425 B 1903"	1,426.237
Glendale, 2.6 miles north of, highway crossing, 25 feet north of track, 5 feet west of east fence; iron post stamped "1366 B 1903"	1,367.243
West Fork, 16.2 miles north of, 300 feet south of milepost 539, on side of track, at fence line; iron post stamped "752 B 1903"	753.161
Glenbrook, 90 feet east of sign post, 60 feet west of prune drier, on line with front of building, 78 feet north of main track, 8 feet east of creek; iron post stamped "721 B 1903"	722.104
Riddles, 30 feet in front of Riddle Hotel, at edge of walk to station; iron post stamped "705 B 1903"	706.096
Riddles, in front of station; top of rail	709.2
Riddles, 3.5 miles north of, west side of railroad, at fence line opposite milepost 549; iron post stamped "642 B 1903"	642.396

DOTHAN QUADRANGLE.

California-Oregon State line to Portland, Oreg. (portion of line).

Glendale, 5.8 miles north of, 250 feet north of milepost 515, 25 feet east of track; iron post stamped "1288 B 1903"	1,288.846
Glendale, 8.6 miles north of, 35 feet east of railroad, 120 feet south of old white house, 200 feet south of milepost 518; iron post stamped "1188 B 1903"	1,188.367
Glendale, 11.7 miles north of, 7 feet east of track, 10 feet south of milepost 521; iron post stamped "1099 B 1903"	1,099.996
West Fork, in front of station; top of rail	1,024.0
West Fork, 1.5 miles north of, 180 feet north of milepost 524, 12 feet east of rail; iron post stamped "993 B 1903"	993.983
West Fork, 4.3 miles north of, 10 feet north of railroad, 360 feet south of milepost 527; iron post stamped "930 B 1903"	931.334
West Fork, 8.4 miles north of, 300 feet north of milepost 531, 10 feet north of track; iron post stamped "853 B 1903"	853.983
West Fork, 10.3 miles north of, 15 feet south of milepost 533, 10 feet east of railroad; iron post stamped "824 B 1903"	825.277
West Fork, 13.3 miles north of, 10 feet north of milepost 536, 10 feet east of track; iron post stamped "793 B 1903"	793.646

ROSEBURG QUADRANGLE.

California-Oregon State line to Portland (portion of line).

Myrtle Creek, 15 feet east of track, on line with end of station; iron post stamped "612 B 1903"	612.859
Myrtle Creek, in front of station; top of rail	613.9
Myrtle Creek, 3.3 miles north of, east side of railroad, at fence line, 135 feet south of milepost 555; iron post stamped "586 B 1903"	586.855
Ruckels, in front of station; top of rail	572.0
Ruckels, 1.7 miles north of, east side of railroad, fence line, 4 feet from milepost 558; iron post stamped "570 B 1903"	570.636
Ruckels, 4.7 miles north of, east side of railroad, at fence line, 65 feet south of milepost 561; iron post stamped "553 B 1903"	553.382

	Feet.
Dillard, in front of station; top of rail-----	521. 6
Dillard, 0.9 mile north of, west side of railroad, at fence line, 600 feet north of milepost 564; iron post stamped "512 B 1903"-----	513. 211
Dillard, 3.6 miles north of, east side of railroad, at highway crossing, 25 feet east of track; iron post stamped "558 B 1903"-----	559. 120
Green, in front of station; top of rail-----	513. 7
Green, 1 mile north of, east side of railroad, at fence line, 30 feet north of milepost 570, iron post stamped "501 B 1903"-----	501. 637
Roseburg, in front of station; top of rail-----	463. 1
Roseburg, corner of Pine and Oak Streets, northeast angle of street, 180 feet east of rail; iron post stamped "464 B 1903"-----	464. 705
Roseburg, 2.1 miles north of, west side of railway, 5 feet from fence, 105 feet north of milepost 576; iron post stamped "500 B 1903"---	500. 741
Roseburg, 5 miles north of, east side of railroad, at fence line, 3 feet south of milepost 579; iron post stamped "472 B 1903"-----	473. 173
Winchester, in front of station; top of rail-----	458. 3
Wilbur, 0.8 mile south of, east side of railroad, at fence line, 190 feet south of milepost 582; iron post stamped "497 B 1903"-----	497. 684
Wilbur, in front of station; top of rail-----	465. 1
Wilbur, 2.3 miles north of, west side of railroad, 8 feet from fence, 150 feet south of milepost 585; iron post stamped "486 B 1903"---	486. 481
Wilbur, 5.4 miles north of, at road crossing, 15 feet west of track south side of road, at old warehouse; iron post stamped "538 B 1903"-----	539. 021
Oakland, 150 feet east of main track, at railway station, north margin of highway, 75 feet west of front face of Hotel Thomas; iron post stamped "429 B 1903"-----	429. 586
Oakland, in front of station; top of rail-----	427. 1
Oakland, 3.4 miles north of, east side of railroad, at fence line, 135 feet south of milepost 594; iron post stamped "464 B 1903"-----	464. 521

DRAIN QUADRANGLE.

California-Oregon State line to Portland, Oreg. (portion of line).

Oakland, 6.4 miles north of, east side of railroad, at fence line, 3 feet south of milepost 597; iron post stamped "584 B 1903"-----	584. 672
• Oakland, 9.5 miles north of, at highway crossing, 14 feet east of track, 20 feet south of fence line; iron post stamped "617 B 1903"-----	617. 606
Oakland, 12.3 miles north of, east side of railroad, at fence line, 300 feet south of milepost 603; iron post stamped "389 B 1903"-----	389. 577
Yoncalla, in front of station; top of rail-----	354. 6
Yoncalla, 1.9 miles north of, east side of railroad, at fence line, 4 feet south of milepost 607; iron post stamped "329 B 1903"-----	329. 726
Drain, in front of station; top of rail-----	295. 6
Drain, 585 feet north of north end of station, 15 feet west of main track, at east end of margin of highway; iron post stamped "298 B 1903"-----	298. 667
Leona, 40 feet south of station, east side of track, at fence line, 4 feet north of milepost 613; iron post stamped "324 B 1903"-----	324. 250
Leona, in front of station; top of rail-----	324. 1
Leona, 3 miles north of, east side of railroad, at fence line, 3 feet south of milepost 616; iron post stamped "370 B 1903"-----	370. 853

Comstock, 0.2 mile south of, east side of railroad, 165 feet north of milepost 619, at fence line; iron post stamped "438 B 1903"-----	Feet. 438. 224
Comstock, in front of station; top of rail-----	449. 0
Comstock, 2.9 miles north of, 530 feet north of milepost 622, 15 feet west of track, at telegraph pole; iron post stamped "676 B 1903"-----	677. 030
Divide, 1.7 miles north of, west side of railroad, at fence line, opposite milepost 625; iron post stamped "690 B 1903"-----	690. 835
Cottage Grove, in front of station; top of rail-----	642. 2
Cottage Grove, 250 feet north of station, 25 feet east of main track, northwest corner of planing mill; iron post stamped "642 B 1903"-----	642. 518
Saginaw, in front of station; top of rail-----	610. 3
Saginaw, 0.8 mile north of, east side of railroad, at fence line, 150 feet south of milepost 631; iron post stamped "603 B 1903"-----	603. 359
Walker, in front of station; top of rail-----	599. 1
Walker, 2.2 miles north of, east side of railroad, at fence line, 3 feet north of milepost 634; iron post stamped "572 B 1903"-----	572. 865
Creswell, in front of station; top of rail-----	541. 3
Creswell, 0.3 mile north of, east side of railroad, at fence line, 90 feet north of milepost 637; iron post stamped "546 B 1903"-----	547. 016
Creswell, 3.2 miles north of, at highway crossing, 8 feet west of rail, north margin of highway; iron post stamped "513 B 1903"-----	513. 380
Goshen, in front of station; top of rail-----	500. 2

EUGENE 15' QUADRANGLE.

California-Oregon State line to Portland, Oreg. (portion of line).

Goshen, 0.8 mile north of, west side of railroad, 135 feet south of milepost 643, at fence line; iron post stamped "493 B 1903"-----	493. 960
Henderson, 30 feet west of main track, 35 feet south of station sign; iron post stamped "446 B 1903"-----	447. 160
Henderson, in front of station; top of rail-----	446. 5
Eugene, University of Oregon grounds, northeast corner, front face of Villard Hall; aluminum tablet stamped "449 B 1903"-----	449. 317
Eugene, in front of station; top of rail-----	426. 4
Eugene, 1.5 miles north of, east side of railroad, 4 feet south of milepost 650; iron post stamped "407 B 1903"-----	407. 365
Eugene, 4.9 miles north of, highway crossing, east side of track, north margin of highway; iron post stamped "382 B 1903"-----	382. 463
Irving, in front of station; top of rail-----	376. 8
Irving, 1.8 miles north of, east side of railroad, 5 feet from fence, at milepost 656; iron post stamped "363 B 1903"-----	363. 480
Irving, 4.7 miles north of, east side of railroad, 8 feet from fence, at milepost 659; iron post stamped "340 B 1903"-----	340. 799
Junction City, in front of station; top of rail-----	325. 8
Junction City, 1.2 miles north of, east side of railroad, at first telegraph pole north of milepost 663, 11 feet from fence; iron post stamped "319 B 1903"-----	319. 211

HALSEY 15' QUADRANGLE.

California-Oregon State line to Portland, Oreg. (portion of line).

Harrisburg, 140 feet south of station, 15 feet east of track, at telegraph pole; iron post stamped "307 B 1903"-----	307. 653
Harrisburg, in front of station; top of rail-----	309. 2

Harrisburg, 2.7 miles north of, east side of railroad, 4 feet from fence line, third telegraph pole south of milepost 669; iron post stamped "302 B 1903"-----	Feet. 302. 779
Harrisburg, 5.8 miles north of, east side of railroad, at milepost 672, 3 feet from fence line; iron post stamped "291 B 1903"-----	291. 589
Halsey, 100 feet north of station, 18 feet east of track, on line with north margin of street to east; iron post stamped "281 B 1903"---	281. 562
Halsey, in front of station; top of rail-----	282. 4
Halsey, 3.2 miles north of, east side of railroad, 4 feet from milepost 678, at fence line; iron post stamped "266 B 1903"-----	266. 594
Shedd, in front of station; top of rail-----	262. 8
Shedd, 1.9 miles north of, east side of railroad, at fence line, third telegraph pole south of milepost 682; iron post stamped "249 B 1903"-----	249. 485

ALBANY 15' QUADRANGLE.

California-Oregon State line to Portland, Oreg. (portion of line).

Shedd, 4 miles north of, east side of railroad, fence line at first telegraph pole south of milepost 684; iron post stamped "242 B 1903"-----	242. 819
Tangent, in front of station; top of rail-----	245. 3
Tangent, 1.3 miles north of, east side of railroad, at fence line, first telegraph pole south of milepost 687; iron post stamped "240 B 1903"-----	240. 761
Tangent, 4.3 miles north of, east side of railroad, 4 feet from fence line, at milepost 690; iron post stamped "221 B 1903"-----	221. 763
Albany, 115 feet west of station, north margin of Lyon Street, 15 feet west of side track; iron post stamped "212 B 1903"-----	212. 367
Albany, in front of station; top of rail-----	214. 1
Albany, 3.1 miles north of, highway crossing, 16 feet east of railroad, 3 feet north of milepost 695; iron post stamped "210 B 1903"-----	211. 025
Millersburg, in front of station; top of rail-----	245. 0
Millersburg, 1.6 miles north of, east side of railroad, 8 feet from fence, at second telegraph pole north of milepost 698; iron post stamped "214 B 1903"-----	214. 256
Jefferson, in front of station; top of rail-----	241. 1
Jefferson, 0.5 mile north of, east side of railroad, fence line at first telegraph pole north of milepost 701, 90 feet south of road crossing; iron post stamped "235 B 1903"-----	235. 546

LEBANON 30' QUADRANGLE.

California-Oregon State line to Portland, Oreg. (portion of line).

Jefferson, 3.4 miles north of, east side of railroad, at fence line, second telegraph pole south of milepost 704; iron post stamped "287 B 1903"-----	287. 961
Marion, in front of station; top of rail-----	300. 6
Marion, 1.8 miles north of, west side of railroad, fence line opposite milepost 707; iron post stamped "327 B 1903"-----	327. 868
Marion, 4.9 miles north of, west side of railroad, fence line 110 feet north of milepost 710; iron post stamped "308 B 1903"-----	308. 809
Turner, in front of station; top of rail-----	284. 3
Turner, 1.4 miles north of, west side of railroad at fence line, 30 feet north of milepost 713; iron post stamped "261 B 1903"-----	261. 862

SALEM 15' QUADRANGLE.

California-Oregon State line to Portland, Oreg. (portion of line).

Turner, 4.8 miles north of, east side of railroad, 15 feet from rail, 6 feet south of road crossing, fence; iron post stamped "207 B 1903"-----	Feet. 207.940
Salem, in front of station; top of rail-----	163.0
Salem, State capitol, south face, at entrance; aluminum tablet stamped "171 B 1903"-----	171.388
Salem, 2.8 miles north of, east side of railroad, 8 feet from fence, at milepost 722; iron post stamped "162 B 1903"-----	162.219

OREGON CITY 30' QUADRANGLE.

California-Oregon State line to Portland, Oreg. (portion of line).

Chemawa, in front of station; top of rail-----	162.1
Chemawa, 50 feet north of entrance to Indian training school, 20 feet east of track; iron post stamped "163 B 1903"-----	163.411
Brooks, in front of station; top of rail-----	182.8
Brooks, 215 feet north of station, 11 feet east of track; iron post stamped "183 B 1903"-----	183.248
Brooks, 4.2 miles north of, east side of railroad at first telegraph pole north of milepost 732, 8 feet from fence; iron post stamped "182 B 1903"-----	182.124
Gervais, in front of station; top of rail-----	184.7
Gervais, 1 mile north of, east side of railroad, at fence line, 5 feet south of milepost 734; iron post stamped "183 B 1903"-----	183.952
Woodburn, 210 feet south of station, 36 feet east of main track; iron post stamped "181 B 1903"-----	181.927
Woodburn, in front of station; top of rail-----	181.2
Hubbard, in front of station; top of rail-----	182.7
Hubbard, 240 feet north of station, 12 feet east of main track; iron post stamped "183 B 1903"-----	183.412
Hubbard, 3.2 miles north of, east side of railroad, at first telegraph pole south of milepost 743, 18 feet from fence; iron post stamped "184 B 1903"-----	184.000
Aurora, in front of station; top of rail-----	119.7
Barlow, 50 feet north of station, 25 feet east of main track; iron post stamped "100 B 1903"-----	100.391
Canby, 1.1 miles north of, at second telegraph pole south of milepost 749, 18 feet east of track; iron post stamped "130 B 1903"-----	130.032
New Era, in front of station; top of rail-----	91.9
New Era, 0.9 mile north of, east side of railroad at milepost 752, at fence line; iron post stamped "89 B 1903"-----	89.257
Oregon City, 1.5 miles south of, 7 feet north of milepost 755, 7 feet east of rail, at fence line; iron post stamped "66 B 1903"-----	66.822
Oregon City, in front of station; top of rail-----	75.2
Paper mill, 200 feet south of, 16 feet east of track, at first telegraph pole; iron post stamped "45 B 1903"-----	45.122
Paper mill, in front of station; top of rail-----	47.2
Clackamas, 248 feet south of station, 27 feet east of main track, at telegraph pole; iron post stamped "108 B 1903"-----	108.928
Clackamas, in front of station; top of rail-----	111.2
Clackamas, 3 miles north of, east side of railroad, at fence line, 3 feet north of milepost 764; iron post stamped "109 B 1903"-----	108.970

	Feet.
Milwaukee, in front of station; top of rail-----	95.7
Willsburg, in front of station; top of rail-----	59.9
Willsburg, 0.5 mile north of, 360 feet north of milepost 767, east side of track; iron post stamped "56 B 1903"-----	56.176

PORTLAND 15' QUADRANGLE.

California-Oregon State line to Portland, Oreg. (portion of line).

Portland, 100 feet from center of post office, south side of yard, 40 feet from east and west street, near latitude pier; iron post stamped "51 A"-----	51.016
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NOTE.—Owing to an addition to the post-office building, the above
bench mark was replaced in September, 1903, by the following:

Portland, north front of post office; 2 feet east of doorway, first course of stone above water table, aluminum tablet stamped "54 A"—	54.106
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Birch Creek, Burns, Drewsey, Goldendale, Harney, Heisler, Mitchell Butte, Moro,
Paulina, Prineville, Riley, Weiser, and Westfall Quadrangles.

CROOK, HARNEY, MALHEUR, SHERMAN, AND WASCO COUNTIES.

The elevations in the following list are the results of a line of
precise leveling begun at Ontario and run west along a stage road
to Riley, thence northwest to Prineville, thence north to Biggs.

The line connects with the line run from Huntington, Oreg., via
Weiser, Idaho, to Ontario, Oreg., the bench marks on which were
checked by the transcontinental precise level party of the Coast and
Geodetic Survey. The elevations are based upon the adjusted heights
at Ontario, and no adjustment has been made between that point
and Biggs, this line furnishing the accepted elevation at Biggs to
which the primary line from Astoria to Pasco is adjusted.

The leveling was done by C. H. Semper in 1903 and 1904, by the
double-rodged simultaneous method.

The standard bench marks are stamped with the letter "H" in
addition to figures of elevation either 7 or 8 feet too low, the correc-
tion to the original being +7.5 feet.

WEISER QUADRANGLE.

At Ontario.

	Feet.
Ontario, in front of station; top of rail-----	2,152.7
Ontario, corner Main Street and road to station, 12 feet east of north- east corner at Brown's Hotel; iron post stamped "2132 H"-----	2,150.773

BIRCH CREEK QUADRANGLE.

Ontario west along stage road 6 miles.

Ontario, 3.1 miles west of, south side of road, at corner of wire fence and road to ranch house; iron post stamped "2154 H"-----	2,161.724
Ontario, 6 miles west of, south side of road, at crossing of irrigating ditch; iron post stamped "2173 H"-----	2,180.371

MITCHELL BUTTE QUADRANGLE.

Point 6 miles west of Ontario along stage road to point 16 miles west of Vale.

	Feet.
Ontario, 9.1 miles west of, north side of road in front of Jerry Brosnahan's ranch house at fence line; iron post stamped "2195 H"-----	2, 202. 864
Ontario, 12.3 miles west of, south side of highway, telephone pole at margin of unused ditch; iron post stamped "2214 H"-----	2, 221. 569
Vale, northeast corner of courthouse; aluminum tablet stamped "2235 H"-----	2, 242. 108
Vale, 3 miles west of, 50 feet south of roadway; iron post stamped "2395 H"-----	2, 402. 497
Vale, 7 miles west of, directly opposite schoolhouse on north side of road and on line with east face of building; iron post stamped "2308 H"-----	2, 315. 656
Vale, 10.6 miles west of, Louis Paddick's ranch, south margin of road, 50 feet east of side of house; iron post stamped "2334 H"-----	2, 341. 869
Vale, 13.7 miles west of, in Malheur Canyon, at crossing of road and railroad bed, on south side of railroad bed; iron post stamped "2359 H"-----	2, 366. 445

WESTFALL QUADRANGLE.

Point 16 miles west of Vale along stage road via Harper ranch to Westfall.

Vale, 16 miles west of, 10 feet north of railroad bed, at railroad borrow pit; iron post stamped "2384 H"-----	2, 391. 971
Vale, 20.3 miles west of, lower end of Little Valley, 20 feet north of road; iron post stamped "2434 H"-----	2, 441. 772
Vale, 22.3 miles west of, foot of road up big hill leading to lower Harper ranch, south side of railroad; iron post stamped "2460 H"-----	2, 467. 048
Lower Harper ranch, 1 mile west of, gate leading to main road to Westfall, 10 feet east of gate on fence line; iron post stamped "2504 H"-----	2, 511. 714
Lower Harper ranch, 3.1 miles west of, 15 feet north of road, 250 feet east of point of hill; iron post stamped "2585 H"-----	2, 592. 826
Lower Harper ranch, 6 miles west of, 20 feet south of road; iron post stamped "2712 H"-----	2, 719. 769
Lower Harper ranch, 10.1 miles west of, 15 feet east of road; iron post stamped "2965 H"-----	2, 972. 237

Westfall west along stage road via Beulah to point 4.6 miles west of stage station.

Westfall, between Jones's store and stone warehouse, at side of store; iron post stamped "2994 H"-----	3, 001. 344
Westfall, 3.1 miles west of, 10 feet north of road, 20 feet east of small creek bottom; iron post stamped "3108 H"-----	3, 115. 421
Westfall, 6.2 miles west of, 15 feet south of road; iron post stamped "3239 H"-----	3, 246. 515
Westfall, 9.4 miles west of, 10 feet south of road; iron post stamped "3426 H"-----	3, 433. 211
Westfall, 12 miles west of, 20 feet south of road, halfway up hill; iron post stamped "3786 H"-----	3, 793. 950
Stage station, 1.6 miles west of, 10 feet north of road; iron post stamped "4052 H"-----	4, 059. 469
Stage station, 4.6 miles west of, on south margin of road at big bend, near foot of hill; iron post stamped "4535 H"-----	4, 542. 311

DREWSEY QUADRANGLE.

Point 4.6 miles west of stage station along stage road via Beulah and Drewsey
to point 8.3 miles west of Drewsey.

Stage station, 7.7 miles west of, 15 feet north of road; iron post stamped "4454 H"-----	Feet. 4,461.395
Billy Wilson's, 1.5 miles west of, fence line at northwest angle of road to J. S. Hunter's house; iron post stamped "4103 H"-----	4,110.053
Billy Wilson's, 3.4 miles west of, 10 feet north of road; iron post stamped "3957 H"-----	3,964.439
Billy Wilson's, 6 miles west of, in Agency Valley, in front of T. L. Arnold's house, 15 feet south of gate; iron post stamped "3471 H"-----	3,478.260
Beulah, 25 feet east of, at east end of iron bridge over Malheur River, on north margin of road; iron post stamped "3269 H"-----	3,276.015
Beulah, 2.8 miles west of, in valley at top of Agency Mountain, on south margin of road; iron post stamped "3838 H"-----	3,845.735
Beulah, 6 miles west of, 15 feet south of road, on south side of creek bottom; iron post stamped "3779 H"-----	3,786.243
Beulah, 8.6 miles west of, on north margin of road, 25 feet west of gate to Altnow's ranch house, at fence line; iron post stamped "3612 H"-----	3,619.075
Beulah, 12.1 miles west of, 90 feet east of bridge over Warm Spring Creek, 30 feet north of wire fence; iron post stamped "3523 H"-----	3,530.420
Drewsey, southwest corner of A. J. Johnson & Bros. store; iron post stamped "3508 H"-----	3,515.811
Drewsey, 2.6 miles west of, 20 feet west of bridge over Stinking Water Creek, south side of stream; iron post stamped "3538 H"-----	3,545.096
Drewsey, 5.4 miles west of, on new road over Stinking Water Mountain, 15 feet north of road; iron post stamped "3596 H"-----	3,603.869
Drewsey, 8.3 miles west of, on Stinking Water Mountain grade, 30 feet south of road; iron post stamped "4099 H"-----	4,106.297

HARNEY QUADRANGLE.

Point 8.3 miles west of Drewsey along stage road via Harney to Burns.

Drewsey, 12.3 miles west of, top of Stinking Water Mountain, 20 feet south of road; iron post stamped "4718 H"-----	4,725.463
Drewsey, 14.5 miles west of, at upper end of Nigger Flat, 10 feet south of road; iron post stamped "4652 H"-----	4,659.110
Drewsey, 17.5 miles west of, in canyon 15 feet north of road; 1.1 miles east of old stage station; iron post stamped "4483 H"-----	4,490.547
Drewsey, 20.4 miles west of, 1 mile west of east end of Harney Valley, at west end of turnout in road; iron post stamped "4174 H"-----	4,181.170
Drewsey, 23.3 miles west of, in Harney Valley, 70 feet north of road; iron post stamped "4132 H"-----	4,139.308
Drewsey, 26.4 miles west of, in Harney Valley, 0.3 mile west of old schoolhouse, south side of road; iron post stamped "4133 H"-----	4,140.591
Harney, 1.7 miles east of, at junction of main road and road to Steens Mountain, south side of road, 6 feet east of signpost; iron post stamped "4147 H"-----	4,154.173
Harney, at northeast corner of town hall, 7 feet from fence; iron post stamped "4161 H"-----	4,168.965

Harney, 2.9 miles west of, directly opposite William Krzeska's house,	Feet.
on side of road at fence line; iron post stamped "4138 H"-----	4, 145. 385
Harney, 6.2 miles west of, 65 feet west of bridge on north margin of road; iron post stamped "4131 H"-----	4, 138. 497
Harney, 9.7 miles west of, at northeast corner of Poison Creek schoolhouse fence, on margin of road; iron post stamped "4146 H"-----	4, 154. 000

BURNS QUADRANGLE.**Burns along stage road to Riley.**

Burns, front yard of county courthouse, 10 feet from fence and 4 feet north of walk leading to building; iron post stamped "4177 H"-----	4, 184. 979
Burns, 3.1 miles west of, 25 feet east of road; iron post stamped "4147 H"-----	4, 154. 641
Burns, 6.2 miles west of, at foot of hill, 10 feet south of road; iron post stamped "4160 H"-----	4, 167. 310
Burns, 8.9 miles west of, 50 feet west of Jenkins ranch house, on north side of road at fence line; iron post stamped "4138 H"-----	4, 145. 318
Burns, 12.9 miles west of, on south margin of road at fence line, 4 feet west of, gate leading to Calkins ranch house; iron post stamped "4195 H"-----	4, 202. 363
Burns, 16 miles west of, 15 feet south of road, in foothills; iron post stamped "4404 H"-----	4, 411. 545
Burns, 19.2 miles west of, 30 feet north of road; iron post stamped "4552 H"-----	4, 559. 907
Burns, 21.9 miles west of, 600 feet west of summit of small hill, 40 feet south of road; iron post stamped "4153 H"-----	4, 160. 378
Riley, 2.9 miles east of, 15 feet south of road; iron post stamped "4318 H"-----	4, 325. 597
Riley, at fence front of Fred Oakerman's house, opposite post office; iron post stamped "4210 H"-----	4, 217. 596

RILEY QUADRANGLE.**Riley west along stage road to Street's ranch.**

Riley, 4.1 miles west of, at corner of road leading to schoolhouse, near wire-fence line; iron post stamped "4264 H"-----	4, 271. 651
Riley, 7.3 miles west of, W. B. Johnson's upper ranch house at southwest corner of yard fence; iron post stamped "4295 H"-----	4, 302. 424
Riley, 11 miles west of, north margin of road, on line with south face of Cecil ranch house; iron post stamped "4345 H"-----	4, 352. 825
Cecil's, 2.8 miles west of, 0.3 mile east of Dry Lake, 20 feet south of road; iron post stamped "4761 H"-----	4, 768. 897
Cecil, 5.8 miles west of, 21 feet south of road, 100 feet north of small hill with boulders along top; iron post stamped "4722 H"-----	4, 729. 418
Cecil's, 9 miles west of, south side of stage road at forks of road leading to spring; iron post stamped "5058 H"-----	5, 065. 426
Cecil's, 12.4 miles west of, west side of pine woods, at edge of clearing, 20 feet south of road; iron post stamped "5408 H"-----	5, 415. 999
Cecil's, 14.9 miles west of, in canyon 0.5 mile east of junction of road to Paulina; iron post stamped "5061 H"-----	5, 068. 999
Street's, gate leading into yard of James Street's ranch, at line of fence; iron post stamped "4776 H"-----	4, 783. 933

PAULINA QUADRANGLE.

Street's ranch north along stage road via Paulina to point 10.9 miles west of Post.

Street's, 3.8 miles north of, south side of small hill, 12 feet east of road; iron post stamped "4791 H"-----	Fect. 4, 798. 541
Street's, 6.7 miles north of, north end of pasture fence, 1,000 feet north of deserted house, 45 feet east of road; iron post stamped "4602 H"-----	4, 609. 649
Street's, 11 miles north of, west side of road at mail-box post; iron post stamped "4478 H 1903"-----	4, 485. 369
Street's, 13.1 miles north of, northwest corner of Hardin's yard; iron post stamped "4507 H"-----	4, 514. 269
Hardin's, 2.6 miles north of, at summit of hill, 30 feet west of road; iron post stamped "4757 H"-----	4, 764. 730
Hardin's, 5 miles north of, 25 feet north of creek crossing at fence line east of road; iron post stamped "4290 H"-----	4, 297. 058
Smith's, in front of F. M. Smith's ranch house, 15 feet south of gate, on line of fence; iron post stamped "3963 H"-----	3, 970. 545
Smith's, 3.4 miles north of, at top of hill, 400 feet north of forks of road; iron post stamped "3925 H"-----	3, 932. 348
Smith's 6.8 miles north of, 25 feet east of road, 600 feet north of top of small hill; iron post stamped "3767 H"-----	3, 774. 507
Paulina, southwest corner of Paulina Hall, 1 foot from building; iron post stamped "3676 H"-----	3, 683. 726
Paulina, 2.6 miles west of, on line with east side of J. D. Dunkle's house, 20 feet from road; iron post stamped "3660 H"-----	3, 667. 266
Paulina, 5.8 miles west of, near gate leading to Gilchrist ranch house, 150 feet east of bridge over Crooked River, on north fence line; iron post stamped "3625 H"-----	3, 632. 309
Paulina, 8.8 miles west of, near gate leading to corral at stage station, on line of fence; iron post stamped "3583 H"-----	3, 590. 427
Paulina, 12.5 miles west of, at Roberts & Nelson ranch, 100 feet west of house, at corner of fence; iron post stamped "3558 H"-----	3, 565. 234
Paulina, 14.6 miles west of, small bridge over creek, in front of Henry Cox's ranch, south fence line; iron post stamped "3536 H"-----	3, 543. 675
Stewart's, 2 miles west of, in front of ranch house of W. W. Harris, at fence; iron post stamped "3473 H"-----	3, 480. 091
Stewart's, 3.9 miles west of, 20 feet north of road, opposite juniper tree, with two mail boxes of W. R. Kelley; iron post stamped "3526 H"-----	3, 533. 515
Stewart's, 7.4 miles west of, north fence line between deserted log house and barn; iron post stamped "3409 H"-----	3, 416. 745
Stewart's, 10.2 miles west of, forks of road to left, 0.25 mile east of post office, north side of road, 10 feet from fence; iron post stamped "3388 H"-----	3, 395. 443
Post, 3.4 miles west of, at corner of wire fence, in front of G. F. Wellborn's house; iron post stamped "3339 H"-----	3, 346. 551
Post, 6.9 miles west of, in front of Williamson & Gesnor ranch house, at northwest corner of yard fence; iron post stamped "3289 H"-----	3, 296. 035
Post, 10.9 miles west of, in front of Davis ranch house, at northwest corner of yard fence; iron post stamped "3261 H"-----	3, 268. 815

PRINEVILLE QUADRANGLE.

Point 10.9 miles west of Post north along stage road via Prineville to Grizzly.

Post, 14.3 miles west of, at Ralph Porfily's upper ranch, north corner of lane leading to house, on line with road fence; iron post stamped "3708 H"-----	Feet. 3,715.115
Post, 16.8 miles west of, east corner of fence, road leading to house of R. W. Breaser, at fence line; iron post stamped "4027 H"-----	4,034.668
Breaser ranch, 3.5 miles west of, 15 feet east of east face of S. W. Yengy's house; iron post stamped "4023 H"-----	4,030.864
Breaser ranch, 7.5 miles west of, in front of Fewerhelm Radloff's house, at line of picket fence; iron post stamped "3215 H"-----	3,222.561
Prineville, county courthouse, at main entrance gate, 10 feet from fence, 2 feet from walk; iron post stamped "2860 H"-----	2,867.495
Prineville, 3.1 miles north of, northeast corner of W. T. Davenport's yard fence, at margin of road; iron post stamped "2849 H"-----	2,855.982
Prineville, 6.7 miles north of, 250 feet northeast of Fred Stewart's ranch house, east margin of road, at telephone pole; iron post stamped "2962 H"-----	2,969.892
Prineville, 8.6 miles north of, C. W. Circle's ranch, 150 feet north of house, at gate to barn; iron post stamped "3127 H"-----	3,134.724
Prineville, 12.2 miles north of, 20 feet north of L. M. Delano's house, near top of mountain, on line with front fence; iron post stamped "3975 H"-----	3,982.174
Grizzly, 0.5 mile north of, at southwest corner of Wills Bros.' store; iron post stamped "3692 H"-----	3,699.559

HEISLER QUADRANGLE.

Grizzly north along stage road via Hay Creek to Shaniko.

Grizzly, 4.7 miles north of, in front of W. M. Joslin's house, southwest corner of yard; iron post stamped "3643 H"-----	3,650.567
Grizzly, 7.4 miles north of, forks of road, near signboard "Prineville 21 miles, Rim Rock Springs 8 miles;" iron post stamped "3152 H"-----	3,159.231
Hay Creek, southwest corner of yard of ranch house, at line of road; iron post stamped "2938 H"-----	2,945.644
Hay Creek, 2.1 miles north of, in front of R. Parish's ranch, 15 feet south of gate at fence line; iron post stamped "2757 H"-----	2,764.298
Hay Creek, 7.2 miles north of, lane leading to McPherson ranch house, 60 feet west of highway; iron post stamped "1965 H"-----	1,972.193
Heisler station, east side of yard, 20 feet south of northeast corner; iron post stamped "1869 H"-----	1,876.526
Heisler, 3.7 miles north of station, in front of Priday Bros. ranch house, south corner of lane to house and highway, at fence line; iron post stamped "1686 H"-----	1,693.367
Heisler, 5.9 miles north of; surface of water in Trout Creek at bridge, June 1, 1904-----	1,765.2
Heisler, 7.3 miles north of, in front of J. J. Haight's ranch house, farm gate leading to house; iron post stamped "1848 H"-----	1,855.624
Heisler, 11.6 miles north of, in front of C. B. Durbin's ranch house, northwest corner of yard fence; iron post stamped "2127 H"-----	2,134.021
Heisler, 17.4 miles north of, in front of Polk May's ranch house, 10 feet north of gate, at fence line; iron post stamped "2484 H"-----	2,491.285

Antelope, Main street, southeast corner of cart house No. 1, 3 feet from walk; iron post stamped "2622 H"-----	Feet. 2, 629. 821
Antelope, 1.5 miles north of, in front of small house owned by village of Antelope, 7 feet north of gate; iron post stamped "3083 H"-----	3, 090. 693
Shaniko, southwest corner of lot of Leader office building, 300 feet north of Moody's warehouse, on line of street; iron post stamped "3334 H"-----	3, 341. 095

MORO QUADRANGLE.

Shaniko north along Oregon-Washington Railroad & Navigation Co.'s track to Moro.

Shaniko, 4.1 miles north of, 540 feet south of road crossing, 37 feet west of track; iron post stamped "3112 H"-----	3, 119. 593
Shaniko, 6.6 miles north of, at road crossing, 30 feet west of rail, 30 feet north of highway; iron post stamped "3018 H"-----	3, 025. 583
Shaniko, 9.8 miles north of, 50 feet south of south end of trestle 59, 22 feet east of track; iron post stamped "2810 H"-----	2, 817. 715
Wilcox, 200 feet south of warehouse, 17 feet east of track, 14 feet north of telephone pole; iron post stamped "2623 H"-----	2, 630. 403
Kent, 14 feet east of road crossing, north end of warehouse; iron post stamped "2701 H"-----	2, 708. 315
Kent, 2.5 miles north of, at private road crossing, 25 feet east of track, 40 feet south of crossing; iron post stamped "2699 H"-----	2, 706. 702
Kent, 6.6 miles north of, at Oregon-Washington Railroad & Navigation Co. warehouse, east end of west building, 11 feet from track; iron post stamped "2467 H"-----	2, 474. 621
Kent, 9.7 miles north of, at railroad crossing 25 feet west of track, 4 feet from crossing sign; iron post stamped "2457 H"-----	2, 464. 189
Kent, 11.9 miles north of, at railroad crossing of main highway, 18 feet east of track at crossing signpost; iron post stamped "2379 H"-----	2, 386. 434
Grass Valley, in front of station; top of rail-----	2, 268. 8
Grass Valley, at south end of railroad station, 10 feet east of track, 3 feet from sidewalk; iron post stamped "2261 H"-----	2, 268. 328
Grass Valley, 2.1 miles north of, road crossing at I. O. O. F. cemetery, 20 feet west of track, 10 feet south of road; iron post stamped "2383 H"-----	2, 390. 358
Grass Valley, 7 miles north of, at crossing of main road between Grass Valley and Moro, 12 feet west of track, 3 feet south of crossing sign; iron post stamped "2155 H"-----	2, 162. 228
Grass Valley, 9.3 miles north of, 35 feet east of road crossing at Leonard More's ranch house, 40 feet north of; iron post stamped "1935 H"-----	1, 942. 565
Moro, in front of station; top of rail-----	1, 790. 4
Moro, 30 feet west of track, 15 feet north of station; iron post stamped "1782 H"-----	1, 789. 939

GOLDENDALE QUADRANGLE.

Moro along Oregon-Washington Railroad & Navigation Co.'s track to Biggs.

De Moss, 60 feet south of station, 12 feet east of track, at crossing signpost; iron post stamped "7565 H"-----	1, 572. 031
McDonald's bridge, southwest corner of office; iron post stamped "1325 H"-----	1, 332. 925

Klondyke, 1 mile east of, 100 feet west of road crossing, 15 feet north of track at corner of fence; iron post stamped "1527 H"-----	Feet. 1, 534. 246
Klondyke, in front of station; top of rail-----	1, 547. 6
Klondyke, 2 miles west of, in front of C. C. Kliney's ranch house, 50 feet east of east face of house, 28 feet north of track at corner of fence; iron post stamped "1446 H"-----	1, 453. 544
Wasco station, 25 feet south of, north margin of highway, 18 feet east of track; iron post stamped "1263 H"-----	1, 270. 026
Wasco, 2.9 miles north of, 100 feet north of road crossing at Sink ranch, 10 feet east of track; iron post stamped "1021 H"-----	1, 028. 790
Biggs, 0.5 mile east of Oregon-Washington Railroad & Navigation Co. Y, 330 feet east of water tank, 140 feet west of bridge over Spanish Hollow Creek, 27 feet south of Oregon-Washington Railroad & Navigation Co. main track; iron post stamped "164 H"----	171. 409

PRIMARY LEVELING.

Arlington, Astoria, Baker City, Birch Creek, Blalock Island, Carson, Cathlamet, Gibbon, Goldendale, Kalama, La Grande, Pendleton, Portland, Stevenson, St. Helen, Telocaset, The Dalles, Troutdale, and Umatilla Quadrangles.

BAKER, CLATSOP, COLUMBIA, GILLIAM, MORROW, MULTNOMAH, SHERMAN, UMATILLA, UNION, AND WASCO COUNTIES.

The elevations in the following list are corrected values along double-rodged lines previously published in appendixes to the Twentieth and Twenty-first annual reports of the United States Geological Survey. They are based primarily upon bench marks of the Coast and Geodetic Survey at Astoria, and between that place and Portland the original figures have been retained. Between Huntington and the Washington-Oregon State line the line was resurveyed, many of the bench marks were redetermined, and some were reset by the transcontinental precise level party of the Coast and Geodetic Survey, and all the bench marks have been adjusted to accord with the 1905 results obtained by that survey. They also accord at Biggs with the elevation brought by precise leveling, via Prineville, from the corrected height at Ontario. On account of closures on Blalock Island and Umatilla quadrangles in 1906 and 1907, respectively, the adjustment made in 1905 was abandoned between Biggs and Pendleton, Oreg., and between Umatilla and Wallula, Wash., and a new adjustment made as follows: First, a rod correction of 0.001 foot per foot, increasing original differences, has been applied to the line published in the Twenty-first Annual Report, as was found necessary by comparison with the Coast and Geodetic Survey work; second, a remaining closure error of 1.4 foot in circuit, via Umatilla, from Wallula, Wash., to Pendleton, has been distributed; and third, the line between Arlington and Umatilla has been raised to agreement without additional adjustment, and the remaining error, 1.3 feet, distributed on the line between Biggs and Arlington.

The leveling from Astoria to Arlington was done in 1898 by J. H. Carlock, and the leveling along the other lines was done in 1899 by H. S. Crowe.

The standard bench marks are stamped with the letter "A." Some of the figures of elevation as stamped are as much as 8 feet too low near the Huntington end of the line.

ASTORIA QUADRANGLE.

Astoria along Astoria & Columbia River Railroad to Goble.

John Day, 200 feet southwest of station, west end of bridge over John Day River, 150 feet north of residence of Mr. Keefe; iron post stamped "22 A"-----	Feet. 21.579
Svenson, in front of station; top of rail-----	9.0
Svenson, 85 feet south of station and post office, 5 feet west of road bearing north and south; iron post stamped "8 A"-----	8.499
Knappa, 130 feet north of station; 50 feet west of road bearing north and south, and 300 feet south of Knappa Hotel; iron post stamped "9 A"-----	8.729
Aldrigos Point, 5 miles east of Knappa, 40 feet north of track, 600 feet east of flag station, 300 feet north of house on hill, and 300 feet west of milepost S2; iron post stamped "10 A"-----	9.740

CATHLAMET QUADRANGLE.

Astoria along Astoria & Columbia River Railroad to Goble (portion of line).

Clifton, 80 feet northeast of station, 70 feet north of track, 80 feet south of water's edge in river; iron post stamped "8 A"-----	8.419
Westport and Clifton, about midway between, 100 feet south of house, 9 telegraph poles east of milepost 76, 5 telegraph poles west of bridge, 40 feet south of track; iron post stamped "12 A"-----	12.087
Westport, 200 feet southwest of station, 70 feet south of track, 40 feet east of water's edge, in Plympton Creek, 60 feet west of road; iron post stamped "20 A"-----	20.168
Westport, in front of station; top of rail-----	20.0
Marshland, 75 feet southwest of station, 40 feet south of track, 8 feet west of road; iron post stamped "15 A"-----	15.092
Marshland, in front of station; top of rail-----	14.0
Clatskanie, in front of station; top of rail-----	16.0
Clatskanie, 200 feet east of station, 75 feet south of railroad, 20 feet south of public road; iron post stamped "23 A"-----	22.638
Quincy, in front of station; top of rail-----	17.0
Quincy, 40 feet southeast of station, 400 feet south of house, 60 feet south of track; iron post stamped "18 A"-----	18.415
Mayger, 250 feet southwest of station, 200 feet south of track, 220 feet north of Mayger's residence; iron post stamped "18 A"-----	17.953
Mayger, in front of station; top of rail-----	18.0
Pyramid, in front of station; top of rail-----	19.0
Rinearson's slough, 150 feet south of bridge over, 40 feet southeast of water's edge and 80 feet northwest of residence of Mr. Smith; iron post stamped "9 A"-----	9.163

KALAMA QUADRANGLE.

Astoria along Astoria & Columbia River Railroad to Goble (portion of line).

Ranier, 200 feet east of post office, 200 feet southeast of Smith's Hotel, 40 feet east of house, 100 feet south of railroad; iron post stamped "26 A"-----	Feet. 26.016
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Goble, 1,100 feet southwest of station, 300 feet northeast of G. S. Foster's house, 10 feet west of public road, 70 feet south of railroad; iron post stamped "29"-----	29.165
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Goble along Astoria & Columbia River Railroad to Portland (portion of line).

Goble, in front of station; top of rail-----	27.0
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ST. HELEN QUADRANGLE.

Goble along Astoria & Columbia River Railroad to Portland (portion of line).

Deer Island, in front of station; top of rail-----	49.0
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Deer Island, 130 feet southwest of station; 100 feet southeast of post office, 100 feet west of track; iron post stamped "51 A"-----	50.818
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Columbia, 60 feet north of station, 40 feet south of public road, 80 feet northeast of track; iron post stamped "78 A"-----	77.595
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Columbia, in front of station; top of rail-----	80.0
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Houlton, in front of station; top of rail-----	103.0
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Houlton, 210 feet south of station, 40 feet east of post office, 60 feet west of railroad, 100 feet south of wagon road; iron post stamped "99 A"-----	98.700
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Warren, in front of station; top of rail-----	48.0
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Warren, 70 feet northeast of station, 60 feet east of railroad, 10 feet north of public road, 100 feet northwest of post office; iron post stamped "48 A"-----	48.407
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Scappoose, 100 feet east of station, 90 feet northeast of track, 20 feet south of public road, 300 feet northeast of post office; iron post stamped "61 A"-----	60.727
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Holbrook, 200 feet northwest of station platform, 230 feet east of store and house, 100 feet east of road, 120 feet west of railroad track; iron post stamped "35 A"-----	34.899
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PORTLAND QUADRANGLE.

Goble along Astoria & Columbia River Railroad to Portland (portion of line).

Linnton, 210 feet east of station, 300 feet east of post office, 55 feet east of railroad track, 10 feet south of road; iron post stamped "40 A"-----	40.330
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Portland, in front of station; top of rail-----	29.26
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Portland along Oregon-Washington Railroad & Navigation Co.'s track to Oregon-Washington State line 6.2 miles south of Wallula, Wash. (portion of line).

Portland, north front of post office, 2 feet east of doorway, first course of stone above water table; aluminum tablet stamped "54 A"-----	54.106
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Portland, in top of stone pier at south side of east end of steel bridge across Willamette River; copper belt stamped "29"-----	30.947
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East Portland, in front of station; top of rail-----	31.0
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Portland Center, 55 feet south of track, 30 feet east of road, 10 feet north of road, and 200 feet east of house; iron post stamped "183 A"-----	Feet. 183.118
Clarnie, 250 feet northwest of platform for station, 150 feet east of bunk house, 60 feet north of track, 90 feet west of section house; iron post stamped "205 A"-----	204.753
Clarnie, in front of station; top of rail-----	212.0

TROUTDALE QUADRANGLE.

Portland along Oregon-Washington Railroad & Navigation Co.'s track to Oregon-Washington State line 6.2 miles south of Wallula, Wash. (portion of line).

Fairview, in front of station; top of rail-----	114.
Fairview, 70 feet west of hotel, 140 feet east of Cleone post office, 110 feet south of track, and 50 feet south of wagon road; iron post stamped "114 A"-----	113.642
Trouthdale, 100 feet northeast of station, 40 feet north of switch leading to Union Meat Co.'s establishment, 223 feet north of main track, in edge of field belonging to D. F. Buckridge; iron post stamped "41 A"-----	41.460
Corbett, 30 feet west of post office, 25 feet south of road, on line with post office, 60 feet south of main track; iron post stamped "46 A"-----	45.701
Lataurelle, in front of station; top of rail-----	44.3
Lataurelle, 50 feet south of station, 100 feet south of track, 50 feet north of road, 80 feet north of post office, 10 feet east of sidewalk, and 25 feet east of road; iron post stamped "57 A"-----	57.516
Bridal Veil, in front of station; top of rail-----	40.46
Bridal Veil, 80 feet south of track, 40 feet south of public road, in yard, 30 feet northeast of A. H. Willett's residence; iron post stamped "56 A"-----	55.736
Multnomah Falls, 320 feet north of base of, 70 feet south of track, 100 feet west of creek, 80 feet east of abandoned house; iron post stamped "46 A"-----	45.977

STEVENSON QUADRANGLE.

Portland along Oregon-Washington Railroad & Navigation Co.'s track to Oregon-Washington State line 6.2 miles south of Wallula, Wash. (portion of line).

Warrendale, 150 feet south of post office, 50 feet south of track, 8 feet south of road, 90 feet southwest of platform for station; iron post stamped "77 A"-----	77.148
Bonneville, in front of station; top of rail-----	50.5
Bonneville, 75 feet southeast of station, 200 feet northwest of dancing pavilion in park, 250 feet south of hotel, 130 feet south of track; iron post stamped "53 A"-----	52.812
Cascade Locks, 330 feet northeast of post office, 400 feet northwest of station, 80 feet south of engineer's office, on Government reservation, 50 feet north of track; iron post stamped "99 A"-----	98.768

Wyeth, 40 feet east of bunk house, 49 feet west of section house, 40 feet south of road, 90 feet south of track; iron post stamped "97 A"-----	Feet. 97.068
Viento, in front of station; top of rail-----	102.7
Viento, 70 feet northeast of station, 30 feet southwest of store and post office, 20 feet north of switch, 80 feet north of track; iron post stamped "103 A"-----	103.153

THE DALLES QUADRANGLE.

Portland along Oregon-Washington Railroad & Navigation Co.'s track to Oregon-Washington State line 6.2 miles south of Wallula, Wash. (portion of line).

Hood River, in front of station; top of rail-----	99.99
Hood River, 45 feet southeast of southeast corner of station, 130 feet north of hotel, 65 feet south of track, 30 feet west of wagon road; iron post stamped "103 A"-----	103.445
Mosier, 100 feet southeast of station, 100 feet north of A. Stewart's store, 60 feet west of wagon road, 80 feet south of track; iron post stamped "105 A"-----	105.397
Rowena, 200 feet southeast of station, 20 feet northeeast of section house, 100 feet south of track; iron post stamped "146 A"-----	146.928
Milepost 83, 300 feet east of, 55 feet south of track, at switch head, 15 feet east of public road; iron post stamped "202 A"-----	202.448
The Dalles, 20 feet from southeast corner of Wasco County court-house, 75 feet north of center of Third Street, and 75 feet west of center of Union Street; iron post stamped "103 A"-----	103.354
The Dalles, in front of Umatilla House; top of rail-----	96.6
Seufert's switch, west end connection of top of rail-----	133.9
Summit switch, 50 feet west of station, 290 feet northwest of station post, 55 feet north of track, and close to bank of Columbia River; iron post stamped "187 A"-----	187.825
Celilo, 120 feet west of station, 60 feet south of post office in cannery building, 200 feet east of Taffe's house, 25 feet north of track; iron post stamped "159 A"-----	159.314
Celilo, in front of station; top of rail-----	158.54

GOLDENDALE QUADRANGLE.

Portland along Oregon-Washington Railroad & Navigation Co.'s track to Oregon-Washington State line 6.2 miles south of Wallula, Wash. (portion of line).

Deschutes, 80 feet southeast of station sign, 80 feet northwest of hotel, 100 feet south of track, 40 feet north of road; iron post stamped "166 A"-----	166.722
Biggs, 80 feet east of Henderson Hotel, 150 feet southeast of post office, 100 feet south of Oregon-Washington Railroad & Navigation Co.'s main line track, 100 feet north and 40 feet east of point of Y on Shaniko branch; iron post stamped "177 A"-----	177.285
Grant's, 270 feet southwest of station, 50 feet east of Wilson Hotel, 50 feet west of livery stable, 180 feet west of post office, 260 feet south of track; iron post stamped "171 A"-----	171.382
Grant's, in front of station; top of rail-----	175.0

Rufus, 150 feet southwest of station, 250 feet southeast of wheat elevator, 50 feet from southeast corner of Union warehouse, and about 700 feet north of post office, 130 feet south of track; iron post stamped "179 A"-----	Feet. 179.474
John Days, 60 feet north of track, 30 feet northeast of section house, 200 feet west of bunk house, 1,000 feet west of west end of bridge over John Days River; iron post stamped "191 A"-----	191.801
Squally Hook, 80 feet northwest of station, 260 feet northwest of mile sign 123, 40 feet north of main track, 100 feet northeast of east end connection of switch; iron post stamped "193 A"-----	193.872

ARLINGTON QUADRANGLE.

Portland, along Oregon-Washington Railroad & Navigation Co.'s track, to Oregon-Washington State line, 6.2 miles south of Wallula, Wash. (portion of line).

Quinn, 30 feet northwest of station board, 500 feet northeast of mile sign 127, 0.75 mile west of section house, 40 feet north of track; iron post stamped "226 A"-----	227.770
Blalocks, in front of station; top of rail-----	218.8
Blalocks, 140 feet southeast of station, 170 feet south of track, 180 feet southwest of water tank, 30 feet northeast of Hotel Bates; iron post stamped "214 A"-----	215.546
Arlington, in front of station; top of rail-----	225.9
Arlington, 80 feet east of station, 30 feet south of main track, 40 feet north of switch, 50 feet west of tool house, 50 feet northwest of warehouse 1, and 400 feet west of section house; iron post stamped "225 A"-----	226.661

Arlington to Umatilla (portion of line Portland to State line near Wallula, Wash.).

Arlington, 4 miles east of, 30 feet east of fifth telegraph pole, west of milepost 146, 100 feet south of track, 20 feet south of granite bowlder; iron post stamped "225 A"-----	226.601
Heppner Junction, 18 feet west of station, 10 feet south of track; iron post stamped "240 A" (reset by railroad company and by 1906 levels) -----	242.029

BLALOCK ISLAND QUADRANGLE.

Arlington to Umatilla (portion of line Portland to State line near Wallula, Wash.).

Milepost 157, 360 feet east of, 21 feet south of center of track, above small fill on hillside; iron post stamped "240 A"-----	241.477
Castle Rock, 90 feet east of east end of station; 15 feet south of milepost 162; iron post stamped "240 A"-----	242.343
Castle Rock, at section house, base of rail, center of track-----	242.8
Milepost 167, 75 feet southeast of, 45 feet south of track; iron post stamped "247 A"-----	249.0
Coyote, in front of section house; base of rail-----	253.7

Milepost 172, 90 feet west of, 21 feet south of center of track; iron post stamped "271 A"-----	Feet. 273.324
Milepost 177, 35 feet west of, 36 feet south of center of track; iron post stamped "278 A"-----	280.160

UMATILLA QUADRANGLE.

Arlington to Umatilla (portion of line Portland, to State line near Wallula, Wash.).

Milepost 182, 18 feet south of, 30 feet south of center of track; iron post stamped "288 A"-----	289.792
Umatilla River, base of rail at end of steel bridge-----	295.22
Umatilla, 48 feet east of northeast corner of water tank in lot between tank and roadmaster's office, 24 feet west of northwest corner of roadmaster's office, 25 feet north of center of track; iron post stamped "294 A"-----	296.084
Umatilla, in front of station; top of rail-----	295.8

Umatilla to Washington-Oregon State line (portion of line from Portland).

Milepost 192, 45 feet north of, 15 feet north of track; iron post stamped "378 A"-----	379.934
Cold Springs, 57 feet southwest of corner of section house, 25 feet north of center of track; iron post stamped "362 A"-----	363.489
Juniper, at mouth of Juniper Canyon, 4 feet west of west corner of fence at section house, 18 feet northeast of center of track; iron post stamped "313 A"-----	314.406

Umatilla, along Oregon-Washington Railroad & Navigation Co.'s track, to Pendleton (portion of line).

Milepost 192, 9 feet southeast of, 24 feet south of center of track; iron post stamped "451 A"-----	453.238
Maxwell, base of rail, center of track-----	457.3
Milepost 197, 90 feet northeast of, 55 feet north of center of track, 4 feet southeast of telegraph pole; iron post stamped "590 A"-----	592.887
Foster, 3 feet east of corner of fence at section house, 120 feet northeast of milepost 202; iron post stamped "591 A"-----	593.299
Echo, in front of station; top of rail-----	639.0
Echo, 1.3 miles east of, 21 feet northeast of center of track, 50 feet east of crossing; iron post stamped "656 A" (removed in 1904)-----	658.348
Nolin, 4 feet south of fence at road crossing, 54 feet northeast of center of track; iron post stamped "732 A" (elevation as reset in 1907)-----	734.007
Milepost 217, 0.6 mile east of, 27 feet south of center of track, 15 feet north of fence; iron post stamped "847 A" (redetermined in 1907)-----	849.873

PENDLETON QUADRANGLE.

Umatilla along Oregon-Washington Railroad & Navigation Co.'s track to Pendleton (portion of line).

Barnhart, 230 feet west of west end of warehouse, 6 feet west of signpost "Barnhart," 20 feet south of track; iron post stamped "908 A"-----	910.798
Pendleton, 3 miles west of, 2 feet east of gate in fence at road crossing, 72 feet north of track; iron post stamped "994 A"-----	997.117

	Feet.
Pendleton, in front of station; top of rail-----	1, 070. 0
Pendleton, in second block of pilaster; base of west entrance of south side of Umatilla County courthouse, facing Alta Street; iron post stamped "1074 A"-----	1, 077. 707

Pendleton along Oregon-Washington Railroad & Navigation Co.'s track to Huntington (portion of line).

Milepost 236, 750 feet northeast of, 25 feet north of center of track, 6 feet east of telegraph pole; iron post stamped "1205 A"-----	1, 208. 838
Mission, base of rail opposite warehouse-----	1, 221. 01
Milepost 241, 900 feet west of, 21 feet west of, 21 feet south of center of track, 2 feet north of fence, 15 feet north of wagon road; iron post stamped "1355 A"-----	1, 358. 411
Cayuse, base of rail opposite warehouse-----	1, 412. 96

GIBBON QUADRANGLE.

Pendleton along Oregon-Washington Railroad & Navigation Co.'s track to Huntington (portion of line).

Bingham Springs, in front of station; base of rail-----	1, 748. 20
Bingham Springs, 158 feet east of corner of station, 36 feet north of center of track, 45 feet east of road crossing, 4 feet east of first telegraph pole from station; iron post stamped "1744 A"-----	1, 749. 070
Milepost 258, 0.5 mile east of, 22 feet south of track, 35 feet east of whistling post; iron post stamped "2023 A"-----	2, 027. 621
Wilbur, in front of section house; base of rail-----	2, 270. 25
Wilbur, 150 feet east of section house, at corner of fence near telegraph office, 32 feet south of center of track; iron post stamped "2264 A"-----	2, 269. 147
Bridge 115, 540 feet east of east end of, 30 feet south of center of track, 5 feet east of telegraph pole; iron post stamped "2570 A"-----	2, 575. 541
Huron, 300 feet west of signboard, 30 feet south of center of track, 45 feet west of tool house, 85 feet east of water tank; iron post stamped "2906 A"-----	2, 912. 262
Milepost 278, 12 feet east of, 15 feet south of center of track; iron post stamped "3454 A"-----	3, 460. 398
Meacham, 5 feet west of west end of platform, 15 feet north of center of track, 2 feet south of fence around log cabin eating house; iron post stamped "3672 A"-----	3, 679. 114

LA GRANDE QUADRANGLE.

Pendleton along Oregon-Washington Railroad & Navigation Co.'s track to Huntington (portion of line).

Milepost 284, 30 feet southwest of, 24 feet south of center of track; iron post stamped "3958 A"-----	3, 965. 008
Kamela, 1.5 feet south of platform, 44 feet east of northeast corner of telegraph office, 1.5 feet west of west corner of tank building, 14 feet south of center of track; iron post stamped "4199 A"-----	4, 205. 782
Milepost 292, 120 feet east of, 18 feet south of center of track; iron post stamped "3581 A"-----	3, 588. 022

Hilgard, 2 feet west of first telegraph pole west of station, 24 feet north of center of track; iron post stamped "3001 A"-----	Feet. 3,007.164
Perry, 2 feet east of east end of office of Grande Ronde Co., 45 feet north of center of track; iron post stamped "2897 A"-----	2,902.586
La Grande, in front of telegraph office; top of rail-----	2,784.1
La Grande, 165 feet northeast of First Street crossing, 30 feet north of northwest corner of railroad tool house, 24 feet west of telegraph pole; iron post stamped "2773 A"-----	2,778.908
La Grande, corner of Chestnut Street and Adams Avenue, in third course of plaster facing brick wall on Chestnut Street side of Foley Hotel; aluminum tablet stamped "2782 A"-----	2,787.345

TELOCASET QUADRANGLE.

Pendleton along Oregon-Washington Railroad & Navigation Co.'s track to
Huntington (portion of line).

Milepost 311, 3,600 feet east of, 50 feet south of center of track, 1 foot north of fence; iron post stamped "2696 A"-----	2,701.388
Hot Lake, base of south rail-----	2,700.72
Milepost 317, 55 feet northeast of, 5 feet west of telegraph pole, 7 feet south of fence; iron post stamped "2705 A"-----	2,710.960
Union, in front of station; top of rail-----	2,716.36
Union, 1,000 feet west of second snowshed east of, 15 feet south of track, 4 feet west of fence of cattle guard; iron post stamped "3021 A"-----	3,026.646
Telocaset, base of rail opposite telegraph office-----	3,447.03
Telocaset, 3 feet east of east corner of fence at section house, 18 feet north of center of track; iron post stamped "3440 A"-----	3,446.114
Milepost 332, 0.5 mile south of, 180 feet north of north portal of tunnel 5, 14 feet east of track; iron post stamped "3228 A"-----	3,234.837
North Powder, base of rail opposite telegraph office-----	3,241.93
North Powder, 120 feet southwest of station, 32 feet south of center of track, at northeast corner of fence, 15 feet south of wagon road; iron post stamped "3235 A"-----	3,241.635

BAKER CITY QUADRANGLE.

Pendleton, along Oregon-Washington Railroad & Navigation Co.'s track, to
Huntington (portion of line).

Milepost 342, 28 feet north of, 42 feet north of center of track; iron post stamped "3372 A"-----	3,379.115
Haines, 0.5 mile south of, 45 feet east of track, in stone masonry; bronze tablet stamped "3322 A"-----	3,328.860
Wingville, 1.5 miles north of, 65 feet west of track, 600 feet east of Jennings's house on main road between Haines and Baker City; iron post stamped "3338 A"-----	3,345.528
Baker City, astronomical pier, in front yard of public school; bronze tablet stamped "3433 A"-----	3,440.260
Norton siding, 150 feet north of section house; iron post stamped "3646 A"-----	3,653.656
Norton siding; top of rail-----	3,651.8
Encina, in front of station; top of rail-----	3,964.3
Pleasant Valley, in front of station; top of rail-----	3,824.4

Pleasant Valley, 15 feet south of west corner of railroad building, 50 feet south of station, 99 feet south of track; iron post stamped "3818 A"-----	Feet. 3,826.190
Unity, 185 feet north of section house, at forks of road; iron post stamped "3139 A"-----	3,145.879
Unity, top of north rail opposite section house-----	3,130.0

CARSON QUADRANGLE.

Pendleton, along Oregon-Washington Railroad & Navigation Co.'s track, to Huntington (portion of line).

Durkee, 30 feet east of telegraph office, 36 feet north of track, 1 foot west of southwest corner of fence at section house; iron post stamped "2647 A"-----	2,653.982
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BIRCH CREEK QUADRANGLE.

Pendleton, along Oregon-Washington Railroad & Navigation Co.'s track, to Huntington (portion of line).

Tunnel 6, 600 feet west of west end of, 45 feet north of track, 8 feet from east corner of fence; iron post stamped "2369 A"-----	2,376.110
Bridge 356, 360 feet south of, 30 feet east of railroad track, 13 feet west of fence; iron post stamped "2215 A"-----	2,222.177
Huntington, Washington Street, in sixth row of brick above stone foundation, second row of horizontal bricks, in front of brick building of Oregon Commercial Co., near stairway between grocery and drug store; aluminum tablet stamped "2105 A"-----	2,112.593
Huntington, in front of station; top of rail-----	2,101.4
Huntington, 2.4 miles east of, 3.5 feet east of west end of steel bridge over Snake River; aluminum tablet stamped "2079 A"-----	2,085.724

Birch Creek, Mitchell Butte, and Weiser Quadrangles.**MALHEUR COUNTY.**

The elevations in the following list are based on bench marks established by C. H. Semper in 1903 at Weiser, Ontario, and Vale, and are stamped with the letter "H." The transcontinental precise level party of the Coast and Geodetic Survey determined the elevation of the Huntington and other bench marks and made a correction of plus 7.5 feet on Semper's line. All the bench marks stamped with the letter "H," in addition to the figures of elevation, are stamped 7 or 8 feet too low.

Bench marks set in 1905 are stamped "ADJ 1903" in addition to figures noting field elevations.

The leveling of 1904 was done by the Reclamation Service and that of 1905 by Messrs. Morrow, Higley, Harris, and Evans of the Geological Survey.

MITCHELL BUTTE QUADRANGLE.

Vale via Valley Road to schoolhouse 7 miles west of Vale.

Vale, 3.2 miles southwest of, turn of road at Gillerman place, 0.5 mile north of southwest corner, T. 19 S., R. 44 E., sec. 1; iron post stamped "2268 H"-----	Feet. 2,275.388
Vale, 7 miles west of, north side of road directly opposite schoolhouse, on line with east margin of building; iron post stamped "2308 H"-----	2,315.656

Vale southwest along road southwest of Malheur River to Malheur Canyon,
13.7 miles west of Vale.

Vale, 3 miles south of, west of road at 3 milepost, 0.3 mile south of	Feet.
Morrigan house; iron post stamped "2270 H"-----	2, 277. 514
Vale, 7.3 miles southwest of, 150 feet north of and in line with east	
side of J. M. Griffin's house; iron post stamped "2293 H"-----	2, 300. 720
Vale, 10 miles southwest of, 10 feet south of road, on line with east	
fence M. Hansen's ranch; iron post stamped "2330 H"-----	2, 337. 573
Vale, 13.1 miles southwest of, 15 feet north of road, near point of hill,	
0.8 mile from F. M. Vine's place; iron post stamped "2331 H"-----	2, 338. 499

Ontario along road to Owyhee.

Nyssa, 2 miles south and 2 miles west of, 0.5 mile south of center sec.	
6, T. 20 S., R. 47 E.; iron post stamped "2197 H"-----	2, 204. 392
Biglows, north side of road opposite; iron post stamped "2236 H"---	2, 224. 178
Owyhee, opposite schoolhouse, 15 feet west of telegraph pole; iron	
post stamped "2236 H"-----	2, 243. 429

Nyssa along road to Ontario.

Ontario, 10 miles south of, 2 miles west of, in southeast angle of	
crossroads, by fence post; iron post stamped "2201 H"-----	2, 208. 427
Ontario, 5.5 miles south by 2 miles west of, at foot of telegraph pole	
at W. G. Jenkins's gate; iron post stamped "2177 H"-----	2, 184. 550
Ontario, 2 miles south by 2 miles west of, 30 feet west of road in line	
with south side of schoolhouse; iron post stamped "2175 H"-----	2, 182. 483
Ontario, 3.1 miles west of, south of road at corner of wire fence and	
road to ranch house; iron post stamped "2154 H"-----	2, 161. 724

Griffin ranch, 7.3 miles southwest of Vale, by road west and south to Twin
Springs.

Vale, 7.3 miles southwest of, at Griffin ranch, south side of road, 100	
feet north of house; iron post stamped "2293"-----	2, 300. 720
Griffin ranch, 3 miles southwest of, 10 feet east of road; iron post	
stamped "2386 ADJ 1903"-----	2, 386. 060
Griffin ranch, 6 miles southwest of, 15 feet east of road, 600 feet east	
of house, near Willow Springs; iron post stamped "2484 ADJ	
1903"-----	2, 483. 936
Willow Springs, 2.5 miles southwest of, 10 feet east of road, 20 feet	
east of dry creek bed; iron post stamped "2613 ADJ 1903"-----	2, 613. 092
Willow Springs, 5.5 miles southwest of, 25 feet west of road, in rock;	
aluminum tablet stamped "2834 ADJ 1903"-----	2, 833. 557
Willow Springs, 8.5 miles southwest of, 20 feet northwest of road;	
iron post stamped "3117 ADJ 1903"-----	3, 117. 341
Twin Springs, 5.6 miles north of, at intersection of Sagebrush and	
Vale roads; iron post stamped "3251 ADJ 1903"-----	3, 251. 304
Twin Springs, 2.9 miles north of, at intersection of Nyssa and Vale	
roads; iron post stamped "3357 ADJ 1903"-----	3, 357. 172
Twin Springs, 10 feet east of road, 200 feet north of house; iron post	
stamped "3246 ADJ 1903"-----	3, 246. 332

Intersection of Vale and Sagebrush road near Nigger Rock east and north to Owyhee schoolhouse.

Intersection of Vale and Sagebrush roads, 6 miles east of, 10 feet south of road; iron post stamped "3316 ADJ 1903"-----	Feet. 3, 316. 695
Intersection of Vale and Sagebrush roads, 9 miles east of, at west side of road; aluminum tablet stamped "3182 ADJ 1903"-----	3, 181. 747
Intersection of Vale and Sagebrush roads, 12 miles east of, near creek crossing, 7 feet north of road; iron post stamped "2922 ADJ 1903"-----	2, 921. 959
Owyhee, 4 miles west of, 15 feet north of road, at summit just north of Mitchell Butte; iron post stamped "2629 ADJ 1903"-----	2, 631. 123
Owyhee, 1 mile west of, 35 feet north of canal crossing near farmhouse; iron post stamped "2232 ADJ 1903"-----	2, 232. 556

Twin Springs to Freezeout Spring.

Twin Springs, 3 miles southwest of, at top of watershed 10 feet south of road; iron post stamped "3767 ADJ 1903"-----	3, 767. 371
Freezeout Spring, 250 feet east of, 10 feet south of drain from spring, 35 feet north of road; aluminum tablet stamped "3794 ADJ 1903"-----	3, 794. 295

Twin Springs south and east to Board Corral, thence to Muller & Bain ranch and to Owyhee schoolhouse.

Twin Springs, 3 miles south of, in ledge of rock, 6 feet west of road, 400 feet west of sharp turn in dry creek bed; aluminum tablet stamped "2920 ADJ 1903"-----	2, 920. 139
Twin Springs, 7.8 miles southeast of, 1,500 feet west of Owyhee River, 10 feet north of road, at foot of boulder strewn slope; aluminum tablet stamped "2497 ADJ 1903"-----	2, 497. 402
Twin Springs, 11 miles southeast of, 10 feet north of Owyhee River and Board Corral Roads, 800 feet east of river, 150 feet north of dry creek, in large flat rock; aluminum tablet stamped "2559 ADJ 1905"-----	2, 559. 492
Board Corral, 4.1 miles west of, 15 feet east of dry creek bed, in line with two large peaks, one on each side of creek, in large rock; aluminum tablet stamped "3578 ADJ 1903"-----	3, 578. 070
Board Corral, 6 feet northeast of shack, 50 feet north of spring, 150 feet north of corral; iron post stamped "4489 ADJ 1903"---	4, 489. 674
Board Corral, 3.3 miles south of, 10 feet south of road; iron post stamped "3864 ADJ 1903"-----	3, 863. 014
Isaacs ranch, 5.6 miles west of, 15 feet east of road, 1,000 feet west of rocky cut; iron post stamped "3747 ADJ 1903"-----	3, 747. 482
Isaacs ranch, 1.8 miles west of, 200 feet south of creek bed, 30 feet north of road, in rock; aluminum tablet stamped "2740 ADJ 1903"-----	2, 740. 059
Isaacs ranch, 3 miles north of, 15 feet west of road, 0.25 mile south of where road forks to Alkali Springs, on small divide; iron post stamped "2797 ADJ 1903"-----	2, 797. 010
Muller & Bain ranch, 4.7 miles south of, 30 feet south of road, at forks of road; iron post stamped "2512 ADJ 1903"-----	2, 512. 593

Muller & Bain ranch, 1.3 miles south of ranch house, 30 feet south of road, 50 feet south of fence, 400 feet west of irrigation ditch crossing road, on small rise; iron post stamped "2244 ADJ 1903"	Feet. 2, 244. 402
Muller & Bain ranch, 1.8 miles north of, 30 feet west of road, 60 feet south of drain, in rock; aluminum tablet stamped "2253 ADJ 1903"	2, 253. 747
Owyhee bridge, 3.3 miles south of, 20 feet east of road; iron post stamped "2238 ADJ 1903"	2, 238. 859

Point 4 miles south of Twin Springs up Sand Hollow.

Twin Springs, 6 miles south of, 10 feet east of road, 200 feet south-east of sand slide in side of hill; iron post stamped "2961 ADJ 1903"	2, 961. 712
Twin Springs, 9 miles south of, 10 feet west of road, 80 feet east of dry creek bed, 100 feet north of Saddle Hills; iron post stamped "3186 ADJ 1903"	3, 186. 091

Isaacs ranch east to Homedale.

Isaacs ranch, 2.7 miles east of, 30 feet south of road, on divide between Sucker Creek and Snake River valleys; iron post stamped "2809 ADJ 1903"	2, 809. 277
Homedale, 6.1 miles west of, at Graveyard Point, 30 feet north of road; iron post stamped "2416 ADJ 1903"	2, 416. 696

Owyhee schoolhouse northwest to Vale.

Owyhee schoolhouse, 3.1 miles north of, 40 feet west of road, in rock; aluminum tablet stamped "2244 ADJ 1903"	2, 343. 542
Owyhee schoolhouse, 6.2 miles north of, 30 feet east of road, in rock; aluminum tablet stamped "2516 ADJ 1903"	2, 516. 247
Vale; 7.4 miles south of, 30 feet west of road, on summit; iron post stamped "2909 ADJ 1903"	2, 909. 144
Vale, 4.5 miles south of, 30 feet south of road to Nyssa, 20 feet east of main road; iron post stamped "2544 ADJ 1903"	2, 544. 502

Point 4 miles southwest of Griffin ranch up Sand Hollow.

Intersection of Red Butte and Vale Road, 2.6 miles west of, on Sand Hollow Road at forks of two roads, 300 feet southwest of sand bank; aluminum tablet stamped "2471 ADJ 1903"	2, 470. 862
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Point 8 miles north and east of intersection of Vale and Sagebrush Road south toward Grassy Mountain.

Intersection of Nigger Rock and Owyhee Road, 2.1 miles south of, on small rise 500 feet north of deep gulch, 300 feet northwest of round knoll, 20 feet west of road, in rock; aluminum tablet stamped "2711 ADJ 1903"	2, 710. 781
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BIRCH CREEK QUADRANGLE.

Vale along road up west side of Willow Creek to Coles.

Vale, 3.6 miles north of, 10 feet west of road, in line with Mitchell house; iron post stamped "2278 H"	2, 285. 369
Vale, 7 miles north of, 10 feet west of road, 1,000 feet northeast of Harris house; iron post stamped "2310 H"	2, 317. 578

Vale, 10.5 miles north of, midway between schoolhouse and Faulkner place; iron post stamped "2343 H"-----	Feet. 2,350.532
Vale, 14 miles north of, 15 feet west of road, 0.3 mile south of Scott house; iron post stamped "2398 H"-----	2,405.531
Vale, 17.5 miles north of, 10 feet west of road, 500 feet south of drain to J. Norwood's house; iron post stamped "2490 H"-----	2,497.488
Vale, 21 miles north of, 15 feet west of road, 300 feet north of spring; iron post stamped "2508 H"-----	2,515.459
Vale, 24.5 miles north of, 10 feet east of road at fence; iron post stamped "2592 H"-----	2,599.005

WEISER QUADRANGLE.

At Ontario.

Ontario, corner of Main Street and road to station, 12 feet east of northeast corner of Brown's hotel (Carko House); iron post stamped "2143 H"-----	2,150.773
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Ontario north along road via Mesquite to Weiser.¹

Ontario, 4.1 miles north of, west angle of forks of road where road turns up gulch; iron post stamped "2145 H"-----	2,152.864
Ontario, 6.7 miles north of, northeast corner of Rockfellow's fruit orchard, 9 feet from corner, in line with east and west fence, 25 feet west of road; iron post stamped "2133 H"-----	2,139.605
Ontario, 9.7 miles north of, 400 feet west of Applegate's house, 70 feet from corner near canal; iron post stamped "2124 H"-----	2,131.532
Weiser, 6.5 miles south of, Mesquite, in small gulch, which road follows to Mesquite Flat, 15 feet west of road; iron post stamped "2132 H"-----	2,139.370
Weiser, 2 miles south of, 0.25 mile south of M. A. Patch's house, at bottom of hill; iron post stamped "2104 H"-----	2,111.362
Weiser station, 30 feet east of main track; iron post stamped "2107 H"-----	2,114.283

Baker City, Sumpter, and Susanville Quadrangles.

BAKER, GRANT, AND UNION COUNTIES.

The elevations in the following list are based upon preliminary adjustments by the transcontinental precise level party of the Coast and Geodetic Survey, which connected with bench marks of the Geological Survey along the Oregon-Washington Railroad & Navigation Co.'s track. A part of the leveling in the Baker City and Sumpter quadrangles was previously reported in the appendix to the Twenty-first Annual Report of the United States Geological Survey and a part in Bulletin 185. The elevations in both publications are from 7 to 9 feet too low. (For other elevations in the Baker City quadrangle, see line from Astoria to Huntington.)

¹ The error in this line is excessive.

Most of the leveling was done in 1898-99 by W. R. Manning. Some work was done in Sumpter quadrangle in 1900 by C. L. Nelson, in the Baker City quadrangle by C. H. Semper in 1904, and in the Susanville quadrangle by Homer Hadley in 1905.

Elevation figures on the standard bench marks stamped "B. C." are generally 6 feet high, and figures on later bench marks stamped "A" are generally about 8 feet low.

BAKER CITY QUADRANGLE.

Baker City west along county road to Pocahontas, thence north to schoolhouse 1 mile north of Haines, and return to Baker City via Flagstaff Well.

Baker City, in yard and at east side of brick public schoolhouse, in top of small masonry pier; bronze tablet stamped "3433 A"-----	Feet. 3,440.260
T. 9 S., R. 39 E., sec. 6, 300 feet west of Pocahontas schoolhouse, south of road, opposite fork of road to north; iron post stamped "3673 B C"-----	3,666.375
T. 8 S., R. 39 E., NW. $\frac{1}{4}$ sec. 4, 1 mile south of Haines, 20 feet south-east of Olson house; iron post stamped "3342 B C"-----	3,335.928
T. 8 S., R. 39 E., sec. 3, 1.2 miles southeast of Haines, east of railroad track, in stone masonry of North Base triangulation station; bronze tablet stamped "3335"-----	3,328.855
Haines, Oregon-Washington Railroad & Navigation Co.'s station, in front of; top of rail-----	3,333.6
T. 7 S., R. 39 E., NW. $\frac{1}{4}$ sec. 28, 70 feet northeast of Richman house, west of road; iron post stamped "3334 B C"-----	3,327.708
T. 8 S., R. 39 E., sec. 23, 1 mile north by 1 mile east of Wingville, 65 feet west of Oregon-Washington Railroad & Navigation Co.'s track, 600 feet east of Jennings house; iron post stamped "3352 B C"-----	3,345.528
T. 9 S., R. 40 E., NE $\frac{1}{4}$ sec. 1, 1.2 miles northwest of Flagstaff mine, at northeast angle of forks of road; iron post stamped "3495 B C"-----	3,488.599

Haines west to Rock Creek schoolhouse.

T. 7 S., R. 38 E., 750 feet northwest of southeast corner of sec. 36, 150 feet southwest of Rock Creek schoolhouse, 250 feet west of road; iron post stamped "3446 A"-----	3,450.411
T. 8 S., R. 38 E., 200 feet south by 20 feet west of northeast corner of sec. 1, south of Rock Creek schoolhouse; iron post stamped "3443"-----	3,453.343

Haines along county road via Slough house to schoolhouse 4.5 miles north of Baker City.

T. 7 S., R. 40 E., sec. 31, 2 miles northwest of Slough house, in east angle of forks of road; iron post stamped "3351 B C"-----	3,344.630
T. 8 S., R. 40 E., sec. 9, 0.7 mile southeast of Slough house, 100 feet east of Clark house; iron post stamped "3344 B C"-----	3,337.803

Flagstaff Well northeast to P. H. Miles's house, thence southeast to Keating and return, thence southwest to Palmer house, thence west to Flagstaff Well.

T. 8 S., R. 41 E., NE. $\frac{1}{4}$ sec. 7, northwest of road, 600 feet southwest of steep grade; iron post stamped "3553 BC"-----	Feet. 3, 547. 241
T. 7 S., R. 41 E., near center sec. 35, 15 feet northeast of Emily schoolhouse, 80 feet southwest of road; iron post stamped "2788 BC"-----	2, 781. 835
Keating, T. 8 S., R. 42 E., east side of sec. 26, 50 feet south of corner of house, in post-office yard at corner of fence; iron post stamped "2695 BC"-----	2, 689. 857
T. 9 S., R. 42 E., sec. 27, 50 feet northwest of Palmer house, south of road near milepost 13; iron post stamped "3097 BC"-----	3, 091. 938
T. 9 S., R. 41 E., sec. 10, northwest angle of forks of roads; iron post stamped "3341 BC"-----	3, 336. 318

Miles's house north to Beagle Creek, thence southeast via Burkemont to Keating.

T. 6 S., R. 41 E., SW. $\frac{1}{4}$ sec. 35, 0.2 mile west of Beagle Creek, east side of road, 125 feet north of right angle in road; iron post stamped "3191 BC"-----	3, 185. 519
T. 7 S., R. 42 E., east side of sec. 29, 1 mile south of Table Mountain, top of rocky hill between forks of roads to Table Mountain, 0.2 mile north of road to Burkemont; aluminum tablet stamped "3452 BC"-----	3, 447. 000

Point near White Swan mine south via Pritchard Flat and Pritchard Creek to Unity.

T. 10 S., R. 43 E., NW. $\frac{1}{4}$ sec. 7, on top of bare ridge, 1.7 miles north of house on west side of Pritchard Creek, 0.2 mile west of north-south road, south of dim road east and west; iron post stamped "3917 BC"-----	3, 914. 028
Unity, in front of station; top of rail-----	3, 128. 5
Unity, sec. 1, T. 11 S., R. 42 E., 180 feet north of section house, east of main road, in forks; iron post stamped "3139 A"-----	3, 145. 879

Unity southeast to Burnt River valley, thence west to mouth of Cave Creek, thence north via Deer Creek and Sheep Flat to Pleasant Valley.

T. 11 S., R. 42 E., NE. $\frac{1}{4}$ sec. 22, 2.5 miles northwest of Powell stone house, east of wood road, top of sandstone in place 18 by 15 feet and 3 feet out of ground; aluminum tablet stamped "3912 BC"-----	3, 907. 910
T. 12 S., R. 42 E., NE. $\frac{1}{4}$ sec. 6, 300 feet south of Lander house, south angle of forks of road at mouth of Cave Creek; iron post stamped "3126 BC"-----	3, 120. 786
T. 11 S., R. 41 E., NW. $\frac{1}{4}$ sec. 21, above headwaters of Deer Creek, on flat summit of divide 5 feet west of road; iron post stamped "5257 BC"-----	5, 251. 444

Baker City southwest via Bowen ranch and Lockhart station to Whipple Gulch.

T. 9 S., R. 40 E., south side sec. 32, 400 feet southwest of Bowen house, in forks of road; iron post stamped "3519 BC"-----	3, 512. 574
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T. 10 S., R. 39 E., north side of sec. 22, 1.3 miles southeast of Auburn, 175 feet south of junction of Prairie City and Hereford roads, on east side of Hereford road and east of white house owned by Mr. Littlefield; iron post stamped "3915 BC"-----	Feet. 3, 908. 320
Lockhart station, on Sumpter Valley Railway; top of rail-----	3, 717. 3
T. 11 S., R. 39 E., north side of sec. 18, main divide between Powder River and Burnt River, 30 feet west of road, summit of road between Baker City and Hereford; iron post stamped "5669 BC"-----	5, 662. 791

Hereford east along county road down Burnt River to Bridgeport, thence north to Bowen.

T. 12 S., R. 40 E., sec. 29, 0.3 mile east of Mill Creek, 10 feet north of road and 75 feet west of dry drain; iron post stamped "3499 BC"-----	3, 492. 872
T. 11 S., R. 40 E., sec. 28, divide between Burnt River and Powder River, main summit of road between Baker City and Bridgeport, 10 feet west of road and 160 feet north of junction with dim road running southwest; iron post stamped "6127 BC"-----	6, 120. 722

CAVINESS QUADRANGLE.

Bench mark in sec. 27, T. 12 S., R. 39 E.

T. 12 S., R. 39 E., sec. 27, 30 feet south of road, 80 feet west of house owned by T. M. Reed, in corner of fence; iron post stamped "3559 BC"-----	3, 552. 711
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SUMPTER QUADRANGLE.

Whipple Gulch south to Hereford.

T. 11 S., R. 38 E., north side of sec. 26, 150 feet northwest of mouth of Whipple Gulch, 50 feet west of road; iron post stamped "4457 BC"-----	4, 450. 911
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California Gulch west via Sumpter Valley Railway to McEwen.

McEwen, in front of station; top of rail-----	4, 105. 5
McEwen, SE. $\frac{1}{4}$ sec. 12, T. 10 S., R. 37 E., 0.6 mile west of post office, north of road, at fork of road to Prairie City; iron post stamped "4168 BC"-----	4, 161. 664

McEwen southwest to burnt cabin 3 miles east of Clifford, thence southeast to Hereford.

T. 10 S., R. 37 E., NE. $\frac{1}{4}$ sec. 16, 1 mile southwest of Young house, 20 feet north and 10 feet east of road to Sumpter; iron post stamped "4356 BC"-----	4, 349. 742
T. 11 S., R. 36 E., south side sec. 12, 2.8 miles southeast of Trout Creek, 40 feet north and 15 feet east of summit of road, in top of flat bowlder; bronze tablet stamped "4691 A"-----	4, 698. 133
T. 11 S., R. 37 E., sec. 30, 0.5 mile north of King house, 12 feet north-east of road, in bowlder; copper bolt stamped "3946 A"-----	3, 953. 763
T. 12 S., R. 37 E., SE. $\frac{1}{4}$ sec. 5, 175 feet southeast of Hardman house, 25 feet south of gate, at road side; iron post stamped "3908 A"-----	3, 915. 561

McEwen northwest via Sumpter to Granite.

Sumpter, south side of sec. 29, T. 9 S., R. 37 E., 45 feet north of north-east corner of station; iron post stamped "4429 BC"-----	Feet. 4, 422. 886
T. 9 S., R. 36 E., SE. $\frac{1}{4}$ sec. 22, 1,000 feet east of saloon, 10 feet north-east and 6 feet above road, in bowlder; tablet stamped "5325 A"-----	5, 332. 634
Granite, east side of sec. 4, T. 9 N., R. 35 $\frac{1}{2}$ E., north side of Grand Hotel, 10 feet west of corner of steps; iron post stamped "4680 A"-----	4, 687. 694

Granite south via Red Boy mine to Robinsonville, thence east to Clifford.

T. 9 S., R. 35 E., SW. $\frac{1}{4}$ sec. 11, Red Boy mine, 450 feet northeast of stamp mill, 20 feet southwest of west end of Clear Creek bridge, 20 feet south of road; iron post stamped "4610 A"-----	4, 617. 728
Robinsonville, 0.2 mile south of post office, sec. 10, T. 10 S., R. 35 E., 25 feet south of road at summit, in top of rock 4 inches above ground; tablet stamped "6249 A"-----	6, 256. 492
Geiser, sec. 10, T. 10 S., R. 35 $\frac{1}{2}$ E., 450 feet west of Bonanza mill concentrator, north of road; iron post stamped "5140 A"-----	5, 147. 740
Clifford, T. 10 S., R. 36 E., sec. 19, 100 feet north of house, 2 feet east of Bonanza road, in top of bowlder; bronze tablet stamped "4269 A"-----	4, 278. 239

Granite north via Crane Flats to Trout Creek Meadows and to Chicken Hill.

T. 8 S., R. 35 $\frac{1}{2}$ E., sec. 15, 8 feet west of summit of road, north of Lucas Gulch, on Crane Flats, 15 feet north of fork of road to Monumental mine; iron post stamped "5666 A"-----	5, 673. 947
T. 7 S., R. 35 $\frac{1}{2}$ E., east side of sec. 34, 20 feet northeast of bridge over North Fork of John Day River, at north edge of Crane Flats, 10 feet east of road; iron post stamped "5195 A"-----	5, 202. 751
Chicken Hill, SW. $\frac{1}{4}$ sec. 1, T. 7 S., R. 35 $\frac{1}{2}$ E., on county line, 10 feet west of road, 75 feet northeast of sheep corral; iron post stamped "5929 A"-----	5, 936. 895
T. 7 S., R. 35 E., east side sec. 24, Trout Creek meadow, 60 feet south-east of log house, 200 feet south of east fork of Trout Creek, 2 miles west of Pendleton road; iron post stamped "5401 A"-----	5, 408. 784

North Fork of John Day River on spur east from Crane Flats.

T. 7 S., R. 36 E., sec. 32, North Fork of John Day River, 4 miles east of bridge over, 30 feet northeast of ford, 5 feet southeast of road; iron post stamped "5497 A"-----	5, 504. 721
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Crane Flats east to Monumental mine (spur line).

Monumental mine, sec. 19 (unsurveyed), T. 8 S., R. 36 E., 50 feet northeast of hotel; iron post stamped "6352 A"-----	6, 359. 833
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Lawton north to Saunder's mill (spur line).

T. 8 S., R. 35 E., east side of sec. 35, 1 mile northwest of Lawton, 50 feet east of bridge over Three Cent Creek, 250 feet southeast of Saunder's mill; iron post stamped "4443 A"-----	4, 450. 793
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Sumpter north to Bourne.

T. 9 S., R. 37 E., sec. 5 (unsurveyed), 50 feet northeast of Scarf's house, 15 feet north of Silver Creek road, in granite rock; aluminum tablet stamped "5013 BC"-----	Feet. 5,006.661
Bourne, east side of sec. 32 (unsurveyed), T. 8 S., R. 37 E., 65 feet northeast of J. P. Fox's house, 20 feet west of Eureka and Excelsior mine; iron post stamped "5403 BC"-----	5,396.518

Clifford southwest to Austin, thence east to Hereford.

T. 10 S., R. 35½ E., sw. ¼ sec. 26, 250 yards west of bridge over North Fork of Burnt River, in top of large boulder; aluminum tablet stamped "4368 A"-----	4,377.103
T. 10 S., R. 35½ E., west side of sec. 34, 12 feet northwest of road, at southwest corner of small flat on summit, in top of large boulder; bronze tablet stamped "5107 A"-----	5,114.252
Austin, west side of sec. 21, T. 11 S., R. 35 E., 30 feet west of store, 20 feet west of road, in top of large boulder; aluminum tablet stamped "4074 A"-----	4,081.247
T. 11 S., R. 35½ E., sec. 34 (unsurveyed), 450 feet east of log house, 100 feet east of new log barn, 50 feet south of road, in top of large boulder; copper bolt stamped "4324 A"-----	4,332.847

SUSANVILLE QUADRANGLE.

Austin via Susanville to Pendleton Road near Long Creek (unchecked spur line).

T. 11 S., R. 35 E., west side of sec. 21, 30 feet west of store, 20 feet west of road, in top of boulder; aluminum tablet stamped "4074 A"-----	4,081.247
Austin, 3.2 miles west of, 800 feet north of Finland ranch house, 120 feet north of road, in highest surface of; aluminum tablet stamped "4032 ADJ 1903"-----	4,032.361
Austin, 5.2 miles west of, on summit of first divide west of Finland ranch, 20 feet north of road, highest point on set rock; "U. S. G. S. 4099" painted on rocks-----	4,099.22
Austin, 6.2 miles west of, on hillside 800 feet northwest of bridge over Boulder Creek, 30 feet east of road, highest surface of set boulder; aluminum tablet stamped "4109 ADJ 1903"-----	4,108.625
Thompson ranch, 1.1 miles west of, on north edge of road, in large rock; aluminum tablet stamped "3946 ADJ 1903"-----	3,945.555
Thompson ranch, 2 miles west of, at bend in road, 10 feet south of road, 75 feet north of Middle Fork of John Day River, in large set boulder; aluminum tablet stamped "3666 ADJ 1903"-----	3,665.524
Ballancis ranch, 1.1 miles east of, 750 feet northeast of small log cabin, with extension roof, 25 feet north and about 15 feet above road, in large boulder; aluminum tablet stamped "3566 ADJ 1903"-----	3,566.024
Susanville, at north corner of Badger Mining Co.'s stamp mill, highest face of large serpentine boulder; aluminum tablet stamped "3765 ADJ 1903"-----	3,764.906
Mouth of Camp Creek, 1.1 miles above, 50 feet south of fence, 30 feet east of wagon trail; iron post stamped "3559 ADJ 1903"-----	3,558.542
Mouth of Camp Creek, 4.3 miles above, 100 feet above point where wagon trail crosses creek, 75 feet east of creek, 10 feet east of wagon road, 5 feet north of small spring, in large rock; aluminum tablet stamped "3854 ADJ 1903"-----	3,854.060

Galena, at east corner of hotel, 10 feet southeast of main street; iron post stamped "3410 ADJ 1903"-----	Feet. 3,409.793
Griggs ranch house, 0.6 mile east of, 900 feet east of bridge over river, 200 feet northwest of Little Mosquito Creek, 25 feet north of road, highest surface of set rock; aluminum tablet stamped "3340 ADJ 1903"-----	3,339.752
John Day River, bridge over Middle Fork of, on top of iron bridge, bolt over center pier and on south side of bridge; "3326" painted on bridge timber-----	3,326.235
McMahon ranch, 0.8 mile east of, on summit of first divide west of Griggs ranch, 300 feet north of road, large upright rock; aluminum tablet stamped "3765 ADJ 1903"-----	3,764.992
Cross Hollow Creek, 800 feet west of, summit of first hill, 30 feet north of old stone fence, 20 feet west of road, in large rock; aluminum tablet stamped "3669 ADJ 1903"-----	3,669.014
Slide Creek, 1.2 miles east of, on summit of first hill east of creek, 10 feet south of road, highest point of set rock; "U.S.G.S. 3644" painted on rock-----	3,644.313
King ranch house, 500 feet southeast of, 30 feet southwest of road, 5 feet northwest of small stream, highest surface of flat rock; aluminum tablet stamped "3550 ADJ 1903"-----	3,549.862
Woodall ranch, 50 feet in front of ranch house, on north edge of road, 6-inch spike in base of large stump; "U.S.G.S. 3347.6" painted on stump-----	3,847.600
Middle Fork and Long Creek valleys, summit between, 60 feet north of road, inside of fence, highest part of set rock; aluminum tablet stamped "4314 ADJ 1903"-----	4,313.508
Forks of Pendleton and Susanville Roads, bow in fence, 20 feet east of guide post; iron post stamped "3814 ADJ 1903"-----	3,814.067

Ironsides Quadrangle.

BAKER AND MALHEUR COUNTIES.

The elevations in the following list are based on a bronze tablet stamped "3433 A," set in the astronomical pier in front yard of the public school at Baker City. The elevation of this bench mark is accepted as 3,440.260 feet, as determined by the precise line of levels run along the Oregon-Washington Railroad & Navigation Co. track by the Coast and Geodetic Survey.

The leveling was done in 1905 by Stuart T. Penick and Homer D. Hadley.

IRONSIDES QUADRANGLE.

Hereford southwest via Unity Road to point about 2 miles from Unity, thence south and east along Ironsides Road to Moore ranch, thence southwest along Military Road to Little Malheur River, thence south and east along road to Hunter ranch.

T. 12 S., R. 37 E., sec. 30, 300 feet southwest of McCullough cabin, 150 feet west of road, 15 feet west of ditch, in top of bowlder; aluminum tablet stamped "3951 A"-----	Feet. 3,960.400
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	Feet.
Hereford, 60 feet southeast of post office, 75 feet east of road and 150 feet north of Trimble house; iron post stamped "3664 BC"-----	3,657.741
Hereford, 3 miles west of, 700 feet east of Camp Creek, 170 feet north of Merrick Hough's house, 25 feet north of road; iron post stamped "3703 ADJ 1903"-----	3,702.867
Hereford, 6 miles west of, 150 feet south of drain, 10 feet north of road on summit of small hill; iron post stamped "3936 ADJ 1903"-----	3,935.851
Hereford, 8.75 miles southwest of, 30 feet south of junction of Hereford-Unity Road and Hereford-Ironside Road; iron post stamped "3936 ADJ 1903"-----	3,935.985
Hereford, 12 miles southwest of, 800 feet north of road forks, 250 feet west of fence, 6 feet northeast of road on small rise; iron post stamped "4142 ADJ 1903"-----	4,142.017
Beams ranch, 7.8 miles northwest of, 8 feet west of road on summit of hill; iron post stamped "4640 ADJ 1903"-----	4,640.902
Beams ranch, 3.5 miles northwest of, 75 feet south of Eldorado Ditch, 10 feet east of road; iron post stamped "4662 ADJ 1903"-----	4,662.916
Beams ranch, 0.5 mile north of, 200 feet southeast of clump of quaking aspen, 15 feet north of road; iron post stamped "4123 ADJ 1903"-----	4,123.745
Moore ranch, 0.25 mile southeast of, 200 feet west of Willow Creek, at west end of lane, 20 feet southwest of road; iron post stamped "3987 ADJ 1903"-----	3,987.777
Board cabin, 0.25 mile southwest of, 800 feet southwest of field, 200 feet northwest of Willow Creek, 15 feet northwest of road; iron post stamped "4196 ADJ 1903"-----	4,197.070
Cobin ranch, 2.25 miles southwest of, 300 feet northwest of Willow Creek, 10 feet southeast of road, at northeast corner of Cobin ranch upper pasture; iron post stamped "4452 ADJ 1903"-----	4,453.104
Cobin ranch, 5.25 miles southwest of, 600 feet southwest of creek forks, 30 feet north of creek, 4 feet north of road; iron post stamped "4844 ADJ 1903"-----	4,844.939
Tureman ranch, 0.75 mile east of, 100 feet north of creek, 6 feet north of road, in large rock; aluminum tablet stamped "4715 ADJ 1903"-----	4,715.761
Tureman ranch, 2 miles southwest of, 0.5 mile southeast of Little Malheur River, 10 feet southeast of road; iron post stamped "4589 ADJ 1903"-----	4,589.889
Tureman old ranch, 2.6 miles south of, 900 feet north of rail corral, 300 feet east of Little Malheur River, 20 feet east of road; iron post stamped "4348 ADJ 1903"-----	4,349.019
Hunter ranch, 8.5 miles north of, 10 feet northeast of road, on summit of divide between Lost Creek and Bully Creek; iron post stamped "5573 ADJ 1903"-----	5,574.013
Hunter ranch, 5.5 miles north of, 300 feet north of where road crosses small drain, 20 feet east of road; iron post stamped "5126 ADJ 1903"-----	5,126.969
Hunter ranch, 2.5 miles north of, 20 feet west of road at foot of rocky ridge; aluminum tablet stamped "4268 ADJ 1903"-----	4,268.888
Billy Wilson's, 1.5 miles west of, northwest angle of road to J. S. Hunter's house at fence line; iron post stamped "4103 ADJ 1903"-----	4,110.053

Hereford southwest along road to point on Unity-Ironside Road 5.5 miles south-east of Unity.

Hereford, 4 miles south of, 150 feet north of road forks, 10 feet west of road, on summit of divide; iron post stamped "4357 ADJ 1903"----- Feet. 4, 356. 821

Hereford, 7 miles south of, 1 mile east of Murray ranch, 10 feet east of road on summit of divide; iron post stamped "4346 ADJ 1903"----- 4, 345. 935

Hereford-Unity Road 6 miles southwest of Hereford west to Whitehead ranch, thence up Eldorado Ditch Valley to West Camp Creek and down West Camp Creek Valley to Hereford-Unity road.

McGlennan & McCarthy ranch, south side of lane, 1 foot north of fence, 400 feet southwest of house; iron post stamped "3851 ADJ 1903"----- 3, 850. 747

Royal schoolhouse, 1.2 miles southwest of, on South Fork Valley Road, on slight rise in hillside, 20 feet west of road; iron post stamped "3999 ADJ 1903"----- 3, 999. 113

Carlyle ranch, 150 feet southeast of, 100 feet south of bend in road, 1 foot east of fence; iron post stamped "4086 ADJ 1903"----- 4, 085. 859

Hardman ranch, 750 feet southeast of house, 15 feet south of county road; iron post stamped "4321 ADJ 1903"----- 4, 320. 632

At forks of canyon at South Fork of Burnt River, 40 feet east of abandoned log stable; iron post stamped "4494 ADJ 1903"----- 4, 494. 171

Hardman ranch, 3 miles south of, 30 feet south of Eldorado Ditch, on northwest slope of Bull Run Mountain, in large open clearing, 50 feet southwest of small sluice box of old placer mine; iron post stamped "4986 ADJ 1903"----- 4,985. 646

East Bull Run Mountain, 350 feet west of Job's Creek, 50 feet south of Eldorado ditch on north slope; iron post stamped "4963 ADJ 1903"----- 4, 962. 850

Tureman old ranch west along The Dalles military road to point 0.9 mile west of Crane Prairie, thence south along Drewsey road to Altnow ranch.

Bear Creek Valley, on hillside 400 feet south of Bear Creek, 60 feet east of road, in set rock; aluminum tablet stamped "5073 ADJ 1903"----- 5, 074. 165

Bear Creek, 3.30 miles west of North Fork of Malheur River, 50 feet northwest of road, in boulder; aluminum tablet stamped "4814 ADJ 1903"----- 4, 814. 545

North Fork of Malheur River, 1,000 feet east of, at road crossing, 100 feet southeast of first summit east of river, 5 feet west of road, in mass of rock; aluminum tablet stamped "4721 ADJ 1903"----- 4, 721. 531

Crane Creek Valley, 2.60 miles above junction with North Fork of Malheur River, 60 feet north of creek, 10 feet north of road, in highest surface of rock; aluminum tablet stamped "4771 ADJ 1903"----- 4, 772. 244

Crane Creek Valley, 1,200 feet below Crane Prairie, 60 feet east of creek, 3 feet south of road, in highest part of boulder; aluminum tablet stamped "5213 ADJ 1903"----- 5, 214. 441

Crane Prairie, 0.65 mile south of, 0.7 mile north of summit between Crane Prairie and Cottonwood Creek valley, 10 feet west of road; iron post stamped "5423 ADJ 1903"----- 5, 424. 158

Att's sawmill, 2.55 miles northwest of, 0.30 mile southeast of bare ridge, 15 feet west of road; iron post stamped "5518 ADJ 1903"----- 5, 518. 551

Att's sawmill, 150 feet southwest of, 50 feet south of Alder Creek, 25 feet west of road, in highest surface of large flat-topped boulder; aluminum tablet stamped "5570 ADJ 1903"-----	Feet. 5, 570. 621
Antelope Springs, 2.72 miles north of, in open clearing free from sage-brush 15 feet west of road; iron post stamped "5441 ADJ 1903"-----	5, 442. 001
Antelope Springs, 0.71 mile south of, on summit of first divide south of springs, 100 feet east of road, in rock; aluminum tablet stamped "5499 ADJ 1903"-----	5, 500. 158
Head Spring of Squaw Creek, 0.7 mile north of, 20 feet west of road, in rock; aluminum tablet stamped "4680 ADJ 1903"-----	4, 680. 649
Brittingham ranch, 1.25 miles north of, 500 feet east of summit of small flat-topped lava-capped hill, 15 feet east of east fork of Drewsey road, in boulder; aluminum tablet stamped "3958 ADJ 1903"-----	3, 959. 231
Beulah, 8.6 miles west of, north side of road, 25 feet west of gate leading to Altnow ranch house, at fence line; iron post stamped "3912 H"-----	3, 619. 075

Point 2.6 miles south of Tureman old ranch down Little Malheur River to mouth of Lost Creek.

Little Malheur River Valley, 2.61 miles north of mouth of Lost Creek, 150 feet west of river, 10 feet east of wagon trail, in boulder; aluminum tablet stamped "4199 ADJ 1903"-----	4, 200. 245
Junction of Little Malheur River and Lost Creek, 300 feet north-east of, 200 feet southwest of wagon road; iron post stamped "4051 ADJ 1903"-----	4, 052. 304

Telocaset Quadrangle.

UNION AND WALLOWA COUNTIES.

These elevations are based on the results of precise leveling of the Coast and Geodetic Survey in this locality from the preliminary adjustment of 1905.

The leveling was done in 1905 by Homer L. Hadley.

TELOCASET QUADRANGLE.

Union to North Powder.¹

Union, Main Street crossing of railroad track, in stone sill of dry-goods store, north of building, 0.6 meter from northeast corner; red metal disk (Coast and Geodetic Survey bench mark Z-2)-----	Feet. 2, 788. 629
Union, at southeast corner of foundation of Masonic Temple; bronze tablet stamped "2788"-----	2, 788. 121
Union, Oregon-Washington Railroad & Navigation Co. station, in front of station; top of rail-----	2, 716. 364
Union, 0.8 mile north of station, 80 feet north of milepost 317, 50 feet east of track; iron post stamped "2711"-----	2, 710. 960
(This bench mark has been disturbed. The cap was found hammered in in the middle and a hole was punched through the cap, apparently with the sharp end of a crowbar.)	
Hot Lake, north end of station; top of rail-----	2, 700. 7

¹ This line failed to close at North Powder by -2.674 feet. No adjustment of this error has been made.

Hot Lake, 2.8 miles west of, 15 feet south of junction of La Grande, North Powder, and Hot Lake roads, on east edge of La Grande-North Powder road; inner post stamped "2785 ADJ 1903"-----	Feet. 2, 785. 196
Wendt ranch, 300 feet east of ranch house, 20 feet north of bridge over small creek, 15 feet northeast of road; iron post stamped "3516"-----	3, 516. 350
At summit of Ladds Canyon, 3 feet south of fence; iron post stamped "3757"-----	3, 757. 264
T. 5 S., R. 39 E., center of sec. 20, on east side of road, 1,000 feet south of deserted ranch house on Clover Creek; iron post stamped "3363"-----	3, 363. 469
North Powder, 4.9 miles north of, at bend in road, 10 feet south of fence corner; iron post stamped "3346"-----	3, 345. 694
North Powder, 2.2 miles north of, 1 mile north of Wolf Creek, on summit of first hill north of creek, east edge of road; iron post stamped "3389"-----	3, 388. 838
North Powder, 50 feet west of station, at fence corner; iron post stamped "3235"-----	3, 241. 635
North Powder, southeast wall (limestone) of I. O. O. F. building, 4 feet southwest of east corner, 5 feet above ground; intersection of cross lines on copper bolt stamped $\frac{U/S}{G/S}$ -----	3, 255. 953

Permanent bench mark near Medical Springs to Union.¹

Medical Springs, 2.6 miles southwest of, at bend in Telocaset road, 600 feet west of Beagle Creek; iron post stamped "3186"-----	3, 185. 519
Medical Springs, in front of hotel, 2 feet west of fence; iron post stamped "3387"-----	3, 387. 575
Medical Springs, 2 miles northwest of, on summit of divide between springs and The Park, 5 feet west of road; iron post stamped "3811"-----	3, 811. 167
On summit of first rise north of The Park, 20 feet west of road, in foot of blazed pine tree marked "T. B. M. 4154," nail-----	4, 158. 12
On summit of divide between The Park and Catherine Creek, 10 feet south of road; iron post stamped "4177 A"-----	4, 177. 583
Catherine Creek valley, 3.9 miles below Seek's sawmill, at 15 feet north of valley road from the north; iron post stamped "3218 A"-----	3, 217. 962
Union, 5.2 miles southeast of, in valley of Catherine Creek; iron post stamped "3023"-----	3, 023. 420
Union, 2 miles east of, at forks of road 650 feet north of Little Creek, 2 feet west of large square rock 6 by 6 by 6 feet; iron post stamped "2863"-----	2, 863. 727

Arlington, Blalock Island, Heppner, and Umatilla Quadrangles.

GILLIAM, MORROW, AND UMATILLA COUNTIES.

The elevations in the following list are based upon corrected heights along the Oregon-Washington Railroad & Navigation Co.'s track on a double-rodged line run in 1899 by H. S. Crowe. The original results of that line were published in the appendix to the Twenty-first Annual Report of the United States Geological Survey. The new adjustment first applies a rod correction of 0.001 foot per

¹ An excessive error has been distributed in this line.

vertical foot increasing differences of elevation (a correction determined by comparison with Coast and Geodetic Survey elevations south of Pendleton, Oreg.); second, adjusts a remaining closure error of 1.4 feet from Wallula, Wash., via Umatilla to Pendleton, Oreg.; and, third, raises the line between Arlington and Umatilla to agreement without additional adjustment.

The leveling in the Arlington, Blalock Island, and Heppner quadrangles was done in 1906 by John R. Evans and that in the Umatilla quadrangle in 1907 by T. J. McClain.

The leveling was done in cooperation with the State, and the bench marks were stamped with the State name.

ARLINGTON QUADRANGLE.

Heppner Junction south along Heppner Branch, Oregon-Washington Railroad & Navigation Co.'s track to milepost 161.

Heppner Junction, sec. 35, T. 4 N., R. 22 E., 18 feet west of corner of station, 10 feet south of track; iron post stamped "240 A"-----	Feet. 242. 029
T. 3 N., R. 22 E., sec. 12, 3.45 miles south of Heppner Junction, 60 feet west of road; iron post stamped "298 1906"-----	298. 661
T. 3 N., R. 22 E., north side of sec. 26, 6.4 miles south of Heppner Junction, 50 feet east of railroad, 200 feet west of road; iron post stamped "382 1906"-----	383, 364
T. 2 N., R. 22 E., sec. 1, 8.9 miles south of Heppner Junction at milepost 161, in rock cut 400 feet south of crossing, 15 feet west of track; aluminum tablet stamped "453 1906"-----	454. 263

BLALOCK ISLAND QUADRANGLE.

Milepost 165 south along Heppner branch of Oregon-Washington Railroad & Navigation Co.'s track to Ione.

T. 2 N., R. 23 E., sec. 17, 1,500 feet south of milepost 164, high bluff, 20 feet east of railroad, in rock; aluminum tablet stamped "546 A 1906"-----	546. 451
Cecils, T. 2 N., R. 23 E., sec. 29, 45 feet east of railroad; 20 feet south of road; iron post stamped "617 A 1906"-----	618. 444
T. 1 N., R. 23 E., NE. $\frac{1}{4}$ sec. 16, 270 feet south of milepost 170, 15 feet east of railroad, at a small cut, in rock; aluminum tablet stamped "722"-----	722. 617
Douglas, sec. 22, T. 1 N., R. 23 E., 100 feet east of milepost 172, 20 feet south of road, 45 feet east of railroad; iron post stamped "790 A 1906"-----	790. 976
T. 1 S., R. 23 E., sec. 2, 1,100 feet north of milepost 176, 800 feet south of road crossing, 10 feet east of county road, 40 feet west of railroad, in rock; aluminum tablet stamped "918 A 1906"-----	919. 085

Point 2.5 miles south of Heppner Junction on Oregon-Washington Railroad & Navigation Co.'s line east 1.6 miles to crossroads (double-spur line).

T. 3 N., R. 23 E., sec. 6, crossroads at small rise; iron post stamped "533 A 1906"-----	533. 547
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Milepost 161, 9.0 miles south of Heppner Junction on Oregon-Washington Railroad & Navigation Co.'s line, 2.7 miles northeast to Dalreed Butte (double-spur line).

Dalreed Butte, top of, T. 3 N., R. 23 E., sec. 29, 2.7 miles east of milepost 161, in rock; aluminum tablet stamped "763 A 1906"-----	Feet. 764.105
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Ione north via Ella to Castle Rock.

T. 1 N., R. 24 E., northwest corner of sec. 34, 2.9 miles north of Ione, southeast corner of intersection of two roads, 5 feet south of sign-board; iron post stamped "1441 A 1906"-----	1,442.086
T. 1 N., R. 24 E., sec. 9, 6.24 miles north of Ione, at foot of hill, 60 feet north of intersection of two roads, 60 feet north of gulch; iron post stamped "1094"-----	1,095.241
Ella, east side of sec. 28, T. 2 N., R. 24 E., 100 feet east of school-house; 30 feet west of center of road; iron post stamped "830"-----	831.287
T. 2 N., R. 24 E., sec. 3, 3.08 miles north of Ella, 500 feet east of canyon, at mouth of gulch, on small round knoll, 140 feet north of lone juniper tree, in rock 10 by 10 by 18 inches; aluminum tablet stamped "725"-----	726.654
T. 3 N., R. 24 E., NE. $\frac{1}{4}$ sec. 34, 5.1 miles north of Ella, 250 feet west of road, white rock 2 by 3 by 4 feet; aluminum tablet stamped "655"-----	656.579
T. 3 N., R. 24 E., sec. 15, 7.02 miles south of Castle Rock, 20 feet west of road, on small rise; iron post stamped "631"-----	632.469
T. 4 N., R. 24 E., sec. 34, 3.89 miles south of Castle Rock, 300 feet from small rise, 10 feet east of road; iron post stamped "494"-----	495.400

Crossroads 2.9 miles south of Ione along road east and north via Wells Spring to Coyote.

T. 1 N., R. 25 E., near quarter corner south side of sec. 30, 3.67 miles east of Ione and Ella road, 10 feet north of road, 30 feet south of shack; iron post stamped "1490 A 1906"-----	1,490.805
T. 1 N., R. 25 E., near quarter corner south side of sec. 17, 6.08 miles south of Wells Springs, base of mileboard, at crossroads; iron post stamped "1187"-----	1,187.561
T. 1 N., R. 25 E., near quarter corner west side of sec. 4, 3 miles south of Wells Springs, at intersection of two roads, south and east of roads; iron post stamped "1070"-----	1,070.617
Wells Springs, T. 2 N., R. 25 E., sec. 20, 75 feet north of well, 125 feet northeast of house, in rock; aluminum tablet stamped "822"-----	822.511
T. 2 N., R. 25 E., sec. 5, 3.21 miles north of Wells Springs, 60 feet west of corral north of Wells Springs Canyon, on hillside; iron post stamped "722"-----	722.795
T. 3 N., R. 25 E., sec. 21, 6.87 miles north of Wells Springs, 9.03 miles south of Coyote, 200 feet north of old road, on flat; iron post stamped "650"-----	650.914
T. 3 N., R. 25 E., sec. 4, 6.15 miles south of Coyote, 1,200 feet south of shack; iron post stamped "586"-----	586.837
T. 4 N., R. 25 E., sec. 22, 3.47 miles south of Coyote, 0.3 mile northeast of sand dune, on small rise; iron post stamped "415"-----	415.843

Crossroads 2 miles west of Strawberry by road east to South Spring, thence north via Finley ranch to milepost 177.

Strawberry, T. 1 N., R. 25 E., southwest corner sec. 14, across road from post office; iron post stamped "1205"-----	Feet. 1,205.611
South Springs, T. 1 N., R. 26 E., southwest corner of sec. 17, 20 feet north of post office, 3.3 miles east of Strawberry post office; iron post stamped "1160"-----	1,160.769
T. 1 N., R. 26 E., near quarter corner east side of sec. 6, 2.62 miles north of South Springs, at forks of roads, at northwest intersection; iron post stamped "1128"-----	1,128.741
T. 2 N., R. 26 E., sec. 28, 5.53 miles north of South Springs, 1.36 miles southwest of Finley house, 30 feet north of road, at fence; iron post stamped "1001"-----	1,001.821
T. 2 N., R. 26 E., sec. 9, south side of, 7.72 miles east of Wells Springs, at intersection of two roads; iron post stamped "892"-----	892.899
T. 2 N., R. 26 E., NW. $\frac{1}{4}$ sec. 2, 2.4 miles north of emigrant road, 10 feet east of Sand Hollow road; iron post stamped "755"-----	755.938
T. 3 N., R. 26 E., sec. 23, 5.75 miles north of emigrant road, 10 feet east of Sand Hollow road; iron post stamped "619"-----	619.943
T. 3 N., R. 26 E., sec. 1, 6.29 miles south of Henkle ranch, 10 feet east of road; iron post stamped "620"-----	620.967
T. 4 N., R. 26 E., sec. 14, 2.77 miles south of Henkle ranch, 30 feet northeast of forks of roads; iron post stamped "547"-----	547.942
T. 5 N., R. 26 E., sec. 35, south side of, 100 feet north of barn of Henkle ranch, 400 feet north of road, in firm rock, 5 by 6 by 8 feet; aluminum tablet stamped "331"-----	331.863

Cecils by emigrant road via Ella and Wells Springs to Finley ranch:

T. 2 N., R. 23 E., northwest corner of sec. 36, 6.72 miles west of Ella, 3.24 miles east of Cecils, east line of road at turn; iron post stamped "907"-----	908.016
T. 2 N., R. 24 E., north side of sec. 29, 2.84 miles west of Ella, 7.12 miles east of Cecils, on small rise east of gulch, 30 feet south of county road; iron post stamped "820"-----	821.366
T. 2 N., R. 25 E., near northwest corner of sec. 30, 3 miles east of Ella, 100 feet east of township line, 50 feet south of road, on hillside, in firm rock; aluminum tablet stamped "855"-----	856.617
T. 2 N., R. 25 E., SW. $\frac{1}{4}$ sec. 14, 3 miles east of Wells Springs, at mouth of canyon, 600 feet east of creek in Juniper Canyon, 10 feet north of emigrant road, in firm rock; aluminum tablet stamped "693"-----	694.072

South Springs east to point near quarter corner on south side of sec. 13, T. 1 N., R. 26 E.

T. 1 N., R. 26 E., near quarter corner on south side of sec. 13, 4.74 miles southwest of Pine City, on South Springs road, at southwest corner of long cemetery; iron post stamped "1474"-----	1,475.102
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Castle Rock south to Juniper Reservoir, thence east to Dry Lakes (United States Reclamation Service line).

Juniper Reservoir site, west end, at Carty's east fence, near road, iron post-----	603.167
Dry Lakes, 1,000 feet northwest of lake and about 1,000 feet south-east of east dam site of Juniper reservoir site, iron post-----	650.607

HEPPNER QUADRANGLE.

At Ione.

Ione, T. 1 S., R. 24 E., sec. 9, 1,360 feet west of station, 300 feet east of road crossing, 20 feet south of railroad, 15 feet north of road; iron post stamped "1068 A 1906"-----	Feet. 1, 069. 124
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UMATILLA QUADRANGLE.

Yoakum north in R. 30 E. to Cold Springs.

T. 3 N., R. 30 E., southwest corner sec. 25, 40 feet northeast of, 3 miles northeast of Yoakum siding, crossroads; iron post stamped "1306"-----	1, 306. 444
T. 3 N., R. 30 E., 30 feet southwest of quarter corner east side of sec. 11, 6.5 miles northeast of Yoakum siding, where road turns west; iron post stamped "1064"-----	1, 064. 107
T. 4 N., R. 30 E., corner secs. 23, 24, 25, and 26, 2.25 miles northeast of Foster ranch, at road forks, south side of Spain Gulch; iron post stamped "933"-----	933. 391
Vinson ranch, 0.75 mile northeast of, T. 5 N., R. 30 E., on line between secs. 25 and 26, 40 feet south of center of road, in Cold Spring Canyon; iron post stamped "856"-----	856. 729
T. 5 N., R. 30 E., south of center of sec. 15, 2.5 miles northeast of Vinson ranch, north side of road, 600 feet east of road forks to Sand Spur and Cold Springs; iron post stamped "1008"-----	1, 008. 187

Cold Springs (United States Reclamation Service bench mark).

Cold Springs, T. 5 N., R. 29 E., corner secs. 11, 12, 13, and 14; iron post-----	311. 089
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Point 2.8 miles south of Henkle ranch east to east line of R. 27 E., thence south to Stanfield ranch.

T. 4 N., R. 27 E., east of center of sec. 20, north side of road; iron post stamped "543"-----	544. 135
T. 4 N., R. 27 E., northeast of center of sec. 23, north side of Echo Road; iron post stamped "591"-----	592. 178
T. 4 N., R. 28 E., southwest corner, 40 feet north and east of stake at corner; iron post stamped "602"-----	603. 233
Lower Stanfield ranch, on west side of Butter Creek (United States Reclamation Service bench mark); iron post stamped "625"-----	627. 145

Stanfield ranch south to Pine City, thence west to South Springs.

T. 2 N., R. 27 E., northeast corner of sec. 1; iron post stamped "793"-----	793. 445
T. 2 N., R. 27 E., southwest corner of sec. 14, 1.23 miles southwest of O. F. Thompson's ranch, on east side of road by fence corner; iron post stamped "916"-----	916. 553
T. 1 N., R. 27 E., northeast corner of sec. 3, 1.47 miles north of Pine City, 10 feet south of fence corner, 30 feet east of fork of Butter Creek and Heppner Roads; iron post stamped "1084"-----	1, 084. 514
T. 1 N., R. 27 E., southwest part of sec. 16, 2.15 miles west of Pine City, between and 150 feet west of forks of Heppner and South Spring Roads; iron post stamped "1430"-----	1, 431. 217

Pine City east to Alkali triangulation station, thence northwest 7.4 miles, thence west to southeast corner of sec. 1, T. 2 N., R. 27 E.

T. 1 N., R. 27 E., near northeast corner of sec. 23, at forks of Big Butter Creek and Ridge Roads; iron post stamped "1225"	Feet. 1, 226. 178
T. 1 N., R. 28 E., near northwest corner of sec. 28, north side of road at mouth and on west side of Ayers Canyon; iron post stamped "1389"	1, 390. 184
T. 1 N., R. 28 E., south side of sec. 13, on south side of Ridge Road 1.65 miles northeast of the Joe Vaie ranch, beside fence; iron post stamped "2102"	2, 103. 321
T. 1 N., R. 29 E., northwest corner of sec. 22, 5.81 miles northeast of the Joe Vaie ranch, on south side of Ridge Road, east slope of knoll 800 feet west of crossroads; iron post stamped "2152"	2, 153. 097
Alkali triangulation station, T. 1 N., R. 30 E., center of sec. 29, 0.75 mile northeast of Slusher ranch; triangulation tablet stamped "2713"	2, 713. 524
T. 1 N., R. 29 E., north of center of sec. 13, 3.5 miles north of Slusher ranch on Echo Road, at first crossroad north of Ridge Road, on east side of Echo Road and south side of crossroads; iron post stamped "2262"	2, 263. 363
T. 2 N., R. 29 E., southwest of center of sec. 26, 7.4 miles northwest of Slusher ranch, 20 feet east of Echo Road, 200 feet from where it leaves Big Alkali Canyon, 0.5 mile north of Winkie ranch; iron post stamped "1311"	1, 311. 713
T. 2 N., R. 28 E., 30 feet northwest of quarter corner on east side of sec. 13, 700 feet west of the white house on the Vaie ranch; iron post stamped "998"	998. 809
Job triangulation station, on highest point on Sarvis Butte, northwest corner of sec. 22, T. 2 N., R. 28 E.; iron post stamped "1684"	1, 685. 348

Point 7.4 miles north of Alkali triangulation station north to Echo.

T. 2 N., R. 29 E., at southeast corner of sec. 4, on west side of Echo Road; iron post stamped "1119"	1, 120. 827
T. 3 N., R. 29 E., south side of sec. 22, United States Reclamation Service diversion dam, west end top, at north end of weir; aluminum tablet stamped "662"	663. 666
Echo, 1.8 miles south of, United States Reclamation Service diversion dam, 200 feet northwest of United States Reclamation Service permanent bench mark; iron post stamped "660"	661. 585

Dry Lakes east to Echo (United States Reclamation Service line).

Red Point, 5 miles west of Stanfield ranch, near road; iron post	665. 578
Lower Stanfield ranch, west side of Butter Creek; iron post stamped "625"	627. 145
Echo, 6 miles west of, 140 feet north of road, iron post	663. 500
Echo, 2 miles west of, point overlooking Butter Creek ditch; iron post	659. 500

Cazadero, Mount Hood, Stevenson, and Troutdale Quadrangles.

CLACKAMAS, MULTNOMAH, AND WASCO COUNTIES.

The elevations are based on bench marks of a double-rodged primary line along the Oregon-Washington Railroad & Navigation

Co.'s track as determined by the 1905 adjustment. The elevations along the railroad crossing Bridal Veil and Stevenson quadrangles are given in another list.

The leveling in the Mount Hood and Stevenson quadrangles was done in 1907 by S. N. Stoner; in the Troutdale quadrangle in 1906 by George Neuner, jr., and in 1907 by Stoner; and in the Cazadero quadrangle in 1906 by Neuner, in 1907 by Stoner, and in 1910 by E. M. Bandli.

TROUTDALE QUADRANGLE.

Troutdale along public road to point about 1.3 miles north of Powell Valley.

Troutdale, 100 feet northeast of station, 40 feet north of switch leading to Union Meat Co.'s establishment, 223 feet north of main track, in edge of field belonging to D. F. Buckridge; iron post stamped "41-A"-----	Feet. 41.460
Troutdale, 1.7 miles south of, southwest corner of intersection of Portland base and Troutdale Road, at corner of fence; point on rock, marked "U. S.-217"-----	216.61

Brower northeast to Bridal Veil.

Brower, 150 feet west of Wittenburg house, 20 feet north of Wittenburg Road, in firm rock; aluminum tablet stamped "1622"-----	1,622.407
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CAZADERO QUADRANGLE.

Point north of Powell Valley southeast along roads to Bull Run post office, thence northeast along roads to Brower.

Orient, in front of post office; hitching post-----	548.58
Bull Run, post office and store, 100 feet south of, 35 feet west of center of road, 30 feet north of wagon shed, in turn of fence, 10 feet east of gate; iron post marked with red paint "647"-----	647.147
Aims, northeast of, at junction of Walker, Prairie, and Troutdale roads, 30 feet east of bridge; iron post stamped "1104"-----	1,104.069
Aims schoolhouse, 2.1 miles northwest of, 20 feet west of junction of Troutdale road and road to A. C. Wihlon & Co.'s sawmill, about 2 miles south of Gordon Creek crossing, in triangle formed by three fir trees .6 inches in diameter, each bearing inscription "U.S.B.M." pointing toward post; iron post marked with red paint "969"-----	969.166
Aims, 3.1 miles east of, 660 feet west of Walker Prairie, 5 feet south of road, in firm rock 4 by 6 by 6 feet; aluminum tablet stamped "1955"-----	1,954.665
Aims, 5.4 miles east of, on Lookout Point, 10 feet west of Larch Mountain trail, in firm rock in rock mound; aluminum tablet stamped "2633"-----	2,633.306
Aims, 8.8 miles east of, 5 miles north of North Branch of Gordon Creek, in rock 8 feet west of railroad; aluminum tablet stamped "2274"-----	2,273.694

Bull Run southeast along roads via Sandy and Firwood to point about 1.2 miles east of Salmon post office.

Sandy, 5 feet north of east line of Bull Run road, 50 feet north of forks of road; iron post stamped "1012"-----	Feet. 1, 012. 102
Firwood, at road forks, north edge of Salmon road, at base of signboard; iron post stamped "1206"-----	1, 206. 612
Firwood, 2.9 miles east of, on small rise, 300 feet south of Cedar Creek, north of road, in fence line; iron post stamped "1246"-----	1, 246. 256
Salmon, 4.5 miles west of, 0.4 mile west of Alder Creek, at Copper place, 20 feet south of Salmon road opposite Copper road, in cluster of trees; iron post stamped "895"-----	895. 351
Salmon, 0.9 mile west of, at intersection of Sandy and Marmot roads, 30 feet south of county bridge across Sandy River, 5 feet north of signboard; iron post stamped "999"-----	999. 240

Clarnie via Boring, Sandy, and Dover to Eagle Creek.

Clarnie, 250 feet northwest of station platform, 150 feet east of bunk house, 60 feet north of track, 90 feet west of section house; iron post stamped "205 A"-----	204. 753
Clarnie, 2.6 miles southeast of, 1 foot north of southwest corner fence post, 30 feet southwest of crossroad intersection, on base line road, in southwest corner of crossroads; iron post stamped "291"-----	290. 910
Rockwood, 1 foot northeast of northeast corner of lot, 27 feet west of northwest corner of K. O. T. M. hall No. 61, 75 feet southeast of T road intersection from north, south of base line road; iron post stamped "245"-----	244. 649
Rockwood, 1 mile southeast of, at T road to south from base line road, in southeast corner of road intersection, in root of first tree (12 inches in diameter); copper nail marked "25S.3"-----	25S. 26
Rockwood, 2.5 miles southeast of, at first crossroad in Gresham coming from north, boulder in southwest corner near sidewalk; circle of paint marked "314.1"-----	314. 04
Gresham, 30 feet south of west end of Portland Railway, Light & Power Co. station, 10 feet south of track, 12 feet southwest of track and road intersection; iron post stamped "Prim. Trav. Sta. No. 1, 308"-----	307. 750
Boring, 130 feet north of station, 10 feet west of track, 20 feet north of road at crossing near station; iron post stamped "502"-----	501. 882
Kelso, in northeast corner of sec. 9, T. 2 N., R. 4 E., in northwest corner of C. T. Gindall's yard, 2 feet south of fence, 1 foot east of fence corner opposite store, 60 feet southeast of crossroad intersection; iron post stamped "703"-----	700. 404
T. 2 N., R. 4 E., in east center of sec. 14, 45 feet southwest of road intersection, in southwest corner of crossroads, in root of large tree; copper nail marked "905.4"-----	905. 19
Sandy, 5 feet north of east line of Bull Run road, 50 feet north of forks of road; iron post stamped "1012"-----	1, 012. 102
Firwood, at road forks, north edge of Salmon Road, 30 feet north of T road intersection, at base of signboard; iron post stamped "1206"-----	1, 206. 612
Firwood, 0.5 mile south of, near west center of sec. 29, T. 2 N., R. 4 E., 30 feet northwest of road intersection, 15 feet from large fir tree, in northwest corner of crossroads; in root of tree; copper nail marked "1330.7"-----	1, 330. 48

Dover, 70 feet west of intersection of four roads, 10 feet north of road in northwest corner of crossroads of intersection north of Canyon Dover; iron post stamped "1231"-----	Feet. 1,231.114
T. 3 S., R. 4 E., east center of sec. 3, 0.5 mile west of Dover, 50 feet southeast of mail box, 0.25 mile south of H. S. Gibson's place and 0.25 mile west of E. T. Paulfrey's place; iron post stamped "943"-----	942.270
T. 3 S., R. 4 E., in center of sec. 3, 115 feet southeast of intersection of T road to north; in root of small oak tree; copper nail marked "838.3"-----	838.07
Eagle Creek, 2.4 miles east of, 25 feet south of road intersection, in northwest root of large fir tree; copper nail marked "572.2"-----	571.90
Eagle Creek, on Portland Railway, Light & Power Co. right of way, 300 feet south of station, 40 feet west of track, opposite G. R. Morse's store, in corner of fence; iron post stamped "338"-----	337.823
Boring via Eagle Creek, Cazadero, and George to bench mark 2.4 miles east of Eagle Creek.	
Barton, 27 feet southwest of county road, 45 feet west of track, 300 feet south of station; iron post stamped "263"-----	263.126
Eagle Creek, 300 feet south of station, 40 feet west of track, in corner of fence opposite Morse's store; iron post stamped "337.9"-----	337.823
Currinsville, in front of station; top of rail-----	405.3
Estacada, 400 feet southeast of station, in southeast corner of Estacada Hotel yard, 1 foot in yard from southeast corner fence post; iron post stamped "464"-----	463.841
Cazadero, 2 feet from northwest corner of station, 12 feet southwest of track; iron post stamped "509"-----	509.134
Cazadero, 5.5 miles northeast of, 25 feet east of road, 5 feet east of southeast corner fence post, 4 feet west of mail box, 2 feet north of Bowerman's fence; iron post stamped "1256"-----	1,256.174
George, 2.5 miles east of, 30 feet east of T-road intersection from south, 2 feet north of southeast corner fence post; iron post stamped "1511"-----	1,511.081
George, 30 feet northeast of T-road intersection from east, in northeast fence corner, 20 feet east of road; iron post stamped "1175"-----	1,175.045
Firwood, 6.7 miles southwest of, 2.4 miles east of Eagle Creek, 25 feet southeast of road intersection, in northwest root of large fir tree; copper nail marked "572.3"-----	571.90
Estacada along public roads via Springwater, Elwood, and Colton to Clarks (unchecked spur line).	
Springwater, 1 mile southeast of, 3 feet east of signpost, 1 foot northwest of southeast corner fence post, 35 feet southwest of T-road intersection to south; iron post stamped "Prim. Trav. Sta. No. 12, 1200"-----	1,200.232
Springwater, 1.7 miles southeast of, 20 feet east of intersection, 10 feet from road, in northeast corner at Y-road intersection, in root of large fir tree; copper nail marked "1016.2"-----	1,015.998
Elwood, in southeast corner of school yard, 2 feet northwest of southwest corner fence post, 30 feet northwest of crossroads; iron post stamped "1099"-----	1,098.655
Colton, 2 feet west of northwest corner of Swedish Church belfry, 110 feet south of road, west of T road south; iron post stamped "705"-----	705.189

Colton, 1.3 miles west of, at Cedardale school (district No. 53), 75 feet northeast of road intersection, 21 feet northwest of southwest corner of schoolhouse, in root of tree; copper nail marked "496.2"	Feet. 496.08
Clarks, 1.5 miles south of, in northeast corner at T-road intersection to east, 35 feet northeast of T-road intersection, in root of large maple tree; copper nail marked "862.5"	862.37
Clarks, 2 feet east of Methodist Church, in southeast corner of cross-roads, 45 feet west of road, 400 feet northwest of store; iron post stamped "885"	884.306
Clarks, 2.3 miles north of, 0.3 mile south of first crossroads south of New Highland schoolhouse, 10 feet west of road at foot of hill, in large stump; nail marked "1035.3"	1,035.07

At Lenhard Mountain (by a checked spur line).

Lenhard Mountain, top of north point, 0.4 mile north of Lenhard's house, in firm boulder; aluminum tablet stamped "2116"	2,115.886
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MOUNT HOOD QUADRANGLE.

Point 1.2 miles east of Salmon post office, northeast along roads to point about 2.4 miles northeast of Lost Lake.

Salmon, 2.1 miles east of, at northeast corner of Rossalsky's meadow, 500 feet north of barn, 10 feet south of road; iron post stamped "1206"	1,206.187
Salmon, 4.2 miles east of, 30 feet south of road, 300 feet east of junction of toll road and Welche's road, 75 feet north of schoolhouse; iron post stamped "1335"	1,335.137
Salmon, 7.8 miles east of, 0.4 mile east of Sandy River, 5 feet north of Lost Lake Road, 100 feet north of ranch house, in firm boulder, aluminum tablet stamped "1626"	1,625.756
Salmon, 11.6 miles east of, 650 feet north of Clear Fork Camp, 200 feet east of Clear Fork Creek, at west base of Last Chance Mountain on Lost Lake trail, in firm boulder; aluminum tablet stamped "2140"	2,140.111
Clear Fork Camp, 2 miles northeast of, 4.2 miles south of Bull Run Lake, 200 feet east of North Branch of Clear Fork Creek, north of trail, on steep point, in firm boulder; aluminum tablet stamped "2538"	2,537.900
Bull Run Cabin, 0.5 mile east of, 0.97 mile south of Bull Run Lake, 5.23 miles north of Clear Fork Camp, 10 feet east of Lost Lake trail, in firm boulder; aluminum tablet stamped "3714"; painted on tree near boulder "B. M.-3714"	3,714.535
Lost Lake, 0.8 mile south of, 10 feet west of Lost Lake trail, on divide between Jouis Creek and Lost Lake, in firm boulder; aluminum tablet stamped "3902"	3,902.393
Lost Lake, 1.5 miles east of, on Lost Lake Road, 0.4 mile east of divide 30 feet south of road, in firm boulder; aluminum tablet; painted on boulder "3214"; painted on tree north of boulder "B.M.U.S.G.S."	3,214.39

STEVENSON QUADRANGLE.

Point 2.4 miles northeast of Lost Lake along roads to Hood River Station.

Lost Lake, 4.7 miles east of, on ridge between Hood and Lake Branch Rivers, in clearing, 20 feet south of a bunch of trees, 15 feet west of road, in firm boulder; aluminum tablet; painted on tree north of boulder "2007-U. S."	2,007.160
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Lost Lake, 7.5 miles east of, 0.5 mile east of Markley ranch house, 300 feet west of bridge, 400 feet west of mouth of Lake Branch Creek, 5 feet north of road, in firm boulder; aluminum tablet stamped "1277"-----	Feet. 1,277.508
Winans, 3.1 miles west of, 600 feet west of old lumber camp, opposite Gordon place, 600 feet south of dam, 10 feet west of road, in firm boulder; aluminum tablet stamped "1194"; painted on tree "B.M."-----	1,193.850
Winans, 500 feet west of station, 250 feet east of bridge across Hood River, on first bench above creek, 15 feet east of road, in firm boulder; aluminum tablet stamped "863"; painted on tree 15 feet east of boulder "B.M."-----	863.480
Blucher, 0.7 mile east of station, 150 feet east of "12-mile" post, 30 feet south of center of railroad, in firm boulder; aluminum tablet stamped "855"-----	855.358
Tucker, 1.1 miles north of, 4.5 miles south of Hood River, on divide, 500 feet south of church, 20 feet west of center of road, in firm boulder; aluminum tablet stamped "671"-----	670.800

Riddles Quadrangle.

DOUGLAS, JACKSON, AND JOSEPHINE COUNTIES.

The elevations in this list are based on the latest adjusted elevations on the precise level line run in 1903 along the Southern Pacific Railroad from the California State line to Portland.

The leveling was done in 1901 by C. L. Nelson.

The stamped elevations on the bench marks were based upon railroad data and differ considerably from the adjusted values.

RIDDLES QUADRANGLE.

Glendale northeast along county roads to Galesville, thence north to Canyonville and west to Riddles.

Glendale, at station; top of rail-----	Feet. 1,417.9
Galesville, 30 feet southeast of hotel, 40 feet north of road; iron post stamped "1551 G"-----	1,531.888
Summit, 8 feet west of road; iron post stamped "2046 G"-----	2,026.661
Canyon Creek, 100 feet north of, 200 feet southeast of Pickett house; iron post stamped "988 G"-----	968.708
Canyonville, 1 foot south of southwest corner of Masons' Hall; iron post stamped "766 G"-----	747.300
T. 30 S., on line between sec. 30, R. 5 W., and sec. 25, R. 6 W., 100 yards southwest of P. Ulam's house, 80 yards south of small summit, 16 feet west of road; iron post stamped "717 G"-----	697.767

Canyonville east along country road up Umpqua River to Perdue schoolhouse.

Days Creek, 70 feet east of schoolhouse on line with its south side, 80 feet south of Days Creek and 50 feet south of bridge; iron post stamped "797 G"-----	777.288
Days Creek, 80 feet northwest of schoolhouse, 18 feet west of small creek bed, 345 feet north of Umpqua River, 6 feet south of road; iron post stamped "911 G"-----	891.773

Days Creek post office northeast along county road up Days Creek to house of John Gilbo.

John Gilbo's house, 250 yards northeast of, 135 feet north of Days Creek, 8 feet south of road, on township line; iron post stamped "937 G"-----	Feet. 917.751
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Johns ranch east along county road up Cow Creek to Binger.

Binger meadows, 180 feet southwest of southwest corner of rail fence, 72 feet east of Sugar Creek, 10 feet north of road; iron post stamped "1960 G"-----	1,940.822
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Redfield's house south along old stage road to Wolf Creek.

T. 33 S., R. 6 W., in sec. 2, 20 feet west of road, at summit; iron post stamped "1949 G"-----	1,929.571
Wolf Creek, 80 feet north of McKinsey Hotel, 100 yards north of Wolf Creek bridge, 3 feet east of fence; iron post stamped "1295 G"-----	1,276.322

Wolf Creek south along old stage road to Merlin.

T. 34 S., R. 6 W., in sec. 2, Espe house, 200 yards northeast of, 25 feet northeast of intersection of roads, at foot of signpost; iron post stamped "1247 G"-----	1,227.873
Merlin, 100 feet south of Harris Creek, 200 feet east of Jump-off-Joe Creek, on property of D. W. Mitchell, 100 feet west of track; iron post stamped "920 G"-----	900.504

Grave post office east along county road up Grave Creek to Pease ranch.

Placer, 0.5 mile northeast of, 4.5 feet south of section post at corner of sections 4, 5, 8, and 9; iron post stamped "1600 G"-----	1,580.181
Pease ranch house, 400 yards northwest of, 12 feet east of ditch, at north corner between sections 5 and 6; iron post stamped "2493 G"-----	2,473.874

Schoolhouse 2.5 miles east of Merlin east up Jump-off-Joe Creek to Winona.

Winona, 1 mile northwest of, 0.3 mile southeast of Pollock ranch house, 900 feet south of county road, 0.3 mile south of Jump-off-Joe Creek, 100 feet south of line between Tps. 34 and 35, secs. 5 and 6, R. 5 W., 100 yards east of line between secs. 5 and 6, T. 35 S., R. 5 E.; iron post stamped "1448 G"-----	1,428.776
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Woodville north along county road up Evans and Pleasant Creeks via Wimer to Clark house.

Wimer, 30 feet west of post office and store, 6 feet south of line along front of store; iron post stamped "1160"-----	1,134.577
Clark house, at southeast corner of lot owned by E. Cameron, 150 feet east of Pleasant Creek, 35 feet east of intersection of county road with ranch road; iron post stamped "1399 W"-----	1,373.712

Wimer northeast via county road up Evans Creek to Rock Creek.

T. 35 S., R. 3 W., north part of sec. 5, southwest corner of May's schoolhouse, 250 feet east of Mays Creek; iron post stamped "1333 W"-----	1,308.137
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T. 34 S., R. 3 W., near northeast corner sec. 26, Briscoe house (owned by W. Bybee), 5 feet southeast of southwest corner of; iron post stamped "1494 W"-----	Fect. 1, 468. 685
Rock Creek and Evans Creek, 190 feet north of junction of, 500 yards northwest of cabin property of E. G. Borden on knoll; iron post stamped "1886 W"-----	1, 860. 531

Grants Pass, Kerby, and Medford Quadrangles.

JACKSON AND JOSEPHINE COUNTIES.

These elevations are based on the latest adjustment of the precise-level line run in 1903 along the Southern Pacific Railroad from the California State line to Portland.

The leveling was done in 1904 by E. M. Fry.

GRANTS PASS QUADRANGLE.

Grants Pass west along highways to mouth of Applegate Creek, thence southeast via Murphy, Provolt, and Applegate to Ruch.

Grants Pass, 4.5 miles southwest of, 1,200 feet southeast of house on Neighbor ranch, at west side of road; iron post stamped "914 B 1904"-----	Fect. 914. 783
Grants Pass, 8 miles southwest of, 2 miles east of Applegate Creek bridge, 1,200 feet south of house on Joss ranch, at forks of Wilderville and Jerome Prairie roads; iron post stamped "964 B 1904"-----	964. 808
Murphy, 3.9 miles northwest of, 150 feet north of Stringer ranch house, 70 feet northwest of front gate, north side of road; iron post stamped "1084 B 1904"-----	1, 084. 856
Murphy post office, 50 feet west of store and post-office building, 800 feet north of bridge over Applegate Creek, 25 feet southeast of road forks; iron post stamped "1061 B 1904"-----	1, 061. 970
Williams Creek, 0.5 mile northeast of mouth of, 10 feet east of east end of Williams Creek bridge, 300 feet west of house on Provolt ranch, at south side of road; iron post stamped "1161 B 1904"-----	1, 161. 931
Applegate, 40 feet southeast of store and post office, 650 feet northwest of bridge over Applegate Creek, east side of county road; iron post stamped "1275 B 1904"-----	1, 275. 616
Applegate post office, 2.9 miles east of, on ranch of Mrs. Sarah O'Brien in south wall of brick drying house; aluminum tablet stamped "1332 B 1904"-----	1, 332. 965
Ruch post office, 150 feet north of store and post office, 100 feet northwest of well and 100 feet west of blacksmith shop, in forks of road; iron post stamped "1525 B 1904"-----	1, 526. 080
Woodville south along Southern Pacific Railroad to Bolt, thence south along highways via Foothills and Forest Creeks to Ruch.	
Woodville, 0.7 mile north of, east side of Southern Pacific Railroad track, 3 feet north of milepost 467; iron post stamped "993 B"-----	994. 128
Draper, 2 miles northwest of, 300 feet northwest of Ruble ranch house, 100 feet south of reservoir, north side of road; iron post stamped "1367 B 1904"-----	1, 367. 861
Summit of divide, between Left Fork of Foothills Creek and Forest Creek (Jackson's Creek), 10 feet south of road; iron post stamped "2981 1904"-----	2, 981. 948

Bridge over Applegate Creek near Wilderville west and north to Merlin.

Timpy Creek, 2 miles north of mouth, in rock ledge at north end of bridge; aluminum tablet stamped "863 B 1904"-----	Feet. 863. 777
Merlin, 4.5 miles southwest of, 150 feet southwest of Robinson ranch house, 75 feet east of barn, east side of road at corner of yard fence; iron post stamped "871 B 1904"-----	871. 942
Merlin, 90 feet west of railroad, 30 feet north of Mitchell's store; iron post stamped "900 B"-----	900. 504

Point near Wilderville via Mooney Mountain Road to Dryden.

Wilderville, 75 feet southeast of post office, 100 feet west of store, 50 feet north of B. Smith's shop, north side of road near fence; iron post stamped "936 B 1904"-----	934. 783
Wilderville, 5.5 miles south of, 600 feet north of Burrows ranch house, 25 feet north of fence corner, 10 feet west of road at foot of Mooney Mountain, on grade; iron post stamped "1219 B 1904"-----	1, 219. 687
Deer Creek Forks, 0.5 mile northeast of, 0.5 mile east of Evans ranch house, 300 feet east of fence corner, 400 feet northwest of foot of old road grade, in stone in place; aluminum tablet stamped "1778 B 1904"-----	1, 778. 896
Summit of divide between Murphy Creek and East Fork of Deer Creek at west side of trail at summit; iron post stamped "3126 B"-----	3, 127. 122
Case Creek, 200 feet west of mouth, 10 feet north of creek, 20 feet west of trail at Case Creek crossing, 200 feet south of double log cabin, in top of rock; aluminum tablet stamped "1594 B 1904"-----	1, 595. 251

Provolt south along road via Williams to Thompson Creek Schoolhouse.

Williams post office, 3 miles east of, 100 feet northwest of San Francisco Mining Co.'s bunk house, 300 feet east of barn, east side of road; iron post stamped "1301 B 1904"-----	1, 301. 953
Williams post office, 2 feet north of store and post office, 150 feet south of David John's residence, west side of road, near fence; iron post stamped "1368 B 1904"-----	1, 369. 007
Baltimore schoolhouse, 0.2 mile north of, 20 feet south of road forks, 4 feet west of fence; iron post stamped "1510 B 1904"-----	1, 511. 099
Thompson Creek schoolhouse, 0.2 mile south of; iron post stamped "1684 B"-----	1, 684. 845

Applegate post office south along road to Thompson Creek schoolhouse.

Applegate post office, 40 feet southeast of store and post office, 650 feet northwest of bridge over Applegate Creek, east side of county road; iron post stamped "1275 B 1904"-----	1, 275. 616
Applegate post office, 3.1 miles south of, 1,000 feet south of Elmore ranch house, 4 feet from west end of wagon bridge over Thompson Creek, in top of stone; aluminum tablet stamped "1495 B 1904"-----	1, 495. 835

Thompson Creek schoolhouse south along road and via Steamboat to Watkins, thence northeast to Ruch post office.

Thompson Creek schoolhouse, 0.2 mile southwest of, 150 feet north of bridge over Thompson Creek, west side of road near forks; iron post stamped "1684 B"-----	1, 684. 845
Houston ranch, 0.7 mile south of, 10 feet east of road, 600 feet east of Thompson Creek; iron post stamped "2093 B 1904"-----	2, 094. 105

Steamboat, 3.5 miles northwest of, 15 feet east of small bridge over Ozuc ditch, at summit of divide between Thompson Creek and O'Brien Fork of Applegate River, on summit 10 feet east of road; iron post stamped "3196 B 1904"-----	Feet. 3, 197. 389
Steamboat, 250 feet west of stamp mill, 150 feet west of house, 300 feet north of barn, 1 foot from fence at west side of road; iron post stamped "2445 B 1904"-----	2, 446. 316
Steamboat, 3.5 miles southwest of, 2 miles northwest of Watkins, in stone, 100 feet north of trail, at summit of divide; aluminum tablet stamped "3318 B 1904"-----	3, 319. 694
Watkins post office, 800 feet south of, 150 feet north of Applegate River, 570 feet southwest of corner of sec. 35, T. 40 S., R. 4 W., 10 feet west of big gate; iron post stamped "1849 B 1904"-----	1, 850. 911
Watkins post office, 3 miles northeast of, 200 feet east of Watkins's ranch house, 15 feet east of wagon road; iron post stamped "1811 B 1904"-----	1, 813. 132
Kreman's sawmill, 0.7 mile northeast of, 20 feet southwest of Silva ranch house, east side of road, 1 foot southwest of corner of yard fence; iron post stamped "1672 B 1904"-----	1, 674. 481
Neds Gulch, 0.1 mile northeast of mouth of, 75 feet north of bunk house of Swain mine, 200 feet north of post office, 10 feet east of road; iron post stamped "1541 B 1904"-----	1, 543. 595
Forks of Applegate River, 0.1 mile east of, 600 feet east of Cameron ranch house, at forks of road, 1 foot outside of rail fence; iron post stamped "1462 B 1904"-----	1, 464. 874

MEDFORD QUADRANGLE.

Ruch east to Medford.

Jacksonville, south wall of United States Hotel, corner of California and Fifth Streets, 2 feet above sidewalk near southwest corner of building; aluminum tablet stamped "1568 B 1904"-----	1, 568. 551
Medford, in west wall of Hotel Nash; aluminum tablet stamped "1376 B"-----	1, 377. 097

KERBY QUADRANGLE.

Wilderville southwest along road via Anderson and Selma to Dryden.

Wilderville, 3.5 miles southwest of, 75 feet southwest of Wonder store and post office, 1 foot north of fence; iron post stamped "1077 B 1904"-----	1, 077. 815
Louis station, 12 feet northeast of front steps to hotel, 100 feet northwest of stage barn, at west side of road, 1 foot outside of fence; iron post stamped "1226 B 1904"-----	1, 226. 832
Selma, 2.2 miles northeast of, 20 feet east of house at Anderson station, 200 feet north of barn, 1 foot outside of fence; iron post stamped "1454 B"-----	1, 454. 884
Selma, 6 feet south of post office, 100 feet southwest of platform scales, corner of fence at west side of principal street; iron post stamped "1323 B 1904"-----	1, 323. 831
Selma, 2.6 miles east of, 4 feet from southeast corner of Cemetery schoolhouse building, 200 feet west of road, 1 foot east of schoolhouse; iron post stamped "1378 B 1904"-----	1, 379. 002

Point 5.5 miles south of Wilderville southwest to Dryden.

Mooney Mountain, summit, 15 feet east of road, on side at highest point of wagon road; iron post stamped "2491 B 1904"-----	Feet. 2, 491. 619
Dryden post office, 0.4 mile north of, 12 feet from northwest corner of Dryden schoolhouse; iron post stamped "1437 B 1904"-----	1, 437. 696

Dryden east along road 1.3 miles.

Dryden post office, 1.3 miles east of, 0.25 mile northwest of Harman ranch house, 150 feet north of bridge over Deer Creek, 10 feet east of road; iron post stamped "1482 B 1904"-----	1, 482. 918
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Ashland and Klamath 1° Quadrangles; Cline Falls, Crescent, Lava, Maiden Peak, and Prineville 30' Quadrangles; and Crater Lake National Park.

CROOK, JACKSON, AND KLAMATH COUNTIES.

The bench marks in the following lists were established by a line of primary levels extended from Ashland to Prineville, Oreg., by L. F. Biggs in 1908. The elevation of the initial bench mark at Ashland, stamped "1874-B 1903," was accepted as 1,874.807 feet, and the elevation of the closing bench mark, an iron post stamped "2867-H" near the courthouse at Prineville, was accepted as 2,867.495 feet above mean sea level.

ASHLAND QUADRANGLE.

Ashland via Dead Indian Mountain to Pelican Bayou, Lower Klamath Lake, thence to Fort Klamath.

Ashland, 1,800 feet south of station, 42 feet east of Mountain Avenue crossing, south side of street; iron post stamped "1874 B 1903"-----	Feet. 1, 874. 807
Ashland, 2.4 miles east of, south of road, opposite white house, in base of 36-inch oak tree; spike with aluminum tag stamped "1913 B. M. 2"-----	1, 913. 54
Ashland, 4 miles northeast of, 20 feet south of road, above creek, opposite Indian Head Rock, in boulder; aluminum tablet stamped "2002 B 1908 B. M."-----	2, 003. 45
Ashland, 6 miles north of, south of road, on west bank of creek, in base of 20-inch oak tree; spike with aluminum tag stamped "2179 B. M. 5"-----	2, 179. 824
Ashland, 7.2 miles north of, 50 feet west of road, 200 feet north of junction of roads, on boulder; chisel point painted "2660 B. M. 7"-----	2, 660. 32
Ashland, 8.2 miles northeast of, 15 feet west of road, 200 feet north of house on point of hill, in large boulder; aluminum tablet stamped "2944 B 1908 B. B."-----	2, 945. 047
Summit of Dead Indian Mountain, 15 feet south of road, in large boulder; aluminum tablet stamped "5232 B 1908 B. C."-----	5, 232. 978
Summit of Dead Indian Mountain, 1.1 miles northeast of, north of road, in base of 30-inch fir tree; spike with aluminum tag stamped "4833 B. M. 15"-----	4, 834. 33
Lilyglen, 100 feet west of post office, at fence; iron post stamped "4537 B 1908 B. D."-----	4, 538. 201

Deadwood, 300 feet east of stage station, 150 feet west of barn, west of road, in base of 36-inch pine tree; spike with aluminum tag stamped "4634 B. M. 21"-----	Feet. 4,635.05
Deadwood, 3 miles northeast of, 200 feet north of Butte Creek, north of road, in large boulder; aluminum tablet stamped "4847 B 1908 B. E."-----	4,847.837
Deadwood, 5.8 miles northeast of, 25 feet north of road, 600 feet south of cabin, 0.7 mile southwest of summit, in large boulder; aluminum tag stamped "5031 B. M. 30"-----	5,031.6
Lake of the Woods, 4 miles southwest of, 25 feet south of road, at junction of road to Buck Lake; iron post stamped "5134 B 1908 B. G."-----	5,134.96
Lake of the Woods, 1.9 miles southwest of, south of road, on summit of ridge, in base of 48-inch larch tree; spike with aluminum tag stamped "5372 B. M. 29"-----	5,373.72
Lake of the Woods, 0.9 mile southwest of, south of road, 150 feet south of creek, in base of 24-inch tamarack tree; spike with aluminum tag stamped "5031 B. M. 30"-----	5,031.6
Lake of the Woods, southeast corner of, 100 feet east of lake, 40 feet west of road; iron post stamped "4960 B 1908 B. H."-----	4,960.099
Lake of the Woods, northeast end of, southwest end of flat, north of road, in base of 36-inch fir tree; spike with aluminum tag stamped "4968 B. M. 33"-----	4,967.98
Lake of the Woods, 1.5 miles northeast of, north of road, 1,000 feet north of large draw, 10 feet south of fir tree which is blazed on east side, in large boulder; aluminum tablet stamped "4998 B 1908 B. I."-----	4,998.444
Pelican Bay Lodge, 4.4 miles southwest of, at intersection of roads to Odessa and Pelican Bay; iron post stamped "4202 B 1908 B. K."-----	4,202.154
Pelican Bay Lodge, 0.2 mile west of, 25 feet north of road, 300 feet east of junction of roads, in large boulder; aluminum tablet stamped "4153 B 1908 B. L."-----	4,152.711
Pelican Bay Lodge, at boat landing; United States Geological Survey water gage zero-----	4,135.997
Pelican Bay Lodge, 2.3 miles northeast of, north of road, at road to old cabin, in base of 36-inch fir tree; spike with aluminum tag stamped "4207 B. M. 42"-----	4,210.44
Pelican Bay Lodge, 5.1 miles northeast of, north of road, where road runs down to marsh, flat boulder under 12-inch fir tree blazed on east side; aluminum tablet stamped "4150 B 1908 B. M."-----	4,149.747
Crystal, 200 feet south of schoolhouse, 60 feet north of junction of road to Brown's ranch; iron post stamped "4163 B 1908 B. N."-----	4,162.978
Crystal, 2.7 miles northeast of, east of road, 50 feet north of Cherry Creek, in base of 36-inch pine tree; spike with aluminum tag stamped "4221 B. M. 48"-----	4,221.21
Crystal, 5.2 miles northeast of, north of road, at small meadow, 300 feet south of fence, at bend of road, in large boulder; aluminum tablet stamped "4176 B 1908 B. O."-----	4,175.694
Fort Klamath, 6.9 miles southwest of, south of road, in base of pine tree 36 inches in diameter; spike with aluminum tag stamped "4180 B. M. 52"-----	4,180.55
Fort Klamath, 4.7 miles southwest of, at intersection of roads from east; iron post stamped "4152 B 1908 B. P."-----	4,151.738

Fort Klamath, 1.9 miles northwest of, east of road, at bend of road, in base of fence post; spike with aluminum tag stamped "4204 B. M. 65"-----	Feet. 4, 204. 26
Fort Klamath, 4.8 miles northwest of, west of road, 150 feet west of road junction, west of road, 25 feet north of 40-inch pine tree blazed on east side; iron post stamped "4317 B 1908 S. B."-----	4, 316. 898
Fort Klamath, 6.5 miles northwest of, east of road, 25 feet west of bank of creek, in base of 50-inch pine tree; spike with aluminum tag stamped "4536 B. M. 69"-----	4, 536. 18
Crater Lake National Park, south border of, 5 feet west of road, 3 feet west of park line post; iron post stamped "4780 B 1908 B. T."-----	4, 779. 946

KLAMATH QUADRANGLE.

At Fort Klamath.

Fort Klamath, 0.5 mile west of, south of road, 100 feet east of creek, 100 feet west of house, in base of 30-inch white birch tree; spike With aluminum tag stamped "4185 B. M. 55 A."-----	4, 185. 39
Fort Klamath, 50 feet south of northeast corner of schoolhouse, 6 feet north of fence; iron post stamped "4184 B 1908 B. V."-----	4, 183. 543

Fort Klamath south to Klamath Indian agency boat landing.

Fort Klamath, 4.4 miles south of, in cap of bridge over Wood River, spike scribed and painted "4151 B. M. 59"-----	4, 152. 76
Fort Klamath, 7.4 miles south of, east of road, 200 feet east of creek, at bend of road, 150 feet east of house, in large bowlder; aluminum tablet stamped "4157 B 1908 B. R."-----	4, 156. 788
Klamath Indian agency, northeast corner of water tower, in stone foundation; aluminum tablet stamped "4169 B 1908 B. S."-----	4, 168. 678
Klamath Indian agency, 2.9 miles south of, 50 feet south of road at intersection of roads, 100 feet east of gate to cabin, in base of 36-inch pine tree; spike scribed and painted "4212 B. M. 63"-----	4, 211. 85
Klamath Indian agency, boat landing; surface of water, July 17, 1908-----	4, 138. 5
Klamath Indian agency, 75 feet south of boat landing, in base of 30- inch pine tree scribed and painted "4144 B. M. 64"; spike-----	4, 143. 52

Fort Klamath northeast along road.

Fort Klamath, 1.3 miles east of, north of road at intersection of agency and sawmill roads, in base of 30-inch pine tree; spike with aluminum tag stamped "4176 B. M. 112"-----	4, 176. 69
Fort Klamath, 3.4 miles northeast of, east of road, north bank of drain, in base of 40-inch pine tree; spike with aluminum tag stamped "4199 B. M. 114"-----	4, 198. 799

Fort Klamath north along county road.

Fort Klamath, 2.2 miles north of, west of road, 50 feet south of barn, in base of 24-inch pine tree; spike with aluminum tag stamped "4218 B. M. 116"-----	4, 217. 60
Fort Klamath, 4.5 miles north of, 10 feet east of Sun Creek, north of road, at point where road crosses creek; iron post stamped "4305 B 1908 B. J. 1"-----	4, 304. 984

Fort Klamath, 7.5 miles northeast of, 5 feet south of road, 0.2 mile west of summit of ridge; iron post stamped "5329 B 1908 B. K. 1"-----	Feet. 5, 328. 873
Fort Klamath, 9.7 miles northeast of, south of road, in base of 30-inch black pine tree; spike with aluminum tag stamped "5242 B. M. 121"-----	5, 241. 84
Sand Creek, 6.7 miles southwest of, 15 feet north of road, 50 feet north of pine tree 60 inches in diameter broken at top; iron post stamped "5035 B 1908 B. L. 1"-----	5, 035. 948
Sand Creek, 3 miles southwest of, north of road, in base of 40-inch pine tree; spike with aluminum tag stamped "4673 B. M. 124"-----	4, 672. 89
Sand Creek, 50 feet north of, south of road, at camp ground; iron post stamped "4561 B 1908 B. M. 1"-----	4, 561. 034
Cow Creek, 0.8 mile south of, west of road, in base of 30-inch pine tree; spike with aluminum tag stamped "4544 B. M. 127"-----	4, 543. 72
Cow Creek, 20 feet east of, 150 feet east of road, in ledge; aluminum tablet stamped "4549 B 1908 B. N. 1"-----	4, 548. 952
Cow Creek, 2.9 miles northeast of, north of road, 15 feet north of junction of road to Jackson's ranch; iron post stamped "4551 B 1908 B. O. 1"-----	4, 550. 919
Big Spring, 150 feet north of spring, on top of bank, 15 feet east of road; iron post stamped "4566 B 1908 B. P. 1"-----	4, 565. 249

CRATER LAKE NATIONAL PARK.

Superintendent's house, Crater Lake Park, east and north to head of South Fork of Bear Creek, thence west and south to initial point.

Crater Lake Park, 6.3 miles south of superintendent's house, east of road, 25 feet west of edge of Annie Canyon, in base of 24-inch tamarack tree; spike with aluminum tag stamped "5121 B. M. 72"-----	5, 121. 16
Crater Lake Park, 4.4 miles south of superintendent's house, 20 feet west of road, on small flat, 125 feet west of Annie Canyon; iron post stamped "5508 B 1908 B. U."-----	5, 508. 482
Crater Lake Park, 2.5 miles south of superintendent's house, 300 feet east of Bridge Creek, east of road at sharp bend, 50 feet south of draw, in base of 36-inch larch tree; spike with aluminum tag stamped "5833 B. M. 75"-----	5, 833. 03
Crater Lake Park, 150 feet east of superintendent's house, 5 feet north of gate; iron post stamped "6016 B 1908 B. V."-----	6, 016. 099
Crater Lake, lowest point on rim of, 130 feet east of road, in base of larch tree; spike with aluminum tag stamped "7035 B. M. 81"-----	7, 034. 55
Crater Lake, south rim of, at head of trail to lake, in large bowl-der; aluminum tablet stamped "7076 B 1908 B. W."-----	7, 076. 109
Crater Lake, 150 feet east of boat landing, surface of water; July 28, 1908-----	6, 177. 30
Crater Lake, 150 feet east of boat landing, 2 feet above water level, 50 feet east of small stream, in bed rock; aluminum tablet stamped "6179 B 1908 B. Y."-----	6, 178. 955
Crater Lake Park, 1.9 miles east of boat landing, 50 feet south of spring, on west slope of ridge between Anna and Sun Creeks, at large meadow, on boulder painted "7091 B. M. 86"; chisel mark--	7, 088. 27

Crater Lake Park, 4 miles east of superintendent's house by route, west slope of ridge between Anna and Sun Creeks, due north of Crater Peak, at large meadow, on rocky point, at fir tree trimmed 10 feet from top, in large bowlder; aluminum tablet stamped "6924 B 1908 B. Z."-----	Feet. 7, 025. 034
Crater Lake Park, on summit of ridge between Sun and Sand Creeks, due north of Mount Scott, paint point on small bowlder at base of signal; painted "7289"-----	7, 389. 60
Crater Lake Park, east slope of ridge between Sun and Sand Creeks, 630 feet east of summit, 20 feet west of cliff, on line between Mount Scott and Union Peak, in large bowlder marked by monument; aluminum tablet stamped "7260 B 1908 B. A. 1"-----	7, 361. 147
Crater Lake Park, summit of knob between east and west forks of Sand Creek, S. 60° west from Mount Scott, 20 feet east of trimmed tree, midway between two creeks, in bowlder 1 by 2 by 3 feet; aluminum tablet stamped "6987 B 1908 B. B. 1"-----	7, 088. 079
Crater Lake Park, in large meadow, east of Anderson Spring, on line between Mount Scott and Duttoncliff, on point of rock at monument, 200 feet east of timber, on rock; chiseled square, painted "7261"-----	7, 361. 79
Crater Lake Park, northwest of Mount Scott, on point on perpendicular cliff, at head of north fork of Bear Creek, in base of 36-inch fir tree; spike with aluminum tag stamped "7345 B. M. 90"-----	7, 446. 26
Crater Lake Park, at head of south fork of Bear Creek, 200 feet south of falls, 15 feet south of 40-inch black pine tree, broken at top and blazed and scribed on south side, in bed rock; aluminum tablet stamped "6331 B 1908 B. C. 1"-----	6, 431. 688
Crater Lake Park, 2 miles north of Cascade Spring, S. 70° west of round knob, on round point of small ridge, in base of 36-inch pine tree; spike with aluminum tag stamped "5844 B. M. 93"-----	5, 944. 42
Crater Lake Park, 4 miles northwest of Cascade Spring, S. 20° east of Timber Crater, north slope of ridge, in base of 72-inch pine tree; spike with aluminum tag stamped "5488 B. M. 95"-----	5, 587. 75
Crater Lake Park, 150 feet south of Dry Creek, 520 feet east of Crater Peak, north slope of ridge, at head of north fork of Bear Creek, in bowlder; marked by a monument with aluminum tablet stamped "5660 B 1908 B. D. 1"-----	5, 760. 143
Crater Lake Park, 1 mile west of east end of Pumice Desert, on summit of small round hill, 1 mile north of Grass Hill, 500 feet north of edge of timber, in lava rock; aluminum tablet stamped "5909 B 1908 B. E. 1"-----	6, 009. 980
Crater Lake Park, west end of Pumice Desert, direct line between Desert Cone and Red Cone, south edge of desert, in base of black pine tree 24 inches in diameter; spike with aluminum tag stamped "5920 B. M. 101"-----	6, 020. 39
Crater Lake Park, 1 mile southwest of Red Cone, S. 60° west of Red Cone, 100 feet west of spring in meadow, in large bowlder; aluminum tablet stamped "6164 B 1908 B. F. 1"-----	6, 264. 693
Crater Lake Park, 3 miles southwest of Red Cone on south bank of large canyon, in base of 48-inch fir tree; spike with aluminum tag stamped "6266 B. M. 104"-----	6, 366. 700
Crater Lake Park, 1 mile west of Glacier Peak, east end of large meadow, on summit of small ridge, S. 80° W. of Glacier Peak, in large bowlder; aluminum tablet stamped "5819 B. 1908 B. G."-----	5, 920. 038

Crater Lake Park, where Biber's sheep trail crosses north fork of Castle Creek, 15 feet west of trail, in base of 24-inch pine tree; spike with aluminum tag stamped "5792 B. M. 107"-----	Feet. 5,893.13
Crater Lake Park, 0.7 mile south of, north fork of Castle Creek, on trail to Biber's sheep camp, east of trail at small flat, in large boulder; marked by monument with aluminum tablet stamped "5829 B 1908 B. H. 1"-----	5,929.402
Crater Lake Park, 100 feet south of Hirschburger cabin, 50 feet west of creek, north of trail, in base of 24-inch black pine tree; spike with aluminum tag stamped "5890 B. M. 10"-----	5,991.16
Crater Lake Park, 2 miles northwest of superintendent's house, 50 feet west of junction of Old Crater Lake road and Biber's sheep trail, in large boulder; aluminum tablet stamped "5985 B 1908 B. L. 1"-----	6,085.995

CRESCENT QUADRANGLE.

Big Spring north along county road through Odell.

Big Spring, 4.5 miles northeast of, 15 feet east of road, 20 feet west of center one of four yellow pine trees; iron post stamped "4649 B 1908 B. Q. 1"-----	4,648.71
Big Spring, 6 miles northeast of, east of road, in base of 24-inch pine tree; spike with aluminum tag stamped "4681 B. M. 135"-----	4,680.20
Beaver Marsh, 2.9 miles south of, 50 feet north of junction of road to Silver Lake; iron post stamped "4655 B 1908 B. R. 1"-----	4,654.163
Beaver Marsh, 1 mile northeast of, east of road, in base of 30-inch black pine tree; spike with aluminum tag stamped "4673 B. M. 138"-----	4,670.96
Beaver Marsh, 2.5 miles northeast of, 50 feet east of road, 100 feet north of proposed railroad right of way; iron post stamped "4694 B 1908 B. T. 1"-----	4,693.357
Beaver Marsh, 6.7 miles northeast of, east of road, in base of 24-inch black pine tree; spike with aluminum tag stamped "4760 B. M. 142"-----	4,759.69
Beaver Marsh, 7.7 miles northeast of, west of road, 6 feet north of junction of Prineville and Eugene Road; iron post stamped "4720 B 1908 B. V. 1"-----	4,719.674
Beaver Marsh, 12.7 miles northeast of, east of road, west edge of Black Butte; iron post stamped "4638 B 1908 B. V. 1"-----	4,638.123
Beaver Marsh, 15.2 miles northeast of, east of road, in base of 30-inch yellow pine tree; spike with aluminum tag stamped "4656 B. M. 148"-----	4,655.40
Odell, 6.1 miles southwest, 1.5 miles southwest of spring, 15 feet west of road; iron post stamped "4508 B 1908 B. W. 1"-----	4,507.318
Odell, 3.7 miles southwest of, east of road, south slope of ridge, in base of 40-inch black pine tree; spike with aluminum tag stamped "4570 B. M. 151"-----	4,569.57
Odell, 1.3 miles southwest of, west of road, on summit of ridge, in base of 24-inch black pine tree; spike with aluminum tag stamped "4502 B. M. 153"-----	4,501.30
Odell, 60 feet north of post office, at small gate; iron post stamped "4453 B 1908 B. X. 1"-----	4,452.020

Odell, 2.2 miles northeast of, 20 feet east of road, in base of 48-inch yellow pine tree; spike with aluminum tag stamped "4392 B. M. 155"-----	Feet. 4, 391. 17
Odell, 4.6 miles northeast of, west of road, 15 feet west of road, west bank of drain; iron post stamped "4401 B 1908 B. Y. 1"-----	4, 400. 226

MAIDEN PEAK QUADRANGLE.**Odell northeast along road to Rosland.**

Odell, 7.9 miles northeast of, 1,000 feet north of large barn on Taylor ranch, west of road, in base of 20-inch black pine tree; spike with aluminum tag stamped "4315 B. M. 159"-----	4, 313. 97
Rosland, 10.2 miles southwest of, 40 feet east of sec. cor. 11, 12, 13, and 14, T. 2 and 3 S., R. 9 E.; iron post stamped "4297 B 1908 B. Z. 1"-----	4, 295. 885
Rosland, 7.9 miles southwest of, 10 feet east of road, at county line between Klamath and Crook counties; iron post stamped "4284 B 1908 B. A. 2"-----	4, 283. 795
Rosland, 5.2 miles southwest of, west of road, in base of 40-inch yellow pine tree; spike with aluminum tag stamped "4248 B. M. 113"-----	4, 248. 44
Rosland, 1.7 miles southwest of, west of road, in base of 30-inch black pine tree; spike with aluminum tag stamped "4238 B. M. 166"-----	4, 237. 53

LAVA QUADRANGLE.**Rosland north along road to point near Bend.**

Rosland, southeast corner of post office, 10 feet east of building; iron post stamped "4227 B 1908 B. B. 2"-----	4, 225. 972
Rosland, 4.7 miles northeast of, 10 feet west of road, 25 feet north of telephone pole; iron post stamped "4205 B 1908 B. C. 2"-----	4, 204. 770
Rosland, 7.3 miles northeast of, 20 feet west of road, 500 feet west of house, in base of 24-inch black pine tree; spike, with aluminum tag stamped "4183 B. M. 172"-----	4, 187. 32
Rosland, 9.4 miles northeast of, 60 feet east of road, west slope of small ridge, in lava rock; aluminum tablet stamped "4197 B 1908 B. D. 2"-----	4, 196. 119
Rosland, 11.4 miles northeast of, 1,000 feet north of Vandwert ranch house, west of road, at fence line, in base of 48-inch yellow pine tree; spike, with aluminum tag stamped "4182 B. M. 175"-----	4, 181. 133
Rosland, 13.4 miles northeast of, west of road, in base of 20-inch black pine tree; spike, with aluminum tag stamped "4167"-----	4, 166. 28
Rosland, 14.8 miles northeast of, 125 feet east of road, 0.3 mile north of F. A. Shenquest's house, in lava rock; aluminum tablet stamped "4234 B 1908 B. E. 2"-----	4, 232. 907
Rosland, 16.7 miles northeast of, south slope of ridge, west of road, in base of 36-inch black pine tree; spike, with aluminum tag stamped "4247 B. M. 180"-----	4, 246. 29
Rosland, 17.8 miles northeast of, east of road, south slope of ridge, in base of 36-inch yellow pine tree; spike, with aluminum tag stamped "4362 B. M. 181"-----	4, 362. 60
Rosland, 19.8 miles northeast of, summit of ridge, east slope of Lava Butte, 40 feet east of road, in lava rock; aluminum tablet stamped "4507 B 1908 B. F. 2"-----	4, 506. 387

Bend, 9.2 miles southwest of, west of road, in base of 40-inch yellow pine tree; spike, with aluminum tag stamped "4180 B. M. 184"---	Feet. 4,179.70
Bend, 6.9 miles southwest of, 15 feet west of road, 1,000 feet north of Wet Weather Spring, 200 feet south of second-class road, in lava rock; aluminum tablet stamped "3948 B 1908 B. G. 2"-----	3,947.291
Bend, 5.9 miles southwest of, west of road, in base of 36-inch yellow pine tree; spike, with aluminum tag stamped "3921 B. M. 186"---	3,919.76

CLINE FALLS QUADRANGLE.

Bend northeast to point 9 miles southwest of Prineville.

Bend, 3.9 miles southwest of, west of road, in base of 36-inch yellow pine tree; spike, with aluminum tag stamped "3339 B. M. 188"---	3,838.70
Bend, 2.3 miles southwest of, west of road, south bank of irrigation ditch, 5 feet west of bridge, in lava rock; aluminum tablet stamped "3742 B 1908 B. H. 2"-----	3,741.452
Bend, east end of town, west of road, 200 feet east of water tower, in lava rock; aluminum tablet stamped "3647 B 1908 B. I. 2"-----	3,645.748
Bend, 163 feet west of old schoolhouse, 11 feet east of Pilot Butte stable, west side of Wall Street, at sidewalk line, 250 feet north of intersection of Wall and Nevada Streets, in lava rock; aluminum tablet stamped "3629 B 1908 B. J. 2"-----	3,626.217
Bend, 4 miles northeast of, south of road, on lava rock, painted "3478 B. M. 194"; chisel point-----	3,477.156
Bend, 4.8 miles northeast of, 20 feet west of road, 100 feet north of fence corner, 0.2 mile south of house, in lava rock; aluminum tablet stamped "3439 B 1908 B. K. 2"-----	3,438.215
Bend, 5.7 miles northeast of, west of road, 500 feet east of house, in base of 20-inch juniper tree; spike, with aluminum tag stamped "3417 B. M. 195"-----	3,416.40
Bend, 8.1 miles northeast of, 20 feet south of road, where road turns east around rocky ridge, in lava rock; aluminum tablet stamped "3342 B 1908 B. L. 2"-----	3,341.364
Bend, 9.8 miles northeast of, east of road, in base of 20-inch juniper tree; spike, with aluminum tag stamped "3327 B. M. 198"-----	3,325.93
Powell Butte stage station, 5.8 miles southwest of, 20 feet west of road, on small ridge, in lava rock; aluminum tablet stamped "3256 B 1908 B. M. 2"-----	3,254.467
Powell Butte stage station, 2.5 miles southwest of, west bank of old river channel, 50 feet east of road, 0.7 mile east of section line between secs. 17 and 18, T. 16 S., R. 14 E., in lava rock; aluminum tablet stamped "3170 B 1908 B. N. 2"-----	3,169.101
Powell Butte stage station, 1.1 miles southwest of, 50 feet east of road, 200 feet south of forks of road, at fence corner, in base of fence post; spike, with aluminum tag stamped "3145 B. M. 203"---	3,143.77
Powell Butte stage station, 0.2 mile east of, at intersection of road, corner of secs. 3, 4, 9, and 10, T. 16 S., R. 14 E., in lava rock 10 by 10 feet, flush with ground; aluminum tablet stamped "3251 B 1908 B. O. 2"-----	3,249.924
Powell Butte stage station, 4 miles northeast of, 15 feet north of road, 0.3 mile east of county road to Shepherd schoolhouse, in lava rock; aluminum tablet stamped "3121 B 1908 B. P. 2"-----	3,119.908
Powell Butte stage station, 5.2 miles northeast of, north of road, on lava rock, painted "3146 B. M. 209"; chisel point-----	3,145.46

PRINEVILLE QUADRANGLE.

Point 9 miles southwest of Prineville northeast along road to Prineville.

Prineville, 6.1 miles southwest of, 40 feet east of road, in lava rock; aluminum tablet stamped "3257 B 1908 B.Q.2"-----	Feet. 3, 256.15
Prineville, 3.8 miles southwest of, 15 feet east of road, in base of 24-inch juniper tree; spike with aluminum tag stamped "3240 B.M.214"-----	3, 238.38
Prineville, 1.9 miles southwest of, 10 feet west of road, 0.2 mile west of stone quarry, on summit of hill, in lava rock; aluminum tablet stamped "3230 B 1908 Q3"-----	3, 228.908
Prineville County courthouse, at main entrance gate, 10 feet from fence, 2 feet from walk; iron post stamped "2867 H"-----	2, 867.495
Prineville County courthouse, northeast corner of, 4 feet above ground; aluminum tablet stamped "2872 B 1908 B.R.2"-----	2, 871.161

Portland Quadrangle (Oreg.-Wash.).

MULTNOMAH COUNTY.

The elevations in the following list are based on the height of a bench mark at Portland determined in 1898 by J. H. Carlock by a double-rodged line from Astoria, Oreg., by which leveling an 1896 bench mark was redetermined.

The elevations for the Washington part of this quadrangle are given in Bulletin No. 457.

The leveling was done by C. C. Ward in 1896 and by J. H. Carlock in 1898.

PORTLAND QUADRANGLE.

At Portland.

Portland, in top of 2-mile stone on south side of Front Street, near Seventeenth Street, opposite E. & J. A. Martin's lumber mill; copper bolt stamped "28"-----	Feet. 30.073
Portland, in stone base of center pillar of Fifth Street entrance to city hall; bronze tablet stamped "75"-----	76.385
Portland, corner of Schuyler and Thirteenth Streets, in stone base of iron water tower, 3.7 feet in front of post at foot of stairway, 3.3 feet from base of tower; copper bolt stamped "145"-----	146.927
Portland, in stone foundation at left of entrance to university building; bronze tablet stamped "175"-----	177.258
Portland, 3 feet from corner of fence at northeast angle of crossing of Vancouver Avenue and Columbia Slough Road; iron post stamped "42"-----	44.060

Portland along Columbia Slough and base line roads to city boundary.

T. 1 N., R. 2 E., NE. $\frac{1}{4}$ sec. 21, intersection of Sandy and Columbia Roads, in southwest corner of yard of large white house north of road; iron post stamped "72"-----	74.210
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Rs. 2 and 3 E., wagon road on line between, east side of road, about 60 feet south of Oregon-Washington Railroad & Navigation Co.'s track; nail in root of three-pronged maple tree-----	Feet. 179.6
T. 1 N., T. 1 S., Rs. 2 and 3 E., corner of rail fence at southeast angle of crossroads; iron post stamped "251"-----	253.039
8-mile stone, top of, southeast corner-----	302.5
7-mile stone, top of-----	295.3
6-mile stone, top of-----	280
4-mile stone, top of-----	301.7
City boundary, south side of road, in northwest corner of orchard, 2.5 feet from the fences in the northwest corner of sec. 6, T. 1 S., R. 2 E.; iron post stamped "177"-----	179.155

Brownsville, Elmira, Eugene, Halsey, and Monroe 15' Quadrangles (embracing several 7½' Quadrangles).

BENTON, LANE, AND LINN COUNTIES.

The elevations in the following list are based upon the precise level line along the Southern Pacific Railroad.

The leveling was done in the Eugene quadrangle in 1908 by C. E. Giffin and W. R. Chenoweth and in 1909 by W. B. Kern; in the Elmira quadrangle in 1909 by Kern and L. F. Biggs; and in the Monroe, Halsey, and Brownsville quadrangles in 1909 by Biggs and in 1910 by Alvin Finlay. The State cooperated in the work.

ELMIRA QUADRANGLE.

Point 1 mile south of Elmira east along highway to point 0.7 mile east of Oak Hill school.

Madison, 0.9 mile south of, at fork in road (main road bends to east), three fir trees grown together at base, on south side of road, in root; copper nail and washer; blaze on small tree east side of big trees; aluminum tag stamped "398.8"-----	Feet. 398.80
Crow, 3.8 miles northeast of, 380 feet north of T road west, west side of road at fence line; iron post stamped "394.3"-----	394.325
Lewellyn, 1.1 miles east of, 300 feet west of Long Tom Creek bridge, north side of road, in base of 36-inch blazed oak tree; nail with aluminum tag stamped "378.1"-----	378.18
Lewellyn, 4.7 miles east of, 0.7 mile east of Oak Hill school, at north-south T road; iron post stamped "389"-----	388.535

Point 4 miles north of Elmira south along highway to Crow, thence northeast 3.8 miles.

Elmira, north end of bridge over Long Tom Creek, 5 feet west of telephone pole; iron post stamped "387"-----	387.070
Elmira, 1.9 miles south of, in small colony, at worm fence on north side of road; iron post stamped "486"-----	486.063
Crow, 5.1 miles south of Elmira, junction of Eugene and Elmira roads, in center of road, in base of 24-inch blazed oak tree; nail with aluminum tag stamped "549.7"-----	549.70
Crow, 0.9 mile northeast of, top of hill, at road bend, 100 feet from old cabin; iron post stamped "745.9"-----	745.887

Crow, 1.9 miles northeast of, opposite house, west of road, on fence line, in base of 12-inch blazed fir tree; nail with aluminum tag stamped "460"-----	Feet. 460.06
Crow, 3.8 miles northeast of, 380 feet north of T road west, west side of road, at fence line; iron post stamped "394.3"-----	394.325
Elmira west along highway 4.4 miles.	
Elmira, 4.4 miles west of, 200 feet east of Long Tom Creek bridge, beginning of bridge approach, at foot of hill, 5-foot fir tree, on north side of tree, in root; copper nail and washer; aluminum tag in blaze on root stamped "424.4"-----	424.41
Point 3.5 miles southwest of Irving west along highway 6 miles, thence north-east to point 5.3 miles northeast of Smithfield.	
T. 17 S., R. 4 W., center sec. 7, south side of road, 50 feet east of lane south; iron post stamped "362"-----	362.031
Irving, 6.5 miles west of, on top of Fern Ridge, north side of road; iron post stamped "402"-----	402.015
Irving, 3.5 miles west of, 400 feet west of white house on north side of road, in center of road, in base of blazed white-oak tree; nail; aluminum tag in blaze stamped "375"-----	374.62
Irving, 9.2 miles west of, at intersection of Irving road with Elmira-Smithfield road, at northeast corner of crossroads; iron post stamped "395"-----	395.024
Smithfield, 1,200 feet north of flagpole at crossroads, at junction of Clear Lake and Smithfield-Junction City roads, in front of town hall; iron post stamped "430"-----	429.556
Smithfield, 0.6 mile north of, at top of long hill, center of road, in base of 36-inch oak tree blazed on two sides; nail with aluminum tag stamped "517.0"-----	517.39
Smithfield, 2.8 miles north of, at bridge over Long Tom Creek, also junction of Monroe road with Junction City road, on west side of road in front of house; iron post stamped "325"-----	324.606
Point 5.5 miles west of Irving north along Fern Ridge Road to point 5.6 miles north of Fern Ridge Church.	
Fern Ridge Church, 2.1 miles north of, at Upper Fern Ridge school, on hill back of ranch house overlooking Long Tom Creek; triangulation point; iron post stamped "375.7"-----	375.582
Intersection of Fern Ridge-Junction City roads west along highway to Smithfield.	
Fern Ridge road, 2.2 miles west of, at top of hill overlooking Smithfield, on west side of road, in base of stump; nail painted "U. S. 419.8 B. M."-----	419.68
Point 4 miles west of Junction City west along highway 6 miles, thence north 3 miles.	
Junction City, 4 miles west of, north edge of road at junction of T road, 200 feet east of bridge over Owens Creek, in base of 20-inch oak tree; spike with aluminum tag stamped "316"-----	315.63

Junction City, 4.7 miles west of, south edge of road, 200 feet east of junction of second-class road, 0.7 mile west of bridge over Owens Creek, in base of 36-inch pine, east of similar tree; spike with aluminum tag stamped "336 B. M. 2"-----	Feet. 335.88
Junction City, 9 miles west of, 1,000 feet east of Union schoolhouse, southeast corner of field fence, at Frank Thompson's ranch, at junction of Monroe and Junction City roads; iron post stamped "384 B 1909 1"-----	383.848
Point 9 miles west of Junction City west along highway to point 1 mile west of Union School (spur line).	
Union schoolhouse, 0.5 mile west of, at road junction, 50 feet south of fence corner, in base of 36-inch pine tree; spike; aluminum tag stamped "437"-----	436.74
Point 5.8 miles west of Junction City south and west along highway to sawmill (spur line).	
Sawmill, 0.25 mile east of, in floor of bridge over small creek; copper nail painted "350.8"-----	350.84

HALSEY QUADRANGLE.

Point 2.5 miles east of Fergusson Bridge east along highway to Harrisburg.	
Fergusson Bridge, 2.5 miles east of, at junction of N.-S. road, 0.25 mile east of James Strong's ranch house, east side of road, opposite southeast corner of field; iron post stamped "310 B 1909 4"-----	310.538
Lancaster schoolhouse northwest along highway to point 7 miles southeast of Bruce.	
Lancaster schoolhouse, 1 mile north of, east edge of road, where road makes sharp turn, 500 feet north of C. Mortensen's ranch house, at north end of gate to field; iron post stamped "307 1909 B 5"-----	307.414
Lancaster schoolhouse, 3.1 miles northwest of, west one of three pine trees, on north edge of road, in south side of 30-inch tree blazed; spike with aluminum tag stamped "291 B. M. 24"-----	291.10
Monroe, 3 miles east of, 1 mile west of Flat Creek, 350 feet west of R. H. Hewitt's ranch house, northwest corner of field at junction of road to south; iron post stamped "280 B 1909 6"-----	280.413
Point 2.3 miles northeast of Monroe east along highway to Ingram's Ferry.	
District No. 5 schoolhouse, 500 feet east of, 60 feet north of road junction, in base of 20-inch cottonwood tree; spike with aluminum tag stamped "281 B. M. 48"-----	281.18
Ingram's Ferry, west bank of Willamette River, 15 feet north of road, in base of 20-inch cottonwood tree; spike with aluminum tag stamped "283 B. M. 49"-----	283.21
Harrisburg northwest along highway on east bank of Willamette River to Lake Creek school, thence north to township line, thence east to Brownsville.	
Harrisburg, 3.2 miles north of, southwest corner of yard to white frame house at crossroads; iron post stamped "292 B 1909 13"-----	292.156
Harrisburg, 7 miles northwest of, northwest corner of field, 60 feet south of large barn, at V. Owens's ranch; iron post stamped "280 B 1909 14"-----	279.700

Lake Creek schoolhouse, 1.8 miles north of, southwest corner of field, at crossroads; iron post stamped "271 B. M. 85"-----	Feet. 270.750
Lake Creek, 0.6 mile north of, 150 feet east of intersection of crossroads, 150 feet north of white house, northwest corner of yard, in base of 20-inch oak tree; spike with aluminum tag stamped "267 B. M. 86"-----	267.42
Lake Creek, 1.3 miles north of, 0.6 mile east of, north side of road, east end of cottonwood grove, in base of 24-inch cottonwood tree; spike with aluminum tag stamped "268 B. M. 87"-----	268.52
Halsey, 4.3 miles northwest of, at angle in road, southwest corner of field, opposite old cabin, 0.5 mile south of schoolhouse; iron post stamped "270 B 1909 21"-----	270.513
Halsey, 100 feet north of station, 18 feet east of track, on line with north margin of street to east; iron post stamped "281 B 1903"-----	281.562
Halsey, 3 miles east of, north edge of road, 800 feet east of bridge, 10 feet east of telephone pole; iron post stamped "283 B 1909 22"-----	282.742
Brownsville, 1.8 miles west of, at junction of road to south, in base of 48-inch oak tree; spike with aluminum tag stamped "307 B. M. 95"-----	306.63
Brownsville, 1 mile west of, south edge of road, west edge of right of way, at railroad crossing; iron post stamped "319 B 1909 23"-----	318.559
Harrisburg east along highway to Diamond Hill school, thence northwest to Southern Pacific Railroad, thence northeast along railroad to point near Brownsville.	
Harrisburg, 2.3 miles east of, northeast corner of field, at junction of north-south road, in base of 36-inch oak tree; spike with aluminum tag stamped "312 B. M. 66"-----	312.40
Harrisburg, 3.4 miles east of, where road turns east, 100 feet north of large barn, southwest corner of field; iron post stamped "314 B 1909 15"-----	314.119
Harrisburg, 6.7 miles east of, 2.6 miles west of Diamond Hill schoolhouse, south side of road, at cross fence line; iron post stamped "320 B 1909 16"-----	320.340
Diamond Hill schoolhouse, 1.2 miles northwest of, east edge of road, 500 feet north of gate to second-class road, 400 feet north of point where road turns east, 150 feet west of barn; iron post stamped "354 B 1909 17"-----	353.703
Twin Buttes station, 0.5 mile west of, 1.6 miles north of Union Center schoolhouse, 15 feet west of southeast corner of yard of frame house, opposite large barn, at intersection of road to west; iron post stamped "309 B 1909 18"-----	308.940
Point 0.5 mile west of Twin Buttes station east along highway to Southern Pacific Railroad.	
Halsey, 3 miles south by 2 miles east of, south side of road, 10 feet east of gate to barnyard, at white frame house, in base of telephone pole; spike with aluminum tag stamped "301 B. M. 78"-----	301.20
Point 1.2 miles east of Harrisburg north along highway to point 2 miles north of Muddy Creek.	
Rowland, 1.2 miles north of, at Pikes schoolhouse (District No. 45), northwest corner of school yard, east edge of road; iron post stamped "303 B 1909 19"-----	302.985

Point 3.2 miles north of Halsey east along county road to point about 4 miles northeast of Halsey.

Halsey, 3.2 miles north of, east of railroad, 4 feet from milepost 678, at fence line; iron post stamped "266 B 1903"----- Feet.
266. 594

Halsey, 2.9 miles north by 2.1 miles east of, south side of west entrance to covered bridge over Calapooia River; copper tack on girder of bridge-----
278. 18

Halsey, 2.9 miles north by 2.9 miles east of, 25 feet from west approach to bridge over Soddum ditch, south side of road at fence line; iron post stamped "276 OREGON"-----
275. 855

Point 1.8 miles west of Plainview along roads to point 2 miles north of Shedd, thence west and south to permanent bench mark 4.3 miles northwest of Halsey.

Plainview, 1.8 miles west by 1.2 miles north of Saddle Butte, northwest corner of T road north, in base of milepost; spike with aluminum tag stamped "260"-----
260. 04

Plainview, 1.7 miles north by 1.8 miles west of, 2.6 miles north of Saddle Butte, southwest corner of crossroads; iron post stamped "271 OREGON"-----
270. 980

Shedd, 1.9 miles north of, east edge of right of way of Southern Pacific Railway, at third telegraph pole south of milepost 682; iron post stamped "249 B 1903"-----
249. 485

Shedd, 1.3 miles north by 3 miles west of, at northeast corner of T road north, 300 feet east of angle in road; iron post stamped "252 ORE"-----
251. 691

Shedd, 3.1 miles west by 1 mile south of, 100 feet east of southeast corner of T road south; iron post stamped "270 ORE"-----
270. 002

Shedd, 2.5 miles south by 3.4 miles west of, 0.7 mile north of Harmony school, at southeast corner of culvert; copper tack with aluminum tag stamped "260"-----
260. 23

Halsey, 4.3 miles northwest of, 0.5 mile south of Harmony school, opposite old cabin, at southwest corner of field; iron post stamped "270"-----
270. 513

Point 3.5 miles west of Shedd west along road via Peoria to point 3 miles south of Peoria.

Peoria, 0.9 mile south of, west side of road, opposite farmhouse; iron post stamped "260 ORE"-----
259. 632

Peoria north along roads to point 4 miles northwest of Shedd.

Peoria, 2.2 miles north of, on east side of road, 1,000 feet south of large red barn; iron post stamped "238 ORE"-----
237. 904

Peoria, 3.5 miles north of, at northeast corner of T road east, copper tack in root of 16-inch maple tree; aluminum tag stamped "240"-----
240. 00

Peoria, 3.5 miles north by 0.9 mile east of, 0.4 mile west of bridge over Muddy Creek, at northwest corner of turn in road; iron post stamped "232 ORE"-----
232. 238

Peoria, 4.2 miles northeast of, 3 miles west by 2.4 miles north of Shedd, at northeast corner of T road east; copper tack in root of 14-inch quaking asp tree; aluminum tag stamped "254"-----
253. 84

Peoria west 2.8 miles.

Peoria, 2.8 miles west of, by wagon road, on north side of road; iron post stamped "244 ORE"-----
244. 241

EUGENE QUADRANGLE.

Eugene west 7 miles and north 7 miles, thence east to Irving.

Eugene, University of Oregon, in northeast corner of front face of Willard Hall; aluminum tablet stamped "1903-B-449"-----	Feet. 449. 317
Eugene, 1 mile south and 3 miles west of, at southwest corner of T road south, northwest corner of sec. 1, T. 18 S., R. 4 W.; iron post stamped "421"-----	420. 574
Eugene, 1.25 miles south and 4.5 miles west of, at bend in road south, 200 feet east of T road north, at section corner; top of stone-----	405. 80
T. 18 S., R. 4 W., west central part of sec. 4, north of road in edge of timber, in large rock; aluminum tablet stamped "443"-----	442. 889
Eugene, 2.25 miles south and 7.5 miles west of, north of road, on rock; chiseled square-----	785. 38
T. 17 S., R. 4 W., corner of secs. 29, 30, 31, and 32, in corner of field at northwest corner of T road west; iron post stamped "389"-----	388. 535
T. 17 S., R. 5 W., sec. 24, northeast corner of, west of road, in northeast corner of Peter Carlson's yard; iron post stamped "385"-----	385. 165
T. 17 S., R. 4 W., center of sec. 7, south of road, 50 feet east of lane south; iron post stamped "362"-----	362. 031
Eugene, 4.9 miles north of, at highway crossing, east of track, north of road; iron post stamped "1903-B-382"-----	382. 463

Eugene to Goshen.

Eugene, 2.5 miles south of, in front of white house, on stone; chiseled square-----	468. 09
T. 18 S., R. 3 W., SW. $\frac{1}{4}$ sec. 8, east of road, 100 feet northwest of white house on G. T. Roe's ranch; iron post stamped "464"-----	463. 582
Goshen, 0.8 mile north of, west of track, 135 feet south of milepost 643, at fence line; iron post stamped "1903-B-493"-----	493. 960

Eugene via Armitage and Springfield to Henderson.

Eugene, 3 miles north of, north of road at T road south, 0.5 mile east of C. W. Young's home; iron post stamped "419"-----	419. 436
Armitage, 400 feet south of station, 10 feet west of road, 30 feet south of railroad; iron post stamped "424"-----	423. 577
T. 17 S., R. 3 W., west-central part of sec. 26, south of road, 35 feet west of railroad track; iron post stamped "443"-----	442. 915
Henderson, 30 feet west of main track, 35 feet south of station sign; iron post stamped "1903-B-446"-----	447. 160

Armitage via Coburg to Irving.

Coburg, southern part of town, west of county road, 7 feet inside of fence, opposite first street east; iron post stamped "399"-----	399. 336
T. 17 S., R. 4 W., NE. $\frac{1}{4}$ sec. 1, at T road west, 40 feet north of road west, west of road running north, 1 foot from fence; iron post stamped "376"-----	376. 174
Eugene, 4.9 miles north of, at highway crossing, east of track, north of road; iron post stamped "1903-B-382"-----	382. 463

Coburg to Harrisburg.

Coburg schoolhouse, 2.5 miles north of, west of Brownsville road, inside fence; iron post stamped "370"-----	Feet. 370. 297
Wilkins station, 1.2 miles north and 1 mile west of, center of road in front of Wyatt schoolhouse; iron post stamped "337"-----	337. 792
Harrisburg, 1.6 miles south of, south of Harrisburg-Coburg road at bend to west, inside fence; iron post stamped "319"-----	319. 306
Harrisburg, 140 feet south of station, 15 feet east of track, at telegraph pole; iron post stamped "1903-B-307"-----	307. 653
Point 5.6 miles north of Fern Ridge Church north and east along highway to Junction City.	
Smithfield, 6.3 miles north of, 3 miles west of Junction City, 500 feet east of Long Tom Creek bridge at small culvert on south side of road; iron post stamped "317"-----	316. 538
Junction City, 1 mile northwest of, at junction of Corvallis and Junction City roads, on west side of road, in front of house; iron post stamped "318"-----	318. 375

MONROE QUADRANGLE.

Point 2.5 miles east of Furgueson Bridge west along highway up Beard Creek.

Liberty schoolhouse, 2.3 miles east of, 4.3 miles south of Monroe, 500 feet east of large house with red windmill tower at junction of north-south roads, northeast corner of field; iron post stamped "317 B 1909 3"-----	317. 287
Union schoolhouse, 1.7 miles north of, 0.7 mile west of Liberty schoolhouse, 300 feet north of Furgueson Creek, at junction of T road; iron post stamped "347 B 1909 2"-----	346. 668

Spur line.

Beard Creek, 1 mile northwest of, 50 feet east of cabin, east edge of road at clearing, in root of stump; copper nail painted "402"---	402. 39
Point 2.5 miles east of Furgueson Bridge northwest along highway to Monroe.	
Harmony schoolhouse, 2 miles northwest of, 2.9 miles east of Monroe, north side of road, at junction of road to north, southwest corner of fence at C. Tracer's ranch; iron post stamped "290 B 1909 7"-----	289. 594

Point 4.3 miles south of Monroe north along highway to Bruce.

Monroe, 50 feet west of bridge over Long Tom Creek, south end of town at junction of Monroe and Eugene roads, northwest corner of lot; iron post stamped "287 B 1909 8"-----	287. 131
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Point 7 miles southeast of Bruce northwest along highway to Bruce.

Monroe, 2.3 miles northeast of, 1.7 miles west of Flat Creek, at junction of road to west, in base of 36-inch cottonwood tree; spike with aluminum tag stamped "279 B. M. 26"-----	279. 00
Bruce, 4.9 miles southeast of, 1,000 feet west of gate to J. E. Coleman's ranch, 50 feet north of road junction, west side of road, at fence line; iron post stamped "276 B 1909 12"-----	275. 969

Monroe west along highway 2.5 miles, thence north 6 miles, thence east to
Bruce.

Monroe, 2.9 miles northwest of, southeast corner of field at junction of Bellfountain and Walters roads; iron post stamped "283 B 1909 9"-----	Feet. 283. 431
Bellfountain, 0.5 mile east of, 100 feet north of junction of road to east, at bent of road, 200 feet west of house, in base of 36-inch oak tree; spike with aluminum tag stamped "362 B. M. 38"-----	362. 49
Bellfountain, 1 mile north of, 300 feet north of white house, east edge of road, south end of gate to second-class road through Fir Grove farm, where road goes over small ridge; iron post stamped "371 B 1909 10"-----	371. 108
Bellfountain, 2 miles north by 0.9 mile east of, south side of road, 0.5 mile east of F. Watkin's ranch, in base of 12-inch ash tree; spike with aluminum tag stamped "277 B. M. 41"-----	277. 63
Muddy Creek, 0.3 mile east of, southeast corner of field, where road makes sharp turn to north; iron post stamped "260 B 1909 11"---	259. 746
Point 3 miles northwest of Monroe southwest along highway to Glenbrook (spur line).	
Glenbrook, 50 feet west of bridge over small creek, 1,000 feet north of railroad crossing, southeast corner of yard, in base of 30-inch pine tree blazed; spike painted "354"-----	354. 49
Point 4 miles west of Peoria south along roads to point 5 miles southwest of Peoria.	
Peoria, 4 miles west of, 8 miles south of Corvallis, at northeast corner of T road east, in root of 24-inch maple tree; copper tack with aluminum tag stamped "254"-----	253. 68
Peoria, 4 miles west by 1.3 miles south of, 0.3 mile west of Irwin Butte, on east side of road, at fence line; iron post stamped "253 ORE"-----	252. 835
Point 4.5 miles northwest of Peoria north along roads to point 4 miles south of Corvallis.	
Peoria, 4 miles west by 2 miles north of, on west side of road; iron post stamped "247 ORE"-----	247. 095
Corvallis, 4.3 miles south of, on west side of State road, opposite farm house and white "Samson" windmill tank, in base of telephone pole; spike with aluminum tag stamped "240"-----	240. 124

BROWNSVILLE QUADRANGLE.

Point 4 miles southeast of Shedd east and north to point 1.3 miles west of Plainview.

Shedd, 0.7 mile south by 3.4 miles east of, 0.5 mile south by 0.5 mile east of Saddle Butte, on east side of road; iron post stamped "271 ORE"-----	271. 045
Shedd, 0.8 mile north by 3.4 miles east of, at northwest corner of T road west, 500 feet south of schoolhouse (District 29), spike in base of telephone pole; aluminum tag stamped "265"-----	265. 39

PRIMARY LEVELING.

77

Point 1 mile southwest of Brownsville to point 2.9 miles northwest of Brownsville.

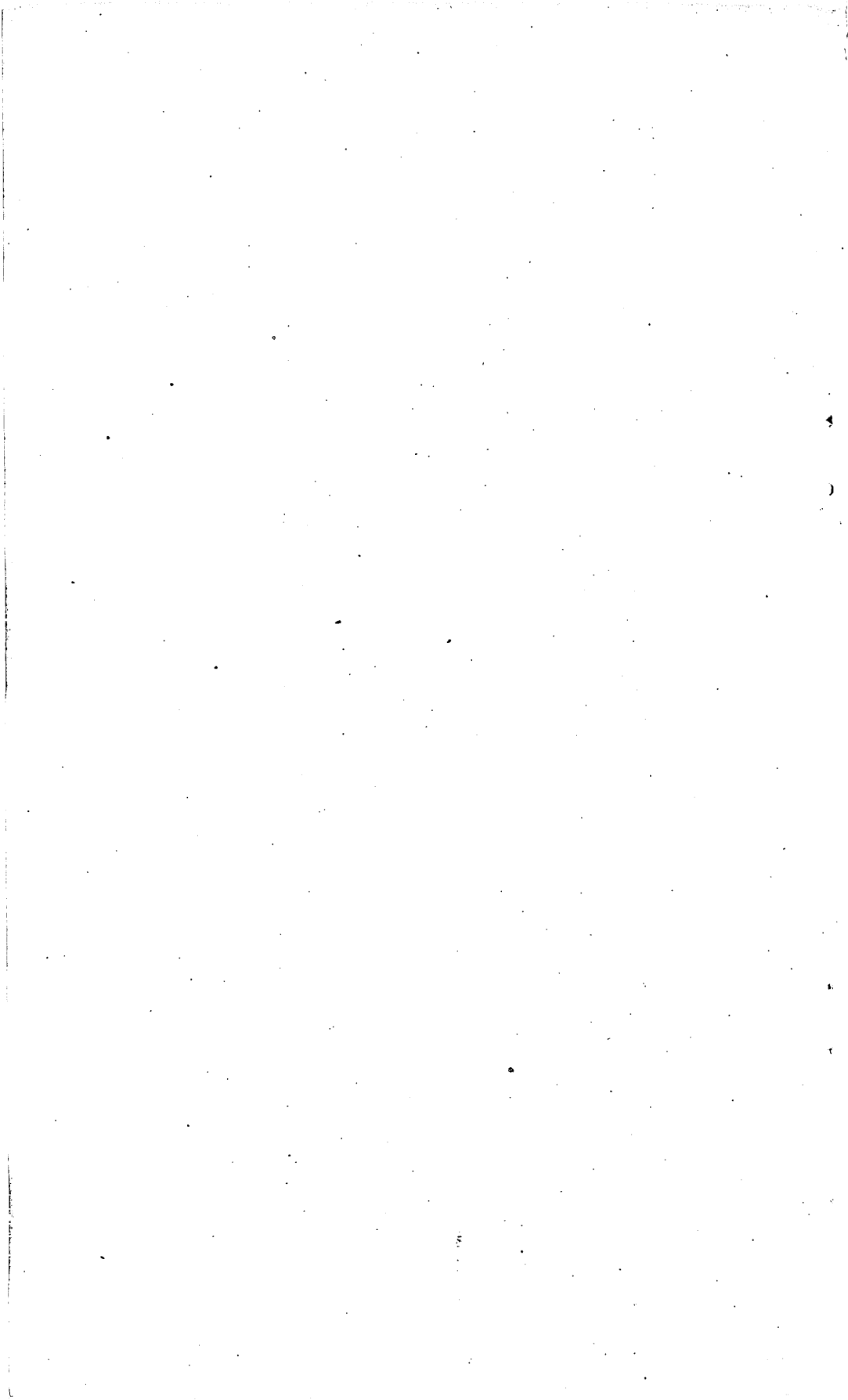
Brownsville, 1 mile southwest of, west side of right of way, south side of road, at railroad crossing; iron post stamped "319"-----	Feet. 318.559
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Brownsville to point 2.7 miles east of.

Brownsville, 1.9 miles east of, at north end of jog in road, in root of cottonwood tree; copper tack with aluminum tag stamped "361"---	360.58
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Point 1 mile west of Brownsville to point 3.7 miles northeast of Brownsville (spur line).

Brownsville, 3.7 miles northeast of, 1,000 feet north of schoolhouse, west side of road, in base of 36-inch oak tree; spike scribed and painted "403"-----	403.45
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