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UNITED STATES GEOLOGICAL SURVEY

GEORGE OTIS SMITH, DIRECTOR

BULLETIN 463

RESULTS OF SPIRIT LEVELING
IN ARIZONA

1899 TO 1909, INCLUSIVE

R. B. MARSHALL, CHIEF GEOGRAPHER



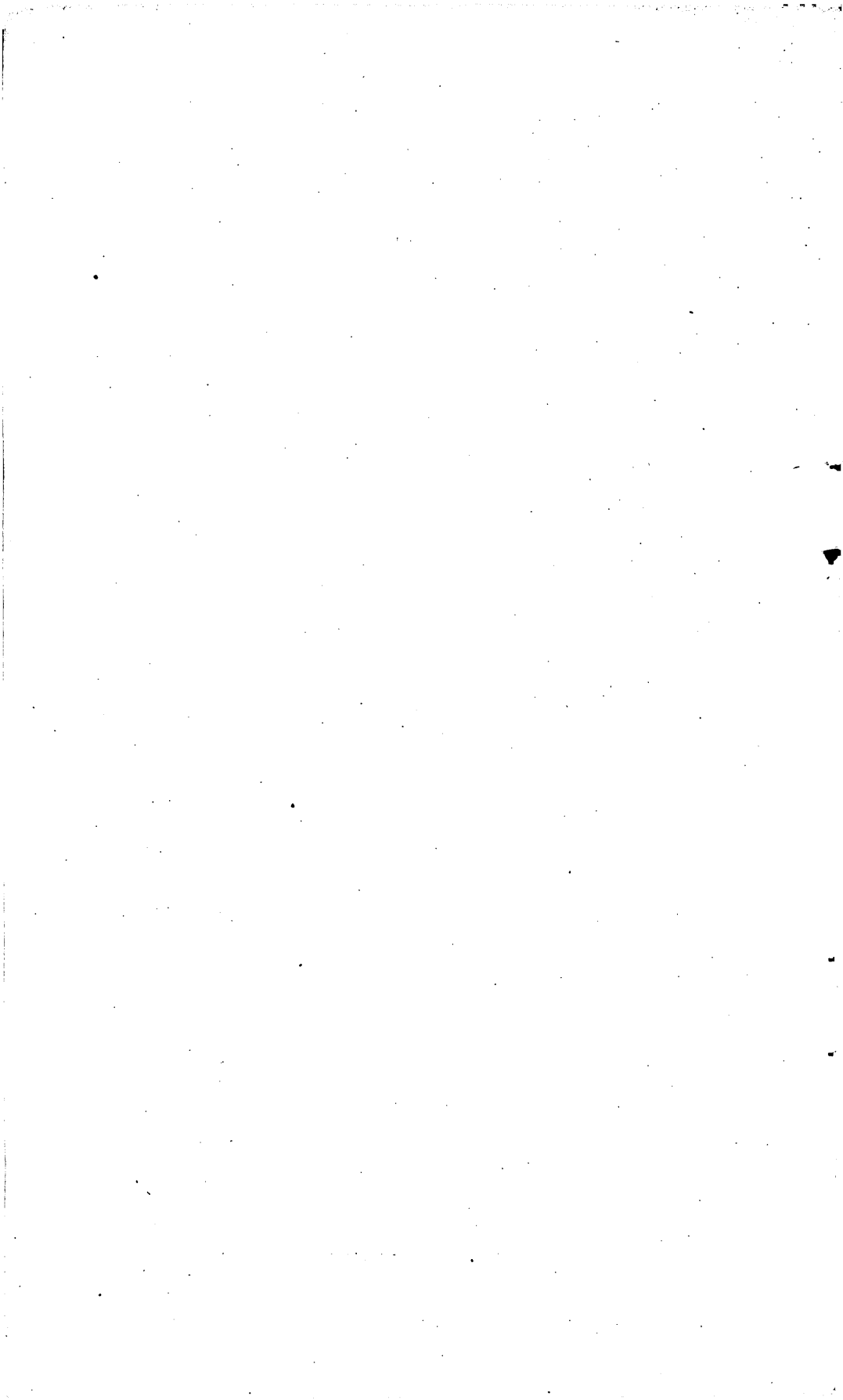
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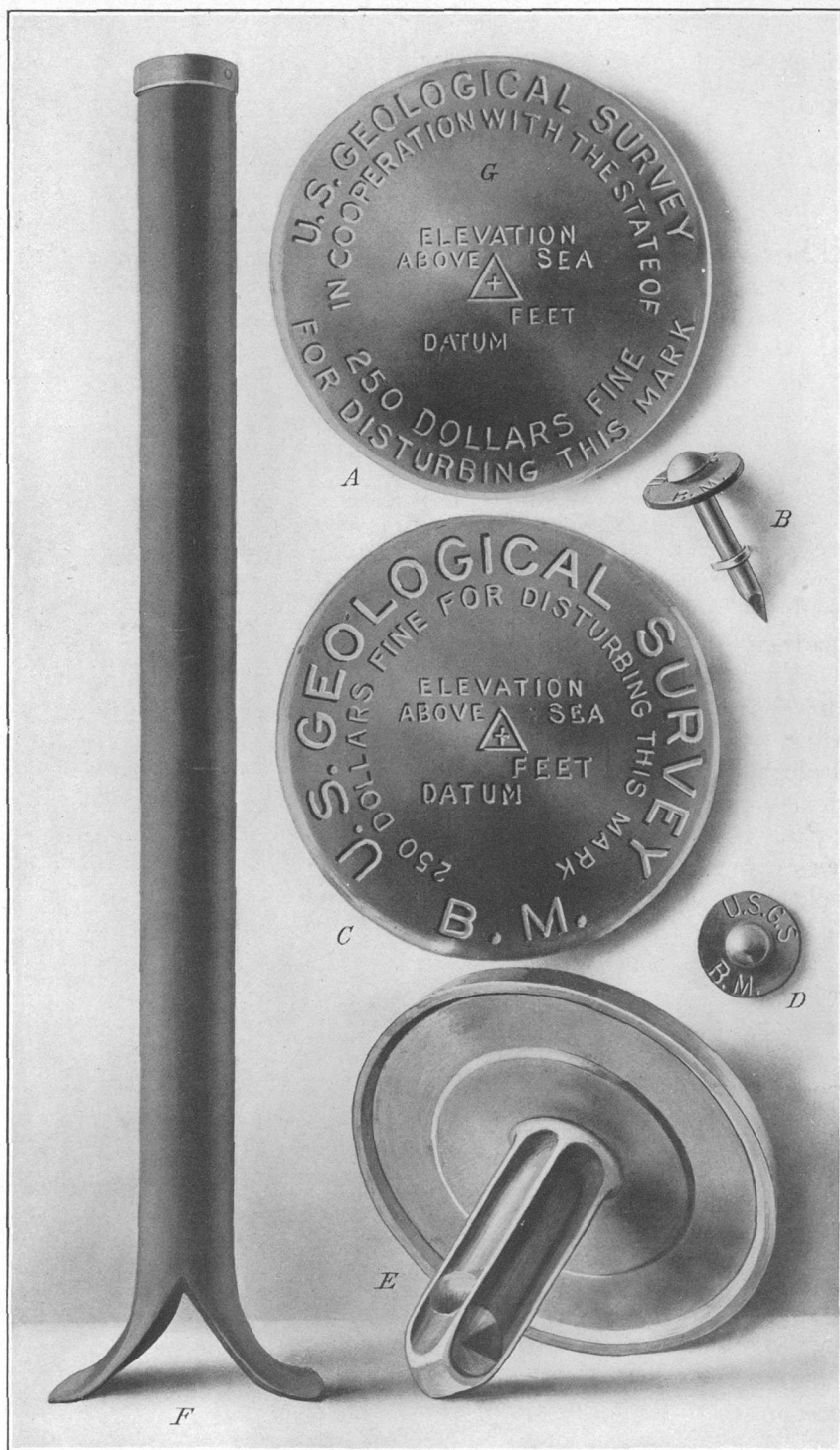
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GEOLOGICAL SURVEY BENCH MARKS.

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.

RESULTS OF SPIRIT LEVELING IN ARIZONA, 1899 TO 1909 INCLUSIVE.

R. B. MARSHALL, Chief Geographer.

INTRODUCTION.

Scope of the work.—All results of spirit leveling in Arizona previously published by the United States Geological Survey and all the results of later work are included in this report, rearranged by quadrangles. The elevations are based on preliminary heights of bench marks along the precise level line of the Coast and Geodetic Survey from San Diego, Cal., via Mellen and Flagstaff, Ariz., to Albuquerque, N. Mex., and on the precise line of the United States Geological Survey between Yuma, Ariz., and the Arizona-New Mexico 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 level lines instruments and rods of the highest grade are used, each line is run both forward and backward, and every precaution is taken to guard against error. The allowable divergence between the forward and the 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 represented by $0.05 \sqrt{D}$, in which D is the length of the circuit

in miles, sufficient care being given to 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), $3\frac{1}{2}$ inches in diameter and one-quarter inch thick, having a 3-inch stem, which is cemented in a drill hole in solid rock in the wall of some public building, a bridge abutment, or other substantial masonry structure. The second form (*F*, Pl. I), used where masonry or rock is not available, consists of a hollow wrought-iron post $3\frac{1}{2}$ inches in outer diameter and 4 feet in length. 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, which is set about 3 feet in the ground. 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 seven-eighths 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 (*G*, Pl. I).

The numbers stamped on the bench marks described in the following pages represent the elevations to the nearest foot as determined by the levelman. These numbers are stamped with $\frac{1}{16}$ -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 the adjusted values, and will use the markings as identifications numbers only.

Datum.—All United States 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 the 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 the 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 gages 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 accuracy is desired they must extend over several years. At ocean stations the half-tide level and the 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, the Gulf of Mexico, or the Pacific Ocean.

The connection with tidal stations for bench marks in certain areas that lie at some distance from the sea coast is still uncertain, and this fact is indicated by the addition of a letter or 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 United States Geological Survey or other Government organizations are extended.

Topographic maps.—Maps of the following quadrangles wholly or partly in Arizona have been published by the United States Geological Survey up to May 1, 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.

Bisbee.	Marsh Pass.
Bisbee special.	Mount Trumbull.
Bradshaw Mountains. ¹	Needles special (Ariz.-Cal.).
Bright Angel ² (10 cents).	Nogales.
Camelsback.	Patagonia.
Camp Mohave (Ariz.-Nev.-Cal.).	Prescott. ¹
Canyon de Chelly (Ariz.-N. Mex.).	Ray.
Chino.	Roosevelt.
Clifton.	Sacaton.
Congress. ¹	St. Johns (Ariz.-N. Mex.).
Desert Well.	St. Thomas (Nev.-Ariz.).
Diamond Creek	San Francisco Mountain.
Echo Cliffs. ³	Shinumo ² (10 cents).
Florence.	Tombstone mining (10 cents).
Fort Defiance (Ariz.-N. Mex.).	Tombstone special.
Fort McDowell.	Tucson.
Globe.	Tusayan.
Globe special.	Verde.
Holbrook.	Vishnu ³ (10 cents).
Jerome. ¹	Yuma (Cal.-Ariz.).
Kaibab. ²	

PRECISE LEVELING.

Benson, Casa Grande, Cochise, Dragoon, Gila Bend, Langhorne, Maricopa, Mohawk, Patagonia, Red Rock, San Simon, Sentinel, Tucson, Wellton, and Yuma Quadrangles.

COCHISE, MARICOPA, PIMA, PINAL, AND YUMA COUNTIES.

The following elevations are the unadjusted results of a precise-level line run eastward along the Southern Pacific Railroad from Yuma to Tucson by M. S. Bright in 1905, and from the New Mexico

¹ Bradshaw Mountains, Congress, and Jerome sheets show parts of Prescott quadrangle on a larger scale.

² Bright Angel and Shinumo sheets show parts of Kaibab quadrangle on a larger scale.

³ Vishnu sheet shows part of Echo Cliffs quadrangle on a larger scale.

line near San Simon to Tucson by W. A. E. Hult and T. A. Green in 1907.

YUMA QUADRANGLE.

Yuma east along Southern Pacific R. R. to New Mexico line (portion of line).

	Feet.
Yuma, in east end of second pier of railroad bridge; aluminum tablet stamped "137 S. B."-----	138.100
Yuma, in front of station; top of east rail-----	141.86
Yuma Heights, in front of station; top of west rail-----	197.5
Ivalon, in front of station; top of south rail-----	214.0
Ivalon, 15 feet south of switch stand; top of vertical rail 340-----	212.19
Ivalon, north of track, 4 feet north of signboard; iron post-----	212.253
Milepost 736, 400 feet east of, 4 feet south of track; top of vertical rail 420-----	217.14
Araby, in front of station; top of south rail-----	214.71

WELLTON QUADRANGLE.

Yuma east along Southern Pacific R. R. to New Mexico line (portion of line).

Milepost 740, 3 feet north of, south of track; iron post stamped "213 Y"-----	213.866
Blaisdell, 1.5 miles west of, 75 feet north of track, west of road; iron post-----	227.867
Blaisdell, at southeast corner of station; iron post stamped "188 Y"-----	188.904
Blaisdell, in front of station; top of rail-----	188.0
Milepost 748, 50 feet north of, south of track; top of vertical rail-----	181.50
Milepost 748, 250 feet northeast of, 40 feet east of track; iron post-----	180.379
Milepost 749, 40 feet north of, top of vertical rail-----	187.01
Milepost 751, 330 feet west of, 5 feet north of track; top of vertical rail-----	190.05
Gila City, in front of station; top of rail-----	189.69
Gila City, at northwest corner of McDaniel's store; iron post-----	187.308
Milepost 754, 100 feet northwest of; top of vertical rail 35-----	195.23
Milepost 755, opposite, 50 feet north of track; iron post-----	192.177
Bridge 758-A, 120 feet west of, 40 feet south of track, 280 feet east of milepost 758; iron post-----	223.165
Liquarta, in front of signboard; top of rail-----	229.1
Milepost 761, 330 feet west of, 35 feet north of track, at east end of cut; iron post-----	256.360
Bridge 762-A, west end of; top of vertical rail 48-----	234.18
Milepost 763, 330 feet east of; top of vertical rail 1850-----	233.92
Milepost 764, 26 feet south of, 45 feet south of track; iron post-----	231.452
Milepost 767, 4 feet east of, 50 feet south of track; iron post-----	229.815
Wellton, in front of station; top of rail-----	257.80
Wellton, in northwest foundation of store, west of water tank, in northwest corner; top of bolt-----	256.58
Milepost 770, 4 feet northwest of, 45 feet south of track; iron post-----	285.890
Bridge 772-A, 330 feet east of, 50 feet north of track; iron post-----	304.787
Milepost 776, opposite, 60 feet north of track; iron post-----	348.378

MOHAWK QUADRANGLE.

Yuma east along Southern Pacific R. R. to New Mexico line (portion of line).

Milepost 779, opposite, 60 feet north of track; iron post-----	348.50
Colfred siding, west end of, 500 feet east of milepost 782, 50 feet north of track; iron post-----	328.359

	Feet.
Milepost 785, opposite, 50 feet north of track; iron post.....	339. 374
Milepost 788, opposite, 50 feet north of track; iron post.....	417. 803
Mohawk, 100 feet north of station, 50 feet north of track; iron post..	544. 813
Mohawk, 500 feet east of station, 255 feet north of track, set flush with ground in concrete, marked by rock mound; iron post.....	544. 832
Mohawk, in front of station; top of rail.....	545. 50
Milepost 794, opposite, 50 feet north of track; iron post.....	415. 998
Kim, in front of signboard; top of rail.....	405. 13
Milepost 768, 0.5 mile west of, 50 feet north of track, 400 feet north of old house; iron post.....	355. 225
Milepost 800, 4 feet east of, 50 feet south of track; iron post.....	401. 603
Milepost 803, 4 feet east of, 50 feet south of track; iron post.....	417. 513
Milepost 806, 4 feet east of, 50 feet south of track; iron post.....	459. 87

SENTINEL QUADRANGLE.

Yuma east along Southern Pacific R. R. to New Mexico line (portion of line).

Milepost 810, opposite, 50 feet north of track; iron post.....	488. 540
Aztec, in front of station; top of rail (railroad elevation 494).....	497. 08
Maricopa-Yuma County line, 50 feet north of track; iron post.....	485. 489
Milepost 816, opposite, 50 feet north of track; iron post.....	519. 865
Stanwix, in front of signboard; top of rail.....	554. 4
Milepost 819, opposite, 50 feet north of track; iron post.....	549. 856
Milepost 822, 50 feet north of track, opposite milepost; iron post....	611. 024
Sentinel, 0.3 mile west of, 70 feet north of track, 50 feet north of forks of road, set in concrete flush with ground; iron post.....	692. 863
Sentinel, in front of station; top of rail.....	689. 31
Milepost 826, 100 feet northeast of, 50 feet north of track; iron post..	705. 735
Tartion, in front of signboard; top of rail.....	728. 96
Tartion, opposite milepost 832, 50 feet north of track; iron post.....	726. 787
Milepost 835, opposite, 50 feet north of track; iron post.....	762. 66
Painted Rock, in front of station; top of rail.....	727. 4
Painted Rock, 40 feet north of track, opposite signboard; iron post..	725. 92
Milepost 842, 4 feet west of, 50 feet south of track; iron post.....	715. 96

GILA BEND QUADRANGLE.

Yuma east along Southern Pacific R. R. to New Mexico line (portion of line).

Milepost 845, 5 feet west of, 50 feet south of track; iron post.....	737. 43
Milepost 848, 250 feet east of, 40 feet north of track; iron post.....	728. 129
Smurr, in front of signboard; top of rail.....	727. 55
Milepost 851, 8 feet west of, 50 feet south of track; iron post.....	725. 857
Gila Bend, 0.5 mile west of station, 50 feet south of track; iron post..	735. 500
Gila Bend, in front of station; top of rail.....	737. 6
Milepost 855, 700 feet east of, 50 feet north of track, at west side of road crossing, set flush with ground in concrete; iron post.....	744. 774
Milepost 855, 700 feet east of, 4 inches west of, above iron post, in concrete 1 foot below surface of ground; aluminum tablet.....	743. 468
Milepost 857, 6 feet west of, 50 feet south of track; iron post.....	796. 656
Coledon, in front of signboard; top of rail.....	818. 64
Milepost 860, 4 feet west of, 50 feet south of track; iron post.....	928. 420
Milepost 863, 5 feet west of, 50 feet south of track; iron post.....	1, 051. 204
Milepost 866, 200 feet west of, 50 feet north of track; iron post.....	1, 194. 126

MARICOPA QUADRANGLE.

Yuma east along Southern Pacific R. R. to New Mexico line (portion of line).

	Feet.
Ocapos, in front of signboard; top of rail-----	1, 273. 57
Milepost 869, 4 feet east of, 75 feet south of track; iron post-----	1, 335. 859
Milepost 872, 5 feet south of, 50 feet south of track; iron post-----	1, 486. 34
Estrella, in front of station; top of rail-----	1, 522. 6
Milepost 875, 5 feet north of, 45 feet south of track; iron post-----	1, 480. 509
Buchan, 70 feet south of track, 4 feet south of milepost 878; iron post-----	1, 417. 838
Milepost 881, 4 feet south of, 60 feet south of track; iron post-----	1, 357. 815
Milepost 884, 4 feet south of, 60 feet south of track; iron post-----	1, 301. 58
Milepost 887, 530 feet east of, 60 feet north of track, 100 feet south of road; iron post-----	1, 283. 128
Heabon, 4 feet south of milepost 890, 50 feet south of track; iron post-----	1, 217. 596
Milepost 893, opposite, 50 feet north of track; iron post-----	1, 151. 909
Maricopa, 75 feet northwest of station; iron post stamped "1175 PHNX"-----	1, 174. 891
Maricopa, in front of station; top of rail-----	1, 174. 40
Maricopa, 0.25 mile southeast of, 120 feet west of bridge A, northeast of track, 100 feet east of road crossing, set flush with ground in cement; iron post-----	1, 176. 986
Maricopa, 0.25 mile southeast of, 120 feet west of bridge A, northeast of track, 100 feet east of road crossing, 4 inches to east of above iron post, in cement 1 foot below surface of ground; aluminum tablet-----	1, 175. 748
Milepost 897, opposite, 40 feet north of track, set flush with ground with collar of cement marking northwest end of base line; iron post-----	1, 179. 527

CASA GRANDE QUADRANGLE.

Yuma east along Southern Pacific R. R. to New Mexico line (portion of line).

Milepost 899, 2 feet northeast of, 50 feet southwest of track; iron post stamped "1200 PHNX"-----	1, 199. 995
Milepost 902, opposite, 40 feet north of track, set flush with ground with collar of cement marking southeast end of base line; iron post-----	1, 225. 706
Sweetwater, northeast of track, midway between section house and well; iron post stamped "1297 PHNX"-----	1, 297. 022
Sweetwater, in front of station; top of rail-----	1, 298. 29
Milepost 909, 6 feet south of, 45 feet south of track; iron post-----	1, 338. 205
Nunez siding, in front of station; top of rail-----	1, 340. 7
Milepost 912, 4 feet southwest of, 50 feet south of track; iron post-----	1, 333. 016
Milepost 915, opposite, 50 feet east of track, in north angle of forks of road at road crossing, in granite; aluminum tablet-----	1, 367. 132
Casa Grande, in front of station; top of rail-----	1, 397. 93
Casa Grande, 0.4 mile southeast of, 90 feet northeast of track, 10 feet southeast of gate of private road crossing, in granite; aluminum tablet-----	1, 404. 582
Arizola, in front of station; top of rail-----	1, 434. 8
Milepost 922, 100 feet north of, 50 feet north of track, in granite; aluminum tablet-----	1, 450. 196

Milepost 925, 700 feet west of, in northeast end of east pier of bridge	Feet.
D; aluminum tablet.....	1,480.510
Tote, in front of signboard; top of rail.....	1,511.2
Milepost 929, opposite, 50 feet northwest of track, in granite; aluminum tablet.....	1,532.209
Eloy, in front of signboard; top of rail.....	1,565.3
Milepost 933, 400 feet southeast of, in west end of north pier of bridge	
A; aluminum tablet.....	1,578.802

RED ROCK QUADRANGLE.

Yuma east along Southern Pacific R. R. to New Mexico line (portion of line).

Picacho, in front of station; top of rail.....	1,620.29
Picacho, 11 feet northeast of track, in north corner of northwest concrete pier of water tank; aluminum tablet.....	1,621.362
Milepost 940, opposite, 50 feet northeast of track, in granite rock; aluminum tablet.....	1,706.877
Wymola siding, in front of station; top of rail.....	1,765.3
Wymola siding, opposite milepost 943, southeast of track, in granite rock; aluminum tablet.....	1,769.399
Red Rock, 3.8 miles northwest of, in south end of east pier of bridge	
B; aluminum tablet.....	1,809.29
Red Rock, in front of station; top of rail.....	1,867.08
Red Rock, 15 feet southeast of station, 15 feet west of track; iron post stamped "1856 NOGLS".....	1,867.229
Milepost 953, 50 feet west of, 4 feet southeast of gate; iron post stamped "1899 NOGLS".....	1,910.486
Naviska siding, 0.5 mile north of, 200 feet north of track, 12 feet west of road, at Pima-Pinal county line; iron post stamped "1940 NOGLS".....	1,951.516

LANGHORNE QUADRANGLE.

Yuma east along Southern Pacific R. R. to New Mexico line (portion of line).

Desert Well, 75 feet west of corner of corral; iron post stamped "1960 NOGLS".....	1,971.743
Marana siding, in front of station; top of rail.....	1,993.79
Rillito, 2.5 miles northwest of, in southwest corner of concrete bridge; aluminum tablet.....	2,011.981
Rillito, in north corner of second foundation stone on west side of water tank; aluminum tablet.....	2,056.482
Rillito, in front of station; top of rail.....	2,068.69
Milepost 969, 150 feet northeast of, 100 feet east of track, at fence corner; iron post stamped "2109 NOGLS".....	2,120.769
Cortoro siding, in front of station; top of rail.....	2,155.32
Milepost 972, 100 feet southeast of, in east end of south pier of bridge B; aluminum tablet.....	2,189.040
Milepost 975, 1,000 feet east of, 10 feet west of road fork; iron post stamped "2219 NOGLS".....	2,230.798
Jaynes siding, in front of station; top of rail.....	2,243.89
Milepost 977, 125 feet south of, in east end of south pier of bridge	
A; aluminum tablet.....	2,258.003

TUCSON QUADRANGLE.

Yuma east along Southern Pacific R. R. to New Mexico line (portion of line).

	Feet.
Stockham siding, in front of station; top of rail-----	2,314.75
Stockham ranch house, 60 feet west of, 5 feet south of gate; iron post stamped "2313 NOGLS"-----	2,324.899
Tucson, 88 feet southeast of Pima courthouse, in southeast corner of yard, set flush with ground; aluminum tablet-----	2,374.196
Tucson, in front of station; top of rail-----	2,388.2
Polvo siding, 0.8 mile west of, 100 feet south of track, at road crossing, north side of road forks, 4 feet north of fence corner; iron post stamped "2481 NOGLS"-----	2,493.229
Wilmot siding, near west end of, south side of track, at northeast corner of fence around section house; iron post stamped "2651 NOGLS"-----	2,663.244
Rankin siding, 0.7 mile west of, 95 feet south of track, west side of road, 5 feet north of fence corner; iron post stamped "2770 NOGLS"-----	2,782.421
Esmond siding, 2.2 miles west of, 125 feet north of milepost 995, 100 feet north of track, south side of road; iron post stamped "2903 NOGLS"-----	2,915.435
Esmond siding, in front of station; top of rail-----	3,016.1
Vail, 2.8 miles west of, 145 feet northwest of milepost 999, 15 feet east of old gate; iron post stamped "3096 NOGLS"-----	3,108.502
Vail, in front of station; top of rail-----	3,232.1
Vail, 220 feet northeast of station, 5 feet east of gate; iron post stamped "3220 NOGLS"-----	3,232.480
Irene siding, 3.2 miles west of, 6 feet north of railroad, in north end of concrete culvert 1004-A; aluminum tablet stamped "3226 1907 206"-----	3,237.895
Irene siding, 2.1 miles west of, at milepost 1005, on south side of track; top of first bolt from east end of bridge, marked "3265"-----	3,276.84
Irene siding, 0.5 mile west of, south of track in east side of coping stone at west end of iron railroad bridge; aluminum tablet stamped "3328 1907 203"-----	3,340.179
Irene siding, in front of station; top of rail-----	3,363.0
Pantano, 1 mile west of, 800 feet east of milepost 1010, in southeast corner of south abutment of culvert 1010-A; aluminum tablet stamped "199 H 1907"-----	3,489.995

PATAGONIA QUADRANGLE.

Yuma east along Southern Pacific R. R. to New Mexico line (portion of line).

Pantano, in front of station; top of rail-----	3,546.6
Kadmon siding, 4 miles west of, 1,000 feet north of milepost 1013 at road crossing; iron post stamped "3608 NOGLS"-----	3,618.963
Kadmon siding, 3 miles west of, 150 feet east of milepost 1014; top of rail section driven in ground, marked "3661"-----	3,671.42
Kadmon siding, 1 mile west of, 1 mile north of milepost 1016; iron post stamped "3757 NOGLS"-----	3,767.910
Kadmon siding, in front of station; top of rail-----	3,821.9

BENSON QUADRANGLE.

Yuma east along Southern Pacific R. R. to New Mexico line (portion of line).

Mescal, 3 miles west of, 500 feet east of milepost 1019, in line of telegraph poles; iron post stamped "3905 NOGLS"-----	Feet. 3, 915. 849
Mescal, 2 miles east of, 150 feet west of milepost 1020, on top of rail section driven in ground; marked "3943"-----	3, 953. 96
Pima-Cochise county line, top of rail-----	4, 017. 1
Mescal, 800 feet west of station, at northeast corner of section-house fence; iron post stamped "4046 NOGLS"-----	4, 056. 922
Mescal, in front of station; top of rail-----	4, 062. 9
Mescal, 1 mile east of, 400 feet west of milepost 1023, in south guard-rail of bridge 1022-B; top of bolt head marked "3998"-----	4, 009. 248
Chamiso siding, 2 miles west of, 45 feet south of milepost 1025; iron post stamped "3883 NOGLS"-----	3, 894. 079
Benson, 3.25 miles west of, 50 feet south of milepost 1028; iron post stamped "3784"-----	3, 794. 876
Benson, at northwest corner of Virginia Hotel; iron post stamped "3573 NOGALES"-----	3, 583. 943
Benson, in front of station; top of rail-----	3, 580. 3
Visnaga siding, 2 miles west of, 75 feet south of milepost 1034; iron post-----	3, 634. 219
Visnaga siding, in front of station; top of rail-----	3, 785. 8
Sibyl, 2.5 miles west of, 200 feet west of milepost 1037, 100 feet south of track; iron post-----	3, 834. 996
Sibyl, 0.5 mile west of, 75 feet south of milepost 1039; iron post stamped "170 1907"-----	3, 978. 604
Sibyl, in front of station; top of rail-----	4, 007. 3
Ochoa siding, 3 miles west of, 300 feet west of milepost 1043, in center of south end of culvert 1042 F; aluminum tablet stamped "165 H 1907"-----	4, 187. 584
Ochoa siding, in front of station; top of rail-----	4, 324. 8
Ochoa siding, 150 feet east of water tank, 50 feet south of track, in top of granite boulder; aluminum tablet stamped "162 H 1907"---	4, 332. 141
Lancha siding, 0.5 mile west of, 50 feet south of milepost 1049; iron post stamped "159½ H 1907"-----	4, 464. 010
Lancha siding, in front of station; top of rail-----	4, 491. 6

DRAGOON QUADRANGLE.

Yuma east along Southern Pacific R. R. to New Mexico line (portion of line).

Dragoon, 1.5 miles west of, 500 feet west of milepost in top of south end of culvert 1050-P; top of spike head-----	4, 559. 01
Dragoon, 0.5 mile west of, 75 feet south of milepost 1052; iron post stamped "156 H 1907"-----	4, 595. 209
Dragoon, in front of station; top of rail-----	4, 613. 5
Manzoro siding, 2 miles west of, 100 feet south of milepost 1055; iron post stamped "153 H 1907"-----	4, 528. 967

COCHISE QUADRANGLE.

Yuma east along Southern Pacific R. R. to New Mexico line (portion of line).

Manzoro siding, in front of station; top of rail-----	4, 440. 6
Cochise, 4.5 miles west of, 100 feet north of milepost 1058; iron post stamped "150 H 1907"-----	4, 380. 768

Cochise, 2.5 miles west of, 150 feet west of milepost 1060, in east end of north guardrail of bridge "1059-E;" bolt head-----	Feet. 4, 307. 15
Cochise, 1.5 miles west of, 100 feet south of milepost 1061; iron post stamped "147-H 1907"-----	4, 277. 550
Cochise, in front of station; top of rail-----	4, 230. 3
Hado siding, 4.25 miles west of, 100 feet north of milepost 1064; iron post stamped "144 H 1907"-----	4, 157. 981
Hado siding, 0.25 mile west of, 150 feet north of milepost 1068; iron post stamped "140½ H 1907"-----	4, 144. 021
Willcox, 2.5 miles west of, 100 feet north of milepost 1071; iron post stamped "137 H 1907"-----	4, 162. 719
Willcox, 100 feet south of station, in front of weather bureau office; iron post stamped "134½ H 1907"-----	4, 166. 360
Willcox, in front of station; top of rail-----	4, 165. 6
Drury siding, 3 miles west of, 100 feet north of milepost 1075; iron post stamped "133 H 1907"-----	4, 173. 006
Glade, 2 miles west of, 100 feet north of milepost 1079; iron post stamped "129 H 1906"-----	4, 319. 728
Glade, in front of station; top of rail-----	4, 375. 2
Glade, 1 mile east of, 100 feet north of milepost 1082; iron post stamped "126 H 1907"-----	4, 363. 936
Alrich siding, 1.25 miles west of, 100 feet south of milepost 1085; iron post stamped "123 H 1907"-----	4, 200. 322
Aldrich siding, in front of station; top of rail-----	4, 148. 5
Luzena siding, 1.8 miles west of, 100 feet north of milepost 1088; iron post stamped "120 H 1907"-----	4, 061. 279
Luzena siding, in front of station; top of rail-----	3, 984. 7
Bowie, 6 miles west of, 100 feet north of milepost 1091; iron post stamped "117 H 1907"-----	3, 966. 441
Bowie, 3 miles west of, 100 feet north of milepost 1094; iron post stamped "114 H 1907"-----	3, 868. 301

SAN SIMON QUADRANGLE.

Yuma east along Southern Pacific R. R. to New Mexico line (portion of line).

Bowie, in front of station; top of rail-----	3, 761. 5
Bowie, at southwest corner of Solomon & Wickersham's store; iron post stamped "111 H 1907"-----	3, 758. 96
Olga siding, 5.25 miles west of, 100 feet north of milepost 1100; iron post stamped "108 H 1907"-----	3, 697. 731
Olga siding, 3.25 miles west of, 100 feet north of milepost 1102; iron post stamped "106 H 1907"-----	3, 668. 834
Olga siding, in front of station; top of rail-----	3, 623. 9
San Simon, 7 miles west of, 100 feet north of milepost 1106; iron post stamped "102 H 1907"-----	3, 612. 558
San Simon, 4 miles west of, 100 feet north of milepost 1109; iron post stamped "99 H 1907"-----	3, 592. 196
San Simon, 75 feet north of track, 100 feet west of station; iron post stamped "95½ H 1907"-----	3, 611. 340
San Simon, in front of station; top of rail-----	3, 612. 3
Bawtry siding, 2.2 miles west of, in center of south guardrail of bridge 1113-D, opposite milepost 1114; top of bolt head-----	3, 798. 28

Bawtry siding, 1.2 miles west of, 75 feet south of milepost 1115; iron post stamped "93 H 1907"-----	Feet. 3,625.433
Bawtry siding, in front of station; top of rail-----	3,678.0
Vanar, 3.5 miles west of, opposite milepost 1117, in base of telegraph pole; spike (railroad bench mark marked "3719.94")-----	3,722.40
Vanar, 2.5 miles west of, 75 feet north of milepost 1118; iron post stamped "90 H 1907"-----	3,793.239
Vanar, in front of station; top of rail-----	3,905.3
Cavot, 3 miles west of, 75 feet south of milepost 1121; iron post stamped "87 H 1907"-----	3,908.225

Jerome and Williams Quadrangles.

COCONINO AND YAVAPAI COUNTIES.

The following are the unadjusted results of a line of precise levels from Del Rio north along the Santa Fe, Prescott & Phoenix Railway to Ashfork, thence east along the Atchison, Topeka & Santa Fe Railway to Williams. The leveling was done in 1905 by M. S. Bright.

In 1909 the precise line of the Coast and Geodetic Survey along the Atchison, Topeka & Santa Fe Railway redetermined certain bench marks between Ashfork and Williams, as shown in the following list. The unadjusted elevations determined by the Coast and Geodetic Survey, approximately 1.9 feet lower than those obtained by the United States Geological Survey, have been adopted.

JEROME QUADRANGLE.

Del Rio north along Santa Fe, Prescott & Phoenix Ry. to Ashfork (portion of line).

Del Rio, 5.1 miles northeast of, 1 mile northeast of Valley siding, north of road, 100 feet north of track; iron post stamped "4495 PRSCT"-----	Feet. 4,501.823
Milepost 25, 10 feet west of, 40 feet north of track; iron post-----	4,672.047
Cedar Glade, 1 mile south of, 40 feet north of milepost 22, 70 feet west of track; iron post-----	4,648.859
Cedar Glade, in front of station; top of rail-----	4,648.3

WILLIAMS QUADRANGLE.

Del Rio north along Santa Fe, Prescott & Phoenix Ry. to Ashfork (portion of line).

Milepost 19, 10 feet south of, 40 feet west of track, 20 feet west of road; iron post-----	4,750.973
Rock Butte siding, 0.25 mile south of, 40 feet west of track, at road crossing, 3 feet north of milepost 16; iron post-----	4,923.980
Rock Butte siding, in front of station; top of rail-----	4,934.6
Little Hell Canyon, 300 feet north of, 210 feet north of milepost 13, 50 feet east of track; iron post-----	5,007.177
Meath siding, 0.5 mile south of, at north end of cut, 40 feet east of track; iron post-----	5,098.220
Meath siding, in front of station; top of rail-----	5,118.1
Ashfork, 6.5 miles south of, 0.5 mile south of milepost 6 at south end of cut, 40 feet east of track; iron post-----	5,190.055

Ashfork, 3 miles south of, opposite milepost 3, 50 feet east of track; iron post.....	Feet. 5, 126. 027
Ashfork, 300 feet south of Atchison, Topeka & Santa Fe Ry. station, at southeast corner of Lewis Avenue and Third Street; iron post, Coast and Geodetic Survey unadjusted value.....	5, 138. 854
Ashfork, in front of station; top of rail.....	5, 135. 0

Ashfork east along Atchison, Topeka & Santa Fe Ry. to Williams.

Bridge A-401, south end of, in east stone pier; aluminum tablet, Coast and Geodetic Survey unadjusted value.....	5, 132. 053
Milepost 397, 4 feet west of, 50 feet north of track, in rock outcrop; aluminum tablet, Coast and Geodetic Survey unadjusted value.....	5, 443. 781
Denair siding, in front of station; top of rail.....	5, 507. 5
Milepost 394, 6 feet west of, in rock outcrop; aluminum tablet, Coast and Geodetic Survey unadjusted value.....	5, 711. 163
Fairview, 35 feet north of track, at south end of stone fence; iron post, Coast and Geodetic Survey unadjusted value.....	5, 935. 120
Bridge 388-D, in east pier, south of track, in second stone from top; aluminum tablet.....	6, 308. 572
McClellan siding, in front of station; top of rail.....	6, 433. 4
Milepost 385, 40 feet southwest of, 50 feet west of track, in rock outcrop; aluminum tablet, Coast and Geodetic Survey unadjusted value.....	6, 566. 224
Supai, 80 feet northwest of station, 35 feet north of track; iron post, Coast and Geodetic Survey unadjusted value.....	6, 959. 381
Williams, in front of station; top of rail.....	6, 759. 0
Williams, at northwest corner of Grand Canyon Hotel; iron post stamped "6770," Coast and Geodetic Survey unadjusted value....	6, 765. 909

PRIMARY LEVELING.

Arivaca, Benson, Bisbee, Dragoon, Nogales, Patagonia, Red Rock, Reef, Tucson, and Winkelman Quadrangles.

COCHISE, PIMA, PINAL, AND SANTA CRUZ COUNTIES.

The elevations in the following list are based upon precise levels along the Southern Pacific Railroad from Yuma. (Additional elevations in the Benson, Dragoon, Patagonia, Red Rock, and Tucson quadrangles are given in list of results of precise leveling, pages 11-13.)

The leveling in the Winkelman quadrangle was done by Thomas Winsor in 1900, by M. S. Bright in 1904, and by L. F. Biggs in 1909; that in the Benson quadrangle by Chester Irvine in 1901, by Bright in 1903 and 1904, and by R. H. Sargent in 1905. The leveling in the Arivaca, Nogales, and Red Rock quadrangles was done by Bright in 1903; in the Patagonia and Tucson quadrangles by Bright in 1903 and 1904; and in the Bisbee and Reef quadrangles by Irvine in 1901.

The stamped elevations are based upon elevations determined by the International Boundary Commission, and found later to be unreliable.

WINKELMAN QUADRANGLE.

Wooten ranch along trail via Deer Creek coal fields and Manning's ranch to Dudleyville.

Wooten ranch, 3.25 miles west of, in top of hard sandstone outcrop 6 feet south of trail, 10 feet northeast of 12-inch blazed pine tree, 150 feet east of point where trail crosses wash; aluminum tablet stamped "4041 PHNX"-----	Feet. 4, 040. 054
Manning ranch, 2.25 miles east of, on north side of trail, 30 feet east of ravine, in top of triangular boulder; aluminum tablet stamped "3528 PHNX"-----	3, 526. 886
Manning ranch, 1.25 miles west of, in front of 4-inch paloverde tree, 10 feet southwest of trail, in top of hard flint boulder; aluminum tablet stamped "2998 PHNX"-----	2, 997. 229
Manning ranch, 5 miles west of, 20 feet south of trail, at west edge of gravel mound, in top of limestone boulder; aluminum tablet stamped "2652 PHNX"-----	2, 650. 880
Manning ranch, 7.5 miles west of, on north side of trail, southwest bank of Little Rock Creek, on top of kite-shaped boulder; aluminum tablet stamped "2510 PHNX"-----	2, 508. 617
Dudleyville, 7 miles east of, on north side of Ash Creek, at mouth of and on east side of canyon through which trail passes, in top of ledge; aluminum tablet stamped "2218 PHNX"-----	2, 217. 385
Dudleyville, 4 miles east of, on southeast side of trail, at summit of steep short ascent, 400 feet northeast of wash; iron post stamped "2418 PHNX"-----	2, 416. 751
Dudleyville, 170 feet southeast of post office, in front of guidepost in southeast corner of intersection of crossroads; iron post stamped "1950 PHNX"-----	1, 949. 118

Dudleyville southeast up San Pedro River to Pima-Pinal County line.

L. Swingle ranch house, 60 feet south of, 2 feet west of gate, north side of road; iron post stamped "1997 NOGLS"-----	2, 008. 769
Old Dodson ranch house, 0.8 mile north of, 4 feet west of road, 20 feet north of trail leading east to river; iron post stamped "2108 NOGLS"-----	2, 119. 846
Old Dodson ranch house, 1.5 miles south of, 10 feet west of road and 40 feet west of river, at toe of ridge on flint rock outcrop; painted point-----	2, 125. 84
Old Dodson ranch house, 2.5 miles south of, 50 feet north of Fort Grant Wash, in road forks; iron post stamped "2169 NOGLS"-----	2, 180. 825
Mammoth, 6.25 miles northwest of, 1,200 feet northwest of road down wash and 600 feet southeast of road forks, 8 feet west of road; iron post stamped "2295 NOGLS"-----	2, 306. 898
Mammoth, 3 miles northwest of, on spur of hill, 25 feet south of wash, 6 feet west of road; iron post stamped "2346 NOGLS"-----	2, 358. 011
Mammoth, west side of principal street, northeast corner of fence around J. E. Dubois's residence; iron post stamped "2336 NOGLS"-----	2, 348. 005

NOTE.—Between this point and Cleland ranch a constant only was added, throwing error of 0.9 foot at the Cleland ranch end of the line.

Mammoth, 3 miles southeast of, 10 feet east of road, foot of hill, 4 feet west of scrub mesquite tree; iron post stamped "2424 NOGLS"-----	Feet. 2, 436. 020
J. L. Clark ranch house, 800 feet east of, west side of road, 2 feet south of gate entrance to ranch; iron post stamped "2466 NOGLS"-----	2, 477. 974
Acton ranch, 2.25 miles southeast of, between two buttes, on rock saddle, 15 feet southwest of road, in granite outcrop; aluminum tablet stamped "2578 NOGLS"-----	2, 590. 210
Whitlock ranch house, 1 mile southeast of, in road forks, 80 feet southeast of John Schoeyholzer's mail box; iron post stamped "2599 NOGLS"-----	2, 610. 902
Cleland ranch, 1.5 miles northwest of, 30 feet south of wash, 8 feet west of road; iron post stamped "2677 NOGLS"-----	2, 688. 915
Cleland ranch, 0.5 mile north of, east edge of road, in west side of 14-inch leaning mesquite tree; spike-----	2, 674. 08
Cleland ranch, 70 feet north of ranch house, 2 feet north of northwest corner of windmill; painted point on stone-----	2, 672. 68
Cleland ranch, 2.25 miles south of, 150 feet northwest of old adobe house on east edge of road on line between Pima and Pinal counties; iron post stamped "2703 NOGLS"-----	2, 714. 055

Point 5.5 miles north of Ben Buzzini ranch north to Oracle, thence northeast to Mammoth.

Ben Buzzini, 7.25 miles north of, east side of wash, south end of, ridge, east edge of road, 125 feet south of road forks; iron post stamped "3206 NOGLS"-----	3, 218. 061
Big Walnut ranch house, 10 feet north of, in forks of 15-inch double mesquite tree; bolt-----	3, 303. 34
Big Walnut, 1.25 miles north of, in forks Tucson and Dudleyville and Tucson and Oracle roads; iron post stamped "3399 NOGLS"-----	3, 410. 914
Big Walnut, 4.25 miles northeast of, north side of wash, 260 feet west of old road forks, 30 feet north of road, in granite boulder outcrop; aluminum tablet stamped "3676 NOGLS"-----	3, 688. 150
Big Walnut, 7.5 miles northeast of, on north spur of ridge, 20 feet north of road forks, 4 feet above ground in conspicuous granite outcrop; aluminum tablet stamped "4040 NOGLS"-----	4, 051. 932
Oracle, 60 feet northwest of post-office building, 4 feet north of gate; iron post stamped "4502 NOGLS"-----	4, 514. 116
Armstrong ranch house, 800 feet northwest of, top of slight ridge, 135 feet north of road forks, west side of road; paint point on granite outcrop-----	4, 247. 00
Oracle, 2.8 miles northeast of, 300 feet north of main canyon, east edge of road, in granite outcrop; aluminum tablet stamped "4060 NOGLS"-----	4, 072. 022
Oracle, 5.8 miles northeast of, east side main canyon, 15 feet east of road, in mouth and in south side of small wash, in granite outcrop; aluminum tablet stamped "3653 NOGLS"-----	3, 665. 303
Shultz, 1,000 feet south of Mammoth mine, 1,000 feet west of Mohawk mine, 25 feet north of road, in granite outcrop; aluminum tablet stamped "3160 NOGLS"-----	3, 171. 640

Oracle east along highway to Cleland ranch.

Oracle, 3 miles east of, top of ridge, north side of road; iron post stamped "4503 NOGLS"-----	Feet. 4, 514. 886
American Flag ranch house, 10 feet south of; paint point on granite outcrop-----	4, 429. 90
American Flag, 0.8 mile south of, on ridge, 50 feet north of road forks, 10 feet west of road leading to Clark mine; iron post stamped "4454 NOGLS"-----	4, 465. 917
Brady ranch, 1.25 miles southeast of, northeast point of ridge between Pepper Sauce Canyons, about 400 feet west of trail in canyon, in granite boulder; aluminum tablet stamped "4433 NOGLS"-----	4, 445. 064
Kellogg ranch, 1.25 miles north of, 150 feet east of canyon, 2 feet east of trail, in granite boulder; aluminum tablet stamped "4618 NOGLS"-----	4, 630. 069
Kellogg ranch, 2.25 miles east of, low gap in ridge, head of canyon leading east, 6 feet south of main canyon, 8 feet south of road; in granite outcrop; aluminum tablet stamped "3995 NOGLS"-----	4, 007. 194
Kellogg ranch, 5.25 miles east of, on flat ridge, 10 feet south of road, 50 feet north of canyon; iron post stamped "3478 NOGLS"-----	3, 489. 745
Cleland ranch, 2.8 miles west of ranch house, 200 feet north of canyon, 12 feet north of road, 10 feet west of scrub mesquite, in granite boulder; aluminum tablet stamped "3030 NOGLS"-----	3, 041. 350

Bench mark near Dudleyville.

Dudleyville, 3 miles northwest of, near corner of wire fence, at bend, on northeast side of road; iron post stamped "1893 PHNX"-----	1, 891. 963
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RED ROCK QUADRANGLE.

Red Rock north along highway to point near Florence.

Red Rock, 15 feet southeast of station, 15 feet west of railroad track, 2 feet south of telegraph pole; iron post stamped "1856 NOGLS"-----	1, 867. 229
Red Rock, in front of station; top of rail-----	1, 867. 0
Red Rock, 2.8 miles north of, in road forks; iron post stamped "1818 NOGLS"-----	1, 829. 170
Red Rock, 6.5 miles north of, 50 feet northwest of road, northeast corner of adobe hut; iron post stamped "1834 NOGLS"-----	1, 845. 084
Red Rock, 9.8 miles north of, 14 feet east of 12-inch mesquite tree, 4 feet west of road; iron post stamped "1880 NOGLS"-----	1, 891. 246
Red Rock, 13 miles north of, 4 feet west of road; iron post stamped "1915 NOGLS"-----	1, 926. 086
Paisano Tanks, 0.8 mile south of, 5 feet west of road; iron post stamped "1953 NOGLS"-----	1, 964. 204
Paisano Tanks, 200 feet west of, in signpost reading "Tucson 50 miles—Owlhead Water 20 miles"; spike-----	1, 969. 60
Paisano Tanks, 2.8 miles north of, 10 feet west of road, 4 feet south of giant cactus; iron post stamped "1909 NOGLS"-----	1, 920. 144
Paisano Tanks, 6 miles north of, 4 feet east of road, 4 feet north of 4-inch mesquite tree; iron post stamped "1751 NOGLS"-----	1, 762. 299
Paisano Tanks, 9.25 miles north of, 4 feet west of road, 6 feet south of scrub mesquite tree; iron post stamped "1669 NOGLS"-----	1, 680. 150
Florence, 3 miles south of, 6 feet east of road, 6 feet south of mesquite bush; iron post stamped "1586 NOGLS"-----	1, 597. 061

TUCSON QUADRANGLE.

Whitgoods ranch north along highway to point 5.5 miles north of Ben Buzzini ranch.

	Feet.
Benedict ranch house, 450 feet southeast of, east side of road, in west side of telephone pole; bolt-----	2, 302. 86
Benedict ranch house, 0.8 mile north of, east side of wash north-south, foot of hills, east edge of road; iron post stamped "2325 NOGLS"-----	2, 337. 096
Benedict ranch, 2.5 miles north of, 10 feet east of road, 150 feet south of road forks; paint point on boulder outcrop-----	2, 492. 78
Benedict ranch, 4.8 miles north of, 3.5 miles south of steam pump, east edge of road; iron post stamped "2616 NOGLS"-----	2, 627. 875
T. 12 S., R. 14 E., sec. 7, Puschs steam pump, 2 feet south of northeast corner of pump house, west side of road; iron post stamped "2573 NOGLS"-----	2, 584. 942
Ben Buzzini ranch, 1 mile north of, in road forks, on ridge; iron post stamped "2835 NOGLS"-----	2, 847. 103
Ben Buzzini ranch, 4 miles north of, north end of ridge, where road enters canyon, 30 feet west of road, on east side of canyon; iron post stamped "3069 NOGLS"-----	3, 080. 857
Tucson east along highway to M. Martinez ranch, thence northwest across country to Agua Caliente ranch, thence west to Benedict ranch.	
Tucson, northwest corner of Third Street and Eighth Avenue; top of hydrant-----	2, 382. 33
Tucson, University of Arizona, at east driveway entrance, 3 feet south of gate; iron post stamped "2412 NOGLS"-----	2, 423. 994
T. 14 S., R. 14 E., sec. 3, 2.3 miles east of Edmonson ranch, 5 feet south of road; iron post stamped "2473 NOGLS"-----	2, 484. 871
T. 14 S., R. 15 E., north edge of sec 6, 5.25 miles east of Edmonson ranch, 1,000 feet east of Pantano Wash, on ridge in road forks; iron post stamped "2515 NOGLS"-----	2, 526. 950
T. 14 S., R. 15 E., sec. 3, 15 feet north of William H. Bush's adobe house, 15 feet south of road; iron post stamped "2530 NOGLS"-----	2, 542. 005
Domingo Martinez ranch (near Tanque Verde), 0.8 mile southeast of, near southwest corner sec. 5, T. 14 S., R. 16 E., 1,000 feet south of schoolhouse, on ridge north side of road, at angle to east, 4 feet south of fence corner; iron post stamped "2649 NOGLS"-----	2, 660. 814
Juan Cruz ranch house, 100 feet south of, 15 feet west of gate; paint point on boulder outcrop-----	2, 676. 19
M. Martinez ranch house, 305 feet west of, sec. 3, T. 14 S., R. 16 E., 15 feet northeast of road forks, 10 feet south of green tree, in granite outcrop; aluminum tablet stamped "2711 NOGLS"-----	2, 722. 596
Agua Caliente ranch house, 400 feet southeast of, south side of sec. 20, T. 13 S., R. 16 E., west edge of Agua Caliente Spring, in granite outcrop; aluminum tablet stamped "2728 NOGLS"-----	2, 739. 650
T. 13 S., R. 15 E., sec. 26, 3 miles west of Caliente Spring along Sabina Canyon, 0.25 mile northeast of two buttes, 8 feet south of road; iron post stamped "2635 NOGLS"-----	2, 646. 761
Corrillo ranch house, 60 feet northeast of, 70 feet west of wash, in granite boulder; aluminum tablet stamped "2596 NOGLS"-----	2, 607. 256
Corrillo ranch, 2 miles northwest of, west side of main road at forks, northeast side of canyon; paint point on boulder-----	2, 741. 82
Fort Lowell, 2.8 miles north of, on ridge in gap, 25 feet north of road; iron post stamped "2733 NOGLS"-----	2, 744. 570

Manuel Brooks ranch, 0.8 mile west of, 35 feet north of wire fence Feet.
and south edge of road forks; iron post stamped "2400 NOGLS"__ 2, 411. 820

M. Martinez ranch northeast along highway to Redington.

M. Martinez ranch house, 3.25 miles northeast of, top of west spur of
mountain, west edge of road, in granite outcrop; aluminum tablet
stamped "3920 NOGLS"----- 3, 931. 838
Carrillo ranch house, about 900 feet northwest of, east edge of
road forks of two small canyons; paint point on granite outcrop-- 4, 094. 32
Vail ranch house, about 1,000 feet west of, 500 feet south of gate at
entrance to ranch, top of ridge, 8 feet west of road, in granite out-
crop; aluminum tablet stamped "4284 NOGLS"----- 4, 295. 418
Vail ranch, 2.25 miles east of, top of divide, 35 feet northwest of
road, in granite outcrop; aluminum tablet stamped "4340 NOGLS"-- 4, 351. 493
Youtcy ranch, 2.25 miles west of, north edge of road entrance to bed
of canyon; paint point on granite bowlder----- 4, 145. 68
Youtcy ranch house, 600 feet southwest of, east edge of canyon, 8
feet east of road, in granite outcrop; aluminum tablet stamped
"3851 NOGLS"----- 3, 862. 786
Youtcy ranch, 3.5 miles northeast of, on ridge 20 feet west of canyon,
3 feet east of road; iron post stamped "3573 NOGLS"----- 3, 584. 662

Tucson south along highway to southeast corner of Papago Indian Reservation.

Tucson, in front of Southern Pacific R. R. station; top of south
rail----- 2, 388. 0
Tucson, corner West Sixth and North Court Streets; top of hydrant-- 2, 359. 10
Tucson, south wall of Pima County courthouse, 11 feet west of
south entrance in fourth foundation stone from ground; bronze
tablet stamped "2364 NOGLS"----- 2, 376. 049
Tucson, 1.8 miles south of courthouse, 0.5 mile east of river, 150
feet east of river bottom at south end of Osborne Avenue at
angle to west, 3 feet west of gate entrance to A. Duravo's pasture;
iron post stamped "2376 NOGLS"----- 2, 388. 368
Tucson, 4.25 miles south of, 0.25 mile east of river, at junction of
seven roads, 6 feet east of southeast fence corner; iron post
stamped "2434 NOGLS"----- 2, 446. 088
Tucson, 6.5 miles south of, 600 feet west of river, 15 feet west of
northwest fence corner at angle of road; iron post stamped
"2452 NOGLS"----- 2, 464. 017
Tucson, 8 miles south of, in south gatepost at entrance to inclosure
on Papago Reservation adobe settlement; spike----- 2, 498. 18
Tucson, 9.5 miles south of, 0.5 mile south of Sahuarito Butte, on
ridge, 275 feet east of river bottom, 50 feet west of wire fence,
2 feet south of mesquite tree, in road forks; iron post stamped
"2540 NOGLS"----- 2, 551. 912
Hart ranch, 6.25 miles north of, 10 feet east of road, 1 foot north of
telephone pole; iron post stamped "2594 NOGLS"----- 2, 606. 127
Hart ranch, 3.5 miles north of, south side of flat draw, 100 feet west
of road, 175 feet southeast of adobe house, 1 foot north of tele-
phone pole; iron post stamped "2630 NOGLS"----- 2, 642. 200

Vail southwest 3 miles.

Vail, 220 feet northeast of station, 5 feet east of gate; iron post stamped "3220"-----	Feet. 3, 232. 479
Vail, 2.8 miles south of, crossing of Andrade-Tucson and Vail-Helvetia roads, southwest side; iron post stamped "3290 NOGLS"-----	3, 302. 681

Vail southeast 3 miles.

Vail, 1 mile southeast of, west edge of road, 150 feet south of road forks; paint point on bowlder outcrop-----	3, 274. 14
Vail, 2 miles southeast of, 200 feet east of old road forks, 8 feet north of road; paint point on bowlder outcrop-----	3, 352. 87
Vail, 3 miles southeast of, 20 feet west of road; paint point on stone--	3, 439. 72

Tucson west along highways to Carnegie Botanical Laboratory.

Tucson, 1.9 miles west of, 20 feet south of forks, 800 feet east of hospital, west side of road; cross on rock-----	2, 352. 46
Tucson, 2.8 miles west of, at Carnegie Botanical Laboratory, 10 feet north of east entrance, near northeast corner of building; aluminum tablet stamped "2363 1907"-----	2, 673. 865

DRAGON QUADRANGLE.

Pima-Final county line south along highway to point near Benson.

Redington, 3.25 miles north of, 100 feet west of angle in road to south, 6 feet west of scrub mesquite tree, 4 feet north of road; iron post stamped "2788 NOGLS"-----	2, 799. 097
Redington, 45 feet south of post office, in granite bowlder outcrop; aluminum tablet stamped "2869 NOGLS"-----	2, 880. 103
Redington, 4 miles southeast of, north side of flat ridge, north side main road, 60 feet east of road forks; iron post stamped "2994 NOGLS"-----	3, 005. 050
San Antonio Church, 2 feet east of southeast corner; iron post stamped "3018 NOGLS"-----	3, 029. 046
Antonio Soso ranch house, 800 feet north of, west edge of road forks, 1 foot east of corner post at angle in fence; iron post stamped "3057 NOGLS"-----	3, 068. 093
J. L. Story ranch house, 1,600 feet west of, entrance to ranch, 600 feet east of road forks, in south gate post; spike-----	3, 146. 95
Pool post office and ranch house, 400 feet northeast of, 2 feet east of scrub mesquite tree, 6 feet west of road forks; iron post stamped "3158.5 NOGLS"-----	3, 169. 561
Mercedes Lopez ranch house, 300 feet east of, top of ridge, east side of road forks; iron post stamped "3200 NOGLS"-----	3, 211. 009
Boone ranch, 0.5 miles south of, 150 feet east of river, 50 feet east of irrigation ditch, east side of road forks, west end of ridge at angle in road to east; iron post stamped "3216 NOGLS"-----	3, 226. 909
George Etz ranch house, 900 feet northwest of, 2 feet west of south gate post entrance to ranch; iron post stamped "3263 NOGLS"-----	3, 273. 996
George Etz ranch, 2.8 miles south of, on spur of hill, 6 feet west of road in hills, about 600 feet north of angle in road to west up wash; iron post stamped "3372 NOGLS"-----	3, 382. 995

George Etz ranch, 5.8 miles south of, 10 feet east of road, 2 feet southwest of 10-inch leaning mesquite tree utilized as fence corner post; iron post stamped "3402 NOGLS"-----	Feet. 3, 413. 002
T. 15 S., on line between Rs. 19 and 20 E., 850 feet east of section corner, east side of road at forks; iron post stamped "3435 NOGLS"-----	3, 445. 942
Marcos Pachico ranch, 1.5 miles southeast of, on point of ridge at south edge of river bottom, south side of irrigation ditch, 2 feet south of fence corner post; iron post stamped "3443 NOGLS"-----	3, 453. 941

Point 2 miles southeast of Redington southwest 3.5 miles.

Moraga ranch, about 0.3 mile north of, 250 feet west of river bottom, west end of lane, south side of road forks, at intersection of wire and brush fence, 3 feet east of mesquite tree 12 inches in diameter, 4 feet north of three 13-inch mesquite trees; iron post stamped "2899 NOGLS"-----	2, 910. 649
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PATAGONIA QUADRANGLE.

Point 3.2 miles north of Marsh & Driscoll ranch north to southeast corner Papago Indian Reservation.

Marsh & Driscoll ranch, 5.25 miles north of, 12 feet east of road, 2 feet north of 10-inch mesquite tree; iron post stamped "2874 NOGLS"-----	2, 886. 125
S. E. Brown ranch house, 270 feet west of, 12 feet east of road, 1 foot north of mail box post; iron post stamped "2783 NOGLS"-----	2, 795. 191
S. E. Brown ranch, 3 miles north of, 9 feet west of road, 2 feet south of 10-inch mesquite tree; iron post stamped "2715 NOGLS"-----	2, 727. 225
Hart ranch, point on top of south concrete wall around small reservoir, 65 feet east of road-----	2, 639. 58
Hart ranch, 0.5 mile north of, on open flat, in road forks; iron post stamped "2665 NOGLS"-----	2, 677. 099

Point 3 miles southwest of Vail southwest 21 miles to south gate of United States Botanical Range Reserve, thence northwest to sec. 7, T. 17 S., R. 14 E.

Ts. 16 and 17 S., Rs. 15 and 16 E., 2 feet north of stone corner of townships; iron post stamped "3237 NOGLS"-----	3, 249. 481
Vail, 5.5 miles south of, 75 feet south of road forks, in south side of double paloverde tree, south side of wash; iron bolt-----	3, 334. 24
Stone ranch, 3.5 miles north of, foot of mesa, in road forks; iron post stamped "3323 NOGLS"-----	3, 335. 513
Stone ranch house, 250 feet northwest of, in road forks, on west slope of ridge; iron post stamped "3824 NOGLS"-----	3, 336. 556
Neff & Buckobus ranch house, 40 feet west of, in top of post at north-east corner of Bessie mine location; nail-----	3, 901. 08
Helvetia, 0.5 mile west of, south side of canyon, in road forks; iron post stamped "4173 NOGLS"-----	4, 185. 318
Proctor ranch house, 600 feet north of, on north side of Box Canyon; iron post stamped "4267 NOGLS"-----	4, 279. 431
Proctor old ranch, 2.8 miles south of, 90 feet south of Sawmill Canyon, 145 feet west of fence corner at angle to northwest, 2 feet north of fence; iron post stamped "3969 NOGLS"-----	3, 981. 410
United States botanical reserve, 3 feet east of south gate; iron post stamped "3721 NOGLS"-----	3, 733. 518

United States botanical reserve, south gate in fence, 3.8 miles north of, 4 feet west of road and 4 feet east of 12-inch leaning mesquite tree; iron post stamped "3386 NOGLS"-----	Feet. 3, 398. 473
United States botanical reserve, north gate in fence, 1.25 miles south of, west edge of road, south side of spreading paloverde tree; iron post stamped "2963 NOGLS"-----	2, 975. 451
United States botanical reserve, north gate in fence, in east gate post; spike-----	2, 880. 42
Hart ranch, 3.8 miles south of, 4 feet west of road, 8 feet east of 8-inch mesquite tree, 200 feet north of angle in road to northwest; iron post stamped "2800 NOGLS"-----	2, 812. 423

Point 3 miles southeast of Vail southeast along highways to Andrade ranch, thence southwest to point near Greaterville, thence east to Empire ranch, thence northeast to Sanford ranch, thence north to Pantano.

Vail, 4 miles southeast of, on ridge, 5 feet west of road; iron post stamped "3531 NOGLS"-----	3, 543. 540
Vail, 6.25 miles southeast of, 215 feet southeast of road fork, 12 feet west of road, in granite outcrop; aluminum tablet stamped "3711 NOGLS"-----	3, 723. 362
Andrade ranch house, 200 feet west of, in granite outcrop; aluminum tablet stamped "3745 NOGLS"-----	3, 756. 933
Andrade ranch, 4.25 miles south of, crossing of road and wash, east side in point of conglomerated rock bluff; bronze tablet stamped "4079 NOGLS"-----	4, 091. 466
Rosemont, 1.8 miles northeast of, 500 feet west of road forks, south point of ridge, 65 feet east of wash, 12 feet north of road, 3 feet south of double mesquite tree, in granite outcrop; bronze tablet stamped "4534 NOGLS"-----	4, 546. 278
Rosemont, 400 feet north of schoolhouse, in road forks, in south side of 20-inch Spanish oak tree; spike-----	4, 780. 53
Rosemont, 2.5 miles south of, head of Box Canyon, in gap at top of ridge, 2 feet west of road; iron post stamped "5164 NOGLS"-----	5, 176. 268
Empire ranch, 3.8 miles west of, north side of wash, about 150 feet south of hills, 20 feet north of road; iron post stamped "4900 NOGLS"-----	4, 912. 472
Empire ranch house, 0.25 mile south of, west side of road forks, 10 feet north of 12-inch mesquite tree utilized as fence corner post; iron post stamped "4632 NOGLS"-----	4, 644. 158
Empire ranch, 4.25 miles north of, on slight ridge, 10 feet east of road, 6 feet north of gate; iron post stamped "4320 NOGLS"-----	4, 332. 222
Sanford old ranch house, 20 feet east of, east edge of road on fence line, in west side of 20-inch dead tree; staple-----	4, 212. 103
Sanford ranch, 1 mile north of, in gap at top of ridge, north edge of road; iron post stamped "4316 NOGLS"-----	4, 328. 180
Total Wreck, 700 feet north of, 20 feet east of road in gap; paint point on rock-----	4, 574. 97
Total Wreck, 1.5 miles northwest of, west side of canyon, 6 feet west of road, in granite outcrop; aluminum tablet stamped "4306 NOGLS"-----	4, 318. 223
Pantano, 3.25 miles south of, on ridge, 23 feet east of road, in granite boulder outcrop; aluminum tablet stamped "3836 NOGLS"-----	3, 848. 505

Pantano, 400 feet northeast of station, 12 feet east of warehouse, south side of road near plank fence; iron post stamped "3540 NOGLS "-----	Feet. 3, 552. 074
Pantano, in front of station; top of north rail-----	3, 546. 6

Empire ranch southeast along highways to Elgin.

Cottonwood, 1 mile east of, 3 feet south of road, east slope of hill, west side of draw; iron post stamped "4529 NOGLS "-----	4, 541. 170
Elgin, 4.5 miles northwest of, 80 feet south of road forks, 4 feet east of road, in granite outcrop; bronze tablet stamped "4926 NOGLS "-----	4, 937. 809

**Elgin west and southwest along Southern Pacific R. R. to point near Sanford
siding.**

Elgin, 45 feet south of track, northwest corner of yard fence around section house; iron post stamped "4706 NOGLS "-----	4, 718. 060
Elgin, 3.25 miles west of, 50 feet south of track, top of cut near wire fence; iron post stamped "4835 NOGLS "-----	4, 847. 153
Sonoita, 1.5 miles east of, 210 feet southeast of milepost 1079, 50 feet south of track, near wire fence; iron post stamped "4777 NOGLS "-----	4, 789. 068
Sonoita, 0.5 miles west of, 0.25 mile west of milepost 1081, in west end of north guard rail of bridge A; second bolt-----	4, 818. 26
Sonoita, 1.5 miles west of, at public road crossing, 45 feet west of track; iron post stamped "4746 NOGLS "-----	4, 758. 143
Milepost 1085, 0.25 mile west of, on bolt in south end of east cap of bridge B-----	4, 549. 75
Sonoita, 5 miles southwest of, between mileposts 1085 and 1086, point of ridge, 50 feet east of railroad, at curve D-10-No. 77, near wire fence, in lime rock; aluminum tablet stamped "4512 NOGLS "-----	4, 524. 677
Crittenden, 1.5 miles north of, 240 feet south of milepost 1089, at public road crossing, 45 feet west of track; iron post stamped "4263 NOGLS "-----	4, 274. 898
Crittenden, 200 feet south of station, 12 feet west of track, 1 foot east of southeast foundation stone under water tank; point on granite outcrop-----	4, 193. 16
Patagonia, 1.5 miles northeast of, in north end of west guard rail of bridge A; bolt-----	4, 116. 84
Patagonia, 100 feet east of station, 16 feet north of track; iron post stamped "4044 NOGLS "-----	4, 056. 304
Milepost 1096, 20 feet north of, east end of steel bridge over Sonoita River, 5 feet south of track; point on stone wall-----	3, 949. 34
Milepost 1097, 200 feet east of, east end of steel bridge over Sonoita River, 5 feet south of track, in stone wall; aluminum tablet stamped "3891 NOGLS "-----	3, 903. 076
Sanford, 1.8 miles east of, 4 feet north of track, point on stone wall at east end of steel bridge over Sonoita River-----	3, 819. 84
Sanford, 1 mile east of, 2,100 feet east of milepost 1100, 120 feet east of bridge B, 8 feet north of track, in rock ledge; aluminum tablet stamped "3785 NOGLS "-----	3, 797. 070

Patagonia southeast along highways 4 miles.

Patagonia, 3 miles southeast of, 100 feet south of road forks, 10 feet west of road; iron post stamped "4223 NOGLS "-----	4, 235. 112
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Point 8.5 miles north of Calabasas and 3 miles east of Santa Cruz River east along highway to steam pump, thence southeast to Southern Pacific R. R.

Santa Cruz, 3 miles east of, on flat ridge, 35 feet south of road, in blue lime rock outcrop; aluminum tablet stamped "3645 NOGLS"-----	Feet. 3, 657. 181
Santa Cruz, 6.25 miles east of, in gap at head of canyon, 30 feet west of road, in granite rock; aluminum tablet stamped "3948 NOGLS"-----	3, 959. 818
Salero steam pump, 0.8 mile west of, 700 feet north of old adobe houses, 200 feet east of canyon, 25 feet east of road, in lime rock outcrop; aluminum tablet stamped "4127 NOGLS"-----	4, 138. 713
Salero steam pump, 2.5 miles southeast of, top of ridge, 25 feet west of road; iron post stamped "4498 NOGLS"-----	4, 509. 715
Salero steam pump, 4.5 miles southeast of, 40 feet east of draw, 10 feet west of road; iron post stamped "4360 NOGLS"-----	4, 372. 159

Canelo Pass north to Boyle ranch, thence east to point near Evans schoolhouse.

Boyle ranch house, 500 feet southeast of, 120 feet east of road forks, at fence corner; iron post stamped "5034 NOGLS"-----	5, 046. 601
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ARIVACA QUADRANGLE.

Point 3 miles northwest of Calabasas north to point 2 miles north of Marsh & Driscoll ranch.

Calabasas, 5.5 miles north of, west side of road, 3 feet north of gate entrance to Ohms ranch; iron post stamped "3321 NOGLS"-----	3, 333. 201
Calabasas, 8.5 miles north of, in forks of road; iron post stamped "3279 NOGLS"-----	3, 291. 397
Tubac, 1 mile south of, 75 feet west of road forks, at southeast corner of adobe house; iron post stamped "3222 NOGLS"-----	3, 234. 486
Tubac, 2.25 miles north of, 7 feet east of road, 2 feet south of 18-inch leaning mesquite tree at angle in road to northwest; iron post stamped "3140 NOGLS"-----	3, 152. 156
Tubac, 5.5 miles north of, 10 feet east of road, on slight ridge; iron post stamped "3096 NOGLS"-----	3, 108. 280
The Junction, 1,500 feet south of, 75 feet east of ridge, 15 feet east of road, 1 foot north of fence; iron post stamped "3038 NOGLS"-----	3, 049. 932
L. A. Smith ranch house, 2.8 miles north of, 6 feet west of road, 1 foot south of telephone pole; iron post stamped "2949 NOGLS"-----	2, 961. 129
Marsh & Driscoll ranch, 2 miles north of, 40 feet east of main road, 20 feet west of loop in road, 1 foot southeast of telephone pole; iron post stamped "2909 NOGLS"-----	2, 921. 134

Point 8.5 miles north of Calabasas east 2 miles.

Calabasas, 8.5 miles north of, in road forks, east side of river, 25 feet east of Tucson and Nogales public road; iron post stamped "3279 NOGLS"-----	3, 291. 397
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NOGALES QUADRANGLE.

Nogales north along Southern Pacific R. R. to Calabasas; thence northeast to Sanford siding.

Nogales, International boundary monument 122; northeast corner of masonry base-----	3, 863. 57
Nogales, 1 mile north of, 200 feet north of milepost 1119, in north end of west guard rail to bridge A; bolt-----	3, 824. 70

Nogales, 3 miles north of, 700 feet north of milepost 1117, west side of road, 75 feet east of Maraposa ranch house; iron post stamped "3734 NOGLS"-----	Feet. 3, 746. 245
Nogales, 5 miles north of, 100 feet south of milepost 1115, in north end of east guard rail to bridge A; bolt-----	3, 662. 30
Nogales, 6 miles north of, 50 feet west of track, 10 feet north of gate, 500 feet south of milepost 1114; iron post stamped "3598 NOGLS"-----	3, 610. 294
Calabasas, 60 feet north of station, 2 feet east of gate; iron post stamped "3433 NOGLS"-----	3, 445. 411
Calabasas, 2.8 miles east of, east end of iron bridge over Sonoita River, north side of track, in top of stone wall; aluminum tablet stamped "3507 NOGLS"-----	3, 519. 356
Milepost 1105, 400 feet west of; bolt in east end of south guard rail of bridge A-----	3, 586. 03
Walnut Grove ranch, 0.5 mile east of, east end of steel bridge over Sonoita River, north side of track, in top of stone wall; aluminum tablet stamped "3641 NOGLS"-----	3, 653. 675
Milepost 1103, 0.25 mile west of, on bolt in north end of steel cap on east end of bridge over Sonoita River-----	3, 688. 64

Calabasas northwest along highway 2.5 miles.

Calabasas, 2.5 miles north of, at road forks, 2 feet west of northwest fence corner; iron post stamped "3377 NOGLS"-----	3, 389. 139
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Point near Nogales from monument 122 east along international boundary to monument 119. (See also connection at Lochiel at monument 112.)

Post 122, Nogales, top of masonry base (Boundary Commission elevation 3,851.37)-----	3, 863. 57
Post 121, Nogales (Boundary Commission elevation 3,995.40)-----	4, 016. 14
Post 120 (Boundary Commission elevation 4173.55)-----	4, 192. 58
Post 119 (Boundary Commission elevation 4095.47)-----	4, 101. 71

Point 4 miles southeast of Patagonia southeast along highway to Lochiel.

A. B. Sorrell ranch house, 500 feet east of, 75 feet east of road, in igneous rock outcrop; aluminum tablet stamped "4653 NOGLS"-----	4, 465. 998
Hardshell store, 125 feet northwest of, 4 feet west of road; point on limestone rock-----	4, 964. 68
Hardshell store, 1.8 miles south of, 25 feet east of road, on side of hill, in limestone outcrop; aluminum tablet stamped "5241 NOGLS"-----	5, 253. 642
Moury Mines, 2 feet south of road, 20 feet north of well, in 8-inch Spanish oak tree; nail-----	5, 415. 66
Moury Mines, 0.7 mile south of, 400 feet northeast of adobe house, 16 feet north of road, 5 feet north of Spanish oak tree 22 inches in diameter, in quartz rock; aluminum tablet stamped "5394 NOGLS"-----	5, 406. 361
Washington, 0.2 mile north of, 15 feet east of road forks, on top of ridge; iron post stamped "5496 NOGLS"-----	5, 508. 121
Washington, 2.5 miles east of, on narrow ridge, 2 feet south of road, in lime rock outcrop; aluminum tablet stamped "5021 NOGLS"-----	5, 033. 114
Lochiel, north side of road, in front of Chinese store, in post; spike--	4, 686. 54

Lochiel northeast along highway to Canelo Pass.

International boundary iron post 112, top of masonry base (Boundary Commission elevation 4,760.49)-----	Feet. 4,776.095
Cameron ranch, 1.5 miles north of, top of ridge, 85 feet east of road, 75 feet west of wire fence, in lime rock; aluminum tablet stamped "4830 NOGLS"-----	4,842.299
Little ranch house, 1 mile north of, top of north-south ridge, 15 feet southeast of road; iron post stamped "4997 NOGLS"-----	5,009.497
Canelo Pass, 100 feet south of top in divide, 15 feet west of road, in granite outcrop; aluminum tablet stamped "5442 NOGLS"-----	5,454.630

BENSON QUADRANGLE.

Benson north to Boquilla Cattle Co. ranch.

Boquilla Cattle Co. ranch house, 800 feet west of, 200 feet southwest of flat-top butte, east side of road forks, 1 foot west of fence corner post; iron post stamped "3500 NOGLS"-----	3,511.008
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Benson south along El Paso & Southwestern R. R. to Fairbank.

Benson, in front of passenger station; top of south rail-----	3,580.3
Benson, intersection of Huachuca and Fourth streets, northwest corner of Virginia Hotel; iron post stamped "3573 NOGLS"-----	3,583.942
Benson, 3 miles southeast of, 100 feet west of track, 20 feet west of milepost 1034; iron post stamped "3541 NOGLS"-----	3,551.929
Ts. 17 and 18 S., Rs. 20 and 21 E., corner of townships, 150 feet east of El Paso & Southwestern R. R. and 60 feet west of Southern Pacific R. R., east side of wagon road between crossings; iron post stamped "3583 NOGLS"-----	3,594.996
Lands Crossing, 200 feet southeast of milepost 1040, 50 feet east of railroad track, 1 foot north of fence corner post; iron post stamped "3644 NOGLS"-----	3,654.863
Lands Crossing, 3.25 miles south of, 0.25 mile south of milepost 1043, 45 feet east of El Paso & Southwestern R. R., 50 feet west of Southern Pacific R. R., east edge of wagon road, 3 feet southeast of telegraph pole; iron post stamped "3707 NOGLS"-----	3,717.906
Fairbank, 3.25 mile north of, 100 feet southwest of public road crossing, 50 feet west of track, 60 feet south of road forks, east side of road, 70 feet east of irrigation ditch, 2 feet south of fence corner post; iron post stamped "3780 NOGLS"-----	3,790.886
Fairbank, Southern Pacific R. R. track; top of rail-----	3,852.0

Evans school east and northeast along highway to Tombstone.

Evans schoolhouse, 2 feet south of east entrance, 4 inches above ground, in foundation stone; aluminum tablet stamped "4927 NOGLS"-----	4,939.271
Pyeatts ranch house, 150 feet south of, 45 feet south of road, in limestone outcrop; aluminum tablet stamped "5185 NOGLS"-----	5,197.464
Pyeatts ranch, 3 miles east of, east side of slope, 30 feet north of road; iron post stamped "5061 NOGLS"-----	5,073.479
Fort Huachuca, 2 feet northeast of wagon scales, 18 feet north of commissary; iron post stamped "5046 NOGLS"-----	5,058.429

O. R. ranch house, in foundation stone of south wall at southeast corner; aluminum tablet stamped "4605 NOGLS"-----	Feet. 4, 617. 393
O. R. ranch, 3.5 miles east of, 150 feet north of road, 1 foot south of quarter corner between secs. 25 and 30, T. 21 S., Rs. 20 and 21 E.; iron post stamped "4424 NOGLS"-----	4, 436. 252
O. R. ranch, 6.8 miles northeast of, 2 feet north of road, opposite large mesquite tree in wash 500 feet south; iron post stamped "4232 NOGLS"-----	4, 244. 432
Charleston, 20 feet east of El Paso & Southwestern R. R. track, 20 feet south of wagon road at crossing; iron post stamped "3957 NOGLS"-----	3, 969. 465
Charleston, 3.25 miles northeast of, top of ridge, 12 feet south of road; iron post stamped "4240 NOGLS"-----	4, 252. 415
Tombstone, 2.25 miles southwest of, north side of hill, 40 feet south of road, in limestone outcrop; aluminum tablet stamped "4534 NOGLS"-----	4, 546. 295
Tombstone, in north wall of county courthouse, 4 feet east of north entrance; aluminum tablet stamped "4526 NOGLS"-----	4, 538. 259

Tombstone west along El Paso & Southwestern and Southern Pacific R. Rs.
to point near Elgin.

Tombstone, 3 miles west of, 300 feet west of trestle over Tombstone Gulch, 23 feet south of railroad track, in granite outcrop; bronze tablet stamped "4200 NOGLS"-----	4, 212. 257
Fairbank, 2.25 miles east of, 150 feet west of wagon road under trestle, 40 feet north of railroad, top of cut; iron post stamped "4016 NOGLS"-----	4, 028. 255
Fairbank, 1 mile east of, 365 feet west of public road crossing, in east end of north guard rail of bridge; on bolt-----	3, 924. 90
Fairbank, north side of street, 15 feet east of street corner, in front of Montezuma Hotel; iron post stamped "3847 NOGLS"-----	3, 858. 370
Fairbank, 3 miles west of, 680 feet west of milepost 1053, 40 feet west of iron bridge, 12 feet north of track, top of south wall of canyon, in granite rock; aluminum tablet stamped "3973 NOGLS"-----	3, 985. 587
Milepost 1054, 1,000 feet west of, in east end of south guard rail to bridge A; on bolt-----	4, 040. 03
Brookline, 0.8 mile west of, midway between milepost 1056 and 1057, at public road crossing, 15 feet north of track, east side of wagon road; iron post stamped "4111 NOGLS"-----	4, 122. 199
Huachuca, 1,480 feet east of station, 50 feet north of track, at fence corner; iron post stamped "4253 NOGLS"-----	4, 265. 296
Huachuca, in front of station; top of north rail-----	4, 281. 0
Huachuca, 3.25 miles west of, at old adobe town, 150 feet north of track, 2 feet south of gate and right of way fence; iron post stamped "4406 NOGLS"-----	4, 418. 322
Huachuca, 5 miles west of, in northwest corner of iron bridge; at milepost 1066; on bolt-----	4, 487. 58
Huachuca, 6 miles west of, 50 feet north of track, 50 feet east of milepost 1067; iron post stamped "4522 NOGLS"-----	4, 534. 292
Elgin, 2.8 miles east of, 35 feet south of track and road crossing, west edge of wagon road, at fence corner; iron post stamped "4617 NOGLS"-----	4, 629. 180

Charleston south along El Paso & Southwestern R. R. to point near Banning switch and return.

Charleston, 20 feet east of track, 20 feet north of road crossing; iron post stamped "3957 NOGLS"-----	Feet. 3,969.465
Culvert 2668, 600 feet east of, 600 feet east of Huachuca pipe line, 3 feet east of gate, in rock; aluminum tablet stamped "4000 NOGLS"-----	4,012.090
Lewis Springs, west wall of pump house; aluminum tablet stamped "4019 NOGLS"-----	4,030.887
Lewis Springs, 3.5 miles south of, 200 feet southeast of cut, 100 feet south of old roadbed, in rock; aluminum tablet stamped "4194 NOGLS"-----	4,206.344
Lewis Springs, 6.7 miles south of, 40 feet north of old roadbed, 550 feet west of large wash, in rock; aluminum tablet stamped "4359 NOGLS"-----	4,370.957
Banning switch, 1.5 miles south of, 0.25 mile south of bridge 90, 50 feet north of old roadbed; iron post stamped "4368 NOGLS"---	4,380.341

Point near Banning switch west to point near Robinson ranch.

Banning switch, 2 miles north of, 40 feet south of road; chisel mark on sunken boulder; mesquite tree near boulder marked "U. S. G. S. B. M. 4520"-----	4,532.69
Robinson ranch, 1.4 miles west of, south of forks in road 15 feet, in granite boulder 2 by 3 feet; bronze tablet stamped "4702 M. P. 92"-----	4,715.255
Robinson ranch, 100 yards south of house, 2 feet east of south gate post; chisel mark on stone; post marked "U. S. G. S. B. M. 4811"-----	4,823.81

REEF QUADRANGLE.

Point near Banning switch southeast along El Paso & Southwestern R. R. to Naco Junction.

Packard, 3 miles north of, 390 feet north of bridge 94, 40 feet east of railroad, in lime boulder; bronze tablet stamped "4489 M. P. 92"---	4,502.021
Packard, 100 feet east of platform of station, 50 feet east of track, 150 feet east of railroad crossing, south end of switch; iron post stamped "4666 M. P. 92"-----	4,678.969

BISBEE 15' QUADRANGLE.

International boundary monument 92 northeast along road to Don Luis, thence via El Paso & Southwestern R. R. to Bisbee, thence north-northeast and south along trail via Brewery Gulch and Sulphur Springs Valley Road to International boundary monument 88.

Naco, 0.5 mile east of, International boundary monument 92, top of masonry corner-----	4,603.395
Naco, 0.5 mile north of, 60 feet north of large signboard, at forks of wagon road to Naco; iron post stamped "4538 M. P. 92"-----	4,551.566
Hull's Halfway House, 1 mile south of, at road crossing, 20 feet east of main road to Naco; iron post stamped "4868 M. P. 92"---	4,881.331
Bisbee, 2.2 miles south of, railroad crossing at forks of roads, 10 feet west of railroad, 40 feet west of Bisbee-Naco Road; bronze tablet stamped "5166 M. P. 92"-----	5,178.865

Bisbee, Copper Queen Mining Co.'s store building, in northwest corner; bronze tablet stamped "5300 M. P. 92"-----	Feet. 5, 313. 208
Bisbee, 0.7 mile north of Copper Queen Mining Co.'s store, in Brewery Gulch, north of road, in front of house No. 7, point of ledge; bronze tablet stamped "5383 M. P. 92"-----	5, 396. 096
Bisbee, 1.7 miles north of, divide between Bisbee and Sulphur Springs Valley and forks of trail, in conglomerate projecting ledge; bronze tablet stamped "5939 M. P. 92"-----	5, 952. 159
Forest ranch, 6.5 miles north of, forks of Sulphur Springs Valley-Dixie Canyon wagon road, 1.5 miles north of main road; iron post stamped "4272 M. P. 92"-----	4, 285. 179
Forest ranch, 2.5 miles northeast of, 20 feet north of road to Wilcox, north side of big wash; iron post stamped "4357 M. P. 92"-----	4, 370. 209
Forest ranch, 3 miles south of, road to Slaughter ranch, 20 feet west of, and west of wash; iron post stamped "4354 M. P. 92"-----	4, 366. 998
Forest ranch, 6.5 miles south of, 0.25 mile north of lone buttes on flat, 10 feet east of road; iron post stamped "4284 M. P. 92"-----	4, 296. 947
Forest switch, 0.25 mile southwest of, 600 feet south of railroad, northeast corner of Slaughter ranch fence; iron post stamped "4237 M. P. 92"-----	4, 250. 011
Slaughter ranch, 1 mile south of, International monument 88, top of masonry-----	4, 330. 095

Bisbee west along Tombstone Road to point on El Paso & Southwestern R. R.
1.5 miles south of Banning switch, thence southeast via railroad to permanent bench mark 0.5 mile north of Naco.

Bisbee, 2.8 miles west of, divide between Tombstone and Bisbee, forks of wagon road, 60 feet north of main road to Tombstone, projection of quartz ledge; bronze tablet stamped "6038 M. P. 92"---	6, 050. 773
Cox ranch, 100 feet west of house, 12 feet north of wagon road, 50 feet north of corner of stone corral, granite boulder 2 feet out of ground; bronze tablet stamped "5094 M. P. 92"-----	5, 107. 221
Naco Junction, 60 feet southwest of platform, between wagon road and railroad; iron post stamped "4674 M. P. 92"-----	4, 687. 108

Bisbee south by road via Holbrook, Calumet and Arizona, Lowell, and Bisbee West mines to Don Luis.

Calumet & Arizona mine, "Irish Mag" shaft, 200 feet northeast of, 50 feet west of lime house and 10 feet west of road, in limestone ledge; aluminum tablet stamped "5540 M. P. 92"-----	5, 552. 995
Gardner mine, 200 feet south of shaft, summit of divide between Gardner and Lowell, 10 feet east of wagon road, in limestone rock; aluminum tablet stamped "5373 M. P. 92"-----	5, 386. 322
Lowell mine, 1,000 feet south of shaft, summit of divide between Lowell and South Bisbee, 5 feet west of trail, in projection of limestone ledge; aluminum tablet stamped "5431 M. P. 92"-----	5, 443. 938
Bisbee West mine, 60 feet west of office and 90 feet north of wagon road, in projection of granite ledge; aluminum tablet stamped "5399 M. P. 92"-----	5, 411. 850

Chiricahua, Cochise, Pearce, and San Simon Quadrangles (Chiricahua National Forest).

COCHISE COUNTY.

The elevations in the following list are based upon the precise-level line along the Southern Pacific Railroad as corrected in 1907. For additional elevations in the Cochise and San Simon quadrangles refer to precise-level list, pages 13-14. Additional elevations in the San Simon and Chiricahua quadrangles are given in list for New Mexico (Bulletin 464). The line from Cochise via Pearce and Shaw ranch to a point near Apache Pass is not finally adjusted. It closed 3.5 feet low, and assuming that a yard error was made in rod reading, that amount has been thrown at end of line near Apache Pass and the fraction 0.5 foot adjusted.

The leveling in the Pearce quadrangle was done by Chester Irvine in 1901 and by T. A. Green in 1907. The leveling in the three remaining quadrangles was done by Green in 1907.

SAN SIMON QUADRANGLE.

Bowie south along road to mouth of canyon 4.7 miles north of Apache Pass, thence northeast to San Simon.

	Feet.
Bowie, southeast corner of Solomon & Wickersham's store; iron post stamped "3748 H 111-1907"-----	3, 758. 956
Bowie, 3.41 miles south of, 15 feet west of road; iron post stamped "3817 1907"-----	3, 827. 943
Bowie, 6.44 miles south of, 50 feet east of road; iron post stamped "3930 1907"-----	3, 940. 348
Bowie, 9.21 miles south of, 10 feet east of road; iron post stamped "4167 1907"-----	4, 177. 785
Apache Pass, 5.01 miles northeast of, 1,400 feet east of mouth of canyon, south side of wagon road; aluminum tablet stamped "4453 1907"-----	4, 464. 139
Apache Pass, 8.01 miles northeast of, 1.24 miles northeast of T. J. Rigg ranch, west side of road, just south of stream crossing; iron post stamped "4303 1907"-----	4, 314. 348
Apache Pass, 10.81 miles northeast of, 4.04 miles northeast of T. J. Rigg ranch, west side of road; iron post stamped "4027 1907"-----	4, 038. 006
Apache Pass, 14 miles northeast of, 7.23 miles northeast of T. J. Rigg ranch, west side of road; iron post stamped "3810 1907"-----	3, 821. 168
Apache Pass, 16.81 miles northeast of, 10.04 miles northeast of T. J. Riggs ranch, west side of road; iron post stamped "3665 1907"-----	3, 675. 664
San Simon, 75 feet north of track, 100 feet west of station; iron post stamped "3601"-----	3, 611. 340
San Simon, 558 feet north of track, 700 feet northwest of station, in rock, San Simon triangulation station; aluminum tablet stamped "3598"-----	3, 610. 316
San Simon south along road to Eagle City, thence east to Cienaga, N. Mex.	
San Simon, 2.82 miles south of, 30 feet east of road; iron post stamped "3641 1907"-----	3, 651. 678

San Simon, 5.6 miles south of, 100 feet south of dry stream crossing, 10 feet west of road; iron post stamped "3753 1907"-----	Feet. 3,764.342
San Simon, 8.78 miles south of, 10 feet east of road; iron post stamped "3888 1907"-----	3,898.922
San Simon, 11.37 miles south of, 8 feet west of road, in large rock beside rock monument; aluminum tablet stamped "4074 1907"---	4,085.278
San Simon, 14.25 miles south of, 5 feet west of road; iron post stamped "4260 1907"-----	4,270.889
San Simon, 16.72 miles south of, 1 mile northeast of Eagle City, 5 feet east of road, in large rock just south of rock monument; aluminum tablet stamped "4454 1907"-----	4,464.404
Eagle City, 1.5 miles east of, west side of road at forks; iron post stamped "4574 1907"-----	4,584.470
Eagle City, 5.38 miles northeast of, 8 feet north of road; iron post stamped "4229 1907"-----	4,240.339
Eagle City, 8.20 miles northeast of, 10 feet south of road; iron post stamped "4027 1907"-----	4,037.935

Paramors ranch northwest to San Simon.

Cienaga, 3.06 miles north of, 0.56 mile north of Paramores ranch, 10 feet west of road; iron post stamped "3868 1907"-----	3,879.036
Cienaga, 6.32 miles northwest of, 3.82 miles northwest of Paramores ranch, 5 feet west of road, 75 feet east of San Simon River, in rock; aluminum tablet stamped "3796 1907"-----	3,806.839
Cienaga, 9.39 miles northwest of, 0.96 mile northwest of large adobe corral, 40 feet west of mesquite bush, 20 feet east of road, in rock; aluminum tablet stamped "3744 1907"-----	3,754.482
Cienaga, 13.25 miles northwest of, 9.75 miles northwest of Paramores ranch, 3.82 miles northwest of large adobe corral, 10 feet east of road; iron post stamped "3699 1907"-----	3,710.056
San Simon, 5.6 miles southeast of, 16.64 miles northwest of Cienaga, 7.21 miles northwest of large adobe corral, 13.14 miles northwest of Paramores ranch, 10 feet east of road; iron post stamped "3647 1907"-----	3,657.762
San Simon, 3.1 miles southeast of, 19.12 miles northwest of Cienaga, 75 feet northeast of northeast corner of old adobe ruin, 40 feet west of road, in large rock; aluminum tablet stamped "3616 1907"----	3,627.222

Bench mark 3.4 miles north of Shaw ranch north to Apache Pass and Canyon
4.7 miles north of pass.¹

Shaw ranch, 3.39 miles northwest of, on west side of wagon road, 40 feet north of fence corner; iron post stamped "4990 1907"-----	5,002.151
Shaw ranch, 6.46 miles northwest of, 1.99 miles northwest of Rigg ranch, 100 feet northwest of forks; iron post stamped "4840 1907"-----	4,851.918
Shaw ranch, 9.11 miles northwest of, west side of road; iron post stamped "4892 1907"-----	4,904.845
Shaw ranch, 12.84 miles northwest of, west side of road; iron post stamped "4940 1907"-----	4,952.383

¹ This is the last part of the line from Cochise in which an error of 3 feet has been thrown at the end and 0.5 foot adjusted; therefore one or more of the elevations may be 3 feet too low.

Apache Pass, 150 feet east of gap, north side of road, just south of ledge of rock; aluminum tablet stamped "5099 1907"-----	Feet. 5, 111. 376
Apache Pass, 2 miles east of, at junction with old road north through canyon, west side of stream bed, 30 feet south of road, in rock; aluminum tablet stamped "4663 1907"-----	4, 675. 510

CHIRACAHUA QUADRANGLE.

Crossroads 3.7 miles east of Halfway station east to Shaw ranch, thence north 4.7 miles.¹

West Well ranch, 16.23 miles east of, at forks at foot of hill on which is triangulation monument, south side of road east of forks; iron post stamped "5111 1907"-----	5, 123. 618
Shaw ranch, at forks about 0.5 mile west of, north side of road; iron post stamped "5281 1907"-----	5, 293. 275

Eagle City south to Paradise, thence southeast to Rodeo.

East Eagle City, 3.05 miles south of, 30 feet west of road, at sharp bend on top of hill leading to Turkey Creek, beside rock monument, in rock; aluminum tablet stamped "4969 1907"-----	4, 979. 510
Paradise, at forks of road just north of town, east side of creek, 15 feet south of telephone pole, 50 feet west of store of J. S. Cochran, on rock; aluminum tablet stamped "5386 1907"-----	5, 396. 673
Paradise, 2.81 miles southeast of, 8 feet south of road, 20 feet west of dry stream crossing, 8 feet north of live oak tree, in bowlder; aluminum tablet stamped "5128 1907"-----	5, 138. 809
Portals, 1.123 feet east of post office, 125 feet northeast of unoccupied dwelling 20 feet north of road, 20 feet east of telephone pole, in large rock; aluminum tablet stamped "4761 1907"-----	4, 772. 375
Portals, 3.37 miles southeast of, 10 feet east of road, in rock flush with ground; aluminum tablet stamped "4381 1907"-----	4, 392. 002
Portals, 7.21 miles southeast of, 100 feet west of road, in northeast corner of fence around windmill and water tank, in rock; aluminum tablet stamped "4101 1907"-----	4, 111. 812

COCHISE QUADRANGLE.

Cochise south along Arizona Eastern R. R. to Servoss.²

Cochise, 1.5 miles west of station, 100 feet south of milepost 1061; iron post stamped "147 1907"-----	4, 277. 550
Cochise, in front of station; top of rail-----	4, 225. 3
Cochise, 2.27 miles southeast of, 80 feet west of track, 350 feet south of old road crossing, 8 feet south of fence corner; iron post stamped "4179 1907"-----	4, 189. 964
Cochise, 4.57 miles southeast of, 85 feet west of railroad, 3 feet west of fence; iron post stamped "4178 1907"-----	4, 189. 265
Servoss, 100 feet east of track, 40 feet north of section house, 115 feet northeast of water tank; iron post stamped "4169 1907"-----	4, 179. 696

¹ Part of this line from Cochise closes 3 feet low near Apache Gap.

² This line continues on adjoining quadrangles and closes 3 feet low near Apache Pass on an adjusted elevation. An error of 0.5 foot has been adjusted, and an error of 3 feet thrown at the end of the line.

PEARCE QUADRANGLE.

Servoss southeast along Arizona Eastern R. R. to Pearce, thence west along road to crossroads 3.7 miles east of Halfway station.¹

Cochise, 10.62 miles southeast of, 750 feet south of road crossing, 90 feet west of track, 10 feet east of wagon road, on west side of fence; iron post stamped "4235 1907"-----	Fect. 4, 246. 297
Cochise, 13.7 miles southeast of, 100 feet west of track, west side of fence; iron post stamped "4308 1907"-----	4, 318. 610
Pearce, 0.37 mile east of station, 117 feet east of south switch, 160 feet east of Mr. Harper's yard; iron post stamped "4363 1907"-----	4, 373. 778
Pearce, in front of station; top of rail-----	4, 392. 5
Pearce, 3.27 miles east of, north side of road, 200 feet west of forks; iron post stamped "4305 1907"-----	4, 315. 763
Pearce, 5.83 miles east of, 8 feet south of wagon road; iron post stamped "4267 1907"-----	4, 278. 397
Pearce, 8.29 miles east of, 0.75 mile east of West Well ranch, north side of wagon road; iron post stamped "4297 1907"-----	4, 308. 363
Pearce, 11.47 miles east of, 3.93 miles east of West Well ranch, on north side of wagon road; iron post stamped "4358 1907"-----	4, 368. 878
Pearce, 14.34 miles east of, 6.8 miles east of West Well ranch, on north side of road; iron post stamped "4467 1907"-----	4, 478. 601
Pearce, 17.06 miles east of, 9.52 miles east of West Well ranch, 100 feet northeast of Halfway station, north side of wagon road; iron post stamped "4607 1907"-----	4, 617. 736
Halfway station, 3.13 miles east of, north side of road; iron post stamped "4799 1907"-----	4, 810. 206

At mouth of Dixie Canyon.

Dixie Canyon, at mouth of, on west side of water course at forks of trail; iron post stamped "4604 M. P. 92"-----	4, 616. 938
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Boyles and Duncan 30' Quadrangles.

GRAHAM COUNTY.

The elevations previously used for bench marks in the following list, taken partly from Bulletin 185, were based on an aluminum tablet marked "1090" in the north front of the Maricopa County courthouse at Phoenix, Ariz., and the permanent bench marks are, therefore, stamped "PHNX." These lines connect through New Mexico lines with a precise line at Silver City, and the elevations listed herein have been corrected by subtracting one foot from the previous values.

The leveling was done in 1900 by John T. Stewart and Thomas Winsor and in 1902-3 by Chester Irvine.

DUNCAN QUADRANGLE.

Point 7 miles east of Solomonsville northeast to point 6 miles southeast of Clifton.

Solomonsville, 8.5 miles northeast of, on south side of road, at junction with abandoned road at bend, 120 feet southwest of point where telephone line crosses road; iron post stamped "3400 PHNX"-----	Fect. 3, 398. 937
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¹ Part of the line closing 3 feet low at Apache Pass.

Solomonsville, 12 miles northeast of, in forks of road, 2.5 miles south-west of tollgate; iron post stamped "3706 PHNX"-----	Feet. 3, 704. 752
Solomonsville, 14.5 miles northeast of, at southeast corner of gate-keeper's house on north side of road, 40 feet east of tollgate; iron post stamped "4090 PHNX"-----	4, 089. 198
Coronado, 11.5 miles southwest of, on southeast side of road, opposite brown cliffs, 3 miles east of tollgate; in top of large sloping pink rock; aluminum tablet stamped "4394 PHNX"-----	4, 393. 226
Coronado, 8.25 miles southwest of, 7 feet north of road at summit of pass over Peloncillo range; iron post stamped "4804 PHNX"-----	4, 802. 696
Coronado, 5.8 miles southwest of, 10 feet southeast of road opposite gulch from southeast, in top of malpais rock; aluminum tablet stamped "4386 PHNX"-----	4, 385. 297
Coronado, 2.5 miles southwest of, northwest side of road on rocky ridge, in top of ledge; aluminum tablet stamped "4037 PHNX"-----	4, 036. 029
Coronado, on east side of road near warning sign, 40 feet south of Arizona & New Mexico Railway track, 50 feet northeast of Coronado stage station; iron post stamped "3451 PHNX"-----	3, 450. 020
Arizona & New Mexico Railway crossing; top of rail-----	3, 447. 5
Gila River, bed of, at ford-----	3, 429. 0
Coronado, 3 miles northeast of, 15 feet south of point where road begins steep descent to Rattlesnake wash; iron post stamped "3816 PHNX"-----	3, 814. 665
Clifton, 6.5 miles southeast of, on north side of road at top of short steep hill, about 0.5 mile southwest of Phillips ranch; iron post stamped "4059 PHNX"-----	4, 057. 597

Clifton south along Arizona & New Mexico Ry. to Guthrie.

Clifton, 5.5 miles south of, 35 feet west of main track, 250 feet south of north head block at north siding, in top of embedded boulder; aluminum tablet stamped "3798 PHNX"-----	3, 796. 731
Guthrie, 2.5 miles northwest of, 500 feet southeast of milepost 9, 20 feet southwest of and 8 feet above track; aluminum tablet stamped "3588 PHNX"-----	3, 587. 159
Guthrie, northeast corner of section yard, 130 feet south of station; iron post stamped "3415 PHNX"-----	3, 413. 892

Coronado south to Sheldon, thence west via Ash Peak Spring to Solomonsville.

Coronado, 4.5 miles southeast of, 13 feet southwest of track, on curve near mouth of York Canyon, in top of ledge; aluminum tablet stamped "3502"-----	3, 501. 251
Sheldon, 4.2 miles northwest of, 20 feet east of a trestle under which a wagon trail passes; iron post stamped "3520 PHNX"-----	3, 519. 043
Sheldon, 75 feet north of road crossing at station platform, 60 feet west of track; iron post stamped "3570 PHNX"-----	3, 568. 620
Sheldon, 3.3 miles southwest of, 25 feet south of road, near point where road leaves gulch and crosses small divide; iron post stamped "3926 PHNX"-----	3, 924. 936
Ash Peak Spring, 150 feet northeast of, 125 feet northeast of road; iron post stamped "4184 PHNX"-----	4, 183. 144
Ash Peak Spring, 2.3 miles west of, summit of divide, 25 feet north of road; marked "4398 PHNX"-----	4, 396. 946

Ash Peak Spring, 5.7 miles west of, 15 feet north of road; iron post stamped "4117 PHNX"-----	Feet. 4, 116. 002
Ash Peak Spring, 8.9 miles west of, 20 feet north of road, 300 feet north of ravine; iron post stamped "3865 PHNX"-----	3, 864. 064
Ash Peak Spring, 11 miles west of, 20 feet north of road, west bank of ravine; iron post stamped "3706 PHNX"-----	3, 705. 014
Ash Peak Spring, 14 miles west of, 20 feet north of road; iron post stamped "3481 PHNX"-----	3, 480. 541
Ash Peak Spring, 17.1 miles west of, 20 feet north of road, west bank of ravine; iron post stamped "3295 PHNX"-----	3, 294. 151

Sheldon southeast along railroad to Duncan, thence ^{across} along highway northeast
8.6 miles.

Sheldon, 75 feet north of road crossing at station platform, 60 feet west of track; iron post stamped "3570 PHNX"-----	3, 568. 620
Sheldon, 3.4 miles east of, 50 feet northwest of Arizona & New Mexico Railway bridge 95, 12 feet southwest of railroad-fence corner; iron post stamped "3598 PHNX"-----	3, 597. 142
Sheldon, 4.2 miles east of, railroad bridge 100, top of south rail----	3, 606. 39
Sheldon, 5.8 miles east of, 40 feet west of Ash Peak Spring road crossing, in fence post; railroad spike-----	3, 620. 25
Duncan, 100 feet northwest of Burtcher residence; iron post stamped "3643 PHNX"-----	3, 642. 234
Duncan, 0.8 mile north of, north gate post to ranch; wire nail near ground-----	3, 660. 01
Duncan, 3.3 miles south of; 30 feet east of road on side of small hill, stone monument, alongside boulder; chiseled square on boulder---	3, 846. 10
Duncan, 5 miles north of, 20 feet west of road, on sunken boulder; chiseled square-----	4, 022. 52
Duncan, 8.6 miles north of, 10 feet west of road, in stone; chiseled square-----	4, 592. 37

Bench marks southeast of Duncan.

Arizona-New Mexico boundary post, marked "No. 296 32° 11' 30'' N. L.", 48 feet east of wagon road; iron post stamped "3736 PHNX"-----	3, 735. 361
Day ranch, 0.25 mile north of, 1.8 miles east of, end of ridge, 10 feet north of road, 40 feet north of large ditch; iron post stamped "3695 PHNX"-----	3, 694. 355

BOYLES QUADRANGLE.

Clifton southeast up Ward Canyon.

Clifton, southeast corner of post office and library building; iron post stamped "3465 PHNX"-----	3, 464. 165
Clifton, in front of station; top of rail-----	3, 455. 0
Clifton, 4.5 miles southeast of, in top of embedded red boulder, 20 feet northeast of road at summit of hill, 600 feet east of telephone mile board 34; aluminum tablet stamped "4172 PHNX"-----	4, 170. 939

Clifton northwest along wagon road to Morenci, thence north via Longfellow mine and Chase Creek to Metcalf.

Clifton, 2.3 miles west of, north side of Chase Creek, 0.5 mile east of stone house, edge of road at foot of hill, in white rock 2 by 3 feet and 12 inches high; aluminum tablet stamped "3703 PHNX"-----	Feet. 3, 701. 777
Clifton, 3.5 miles northwest of, top of east ridge on Clifton and Morenci wagon road, 75 feet north of fork of road, in white rock 2 by 3 feet and 12 inches high; aluminum tablet stamped "4316 PHNX"-----	4, 315. 079
Morenci, 0.9 mile southeast of, 500 feet below trestle of second loop going up canyon, west side of road at foot of cliff, 2 feet higher than road; aluminum tablet stamped "4541 PHNX"-----	4, 539. 811
Morenci, northeast corner of Detroit Copper Co.'s store, 0.5 foot higher than water table on main entrance; aluminum tablet stamped "4839 PHNX"-----	4, 837. 582
Morenci, north side of trail on top of divide between Detroit Copper Co.'s store and Longfellow mine, 125 feet northeast of company hospital; iron post stamped "4992 PHNX"-----	4, 990. 973
Longfellow mine incline, 300 feet northwest of foot of, 25 feet north of railroad, south bank of Chase Creek, large rock; aluminum tablet stamped "3989 PHNX"-----	3, 988. 162
Metcalf, 0.8 mile south of, east side of railroad track at foot of bluff, 300 feet northeast of stone house at foot of Queen mine incline, in rock ledge 10 feet higher than track; aluminum tablet stamped "4294 PHNX"-----	4, 293. 041
Metcalf, 900 feet south of Metcalf mine incline, east of railroad track, foot of rock ledge, 8 feet higher than track; aluminum tablet stamped "4415 PHNX"-----	4, 413, 928
Metcalf, southeast corner of Shannon Mine Co.'s office; iron post stamped "5543 PHNX"-----	5, 542. 103
Metcalf, summit of Shannon mountain; bronze tablet stamped "5628 PHNX"-----	5, 626. 935

Clifton up San Francisco River 6 miles.

Harper ranch, 1.9 miles north of, foot of east bluff of canyon, 300 feet east of river, 50 feet east of road; iron post stamped "3624 PHNX"-----	3, 622. 993
Harper ranch, 0.2 mile northeast of, east side of river at foot of cliff 25 feet high, 75 feet east of road; iron post stamped "3579 PHNX"-----	3, 577. 743
Evans Point, Moody's blacksmith shop, 500 feet east of southwest corner of, 25 feet north of river, north side of road, reddish granite ledge; aluminum tablet stamped "3542 PHNX"-----	3, 540. 765
Potter ranch, south side of entrance to, on west side of road; iron post stamped "3504 PHNX"-----	3, 502. 834
Clifton, 0.7 mile north of post office, east edge of road, east side of river, in foot of red ledge of rock; iron post stamped "3467 PHNX"-----	3, 465. 968

Big Lue ranch along highway southwest.

Big Lue ranch, 0.6 mile southwest of, at south gate to farm; surface of ground-----	6, 082. 84
Big Lue ranch, 2 miles southwest of, at forks of road, on boulder; chisel mark-----	6, 201. 95

Big Lue ranch, 2.9 miles southwest of, north of and 4 feet above road, summit of mountain; aluminum tablet stamped "6382 PHNX"-----	Feet. 6, 380. 951
Big Lue ranch, 4.1 miles southwest of, 10 feet east of trail, at drain crossing, on boulder; chisel mark-----	5, 686. 17
Big Lue ranch, 5.5 miles south of, foot of mountains and forks of road; iron post stamped "5109 PHNX"-----	5, 108. 114
Big Lue ranch, 7.5 miles south of, east side of road, at foot of hill, on boulder; chisel mark-----	4, 589. 56
Big Lue ranch, 10.4 miles south of, 20 feet north of road, near lone tree on flat; iron post stamped "4466 PHNX"-----	4, 465. 297
Big Lue ranch, 11.6 miles south of, 30 feet east of road, in drain, on boulder; chisel mark-----	4, 161. 76

Point 8 miles north of Clifton, Ariz., up San Francisco River to Arizona-New Mexico line.

Harper ranch, 4.3 miles north of, 100 feet east of river, 30 feet east of road, on boulder; chisel mark-----	3, 667. 73
Harper ranch, 5.5 miles north of, 20 feet west of road, at fence corner; iron post stamped "3699 PHNX"-----	3, 698. 076
Hays ranch, 150 feet east of house, 150 feet west of wagon road, 30 feet south of corral; iron post stamped "3778 PHNX"-----	3, 777. 066
Sutherlin ranch, 550 feet east of house, driven in top of stump, bolt-----	3, 808. 81
Sutherlin ranch, 1 mile northeast of, southwest fence corner of deserted ranch, north side of road and river, on boulder; chiseled square-----	3, 831. 36
Blue Creek, mouth of, northwest corner of schoolhouse; iron post stamped "3866 PHNX"-----	3, 864. 876
Welch ranch, 0.3 mile south of, 40 feet east of road, 300 feet south of old house; iron post stamped "3973 PHNX"-----	3, 971. 564
Welch ranch, 1.5 miles north of, 10 feet east of road, in root of sycamore tree; wire nail-----	4, 004. 16
Welch ranch, 2.6 miles northeast of, 60 feet from road, 100 feet south of river and under high cliff; iron post stamped "4028 PHNX"-----	4, 027. 125
Welch ranch, 4.8 miles north of, 100 feet west of creek, 10 feet east of road, on boulder; chiseled square-----	4, 083. 96
Welch ranch, 5.6 miles north of, 70 feet northeast of log cabin, 50 feet southeast of corral of deserted ranch; aluminum tablet stamped "4120 PHNX"-----	4, 119. 295
Welch ranch, 7.1 miles northeast of, 150 feet south of river, 30 feet north of road, on boulder; chiseled square-----	4, 151. 04

Desert Well, Florence, Fort Thomas, Gila Butte, Gilson, Globe, Maricopa, Mesa, Phoenix, Ray, Sacaton, San Carlos, and Solomonsville Quadrangles.

GILA, GRAHAM, MARICOPA, AND PINAL COUNTIES.

The elevations in the following list are based on an aluminum tablet stamped "1090" set in north front of the Maricopa County courthouse at Phoenix, the elevation of which is now accepted as 1,089.910 feet above mean sea level.

The leveling was done in 1899 and 1900 by Thomas Winsor, in 1900 and 1901 by J. T. Stewart, and in 1902, 1903, and 1904 by the Reclamation Service.

The six following bench marks were established by the United States Reclamation Service in 1902, 1903, and 1904:

MARICOPA QUADRANGLE.

Along Arizona Eastern R. R. from milepost 899 to Sacaton.

Milepost 899, iron post stamped "1200 PHNX" (redetermined by precise leveling)-----	Feet. 1, 199. 995
Maricopa, about 0.75 mile southeast of, northwest end of triangulation base line north side of track opposite milepost 897, bronze tablet (redetermined by precise leveling)-----	1, 179. 527
Maricopa, in front of station; top of rail-----	1, 175. 0
Maricopa, 75 feet west of station; iron post stamped "1175 PHNX" (redetermined by precise leveling)-----	1, 174. 891
Maricopa, 4.25 miles north of, west side of track; iron post stamped "1145 PHNX"-----	1, 144. 750
Sacaton station on the Arizona Eastern R. R., 60 feet south of switch head block; iron post stamped "1127 PHNX"-----	1, 126. 911

PHOENIX QUADRANGLE.

At Phoenix.

Phoenix, Maricopa County courthouse, north front of, in projection at northwest corner, 15 feet west of main entrance, 3 feet above ground; aluminum tablet stamped "1090 PHNX"-----	1, 089. 910
Phoenix, opposite Santa Fe, Prescott & Phoenix Ry. station; top of rail-----	1, 081. 5
Phoenix, on east side of Seventh Street, 100 feet southeast of Arizona Eastern R. R. station, between two cottonwood trees; iron post stamped "1083 PHNX"-----	1, 082. 920
Phoenix, opposite Arizona Eastern R. R. station; top of rail-----	1, 082. 0

At point 2 miles north of Phoenix.

Phoenix, 2 miles north of, northwest side of crossroads; iron post stamped "1096 PHNX"-----	1, 095. 988
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Phoenix northeast along Camp Creek Road to Ashers ranch, thence down Rio Verde to Salt River.

Phoenix, 3.2 miles north of, 20 feet west of road, on ditch bank at forks of road 400 feet south of brick church; iron post stamped "1108 PHNX"-----	1, 108. 056
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The following bench marks were established by the Reclamation Service in 1902, 1903, and 1904:

Northeast corner of sec. 31, T. 2 N., R. 4 E., northwest to permanent bench mark at southwest corner of sec. 18, T. 2 N., R. 3 E.

T. 2 N., R. 3 E., northwest corner of sec. 25; iron post stamped "1211 PHNX"-----	Feet. 1, 211. 281
T. 2 N., R. 3 E., southwest corner of sec. 16; iron post stamped "1136 PHNX"-----	1, 135. 928
T. 2 N., R. 2 E., northeast corner of sec. 24; iron post-----	1, 134. 901

Southwest corner of sec. 19, T 2 N., R. 2 E., to "Six Points."

T. 2 N., R. 2 E., southwest corner of sec. 19, 100 feet north of cross-roads, east side of road, in root of cottonwood tree; nail-----	Feet. 1, 092.42
T. 2 N., R. 2 E., southwest corner of sec. 30, southwest corner of cross-roads, in root of large cottonwood tree; nail-----	1, 077.77
T. 2 N., R. 2 E., southwest corner of sec. 31, northeast corner of cross-roads, in root of large cottonwood tree; nail-----	1, 059.33
T. 2 N., R. 1 E., southeast corner of sec. 36, 35 feet west of fence corner, near wire fence, north side of road; iron post stamped "1058 PHNX"-----	1, 057.916
T. 2 N., R. 1 E., southeast corner of sec. 33, southeast corner of cross-roads, in root of cottonwood tree; nail-----	1, 075.53
T. 2 N., R. 1 E., southeast corner of sec. 34, north side of road, in front of schoolhouse, in root of cottonwood tree; nail-----	1, 077.32
"Six Points," sec. 36, T. 2 N., R. 2 E., southeast corner of crossroads; iron post stamped "1081 PHNX"-----	1, 080.450

Southwest corner of sec. 17, T. 2 N., R. 1 E., to southwest corner of sec. 24, T. 1 N., R. 1 E.

T. 2 N., R. 1 E., southwest corner of sec. 17, in root of cottonwood tree; nail-----	1, 034.82
T. 2 N., R. 1 E., southwest corner of sec. 20, in root of large cottonwood tree; nail-----	1, 022.66
T. 1 N., R. 1 E., in northwest corner of sec. 6, east side of road, 7 feet from fence (south) corner; iron post stamped "1000 PHNX"-----	999.878
T. 1 N., R. 1 E., southwest corner of sec. 30, northeast of junction of roads, in large mesquite tree; nail-----	943.55
T. 1 N., R. 1 E., northeast corner of sec. 1, northeast corner of crossroads, in root of cottonwood tree; nail-----	1, 059.33
T. 1 N., R. 1 E., at southeast corner of sec. 12, at northeast corner of crossroads, in root of cottonwood tree; nail-----	1, 029.62
T. 1 N., R. 1 E., 200 feet south of southeast corner of sec. 13, in stump of mesquite tree; nail-----	1, 015.55
T. 1 N., R. 2 E., northwest corner of sec. 30, 35 feet south of ditch running west, 2 feet from small ditch running south, east side of road; iron post stamped "1006 PHNX"-----	1, 005.751
T. 1 N., R. 1 E., on southwest corner stone of sec. 24-----	995.15

Sec. 30, T. 1 N., R. 1 E., to south bank of Gila River and return.

T. 1 N., R. 1 W., southeast corner of SE. $\frac{1}{4}$ sec. 36, 100 feet south of small grove of young cottonwood trees, on south bank of Gila River, 10 feet north of small ditch running west, initial point of survey of "Gila and Salt River base and meridian," northwest corner of small butte; iron post stamped "944 PHNX"-----	943.836
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Southeast corner of sec. 24, T. 1 N., R. 1 E., southeast around western point of mountain range south of Phoenix to point on Arizona Eastern R. R. 1 mile south of Kyrene.

T. 1 N., R. 1 E., 100 feet west of southeast corner of sec. 24, in cottonwood tree; nail-----	1, 005.273
T. 1 S., R. 1 E., 20 feet west of northeast corner stone of sec. 1, south side of road along base line; iron post stamped "995 PHNX"-----	994.768

T. 1 S., R. 2 E., SE. $\frac{1}{4}$ sec. 20, edge of Indian reservation, 800 feet west of trading post, beside rock marked "G.R.I.R.B.M." with monument of loose rock close by; iron post stamped "1052 PHNX"-----	Feet. 1,051.678
T. 1 S., R. 2 E., SE. $\frac{1}{4}$ sec. 32, on town line, at northeast corner of St. John Chapel (large adobe building); iron post stamped "1031 PHNX"-----	1,030.504
T. 2 S., R. 3 E., SW. $\frac{1}{4}$ sec. 5, well 15 feet south of group of buildings at mine; iron post stamped "1127 PHNX"-----	1,126.768
T. 1 S., R. 3 E., in southeast corner of sec. 36, triangulation point; iron post stamped "1168 PHNX"-----	1,168.424

MESA QUADRANGLE.

Phoenix via Arizona Eastern R. R. to Tempe.

Phoenix, 4 miles east of, on west side of public road, 16 feet south of track; iron post stamped "1132 PHNX"-----	1,131.883
Bridge over Salt River; top of rail-----	1,165.0
Tempe, opposite station; top of rail-----	1,159.0
Tempe, north end of station, 50 feet east of main track; iron post stamped "1158 PHNX"-----	1,158.077

Tempe along Arizona Eastern R. R. to Mesa.

Tempe, 2.5 miles southeast of, on south side of road, opposite road running north; iron post stamped "1177 PHNX"-----	1,177.063
Mesa station, 1.5 miles northwest of, at northeast corner of crossroads, 30 feet north of track; iron post stamped "1235 PHNX"-----	1,235.109
Mesa, 250 feet southwest of station, near corner of wire fence on east side of public road; iron post stamped "1244 PHNX"-----	1,244.074

Mesa along Florence Road to Highland Canal.

Mesa, 3 miles southeast of, near wire fence corner at southeast corner of crossroads; iron post stamped "1243 PHNX"-----	1,243.146
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Point 4 miles south of Kyrene north to Tempe.

Kyrene, 1 mile south of, 25 feet east of track on east side of public road; iron post stamped "1157 PHNX"-----	1,156.889
Kyrene, in front of signboard; top of rail-----	1,173.6
Kyrene, 1.5 miles north of, on top of bank 20 feet east of track, 180 feet south of culvert, west side of road; iron post stamped "1198 PHNX"-----	1,197.787
Tempe, 3.8 miles south of, 35 feet east of track, near fence, corner of field having small reservoir; iron post stamped "1188 PHNX"-----	1,187.686
Petersen, in front of signboard; top of rail-----	1,179.8

The following bench marks were established by the Reclamation Service in 1902, 1903, and 1904:

Mesa, Arizona Eastern R. R. station, northeast to T. 2 N., R. 6 E.

Mesa, opposite station; iron post stamped "1244 PHNX"-----	Feet. 1,244.074
T. 2 N., R. 6 E., SE. $\frac{1}{4}$ sec. 29, in masonry abutment of waterway of Consolidated Canal; bronze tablet stamped "1273 PHNX"-----	1,273.336

Bridge over Arizona Canal at power house 3.7 miles southwest of Arizona Dam southwest along power line to northeast corner of sec. 31, T. 2 N., R. 4 E.

T. 2 N., R. 6 E., NE. $\frac{1}{4}$ sec. 20, at power line pole; iron post stamped "1281 PHNX"-----	Feet. 1, 280. 422
T. 2 N., R. 5 E., 0.25 mile north of southwest corner of sec. 23 at power line pole; iron post stamped "1286 PHNX"-----	1, 285. 474
T. 2 N., R. 5 E., 0.12 mile west of north quarter corner of sec. 28; iron post stamped "1260 PHNX"-----	1, 260. 185
T. 2 N., R. 4 E., southeast corner of sec. 22; iron post stamped "1261 PHNX"-----	1, 260. 590
T. 2 N., R. 4 E., near southeast corner of sec. 31, about 100 feet northwest of highway bridge over cross-cut canal; iron post-----	1, 192, 203
T. 1 N., R. 3 E., near east quarter corner of sec. 12, 15 feet south of Arizona Eastern R. R. track; iron post stamped "1132 PHNX"-----	1, 131. 883

Point 1 mile south of Kyrene east 13 miles, thence southeast to permanent bench mark on road from Mesa to Desert Well.

T. 1 S., R. 4 E., southeast corner of sec. 33, in corner post; nail-----	1, 162. 39
T. 1 S., R. 4 E., southwest corner of sec. 34, 20 feet north of fence corner, east side of public road; iron post stamped "1166 PHNX"-----	1, 166. 239
T. 2 S., R. 5 E., 120 feet south of northwest corner of sec. 6, on line of wire fence; iron post stamped "1184 PHNX"-----	1, 183. 924
T. 1 S., R. 5 E., southeast corner of sec. 33, ditch along south side of fence at fence corner, on west side of public road; iron post stamped "1217 PHNX"-----	1, 216. 964
T. 1 S., R. 5 E., southeast corner of sec. 36; top of stone-----	1, 238. 91
T. 1 S., R. 5 E., sec. 36, on south side of abandoned irrigation ditch, wagon roads running north and south on both sides of post; iron post stamped "1252 PHNX"-----	1, 251. 586

DESERT WELL QUADRANGLE.

Highland Canal southeast along Florence Road to Desert Well.

Mesa, 6.25 miles southeast of, 60 feet south of road on north side of giant cactus about 30 feet high; iron post stamped "1295 PHNX"-----	1, 295. 179
Desert Well, 5.25 miles northwest of, 20 feet northeast of road at point where road forks into two wagon tracks; iron post stamped "1351 PHNX"-----	1, 350. 917
Desert Well, 2.25 miles northwest of, northeast side of road at bend, 25 feet southeast of small drain; iron post stamped "1407 PHNX"-----	1, 407. 092
Desert Well, at northeast corner of fence inclosing Thomas Buchanan's residence; iron post stamped "1446 PHNX"-----	1, 446. 935

Desert Well southeast 6 miles along public roads toward Florence.

Desert Well, 3 miles southeast of, on southwest side of road; iron post stamped "1490 PHNX"-----	1, 489. 970
Desert Well, 6 miles southeast of, on northeast side of road; iron post stamped "1592 PHNX"-----	1, 542. 047

Desert Well along Mesa and Silver King Road 6 miles.

Desert Well, 3 miles east of, 30 feet north of road; iron post stamped "1525 PHNX"-----	1, 524. 985
Desert Well, 6 miles east of, on north side of road, 150 feet west of small wash; iron post stamped "1609 PHNX"-----	1, 609. 033

Point northeast of Desert Well north to Goldfield.

Goldfield, 4 miles south of, on east side of road at bend; iron post stamped "1765 PHNX"-----	Feet. 1,765.075
Goldfield, 1 mile southwest of, in forks, at junction with Mesa and Goldfield Road; iron post stamped "1934 PHNX"-----	1,934.015

The following bench marks were established by the Reclamation Service in 1902, 1903, and 1904:

At head gate of Consolidated Canal.

Head gate of Consolidated Canal, coping of northwest abutment-----	Feet. 1,297.10
Point 0.3 mile northwest of Higley switch northeast to permanent bench mark on road between Mesa and Desert Wells.	
Higley switch, 0.3 mile northwest of; T. 1 S., R. 6 E., center of sec. 28, beside telegraph pole, on southwest side of Arizona Eastern R. R.; iron post stamped "1290 PHNX"-----	1,290.107
Mesa, northeast of, on road to Desert Well; iron post stamped "1350 PHNX"-----	1,350.917

FLORENCE QUADRANGLE.

Point 6 miles southeast of Desert Well southeast to Florence.

Desert Well, 9 miles southeast of, on northeast side of road in open place on desert; iron post stamped "1601 PHNX"-----	1,601.028
Desert Well, 12 miles southeast of, on northeast side of road about 0.5 mile southeast of Queen Creek; iron post stamped "1631 PHNX"-----	1,630.995
Florence, 11.8 miles northwest of, on northeast side of road beside mesquite stump near bend; iron post stamped "1631 PHNX"-----	1,631.157
Florence, 8.5 miles northwest of, 35 feet northwest of crossroad; iron post stamped "1618 PHNX"-----	1,618.058
Florence, 6 miles north of, on west side of road; iron post stamped "1595 PHNX"-----	1,595.018
Florence, 4 miles north of, in forks of road at junction with road running northeast to Raymert, 7 feet north of guideboard "Gold fields, 26 miles; Florence, 4 miles;" iron post stamped "1619 PHNX"-----	1,618.957
Florence, 1.25 miles north of, in forks of road at junction with road running northwest; iron post stamped "1479 PHNX"-----	1,478.952
Gila River, bed of, center of stream at road crossing-----	1,450.
Florence, west front of Pinal County courthouse in southwest corner of west wing, about 3 feet above ground; aluminum tablet stamped "1493 PHNX"-----	1,492.835

Florence west 6.8 miles.

Florence, 3.8 miles southwest of, 50 feet west of forks of road, about 1,000 feet east of Adamsville ruins; iron post stamped "1441 PHNX"-----	1,440.848
Florence, 6.8 miles southwest of, on north side of road, 100 feet southeast of adobe ruins; iron post stamped "1421 PHNX"-----	1,420.853

Florence along Canal Road to The Buttes.

Florence, 2.5 miles east of, in forks of Butte-Florence and Florence-Kelvin Roads, 50 feet west of canal; iron post stamped "1534 PHNX"	Feet. 1, 534. 088
Florence, 3 miles northeast of, near wire fence corner, at junction with dim road west on north line of sec. 32, T. 3 S., R. 10 E., 700 feet southwest of adobe ranch house; iron post stamped "1535 PHNX"	1, 534. 853
Florence, 6 miles northeast of, by a wire fence corner on northwest side of road, opposite forks; iron post stamped "1531 PHNX"	1, 530. 992
White ranch, 0.8 mile east of, top of granite ledge on southwest bank of Gila River, 150 feet southeast of canal head gate; aluminum tablet stamped "1574 PHNX"	1, 573. 539
The Buttes, gaging station; zero point of gage rod	1, 581. 94
The Buttes, face of cliff, west side of Gila River, 4.25 feet above surface on axis of proposed dam; bronze tablet stamped "1592 PHNX"	1, 592. 308

The Buttes along road via Donnelly's Well to Florence.

Donnelly's Well, 0.5 mile southwest of, on south side of road, at bend on top of hill; iron post stamped "2281 PHNX"	2, 281. 000
Donnelly's Well, 4 miles west of, on east side of road near north bank of small wash; iron post stamped "2097 PHNX"	2, 097. 065
Donnelly's Well, 7 miles west of, on south side of road at top of small hill; iron post stamped "1929 PHNX"	1, 929. 118
Florence, 6.5 miles east of, 75 feet southeast of junction with road running to Mammoth; iron post stamped "1769 PHNX"	1, 769. 178

Point 6 miles east of Desert Well east along Silver King Road to Hewitt ranch.

Desert Well, 9 miles east of, on north side of road at bend, 35 feet southeast of small wash; iron post stamped "1710 PHNX"	1, 710. 130
Whitlow ranch, 8.5 miles west of, on north side of road; iron post stamped "1832 PHNX"	1, 831. 763
Whitlow ranch, 5.25 miles west of, on south side of road, standing 2 feet above surface of ground, surrounded by mound of bowlders and earth; iron post stamped "1923 PHNX"	1, 922. 890
Whitlow ranch, 2.8 miles west of, in top of sandstone ledge on north, west side of road, at base of rocky hill, 40 feet northwest of Queen Creek; aluminum tablet stamped "1962 PHNX"	1, 962. 120
Queen Creek gaging station; zero of gage rod	2, 042. 14
Whitlow ranch, 1,000 feet east of, on sloping ledge 13 feet south of south edge of Queen Creek bed, on axis of proposed dam; bronze tablet stamped "2056 PHNX"	2, 056. 299

Hewitt ranch along Mesa and Silver King Road to Pinal.

Hewitt ranch, 1 mile east of, east side of road, 70 feet northwest of Queen Creek; iron post stamped "2171 PHNX"	2, 170. 682
Pinal, 3 miles west of, side hill, south side of road, 100 feet east of a wash; iron post stamped "2336 PHNX"	2, 335. 956
Pinal, top of sandstone outcrop 500 feet north of town, east side of road; aluminum tablet stamped "2529 PHNX"	2, 528. 821

Pinal north to Silver King, thence southwest to point west of Pinal.

Silver King, 2 miles southwest of, top of pink sandstone boulder on east side of road, 170 feet north of wash; aluminum tablet stamped "3023 PHNX" -----	Feet. 3, 022. 725
Silver King, south side of road at summit of steep hill on west edge of town; iron post stamped "3553 PHNX" -----	3, 552. 539
Silver King, 4.8 miles southwest of, northwest side of road, at junction with road running north to Whitford ranch; iron post stamped "2561 PHNX" -----	2, 560. 681

Point near Pinal southwest via Reymert to bench mark 4 miles north of Florence.

Reymert, 4 miles northeast of, north side of road near end of brush fence, 75 feet north of house at Nicholas ranch; iron post stamped "2406 PHNX" -----	2, 405. 546
Reymert, 0.8 mile northeast of, northeast side of road, at south end of deep cut on summit of hill; iron post stamped "3160 PHNX" --	3, 160. 207
Reymert, 2.25 miles southwest of, southeast side of road at bend; iron post stamped "2321 PHNX" -----	2, 321. 24
Reymert, 5.8 miles southwest of, northwest side of road at bend, 35 feet north of small wash; iron post stamped "2004 PHNX" -----	2, 003. 514
Reymert, 8.25 miles southwest of, east side of road, 25 feet southeast of small wash; iron post stamped "1845 PHNX" -----	1, 844. 594
Florence, 9 miles northeast of, northwest side of road opposite forks, at junction with road running northeast to Whitlow ranch; iron post stamped "1725 PHNX" -----	1, 724. 487
Florence, 6.5 miles northeast of, on east side of road at junction with old wood road; iron post stamped "1646 PHNX" -----	1, 645. 527

Whitlow ranch southwest to point 9 miles northeast of Florence.

Whitlow ranch, 2 miles southwest of, 50 feet northeast of forks at junction with old Florence and Silver King Road; iron post stamped "2062 PHNX" -----	2, 061. 858
Whitlow ranch, 5.25 miles southwest of, southeast side of road; iron post stamped "1926 PHNX" -----	1, 925. 841
Whitlow ranch, 8 miles southwest of, northwest side of road; iron post stamped "1841 PHNX" -----	1, 840. 577

Point 3.5 miles west of Whitlow ranch north to Bark ranch, thence southwest to main road.

Bark ranch, 2.8 miles south of, in forks of road at junction with road running north to Bark ranch; iron post stamped "2056 PHNX" -----	2, 055. 792
Bark ranch, north side of road, 80 feet west of house; iron post stamped "2236 PHNX" -----	2, 235. 574
Bark ranch, 6.25 miles southwest of, south side of road at bend, 30 feet east of small wash; iron post stamped "1863 PHNX" -----	1, 862. 840

Point east of Desert Well north along Florence and Goldfield road.

Goldfield, 7 miles south of, west side of road, at junction with old wood road running southwest; iron post stamped "1694 PHNX" --	1, 694. 096
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Donnelly's well along Florence and Riverside road to point near Riverside.

Donnelly's well, 3.25 miles east of, northeast side of road at bend where road crosses a wash; iron post stamped "2625 PHNX"-----	2,624.894
Donnelly's well, 6.25 miles east of, at summit of hill, highest point between Florence and Riverside; iron post stamped "3081 PHNX"-----	3,081.115
Riverside, 5 miles southwest of, southeast side of road at bend on ridge; iron post stamped "2250 PHNX"-----	2,249.726

Ray northwest along Salt River valley and Mineral Creek wagon road to Pinal.

Ray, 3.25 miles northwest of, east side of gulch, at bend, in top of projecting ledge; aluminum tablet stamped "2838 PHNX"-----	2,837.758
Ray, 6.25 miles northwest of, in top of limestone ledge on south side of road, at summit of hill; aluminum tablet stamped "3761 PHNX"-----	3,760.401
Pinal, 5.8 miles southeast of, northeast side of canyon, opposite spring, 4.5 feet above bed of canyon, in sandstone ledge; aluminum tablet stamped "2953 PHNX"-----	2,952.316
Pinal, 2.8 miles southeast of, on northeast side of road, on top of a rocky mound, 250 feet northwest of wash, in top of embedded bowlder; aluminum tablet stamped "2682 PHNX"-----	2,681.867

Point near Goldfield northeast along Roosevelt road to Mormon Flat.

Goldfield, 1 mile southwest of, in forks at junction of Mesa and Goldfield roads; iron post stamped "1934 PHNX"-----	1,934.015
Goldfield, 1.7 miles northeast of, 30 feet east of road, on ridge 1,300 feet east of Black Queen mine; iron post stamped "2105 PHNX"-----	2,105.106
Goldfield, 3.5 miles northeast of, at Government Well stage station, 300 feet northeast of well, 20 feet east of road; iron post stamped "2107 PHNX"-----	2,107.336

SACATON QUADRANGLE.**Point 6.8 miles west of Florence west to Sacaton.**

Blackwater Chapel, 3.25 miles southeast of, on north side of road opposite a division fence near bend in road, 150 feet southeast of adobe ruins; iron post stamped "1397 PHNX"-----	1,396.925
Blackwater Chapel, 500 feet northwest of, 75 feet northwest of forks of roads; iron post stamped "1362 PHNX"-----	1,361.830
Blackwater Chapel, 3 miles northwest of, 50 feet southeast of junction with road running southeast; iron post stamped "1354 PHNX"-----	1,353.886
Sacaton, 3.8 miles east of, on northwest side of road near bend, 180 feet west of new ditch running north and south; iron post stamped "1305 PHNX"-----	1,305.007
Sacaton, on north side of gate, east side of Pima Indian agency grounds; iron post stamped "1274 PHNX"-----	1,274.117

GILA BUTTE QUADRANGLE.**Sacaton northwest to Sacaton Station.**

Sacaton, 3 miles west of, south side of road, east bank of small drain; iron post stamped "1251 PHNX"-----	1,250.843
Sacaton, 6 miles west of, north side of road, west edge of open flat; iron post stamped "1223 PHNX"-----	1,222.933

Casa Blanca, 3 miles northeast of, south side of road near Indian village, about 0.25 mile southeast of a Catholic chapel; iron post stamped "1198 PHNX"-----	Feet. 1, 197. 894
Casa Blanca, near corner on north side of wire fence, near fork of roads; 350 feet north of mission chapel; iron post stamped "1181 PHNX"-----	1, 180. 848
Casa Blanca, 3 miles west of, on north side opposite forks at junction with a road running north; iron post stamped "1163 PHNX"-----	1, 162. 826
Sacaton, south side of public road, 25 feet west of Arizona Eastern R. R. track, 60 feet south of switch head block; iron post stamped "1127 PHNX"-----	1, 127. 111

Sacaton north along Arizona Eastern R. R. to point 4 miles south of Kyrene.

Sacaton, bridge over Gila River; top of rail-----	1, 126. 5
Sacaton, under bridge, bed of Gila River-----	1, 119
Sacaton, 3 miles north of, 30 feet west of track, near telegraph pole, 300 feet north of vitrified tile culvert; iron post stamped "1133 PHNX"-----	1, 132. 975
Kyrene, 4 miles south of, 25 feet west of track, beside telegraph pole; iron post stamped "1140 PHNX"-----	1, 139. 788

The following bench marks were established by the Reclamation Service in 1902, 1903, and 1904:

Southeast corner of T. 1 S., R. 5 E., south to permanent bench mark on road 6 miles west of Sacaton Indian Agency.

T. 2 S., R. 5 E., at east quarter corner of sec. 24, at stake; iron post stamped "1258 PHNX"-----	Feet. 1, 258. 231
T. 2 S., R. 5 E., southeast corner of sec. 36; iron post stamped "1255 PHNX"-----	1, 255. 034
T. 3 S., R. 6 E., southwest corner of sec. 19, 1,000 feet north of old Indian cemetery, 1,000 feet southeast of forks of road, by adobe house, iron post stamped "1246 PHNX"-----	1, 245. 570
Sacaton Indian agency, 6 miles west of; iron post stamped "1223 PHNX"-----	1, 222. 733

Point 6 miles west of Sacaton Indian Agency south to Sweetwater, on Southern Pacific R. R., west to Maricopa, thence north to Sacaton, on Arizona Eastern R. R.

T. 4 S., R. 5 E., northwest corner of NE. $\frac{1}{4}$ sec. 30, 800 feet east of the most easterly butte of a group of buttes, on the highest point of which group is a triangulation point known as Sacaton Butte; iron post stamped "1289 PHNX"-----	1, 288. 880
T. 4 S., R. 4 E., sec. 35, 1 mile northwest of triangulation point Mica Butte in SE. $\frac{1}{4}$ sec. 35, 4 miles north of Sweetwater; iron post stamped "1303 PHNX"-----	1, 303. 276
Sweetwater, at well; iron post stamped "1297 PHNX" (redetermined by precise leveling)-----	1, 297. 022
Sweetwater, in front of station; main track, top of rail-----	1, 298. 3
Maricopa, 5.5 miles southeast of, southeast end of triangulation base line, north side of track opposite milepost 902, bronze tablet (redetermined by precise leveling)-----	1, 225. 706
Lirim switch, top of rail-----	1, 232. 4

RAY QUADRANGLE.

Point near Riverside northeast to Riverside.

Riverside, 2 miles southwest of, on southeast side of road, 200 feet northeast of junction with road running northeast to Piety Flat; iron post stamped "1940 PHNX"-----	Feet. 1,939.630
Riverside, in top of embedded boulder at southwest corner of small corral 120 feet northeast of post office; aluminum tablet stamped "1778 PHNX"-----	1,777.292

Riverside northeast along Globe and Riverside road to Pioneer.

Riverside, Gila River, bed of, at road crossing-----	1,758.5
Riverside, 3 miles northeast of, on southwest side of road, 400 feet west of point where road crosses wash, in top of granite boulder; bronze tablet stamped "2511 PHNX"-----	2,510.056
Troy, east side of road at summit of hill, opposite road running southwest to mine, in top of granite boulder; aluminum tablet stamped "3644 PHNX"-----	3,643.233
Dripping Spring, 1 mile west of, southwest side of road, at gate on northwest side of a filled rail fence; iron post stamped "2986 PHNX"-----	2,985.428
Dripping Spring, 2 miles northeast of, in top of hard sandstone boulder 15 feet east of road, 30 feet south of small wash; bronze tablet stamped "2995 PHNX"-----	2,994.757
Pioneer, 3.25 miles south of, northeast side of road at bend, at point where road leaves ridge and ascends steep side hill; iron post stamped "3846 PHNX"-----	3,845.328
Pioneer, east side of road, 40 feet southwest of stage station, in top of granite boulder; aluminum tablet stamped "4505 PHNX"-----	4,504.436

Dudleyville along Mammoth and Riverside road to Riverside (portion of line).

Dudleyville, 6 miles northwest of, north side of road, at bend; iron post stamped "1866 PHNX"-----	1,865.078
Riverside, 6.5 miles southeast of, southwest side of road, at summit of hill; iron post stamped "1927 PHNX"-----	1,926.045
Riverside, 3.3 miles southeast of, on west side of road, at bend, on summit of hill; iron post stamped "1828 PHNX"-----	1,826.931

Riverside along Mineral Creek road to Ray.

Kelvin, 2.25 miles north of, on west side of road, northwest bank of Mineral Creek, about 800 feet south of large eroded cliff; iron post stamped "1869 PHNX"-----	1,868.442
Ray, in top of low ledge on east side of road nearly opposite mill, 100 feet north of company store; aluminum tablet stamped "2024 PHNX"-----	2,023.894

GLOBE QUADRANGLE.

Pioneer north to Globe.

Pioneer, 3.8 miles north of, southeast side of road, at summit of pass over Pinal Mountains; iron post stamped "6158 PHNX"-----	6,157.312
Globe, 7.5 miles south of, east side of road at bend, in top of large granite boulder; bronze tablet stamped "4962 PHNX"-----	4,961.822

Globe, 4 miles southeast of, south side of gate, west side of road, at ranch "66"; iron post stamped "3825 PHNX"-----	Feet. 3, 824. 468
Globe, 2.5 miles southeast of, on southwest side of road, at northeast corner of small corral opposite slaughterhouse; iron post stamped "3637 PHNX"-----	3, 636. 324
Globe, Gila County courthouse, in west face of, at southwest corner 2 feet above ground; aluminum tablet stamped "3525 PHNX"-----	3, 524. 298

Globe southeast along Arizona Eastern R. R. 2.5 miles.

Globe, opposite station; top of rail-----	3, 508. 5
Globe, 2.5 miles southeast of, on top of hill 0.5 mile south of railway, meridian mark; tablet stamped "3885 PHNX"-----	3, 884. 669
Globe, 2.5 miles southeast of, by warning post on south side of track at public road crossing, 600 feet west of summit of hill; iron post stamped "3720 PHNX"-----	3, 719. 226

Globe west along Globe and Payson road to Black Warrior.

Globe, 0.8 mile northwest of courthouse, 12 feet west of railroad track, at wagon road crossing; iron post stamped "3461 PHNX"-----	3, 460. 393
Globe, 2.5 miles northwest of, on northeast side of road, opposite forks, at junction with Black Warrior road; iron post stamped "3348 PHNX"-----	3, 347. 446
Black Warrior, 1.25 miles southeast of, in top of brown sandstone rock 5 feet diameter by 3 feet high, 150 feet northwest of saloon, on southwest side of road, at mouth of Webster Gulch; aluminum tablet stamped "3349 PHNX"-----	3, 348. 523

Black Warrior west to Continental mine.

Black Warrior, 1.8 miles west of, 6 feet east of triple live oak tree, at bend on south side of road, in top of sandstone boulder; aluminum tablet stamped "3759 PHNX"-----	3, 758. 692
Black Warrior, 5.5 miles west of, 25 feet northeast of road, 100 feet north of summit of hill on divide between Webster and Pinto Creeks, about 1 mile east of Continental copper mine; in top of sandstone boulder; aluminum tablet stamped "4578 PHNX"-----	4, 577. 412

Miami Flat southwest via Shultz ranch to point 6 miles south of Shultz ranch, thence east and northeast to Globe.

Shultz ranch, 2.8 miles northeast of, on southwest side of western pass toll road, on southwest bank of Bloody Tanks wash, opposite Burnett goat ranch; iron post stamped "3468 PHNX"-----	3, 467. 414
Shultz ranch, 0.25 mile southwest of, 45 feet southwest of gate; iron post stamped "3906 PHNX"-----	3, 905. 300
Shultz ranch, 3.8 miles southwest of, on east side of road, at base of short, steep hill, in top of schist ledge; aluminum tablet stamped "4523 PHNX"-----	4, 522. 226
Shultz ranch, 6.5 miles southwest of, on north side of road, on bank of Pinto Creek, in top of schist ledge; aluminum tablet stamped "4864 PHNX"-----	4, 863. 204
Globe, 11 miles southwest of, on north side of trail, 150 feet east of summit of mountain, 20 feet northeast of 15-inch pine tree, in top of granite boulder; aluminum tablet stamped "6487 PHNX"-----	6, 485. 822

Globe, 8.25 miles southwest of, on south side of small ravine, on east side of ridge toll road, 150 feet northeast of bridge across gulch, in top of gneiss rock; bronze tablet stamped "4857 PHNX"-----	Feet. 4, 856. 483
Globe, 5.25 miles southwest of, 15 feet northeast of road, 50 feet north of sharp bend, in top of granite boulder; aluminum tablet stamped "4438 PHNX"-----	4, 437. 142

Globe northwest along Globe and Payson road to Harrold ranch.

Globe, 6 miles northwest of, in front of circular corral on northeast side of road, at Harrold ranch, 9 feet southeast of 36-inch cottonwood tree; iron post stamped "3170 PHNX"-----	3, 169. 440
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Globe north along road via Big Johnnie Gulch, thence east over divide just south of Big Johnnie mine to Copper Gulch, thence northeast 0.3 mile and return southwest along Copper Gulch to Globe.

Between Big Johnnie Gulch and drainage flowing to Buffalo smelter; 100 feet southwest of road; in limestone boulder in hillside; bronze tablet stamped "3942"-----	3, 941. 617
Big Johnnie Gulch and Copper Gulch, between; top of divide, in rock outcrop, 40 feet west of road, through saddle in divide; bronze tablet stamped "4206"-----	4, 205. 099
Head of Copper Gulch, 15 feet south of wagon road, on divide; bronze tablet stamped "4136"-----	4, 135. 313
Between Hoosier and the Gray mines, 180 feet north of water tanks, on top of ridge, 40 feet north of wagon road, in concrete boulder; bronze tablet stamped "3979"-----	3, 978. 682

Herrell ranch north on Livingston road to Hicks ranch.

Geralds ranch, 300 feet north of house, 200 feet west of Pinal Creek, 20 feet east of road, at fence corner, in stone flush with ground; aluminum tablet stamped "3069 PHNX"-----	3, 068. 478
Hicks ranch, 20 feet west of Globe Road, in front of circular corral; iron post stamped "2990 PHNX"-----	2, 990. 032

GILSON QUADRANGLE.

Point near Globe east along Arizona Eastern R. R. to Rice.

Globe, 5.8 miles southeast of, 15 feet southwest of track at southeast end of cut, 75 feet southeast of point of curvature; iron post stamped "3402 PHNX"-----	3, 401. 277
Cutter, east head block at; top of rail-----	3, 256. 5
Gilson's, 3.5 miles west of, by telegraph pole on north side of track; iron post stamped "3168 PHNX"-----	3, 167. 088
Gilson's, 0.25 miles west of water tank, by first telegraph pole west of public-road crossing, on north side of track; iron post stamped "3013 PHNX"-----	3, 012. 269
Gilson's, 2.8 miles southeast of, 10 feet south of track, east side of public-road crossing, 300 feet east of trestle 229; iron post stamped "2891 PHNX"-----	2, 890. 292
Rice, 2.8 miles northwest of, in front of second telegraph pole east of trestle 227; iron post stamped "2748 PHNX"-----	2, 747. 170
Rice, at northwest corner of crossroads, 180 feet east of switch-head block; iron post stamped "2635 PHNX"-----	2, 634. 255

SAN CARLOS QUADRANGLE.

Rice south along Arizona Eastern R. R. to San Carlos.

	Feet.
Rice, 3 miles south of, 40 feet west of track, north side of wagon road; iron post stamped "2585 PHNX"-----	2, 584. 359
San Carlos, 4.5 miles north of, 25 feet east of track, east side of wagon road; iron post stamped "2540 PHNX"-----	2, 539. 269
San Carlos, 1.8 miles north of, 25 feet southwest of track, at public road crossing; iron post stamped "2470 PHNX"-----	2, 469. 295
San Carlos, opposite station; top of rail-----	2, 431. 200
San Carlos, 150 feet northwest of station, 45 feet southwest of main track; iron post stamped "2431 PHNX"-----	2, 430. 216

San Carlos via Hawk Canyon to Wooten ranch.

San Carlos, south of, Gila River, bed of-----	2, 385. 500
San Carlos, 3 miles south of, on east side of road, north side of small wash; iron post stamped "2671 PHNX"-----	2, 670. 115
San Carlos, 6 miles south of, on southwest side of road on top of hill, 45 feet west of U. S. Army telegraph pole; iron post stamped "3573 PHNX"-----	3, 572. 289
Wooten ranch, 6.25 miles north of, in limestone outcrop, 15 feet west of road, 25 feet northwest of small wash; bronze tablet stamped "3810 PHNX"-----	3, 809. 534
Wooten ranch, 3.25 miles north of, in top of rock 9 by 6 feet, 3 feet above surface, 35 feet southwest of wash, near base of tall cliff; aluminum tablet stamped "3454 PHNX"-----	3, 453. 041
Wooten ranch, in top of large rock, 200 feet southwest of cabin, 40 feet northwest of trail, 30 feet west of 38-inch leaning sycamore tree; bronze tablet stamped "3911 PHNX"-----	3, 910. 268

San Carlos southeast along Arizona Eastern R. R. to Fort Thomas.

San Carlos, 4.5 miles southeast of, 12 feet southwest of track, 230 feet southeast of trestle 206, opposite Indian trail crossing; iron post stamped "2458 PHNX"-----	2, 457. 205
San Carlos, 6.8 miles southeast of, in front of first telegraph pole northwest of county road crossing near Indian farm; iron post stamped "2504 PHNX"-----	2, 503. 023
San Carlos, 9.8 miles southeast of, 50 feet south of track opposite county road crossing, 1 mile west of Dewey siding; iron post stamped "2508 PHNX"-----	2, 507. 024
Geronimo, 11.25 miles northwest of, 25 feet northeast of track at east end of track opposite adobe ruins of old subagency buildings; iron post stamped "2550 PHNX"-----	2, 548. 998
Geronimo, 9 miles northwest of, by first telegraph pole northwest of mile board 77, 100 feet south of trestle 189; iron post stamped "2586 PHNX"-----	2, 585. 042
Geronimo, 6.5 miles northwest of, 150 feet west of county road crossing at Navajo Point, 10 feet north of road; iron post stamped "2586 PHNX"-----	2, 584. 837
Geronimo, 4.5 miles northwest of, by wire fence, 50 feet northwest of track and opposite county road crossing, 0.8 mile southeast of Indian farm; iron post stamped "2606 PHNX"-----	2, 604. 859

Geronimo, at southeast corner of Alexander Bros.' general store, 300 feet north of track; iron post stamped "2633 PHNX"-----	Feet. 2,631.931
Fort Thomas, 2.25 miles northwest of, 30 feet southwest of track, on east side of wagon road coming in to railroad from the south, 350 yards southeast of mile board 64; iron post stamped "2673 PHNX"-----	2,671.937

FORT THOMAS QUADRANGLE.

At and near Fort Thomas.

Fort Thomas, 500 yards southeast of station, 30 feet south of wagon road crossing, 150 yards west of Alexander Bros.' general store; iron post stamped "2701 PHNX"-----	2,699.968
Fort Thomas, 3 miles southeast of, 9 feet east of wire fence corner, 30 feet northeast of county road crossing, 0.5 mile southeast of mile board 59; iron post stamped "2724 PHNX"-----	2,722.739

SOLOMONSVILLE QUADRANGLE.

Point near Fort Thomas southeast along Arizona Eastern R. R. to Solomonsville.

Matthew post office, 0.3 mile northwest of, near telegraph pole at mile board 55, 80 feet southeast of section house; iron post stamped "2755 PHNX"-----	2,753.683
Matthews post office, 1 mile northwest of, near angle of wire fence, 50 feet north of track at forks in road, 250 feet northwest of mile board 53; iron post stamped "2783 PHNX"-----	2,781.538
Matthews post office, 1.5 miles southeast of, near telegraph pole, 30 feet northeast of track, 100 feet southwest of Barney's store; iron post stamped "2813 PHNX"-----	2,811.820
Pima, 200 feet west of station, near warning signpost, 30 feet south of main track; iron post stamped "2843 PHNX"-----	2,841.764
Central, 50 feet southeast of road crossing, 300 feet west of church, and opposite mile board 45; iron post stamped "2883 PHNX"-----	2,881.596
Thatcher, northwest end of station grounds, east side of wagon road, 30 feet south of track, 35 feet southwest of switch head block; iron post stamped "2931 PHNX"-----	2,929.345
Safford, 140 feet east of station, east side of street, 15 feet north of main track, 3 feet west of telephone pole; iron post stamped "2923 PHNX"-----	2,921.656
Safford, 2.5 miles southeast of, in front of telephone pole on south side of county road between Safford and Solomonsville, 15 feet southwest of track; iron post stamped "2952 PHNX"-----	2,950.557
Solomonsville, near telegraph pole, 100 feet east of station, 20 feet southwest of main track; iron post stamped "2979 PHNX"-----	2,977.733
Solomonsville, in middle of front of school building, 3.5 feet above ground; aluminum tablet stamped "2976 PHNX"-----	2,974.754

Solomonsville east 7 miles.

Solomonsville, 3.25 miles east of, in forks of road at junction of Solomonsville and Coronado toll road with Solomonsville and Duncan County Road, 40 feet east of toll-road signboard; iron post stamped "3098 PHNX"-----	3,096.655
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Solomonsville, 5.5 miles northeast of, on northwest side of road at bend; iron post stamped "3208 PHNX"-----	Feet. 3, 206. 745
Solomonsville, between 6.5 miles and 7.5 miles northeast of, junction with first road running north; ground-----	3, 287. 0
Solomonsville, between 6.5 and 7.5 miles northeast of, junction with second road running north; ground-----	3, 312. 0

Solomonsville southeast toward Ash Peak Springs.

Solomonsville, 3.5 miles east of, fork of Coronado toll road and Duncan road; iron post stamped "3098 PHNX"-----	3, 096. 655
Ash Peak Spring, 19.4 miles west of, 15 feet north of road, south bank of ravine; iron post stamped "3195 PHNX"-----	3, 194. 130

Bradshaw Mountains, Camp Verde, Congress, Jerome, New River, Santa Maria Mountains, and Wickenburg Quadrangles.

MARICOPA AND YAVAPAI COUNTIES.

The elevations in the following list are based on mean sea level datum in agreement with the unadjusted elevations of bench marks at Ashfork established by the Coast and Geodetic Survey in 1909. Part of the elevations were originally based on an iron post in the grounds of and 20 feet north of the courthouse at Prescott. The elevation of that bench mark is now accepted as 5,353.314 feet above mean sea level.

The leveling in the Bradshaw Mountains quadrangle was done by J. P. Darling and J. T. Stewart in 1900 and 1901; the work in the New River, Jerome, Santa Maria Mountains, and Congress quadrangles was done in 1901, 1902, and 1903 by J. T. Stewart.

All bench marks depending on the Prescott datum are stamped with the letters "PRSCT," in addition to the figures of elevation.

The remaining elevations in the New River and Wickenburg quadrangles, where bench marks are stamped "PHNX," were originally based on the aluminum tablet in the courthouse at Phoenix, stamped "1090," the accepted elevation of which is 1,089.910 feet above mean sea level. The leveling was done in 1903 by J. T. Stewart.

BRADSHAW MOUNTAINS QUADRANGLE.

Point 2.25 miles south of Prescott south via Bueno, Senator mine, Minnehaha, and Lehman's mine, to Briggs.

Whiteside's house, 0.4 mile south of, 0.6 mile north of Groom Creek bridge; iron post stamped "6149 PRSCT"-----	Feet. 6, 156. 834
Kelly's station, 0.25 mile south of, 0.8 mile north of forks of road to Reliance mine, top of small hill 10 feet north of road; iron post stamped "6396 PRSCT"-----	6, 403. 647
Covered bridge, 1.6 miles south of, at intersection of Mount Union and Crown King Roads and on divide between Maple Gulch and Crook Canyon; iron post stamped "7187 PRSCT"-----	7, 194. 955
Palace station, 75 feet north of, 1.4 miles south of burnt mill, 20 feet west of road; iron post stamped "5847 PRSCT"-----	5, 854. 897

Coys, 125 feet west of station, at intersection of Crown King and Pine Flat Roads, 10 feet south of road, in outcrop of rock; aluminum tablet stamped "5563 PRSCT"-----	Feet. 5, 570. 108
Bueno, or Johnson's station, 125 feet north of house, 3 feet east of road, in rock; aluminum tablet stamped "5258 PRSCT"-----	5, 265. 787
Bueno, 2.25 miles south of, on divide between Battle Flat and Blind Indian Creeks, 8 feet east of road; iron post stamped "5740 PRSCT"-----	5, 747. 774
Roach's quartz mill, 0.3 mile north of, top of hill between Blind Indian Creek and a small creek, 15 feet east of road; iron post stamped "5390 PRSCT"-----	5, 397. 603
Hooper post office, 1.5 miles south of, in forks of Crown King and Minnehaha Roads; iron post stamped "5968 PRSCT"-----	5, 975. 301
Minnehaha, 3.5 miles north of, at Peterson ranch (deserted), east side of road; iron post stamped "5244 PRSCT"-----	5, 251. 371
Minnehaha, 75 feet south of post office, east side of road, 1,400 feet south of Buttons mine; iron post stamped "5440 PRSCT"-----	5, 447. 347
Minnehaha, 3.3 miles southwest of, 200 feet southwest of old Fenton ranch, 25 feet southeast of intersection of old Phoenix Road with Oak Creek Road; iron post stamped "4354 PRSCT"-----	4, 361. 563
Briggs, 4.5 miles north of, 1.5 miles north of Lehman's mine, 40 feet east of road, on rocky point on ridge near divide; aluminum tablet stamped "4569 PRSCT"-----	4, 576. 486
Copperopolis mine, 1.1 miles north of, 125 feet east of trail, in point of rocky ridge; aluminum tablet marked "3939 PRSCT"-----	3, 946. 587
Briggs, 400 feet north of post office, 50 feet west of road, 15 feet higher than creek bed; aluminum tablet stamped "2759 PRSCT"-----	2, 766. 543

Briggs southeast to point 5.6 miles northwest of Hot Springs.

Briggs, 1.1 miles southeast of, north side of road at forks of road running to Whipsaw mine, foot of cliff on north side of Castle Creek; iron post stamped "2636 PRSCT"-----	2, 643. 779
Hot Springs, 5.6 miles northwest of, west side of Castle Creek, west side of road; iron post stamped "2350 PRSCT"-----	2, 357. 839

Hudson to Mayer.

Hudson, 500 feet northeast of abandoned house, north bank of creek, south side of road; iron post stamped "1931 PRSCT"-----	1, 938. 954
Goddard, 200 feet southeast of ranch, west side of road; iron post stamped "1991 PRSCT"-----	1, 998. 701
Black Canyon Creek, 50 feet south of, on point in bend of creek, 50 feet east of road; iron post stamped "2020 PRSCT"-----	2, 027. 742
Bumble Bee, 3 miles south of, 60 feet south of small dry creek, 10 feet east of road; iron post stamped "2515 PRSCT"-----	2, 522. 718
Bumble Bee, 200 feet northeast of store, 20 feet west of road; iron post stamped "2509 PRSCT"-----	2, 516. 822
Bumble Bee, 2.8 miles north of, 6 miles south of Cordes, in forks of road; iron post stamped "2686 PRSCT"-----	2, 693. 558
Cordes, 3 miles south of, in forks of road at Hidden Treasure mine, 20 feet west of road; iron post stamped "3074 PRSCT"-----	3, 081. 725
Cordes, 150 feet west of post office, 60 feet west of storehouse, 25 feet south of road; iron post stamped "3762 PRSCT"-----	3, 769. 793

Cordes, 2.5 miles north of, 6.5 miles south of Mayer, 10 feet east of road, on top of small raise; iron post stamped "4024 PRSCT"-----	Feet. 4,031.641
Mayer, 3.25 miles south of, 30 feet east of road, on top of hill; iron post stamped "4353 PRSCT"-----	4,360.462

Mayer to Seven-Mile House.

Mayer, 0.3 mile north of railroad station, 25 feet west of road, 50 feet west of Big Bug Creek; iron post stamped "4392 PRSCT"-----	4,399.663
Mayer, 2.5 miles northwest of, 400 feet north of McMichael ranch, 180 feet west of railroad track, 20 feet northeast of road; iron post stamped "4605 PRSCT"-----	4,612.492
Old Big Bug Town, 1 mile north of Big Bug post office, in forks of Big Bug and McCabe Roads; iron post stamped "5069 PRSCT"-----	5,076.535
Providence, 0.8 mile northwest of post office, at forks in road to Postmaster mine; iron post stamped "5620 PRSCT"-----	5,627.816
Steeze ranch, 1.5 miles northwest of, on top of divide between Big Bug and Lynx Creeks; iron post stamped "6995 PRSCT"-----	7,002.972
Big Bug and Lynx Creek-Prescott roads, 1.25 miles northwest of intersection, on top of hill, 20 feet south of road; iron post stamped "6225 PRSCT"-----	6,232.685

Bueno to Mayer via Battle Flat.

Bueno, 5 miles east of, 2.25 miles west of Goat ranch, on bank of Tuscumbia Creek, 15 feet south of road; iron post stamped "5027 PRSCT"-----	5,034.718
Goat ranch, 0.5 mile northeast of, top of hill between Peck Canyon and Bear Creek, 15 feet east of road; iron post stamped "4638 PRSCT"-----	4,645.719
Wolf Creek, 1 mile northeast of, summit of hill between Wolf Creek and Dead Cow Gulch, slate outcrop 20 feet north of road; aluminum tablet stamped "4839 PRSCT"-----	4,846.535
Mayer, 1.5 miles southwest of, at forks of Crown King Road and old Virgin Mary Road; iron post stamped "4625 PRSCT"-----	4,632.648

Crown King to Alexandra.

Crown King, 2.25 miles north of, 4.8 miles south of Hooper post office, top of divide, 15 feet west of road; iron post stamped "6769 PRSCT"-----	6,776.240
Crown King, 75 feet north of saloon at intersection of Prescott-Crown King and Mayer-Crown King Roads, 25 feet north of Prescott Road; iron post stamped "5975 PRSCT"-----	5,082.631
Crown King, 3 miles north of, 0.5 mile north of top of divide, 20 feet west of road; iron post stamped "7016 PRSCT"-----	7,023.302
Alexandra, 3.8 miles north of top of divide, 8 feet north of road, in quartz rock; aluminum tablet stamped "5391 PRSCT"-----	5,398.769

Mount Union (not checked).

Mount Union, highest point; bronze tablet marking primary triangulation station, stamped "7971 PRSCT"-----	7,978.240
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Bench mark 5 miles west of Minnehaha.

Minnehaha, 5 miles west of, 50 feet east of intersection of Wagoner, Minnehaha, and Briggs roads; iron post stamped "3955 PRSCT"-----	3,962.454
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Bench mark at Chaparral siding.

Chaparral siding, 100 feet west of, 150 feet east of road; iron post stamped "4740 PRSCT"-----	Feet. 4,747.018
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NEW RIVER QUADRANGLE.

Point 2 miles northwest of Hot Springs to Alkire ranch.

Hot Springs, 2 miles northwest of, 30 feet south of Hot Springs Junction road, south side of Castle Creek; iron post stamped "2090 PRSCT"-----	2,098.084
Hot Springs, 20 feet east of hotel office; iron post stamped "1971 PRSCT"-----	1,970.721
Dripping Springs, 700 feet northwest of, foot of intersection of north bank of Castle Creek and west bank of ravine coming from east, 40 feet north of road; iron post stamped "1806 PRSCT"-----	1,813.752
Dripping Springs, 3.6 miles southeast of, foot of cliff, 15 feet high, north side of Castle Creek, 50 feet north of road; iron post stamped "1608 PRSCT"-----	1,615.536
Castle Creek, 275 feet northwest of mouth of, foot of north bank of Castle Creek, 50 feet east of rock ledge; iron post stamped "1489 PRSCT"-----	1,496.691
Agua Fria River, bed of, at road crossing-----	1,441
Frog Tank, 400 feet northwest of, on east side of river, 63 feet above river, west side of old road in rock ledge; aluminum tablet stamped "1495 PRSCT"-----	1,502.736
Lower New River, 6.8 miles southwest of, top of ridge between two small washes, 15 feet south of road; iron post stamped "1694 PRSCT"-----	1,701.801
Lower New River, 3.1 miles southwest of, 75 feet east of foot of bench on west side of New River, west side of trail; iron post stamped "1832 PRSCT"-----	1,839.902
Lower New River, southwest corner of yard, east side of road; iron post stamped "1984 PRSCT"-----	1,991.746
Alkire ranch, 10 feet north of yard gate, west side of road; iron post stamped "2155 PRSCT"-----	2,162.768

Nada siding southeast along Santa Fe, Prescott & Phoenix Ry. to Phoenix.

Nada, 3 miles south of, 60 feet west of track; iron post stamped "1574 PHNX"-----	1,573.579
Beardsley, 5.4 miles northwest of, 75 feet west of track, 0.5 mile southeast of mile board 163; iron post stamped "1451 PHNX"-----	1,451.097
Beardsley, 2.3 miles northwest of, 100 feet west of track; iron post stamped "1351 PHNX"-----	1,351.087
Beardsley, at section house yard gate, 75 feet east of track; iron post stamped "1282 PHNX"-----	1,282.184
Beardsley, 3.2 miles south of, 60 feet west of track, at mile board 172; iron post stamped "1189 PHNX"-----	1,189.098
Agua Fria River bridge, 24 feet above river bed; top of rail-----	1,139.2
Agua Fria River bridge, 0.1 mile east of, 40 feet east of track; iron post stamped "1151 PHNX"-----	1,151.108
New River bridge, 15 feet above river bed; top of rail-----	1,140.2
Peoria, 1.4 miles northwest of, 150 feet southeast of track at road crossing; iron post stamped "1136 PHNX"-----	1,136.150
Peoria, in front of station; top of rail-----	1,144.1

Peoria, 1.4 miles south of, 100 feet west of track at highway crossing; iron post stamped "1137 PHNX"-----	Feet. 1, 136. 912
Glendale, north end of station park, east of track; iron post stamped "1152 PHNX"-----	1, 152. 423
Glendale, 2.2 miles east of, west of mile board 186, 100 feet north of track, by fence; iron post stamped "1144 PHNX"-----	1, 144. 252
Alhambra, in front wall of station; aluminum tablet stamped "1119 PHNX"-----	1, 119. 309
Six Points, 100 feet southeast of, where 6 roads intersect; iron post stamped "1082 PHNX"-----	1, 081. 458
Phoenix, Maricopa County courthouse, north front in projection of northwest corner; aluminum tablet stamped "1090 PHNX" (Phoenix datum tablet)-----	1, 089. 910

Point 2 miles north of Phoenix north along roads to New River.

Phoenix, 5.6 miles north of, 3 miles north of Six Points, 35 feet west of center of crossroads; iron post stamped "1135 PHNX"-----	1, 134. 784
Six Points, 6 miles north of, 75 feet east of cross roads; iron post stamped "1195 PHNX"-----	1, 194. 945
Arizona Canal, 2 miles north of, near west end of Phoenix Mountains, 25 feet west of road, iron post stamped "1287 PHNX"-----	1, 286. 742
Arizona Canal, 5 miles north of, 50 feet west of road; iron post stamped "1343 PHNX"-----	1, 342. 826
Arizona Canal, 8.1 miles north of, 0.5 mile southeast of Malpais Mountain, east side of road; iron post stamped "1403 PHNX"-----	1, 402. 791
Arizona Canal, 11.4 miles north of, 13 miles south of New River station, 30 feet west of road; iron post stamped "1480 PHNX"-----	1, 479. 413
New River station, 9.4 miles south of, 50 feet west of road; iron post stamped "1625 PHNX"-----	1, 624. 551
New River station, 5.8 miles south of, 25 feet east of road; iron post stamped "1705 PHNX"-----	1, 704. 404
New River station, 2.6 miles south of, east of road; iron post stamped "1910 PHNX"-----	1, 909. 713

The following bench marks were established by the Reclamation Service in 1902, 1903, and 1904:

North from Glendale to Arizona Canal, thence over Frog Tanks road and section line road to point 21.2 miles north of T. 4 N., R. 2 E., thence across desert to Agua Fria River, thence south to Agua Fria River bridge.

Glendale, north end of station, 50 feet east of Santa Fe, Prescott & Phoenix Ry. tracks; iron post stamped "1152 PHNX"-----	Feet. 1, 152. 493
T. 3 N., R. 2 E., southeast corner of sec. 30, at southwest corner of crossroads; nail in root of large cottonwood tree-----	1, 175. 39
T. 3 N., R. 2 E., southeast corner of sec. 19, at southwest corner of crossroads; nail in root of cottonwood tree-----	1, 184. 06
Arizona Canal, 100 feet south of bridge, west side of public road; iron post stamped "1217 PHNX"-----	1, 217. 110
T. 4 N., R. 1 E., sec. 36; east quarter corner stone-----	1, 237. 85
T. 4 N., R. 1 E., sec. 25; southeast corner stone-----	1, 248. 05
T. 4 N., R. 1 E., east quarter corner of sec. 24; iron post stamped "1277 PHNX"-----	1, 277. 135

Agua Fria River, 850 feet west of wagon road, 150 feet east of giant cactus on edge of river, west side of road; iron post stamped "1267 PHNX"-----	Feet. 1,266.803
Agua Fria River, 0.1 mile east of, Santa Fe, Prescott & Phoenix Ry. bridge, 40 feet east of track; iron post stamped "1151 PHNX"---	1,151.352

Bench marks in sec. 7, T. 2 N., R. 2 E.

T. 2 N., R. 2 E., northwest corner of sec. 7, southeast corner of cross-roads; nail in root of large cottonwood tree-----	1,131.48
T. 2 N., R. 2 E., southwest corner of sec. 7, northwest corner of cross-roads, nail in root of cottonwood tree-----	1,122.44
Sec. 30, T. 3 N., R. 1 E., to point 0.36 mile north of south line of sec. 31, T. 3 N., R. 1 E.	
T. 3 N., R. 1 E., sec. 30, south quarter corner stone-----	1,104.08
T. 3 N., R. 1 E., 0.36 mile north of south line of sec. 31 and 0.6 mile south of Desert road running west toward river; iron post stamped "1088 PHNX"-----	1,088.009

JEROME QUADRANGLE.

Prescott south 2.2 miles.

Prescott, 2.2 miles south of, at intersection of Crown King and Jersey Lily roads, 225 feet south of bridge over small gulch; iron post stamped "5543 PRSCT"-----	5,550.323
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Bench marks near Four Mile House.

Seven Mile House, 0.2 mile southeast of, in forks of Lynx Creek, Prescott and Lynx Creek Dam roads; iron post stamped "5557 PRSCT"-----	5,564.346
Four Mile House, 150 feet northeast of, at junction of Prescott, Lynx Creek, and Black Canyon roads; iron post stamped "5565 PRSCT"---	5,572.318

Prescott to Jerome Junction along Santa Fe, Prescott & Phoenix Ry.

Prescott, Prescott National Bank, south side of main entrance, top of southeast corner of square pedestal at foot of round column; flat surface-----	5,356.83
Prescott, 20 feet north of courthouse; iron post stamped "5346 PRSCT"-----	5,353.314
Prescott, 2.1 miles northeast of, 60 feet west of crossing of railroad by Mayer wagon road; iron post stamped "5248 PRSCT"-----	5,255.163
Prescott, 6.5 miles northeast of, 50 feet east of P. & E. Junction, 20 feet east of Prescott & Eastern branch track, granite rock 3 feet above track; aluminum tablet stamped "5125 PRSCT"-----	5,131.614
Prescott, 9.6 miles northeast of, 3.1 miles northeast of P. & E. Junction, 50 feet west of track at road crossing; iron post stamped "4942 PRSCT"-----	4,949.010
Prescott, 12.8 miles northeast of, 75 feet west of track at Granite, at middle of sidetrack; iron post stamped "4888 PRSCT"-----	4,895.108
Jerome Junction, 2.9 miles south of, 60 feet west of track, on small ridge; iron post stamped "4794 PRSCT"-----	4,800.732

Jerome Junction, 50 feet south of station, 25 feet east of Santa Fe, Feet.
 Prescott & Phoenix Ry. track; iron post stamped "4607 PRSCT" -- 4, 613. 833

Jerome Junction to Jerome along United Verde & Pacific Ry.

Jerome Junction, 2.9 miles east of, 75 feet north of railroad, on ridge;
 iron post stamped "4763 PRSCT" ----- 4, 769. 772
 Jerome Junction, 5.9 miles east of, 75 feet northeast of crossing of
 railroad by wagon road, 25 feet northeast of road intersection; iron
 post stamped "4874 PRSCT" ----- 4, 880. 856
 Davis, 50 feet southeast of, wagon road crossing; iron post stamped
 "5114 PRSCT" ----- 5, 120. 653
 Summit, 125 feet west of section house, 90 feet west of track; iron
 post stamped "5491 PRSCT" ----- 5, 497. 619
 Bodkin, 300 feet north of track, near end of Malpais Ridge; bronze
 tablet stamped "5424 PRSCT" ----- 5, 431. 257
 Horseshoe, 125 feet south of head block, 75 feet west of and 30 feet
 higher than track, limestone ledge; bronze tablet stamped "5821
 PRSCT" ----- 5, 827. 893
 First View, 50 feet south of track; iron post stamped "5931 PRSCT" -- 5, 937. 766
 Jerome, 2.7 miles northwest of, 500 feet north of section house, 75
 feet east of track where it turns through limestone cut; bronze
 tablet stamped "5805 PRSCT" ----- 5, 811. 723
 Chris spur, 200 feet east of railroad, limestone ledge; bronze tablet
 stamped "5669 PRSCT" ----- 5, 675. 329
 Jerome, southeast corner of United Verde Copper Co.'s building
 (office), 8 inches above ground; aluminum tablet stamped "5428
 PRSCT" ----- 5, 435. 169

**Davis, United Verde & Pacific Ry., southeast to Carter ranch, thence northeast
 via Yaeger Canyon to Jerome.**

Davis, 3 miles south of, 20 feet south of road; iron post stamped
 "5185 PRSCT" ----- 5, 191. 614
 Carter ranch, 1.9 miles west of, 6.2 miles southeast of Davis, 25 feet
 north of road in forks of wash; iron post stamped "5430 PRSCT" -- 5, 436. 723
 Carter ranch, northwest corner of yard fence, north side of road;
 iron post stamped "5763 PRSCT" ----- 5, 769. 631
 Sanders station, 2.9 miles northeast of; top of divide on Jerome and
 Prescott road, north side of road; iron post stamped "7025
 PRSCT" ----- 7, 031. 592
 Mescal, 400 feet south of abandoned station, 50 feet west of road,
 ledge of limestone rock, bronze tablet stamped "6232 PRSCT" ---- 6, 238. 635
 Mescal, 0.5 mile north of abandoned station, 20 feet east of road
 at top of divide; bronze tablet stamped "6504 PRSCT" ----- 6, 510. 356
 Mescal, 2.2 miles north of, 120 feet east of road; iron post stamped
 "6473 PRSCT" ----- 6, 479. 635
 Jerome, 1.1 miles west of, top of Smelter Hill, where road passes
 through top of ridge, 120 feet east of road; bronze tablet stamped
 "6269 PRSCT" ----- 6, 275. 412
 Jerome, 0.5 mile south of, summit of Red Hill above smelter, 1,000
 feet east of converter pipe, 3 feet east of rock monument; bronze
 tablet stamped "6052 PRSCT" ----- 6, 058. 470

Carter ranch south to Dewey.

Carter ranch, 2.5 miles south of, 100 feet south of intersection of Prescott, Jerome, and Dewey Roads; iron post stamped "5331 PRSCT"-----	Feet. 5,337.640
Carter ranch, 5.3 miles south of, 25 feet west of road; iron post stamped "4979 PRSCT"-----	4,985.697
Dewey, 2.3 miles north of, 75 feet north of intersection of roads, 0.3 mile south of deserted ranch; iron post stamped "4686 PRSCT"-----	4,692.381
Dewey, post office, Cherry Creek railroad station, 50 feet north of Hiltonbrandt house, by fence; iron post stamped "4548 PRSCT"-----	4,554.667

Dewey west along Lynx Creek wagon road to Prescott.

Thomas ranch, 300 feet northwest of, 60 feet northeast of railroad crossing; iron post stamped "4652 PRSCT"-----	4,658.765
Thomas ranch, 4.1 miles northwest of, 30 feet south of road, at top of hill; iron post stamped "5126 PRSCT"-----	5,132.863
Lynx Creek, west bank of, 150 feet north of schoolhouse, 25 feet south of road; iron post stamped "5287 PRSCT"-----	5,293.905
Four Mile House, 150 feet northeast of, junction of Lynx Creek, Prescott and Black Canyon Roads; iron post stamped "5565 PRSCT"-----	5,572.118

Mescal station (abandoned) down Mescal Canyon to abandoned sawmill, thence along trail on northwest side of Mescal Canyon via Legal Tender and Grand Prize shafts to E. L. D. shaft.

Mescal station, 0.8 mile east of, 200 feet north of abandoned sawmill, 75 feet west of cabin, 60 feet north of trail, top of ledge of sandstone; bronze tablet stamped "6085 PRSCT"-----	6,091.644
Mescal station, 1.6 miles northeast of, east side of mountain, highest point of red rock ridge, 100 feet east of trail and E. L. D. shaft; bronze tablet stamped "6011 PRSCT"-----	6,018.001

Jerome along wagon road to Cottonwood.

Jerome, northeast corner of T. F. Miller's store, 2 feet above sidewalk; aluminum tablet stamped "5153 PRSCT"-----	5,159.823
Jerome, 50 feet east of fork of road to cemetery and slaughterhouse, top of ridge near east end; iron post stamped "4887 PRSCT"-----	4,893.759
Jerome, at point where road strikes bottom of Deception Gulch (Walnut Gulch) in going from Jerome to Verde River, large boulder 100 feet north of creek, on southwest side of road; bronze tablet stamped "4743 PRSCT"-----	4,750.055
Hinman's blacksmith shop, 0.5 mile east of, 100 feet southwest of road intersection; iron post stamped "3930 PRSCT"-----	3,936.962
Cottonwood post office (Strahan's store), 125 feet south of, 15 feet east of road; iron post stamped "3315 PRSCT"-----	3,321.761
Van Derien ranch, 150 feet west of, 75 feet northwest of road fork; iron post stamped "3276 PRSCT"-----	3,282.635

Cherry post office west along wagon road to Dewey.

Cherry post office, 3 miles east of, top of ridge overlooking Verde Valley, 40 feet north of road, granite outcrop; bronze tablet stamped "4817 PRSCT"-----	4,824.155
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Cherry post office (Battye ranch), 75 feet southwest of road by fence; iron post stamped "5004 PRSCT"-----	Feet. 5,011.102
Cherry, 2.2 miles west of, top of divide, 25 feet south of road; iron post stamped "5441 PRSCT"-----	5,447.910
Martin ranch, 2.8 miles east of, top of ridge, 25 feet north of road; iron post stamped "4776 PRSCT"-----	4,783.217
Martin Rust ranch, west side of road by corral fence; iron post stamped "4704 PRSCT"-----	4,711.129
Dewey, 3.7 miles east of, top of divide, 25 feet south of road; iron post stamped "5066 PRSCT"-----	5,073.010

Jerome Junction north along Santa Fe, Prescott & Phoenix Ry. to Putney's limekiln road.

Jerome Junction, 2.6 miles north of, 110 feet west of railroad, west side of wagon road, near corner of fence and mileboard 36; iron post stamped "4507 PRSCT"-----	4,513.946
Del Rio, 0.2 mile north of water tank, 45 feet east of railroad at road crossing, south side of wagon road; iron post stamped "4384 PRSCT"-----	4,390.940
Del Rio, 1 mile north of, Verde River, railroad bridge, 55 feet above river bed; top of rail-----	4,365.6
Del Rio, 2.7 miles north of, 50 feet west of railroad, 50 feet east of wagon road, about level with track; iron post stamped "4400 PRSCT"-----	4,406.752
Del Rio, 5.1 miles northeast of, 1 mile northeast of Valley siding, 100 feet north of track, north side of road; iron post stamped "4495 PRSCT"-----	4,501.923

SANTA MARIA MOUNTAINS QUADRANGLE.

Point near Prescott on old stage road to Government Spring.

Prescott, 2.7 miles west of, top of small ridge, 50 feet south of road, granite boulder 3 feet in diameter; aluminum tablet stamped "5745 PRSCT"-----	5,752.045
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Prescott along Simmons road to American ranch, thence along California stage road via Tonto Spring to Skull Valley.

Prescott, 3 miles northwest of, 100 feet north of railroad, 150 feet northwest of road fork, granite boulder 3 feet high; aluminum tablet stamped "5545 PRSCT"-----	5,552.350
Blair ranch, 1.4 miles north of, 25 feet west of road, on top of ridge; iron post stamped "5484 PRSCT"-----	5,491.160
American ranch, 2.6 miles southeast of, 25 feet north of road, on ridge; iron post stamped "5228 PRSCT"-----	5,234.932
American ranch, 0.8 mile north of, 25 feet east of fork of road, on ridge; iron post stamped "5049 PRSCT"-----	5,056.369
Hull ranch, 2.5 miles west of, summit of granite range, 25 feet south of road; iron post stamped "5540 PRSCT"-----	5,547.256
Tonto Spring, 3.6 miles northeast of, 0.5 mile east of Skull Valley and Williamson Valley Road, 250 feet north of road, in malpais rock 4 feet square and 3 feet high; bronze tablet stamped "5151 PRSCT"-----	5,157.919

Tonto Spring, 0.5 mile northeast of, 100 feet northwest of road fork, at foot of granite ledge near its center; bronze tablet stamped "4856 PRSCT"-----	Feet. 4,863.150
Tonto Spring, 2.9 miles south of, 40 feet east of road fork; iron post stamped "4732 PRSCT"-----	4,739.135
Dixon ranch, 1 mile northeast of, 25 feet west of road; iron post stamped "4484 PRSCT"-----	4,490.969
Dixon ranch, 0.5 mile southeast of, 300 feet southwest of main road, 75 feet south of road to Dixon ranch, granite boulder 5 feet in diameter and 2 feet high; aluminum tablet stamped "4382 PRSCT"-----	4,388.925
Skull Valley, 450 feet southwest of railroad station, west side of road, by fence; iron post stamped "4250 PRSCT"-----	4,256.962

Santa Fe, Prescott & Phoenix Ry. west along Putney's limekiln road to King's ranches, thence south via Simmons to a point 3.6 miles north of Tonto Springs;

Putney ranch, 0.6 mile southeast of, in forks of road; iron post stamped "4385 PRSCT"-----	4,391.920
King's lower ranch, 30 feet west of main gate, south side of road along side of east and west section lines, at fence; iron post stamped "4414 PRSCT"-----	4,420.864
King's lower ranch, 2.1 miles west of, 25 feet southwest of cross-roads; iron post stamped "4470 PRSCT"-----	4,476.630
King's upper ranch, 1 mile northwest of, east end of prominent ridge, south of Walnut Creek, about 0.5 mile west of creek in China Valley, about 0.7 mile northeast of east end of cedar ridge, 300 feet west of road; iron post stamped "4524 PRSCT" (checked spur line)-----	4,530.888
King's lower ranch, 5.6 miles southwest of, 6.9 miles northwest of Simmons, 25 feet west of road on ridge, near a ridge covered with scattering cedar timber; iron post stamped "4632 PRSCT"-----	4,638.798
Sullivan ranch, 0.7 mile northwest of lower house, 3.7 miles north of Simmons, 25 feet west of road in small valley between two cedar ridges; iron post stamped "4529 PRSCT"-----	4,535.607
Simmons, 100 feet west of post office, south side of road by fence; iron post stamped "4542 PRSCT"-----	4,548.565
Stephens ranch, by yard fence, east of gate; iron post stamped "4615 PRSCT"-----	4,621.326
Stephens ranch, 2.3 miles south of, 125 feet southeast of road at gate near foot of malpais ridge; aluminum tablet stamped "4690 PRSCT"-----	4,696.563
Stephens ranch, 3.6 miles south of, 20 feet west of road at gate in Stephens ranch south fence; iron post stamped "4738 PRSCT"-----	4,745.166

Stephens ranch west along wagon and Simmons-Kymo road to Kymo, thence north along Cut-Off Road and northeast along Walnut Creek to Jumper, thence east to point 6.9 miles north of Simmons.

Cook ranch, 3 miles west of, 3.1 miles southeast of Humphrey ranch, 20 feet north of road on ridge at east side of big wash; iron post stamped "4702 PRSCT"-----	4,708.427
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Humphrey ranch, 0.5 mile southeast of, 30 feet west of forks of Simons Road; iron post stamped "4755 PRSCT"-----	Feet. 4,761.924
Humphrey ranch, 2.4 miles northwest of, 20 feet west of road near where road starts up hill; iron post stamped "4887 PRSCT"-----	4,893.868
Kymo, 5.3 miles east of, 80 feet north of road on high ridge east of Pine Flat; iron post stamped "6039 PRSCT"-----	6,045.959
Pine Flat, 0.5 mile northwest of cabin, 20 feet south of road; iron post stamped "5708 PRSCT"-----	5,714.724
Kymo post office (Ferguson ranch), 2 feet northwest of house, north side of road; iron post stamped "5888 PRSCT"-----	5,894.651
Conger ranch, 0.5 mile south of, east side of road on top of divide; iron post stamped "6090 PRSCT"-----	6,096.603
Warren ranch, north side of yard gate, 125 feet northeast of road; iron post stamped "6244 PRSCT"-----	6,250.693
Warren ranch, 2 miles northwest of, top of divide at head of Walnut Creek watershed, 50 feet south of road; iron post stamped "6346 PRSCT"-----	6,352.652
Hamilton ranch, 1.8 miles northwest of, 50 feet west of road in granite ledge crossing road and creek at right angles; aluminum tablet stamped "5773 PRSCT"-----	5,779.599
Drew ranch, 1 mile west of, 100 feet west of the forks of the Juniper Canyon and Camp Woods Road; iron post stamped "5495 PRSCT"-----	5,501.622
Connell ranch, 0.2 mile northwest of, north side of road in granite boulder; aluminum tablet stamped "5343 PRSCT"-----	5,349.739
Juniper, 50 feet northeast of post office, south side of road; iron post stamped "5158 PRSCT"-----	5,164.851
Rogers ranch, north side of yard gate, north side of road; iron post stamped "4983 PRSCT"-----	4,989.528
Rogers ranch, 2.7 miles southeast of, 25 feet north of road in gulch; iron post stamped "4881 PRSCT"-----	4,887.437
Rogers ranch, 6.5 miles southeast of, 25 feet east of road on top of ridge, 0.5 mile south of where road leaves gulch; iron post stamped "4693 PRSCT"-----	4,699.407

CAMP VERDE QUADRANGLE.

Cottonwood down Verde River Road via Oak Creek and Aultman to Cherry.

Oak Creek, 1.5 miles north of mouth of, 1,500 feet east of Verde River, 40 feet east of road; iron post stamped "3243 PRSCT"-----	3,249.848
Verde River at mouth of Oak Creek; surface of-----	3,176
Aultman, 0.5 mile west of store, 500 feet west of Marr ranch, 75 feet south of road; iron post stamped "3183 PRSCT"-----	3,189.665
Marr ranch, 3.1 miles west of, 40 feet north of intersection of Aultman, Cherry, and Camp Verde roads; iron post stamped "3616 PRSCT"-----	3,622.857

CONGRESS QUADRANGLE.

Skull south along Santa Fe, Prescott & Phoenix Ry. via Kirkland, Hillside, and Martinez to Wickenburg.

Wilson ranch, 950 feet north of railroad crossing; iron post stamped "4112 PRSCT"-----	4,119.277
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Kirkland, in front of Earnhart house, east side of road; iron post stamped "3927 PRSCT"-----	Feet. 3, 934. 203
Robinson ranch, east side of yard gate, south side of road, iron post stamped "3825 PRSCT"-----	3, 832. 317
Grand View, 0.6 mile north of, 50 feet north of track at mileboard 93, near beginning of north side of loop, malpais rock 3 feet in diameter and 18 inches high; aluminum tablet stamped "4084 PRSCT"-----	4, 090. 982
Hillside, 3.9 miles east of, 75 feet north of track where railroad runs through cut, east of Bog Curve, 700 feet west of trestle 172; aluminum tablet stamped "4123 PRSCT"-----	4, 130. 580
Hillside, east end of railway station, at end of platform; iron post stamped "3845 PRSCT"-----	3, 852. 433
Hillside, 2.4 miles south of, 0.3 mile northwest of mileboard 104, 75 feet west of track; iron post stamped "3754 PRSCT"-----	3, 761. 303
Date Creek, 2.2 miles north of, west side of railroad at deep cut, 0.1 mile north of mileboard 107, iron post stamped "3584 PRSCT"-----	3, 590. 989
Date Creek, 0.2 mile south of section house, 150 feet west of railroad, 50 feet west of wagon road, on ridge 15 feet higher than track; iron post stamped "3367 PRSCT"-----	3, 374. 339
Date Creek, 3 miles south of, 0.1 mile north of bridge 197, on top of hill 100 feet west of track, 250 feet east of wagon road, iron post stamped "3286 PRSCT"-----	3, 293. 170
Piedmont, 0.1 mile north of north head block, 75 feet east of wagon road, 150 feet east of track, top of small hill; iron post stamped "3345 PRSCT"-----	3, 352. 294
Martinez, 250 feet north of Congress pumphouse, west side of railroad at mileboard 119, lower part of granite ledge; aluminum tablet stamped "3183 PRSCT"-----	3, 189. 894
Congress Junction, 1.6 miles north of, 60 feet south of railroad between a gravel cut and a rock cut, east of trestle 223, top of granite boulder below level of track; aluminum tablet stamped "3094 PRSCT"-----	3, 101. 294
Congress Junction, 0.3 mile north of station, 60 feet northwest of railroad crossing; iron post stamped "3032 PRSCT"-----	3, 039. 153
Congress Junction, 3.3 miles south of, 50 feet east of railroad; iron post stamped "2825 PRSCT"-----	2, 832. 558
Harquahala siding, 0.1 mile south of, 160 feet southwest of track at road crossing; iron post stamped "2595 PRSCT"-----	2, 602. 859
Harquahala siding, 3.4 miles south of, 160 feet west of railroad at mileboard 133; iron post stamped "2384 PRSCT"-----	2, 391. 776
Wickenburg, 2.7 miles northwest of, 150 feet west of railroad at Yavapai and Maricopa County line; iron post stamped "2171 PRSCT"-----	2, 178. 839

Congress Junction southwest to Gibsons tank, thence southeast 6 miles, thence east to Harquahala.

Congress Junction, 2.5 miles west of, 30 feet north of road; iron post stamped "2933 PRSCT"-----	2, 940. 394
Congress Junction, 5.3 miles west of, 60 feet southeast of crossroads; iron post stamped "2783 PRSCT"-----	2, 790. 157

Congress Junction, 7.1 miles west of, 30 feet south of road at forks of road, 0.8 mile east of Gibson's tank; iron post stamped "2728 PRSCT"	Feet. 2, 735. 387
Gibson's tank, 4 miles southeast of, 0.3 mile northeast of southeast end of small mountain range, 25 feet south of road; iron post stamped "2606 PRSCT"	2, 613. 520
Gibson's tank, 6 miles southeast of, 3.6 miles west of Harquahala siding, 50 feet east of old road; iron post stamped "2637 PRSCT"	2, 644. 438

Kirkland southeast to Onyx quarry.

Kirkland, 1.5 miles southeast of, 100 feet northwest of fork of Stanton and Walnut Grove Road, black rock cliff; aluminum tablet stamped "3972 PRSCT"	3, 979. 026
Kirkland, 2.9 miles southeast of, 85 feet northwest of fork of Placerita and Walnut Grove Road; iron post stamped "4060 PRSCT"	4, 067. 400

Prescott west via Government Spring, Onyx quarry, Walnut Grove, and Wagoner to Campbell ranch.

Government Spring, 0.5 mile east of, 100 feet east of top of divide, 40 feet north of road, granite rock 3 feet high; bronze tablet stamped "6775 PRSCT"	6, 782. 663
Copper Basin, 0.3 mile east of, 30 feet north of road; iron post stamped "5316 PRSCT"	5, 323. 223
Copper Basin, 3 miles south of, foot of hill, west side of Copper Creek, 250 feet southwest of wagon road, northeast end of gray boulder 15 feet long and 4 feet high; bronze tablet stamped "4740 PRSCT"	4, 747. 626
Onyx mine, 4.3 miles northeast of, top of ridge, 20 feet west of road; iron post stamped "4955 PRSCT"	4, 962. 227
Onyx mine, 0.8 mile east of, 300 feet north of fork of Kirkland and Copper Basin Road, granite boulder 4 feet long and 1 foot high; aluminum tablet stamped "4556 PRSCT"	4, 563. 310
Moor ranch, 1.8 miles north of, west side of road, on ridge; iron post stamped "4170 PRSCT"	4, 177. 069
Craig post office, 200 feet north of, north side of road; iron post stamped "3764 PRSCT"	3, 771. 489
Moor lower ranch, 0.2 mile south of, top of ridge, 20 feet west of road; iron post stamped "3589 PRSCT"	3, 596. 479
Walnut Grove post office, 10 feet east of yard gate, south side of road; iron post stamped "3469 PRSCT"	3, 476. 603
Wagoner post office, 150 feet north of east side of yard gate; iron post stamped "3372 PRSCT"	3, 379. 585
Campbell ranch, 200 feet west of, east side of road; iron post stamped "3485 PRSCT"	3, 492. 572

WICKENBURG QUADRANGLE.

Wickenburg southeast along Santa Fe, Prescott & Phoenix Ry. to Nada.

Wickenburg, 300 feet north of station, 50 feet east of track at railroad restaurant; iron post stamped "2068 PRSCT"	2, 075. 764
Wickenburg, in front of station; top of rail	2, 070

Wickenburg, 1.7 miles south of, 75 feet northwest of track at road crossing; iron post stamped "2004 PHNX"-----	Feet. 2,003.905
Wickenburg, 5 miles south of, 50 feet west of track, 0.3 mile south of mile board 144; iron post stamped "1935 PHNX"-----	1,934.800
Hassayampa River, railroad bridge over, 33 feet above river bed; top of rail-----	1,858
Hot Springs Junction, 3 miles north of, 75 feet east of track, 0.2 mile south of bridge over Hassayampa River; iron post stamped "1865 PHNX"-----	1,864.754
Hot Springs Junction, in hotel yard, 75 feet east of track; iron post stamped "1971 PHNX"-----	1,970.841
Hot Springs Junction, 3.4 miles south of, 50 feet west of track, 0.5 mile south of mile board 153; iron post stamped "1883 PHNX"---	1,882.992
Nada, 25 feet east of signboard; iron post stamped "1697 PHNX"---	1,696.333

Camels Back, Fort McDowell, Livingstone, and Roosevelt Quadrangles.

MARICOPA AND GILA COUNTIES.

The elevations in the following list were originally based on an aluminum tablet stamped "1090" set in the north front of the Maricopa County courthouse at Phoenix, and accordingly all bench marks are stamped "PHNX" in addition to the figures of elevation. The corrected elevation of this bench mark is 1,089.910 feet above mean sea level.

The leveling was done in 1905 by Ress Philips.

CAMELS BACK QUADRANGLE.

Point 7 miles northeast of Phoenix to point 10.5 miles west of Asher ranch.	
Phoenix, 7 miles northeast of, 50 feet northeast of crossroads, at southwest corner of fence; iron post stamped "1197 PHNX"-----	Feet. 1,196.879
Phoenix, 9 miles northeast of, 0.5 mile north of Arizona Canal, 30 feet west of road; iron post stamped "1282 PHNX"-----	1,281.705
Phoenix, 13 miles northeast of, at junction of Cave Creek and Camp Creek roads; iron post stamped "1455 PHNX"-----	1,454.818
Phoenix, 16 miles northeast of, 0.75 mile west of old canal, 30 feet north of road; iron post stamped "1495 PHNX"-----	1,494.446
Desert Corral, 30 feet north of road; iron post stamped "1631 PHNX"-----	1,630.394
Desert Corral, 0.75 mile west of, forks of Camp Creek and Tempe roads, 20 feet north of road, near large mesquite tree; iron post stamped "1892 PHNX"-----	1,891.320
Desert Corral, 6 miles northeast of, 30 feet north of road on bank of ravine running parallel with road; iron post stamped "2204 PHNX"-----	2,203.338
Desert Corral, 9 miles northeast of, at point where road crosses deep, dry wash, 120 feet south of bottom of wash, 60 feet east of road, in boulder; aluminum tablet stamped "2486 PHNX"-----	2,485.618
Asher ranch, 12.5 miles west of, on summit of low divide between Cave Creek and Verde River, 10 feet north of old road, in ledge; aluminum tablet stamped "2945 PHNX"-----	2,944.366

The following bench marks were established by the Reclamation Service in 1902, 1903, and 1904:

FORT McDOWELL QUADRANGLE.

Point 3.7 miles southeast of Arizona Dam to head gate of Arizona Canal.

Arizona Dam, 3.7 miles southeast of, at power house, in bridge over	Feet.
Arizona Canal; top of bolt-----	1, 311. 77
Head gate of Arizona Canal, northwest abutment; top of coping-----	1, 329. 85

Between the first and second of the following bench marks four lines were run, and from the fourth to the ninth, inclusive, two lines were run by I. J. Voorhees, but they depend on and are connected by a single line run in 1902 by R. E. Whipfler between points 3.7 miles below and 3.5 miles above Arizona Dam. The third and the Verde Dam site bench marks are on single-spur lines from the second:

Arizona Dam up Salt River northeast to Verde River, thence east up Salt River to Tonto Dam site.

Arizona Dam, in top of masonry wing of Arizona Canal head gates; bronze tablet stamped "1330 PHNX"-----	Feet. 1, 329. 875
Arizona Dam, 0.7 mile northeast of, west of mouth of Verde River and north side of Salt River, on south side of road from Frazers to Cuba, south of large red butte and at west end of small red butte; bronze tablet stamped "1343 PHNX"-----	1, 343. 608
Arizona Dam, 1.5 miles northeast of, on road from Utery Pass to Cuba and Fort McDowell, about 450 feet west of ford in front of large red cliff, facing Salt River, 0.7 mile above its junction with Verde River, on rock ledge running out to river; bronze tablet stamped "1340 PHNX"-----	1, 340. 649
Arizona Dam, 4 miles east of, 600 feet northwest of Monroy ranch house, on granite ledge between river and high bluff, in rock; bronze tablet stamped "1382 PHNX"-----	1, 382. 381
Arizona Dam, 6.9 miles east of, on right bank of river near high, blue bluff, locally known as "Blue Point," facing river, in rock; bronze tablet stamped "1384 PHNX"-----	1, 384. 547
Arizona Dam, 10.4 miles east of, on right bank of Salt River about midway between Canyon No. 1 and Canyon No. 2, about 1.5 miles below Stewart ranch, in granite outcrop; bronze tablet stamped "1434 PHNX"-----	1, 434. 444

Point 9.75 miles west of Asher ranch to point 9.5 miles south of McDowell.

Asher ranch, 9.75 miles west of, on south bank of wash where road crosses to right, 40 feet east of road, in boulder; aluminum tablet stamped "2600 PHNX"-----	2, 599. 479
Asher ranch, 5.25 miles west of, 5 miles west of Verde River, at forks of roads, 10 feet west of road on north side of wash; iron post stamped "2175 PHNX"-----	2, 174. 400
Asher ranch, 3 miles west of, 2.25 miles west of Verde River road, 10 feet north of road; iron post stamped "1859 PHNX"-----	1, 858. 442

Asher ranch, 0.5 mile northwest of, at crossroads; iron post stamped "1572 PHNX"-----	Fect. 1, 570. 405
Asher ranch, 4 miles south of, in forks of road at foot of hill; iron post stamped "1488 PHNX"-----	1, 487. 647
McDowell; 500 feet southeast of post office, at northeast corner of fence, 10 feet west of road; iron post stamped "1444 PHNX"-----	1, 443. 410
McDowell, 4 miles south and east of, 0.5 mile east of ford, on road from Phoenix to Reno Pass, at mouth of dry wash, at north end of small rocky ridge, in boulder; aluminum tablet stamped "1424 PHNX"-----	1, 423. 214
McDowell, 6.25 miles south of, 400 feet south of old schoolhouse, 200 feet south of road, at foot of hill, in boulder; aluminum tablet stamped "1402 PHNX"-----	1, 401. 724
McDowell, 9.5 miles south of, south side of Salt River 0.5 mile above its junction with Verde River, 500 feet west of old ford on road to Cuba and Fort McDowell, near large bluff, on point running out into river; bronze tablet stamped "1340 PHNX"-----	1, 340. 049

Fort McDowell east along Reno Pass Road to Clanton ranch, thence south to Roosevelt. (Closure error excessive.)

McDowell, 4.75 miles east of, 500 feet northeast of Adams ranch house, 100 feet northeast of corral, on hillside 150 feet west of road, in boulder; aluminum tablet stamped "1540 PHNX"-----	1, 539. 561
McDowell, 7.75 miles east of, 3 miles east of Adams ranch, 20 feet north of road; iron post stamped "1643 PHNX"-----	1, 642. 632
McDowell, 11.75 miles east of, on west side of and at foot of Sugar Loaf Mountain, at point where wagon road crosses creek, 50 feet east of road on west bank of creek, 250 feet east of old corral, in large boulder; aluminum tablet stamped "1786 PHNX"-----	1, 785. 453
McDowell, 14 miles east of, 1 mile north of point where road leaves creek, 50 feet west of road, on west bank of wash, in boulder; aluminum tablet stamped "2214 PHNX"-----	2, 213. 208

ROOSEVELT QUADRANGLE.

Point 14.75 miles northeast of McDowell to Roosevelt.

McDowell, 16.75 miles northeast of, 1 mile east of divide, 200 feet south of point where road enters large wash, 15 feet east of road, 40 feet northeast of large willow tree, in boulder; aluminum tablet stamped "2188 PHNX"-----	2, 187. 436
Oteros ranch, on south side of corral, 200 feet north of house, in root of dead sycamore tree; nail-----	2, 136. 671
Oteros ranch, 1.5 miles northeast of, on south bank of Sycamore Creek, on north end of high black bluff reaching down to water; aluminum tablet stamped "2202 PHNX"-----	2, 202. 533
Round Valley, north side of, 500 feet north of point where wagon road crosses Sycamore Creek, 300 feet north of old house and corral, 20 feet south of road, top of small mesa, in top of granite boulder; aluminum tablet stamped "2369 PHNX"-----	2, 363. 983
Round Valley, 3.5 miles northeast of, 5 feet east of road, on top of long grassy ridge, in boulder; aluminum tablet stamped "3270 PHNX"-----	3, 269. 734

Sunflower ranch, 1.25 miles west of, 400 feet east of summit where wagon road crosses highest point between Round Valley and Sunflower ranch, 20 feet north of road at foot of rocky ridge, in bowllder; aluminum tablet stamped "3780 PHNX"-----	Feet. 3, 779. 986
Sunflower ranch, south side of, on west bank of Sycamore Creek, 500 feet east of gate to ranch, 10 feet north of road, in root of sycamore tree; nail-----	3, 409. 370
Sunflower ranch, 1 mile south of, 0.25 mile east of Sycamore Creek, where road crosses ridge on north side of rocky butte, 100 feet south of road on summit, on large bowllder; aluminum tablet stamped "3435. PHNX"-----	3, 434. 814
Reno Pass, on summit, 50 feet south of and 15 feet above wagon road, in ledge; aluminum tablet stamped "4723 PHNX"-----	4, 722. 944
Moore ranch, 0.5 mile west of, 15 feet north of road, on rocky slope at mouth of canyon; aluminum tablet stamped "2869 PHNX"-----	2, 869. 018
Moore ranch, 2.5 miles east of, 1 mile north of Clanton ranch, 0.5 mile south of perpendicular clay bank 700 feet high, 0.5 mile west of Tonto Creek, 50 feet west of old Reno Pass road, at east end of small ridge, in west edge of valley, in bowllder; aluminum tablet stamped "2355 PHNX"-----	2, 354. 621
Clanton ranch, 1 mile north of, on west side of Tonto Creek, 250 feet northwest of ford, in large cottonwood tree; nail-----	2, 310. 228
Clanton ranch, 2 miles north of, in road opposite deserted farm house, in base of sycamore tree; nail-----	2, 333. 747
Clanton ranch, 4 miles north of, on mesa 30 feet east of road, 500 feet north of wash, on bowllder; aluminum tablet stamped "2422 PHNX"-----	2, 420. 737
Clanton ranch, 5.25 miles north of, 30 feet east of road, in base of ironwood stump; nail-----	2, 420. 865
Howell ranch, 100 feet east of old Tonto post office, 30 feet east of road; iron post stamped "2488 PHNX"-----	2, 487. 851
Clanton ranch, in front of house 20 feet west of road, inside fence corner; iron post stamped "2300 PHNX"-----	2, 300. 026
Clanton ranch, 3 miles south of, 300 feet east of ford, 50 feet east of road, at foot of steep bank, on east side of old irrigating ditch, in bowllder; aluminum tablet-----	2, 235. 30
Cline post office, 400 feet east of, 30 feet west of road at fence corner; iron post stamped "2191 PHNX"-----	2, 191. 003
Cline station, 300 feet south of, 15 feet west of road, in root of ironwood stump 8 feet high; nail-----	2, 190. 906
Cline station, 1.5 miles south of, 30 feet west of road, on smooth, level mesa, in buried stone 8 by 12 inches by 2 feet; aluminum tablet stamped "2197 PHNX"-----	2, 197. 325
Cline station, 3.75 miles south of, east side of Botticher ranch at gate 30 feet west of road; iron post stamped "2093 PHNX"-----	2, 092. 683
Botticher ranch, 2 miles south of, 5 miles north of Roosevelt, 10 feet east of road, in stone flush with ground; aluminum tablet stamped "2028 PHNX"-----	2, 027. 715
Roosevelt, 3 miles north of, foot of hill, 20 feet east of road, in bowllder; aluminum tablet stamped "1991 PHNX"-----	1, 991. 551
Roosevelt, 1.5 miles north of, 100 feet north of forks of road, 50 feet north of fence corner, in base of cottonwood stump; nail-----	1, 946. 714
Roosevelt, east entrance of power house, 1 foot from east wall; iron post stamped "1986 PHNX"-----	1, 985. 416

Point 3.5 miles northeast of Government Well to point 20.2 miles east of Arizona Dam.

Government Well, 3.5 miles northeast of, 250 feet northeast of Camp Lonely, 20 feet east of road, in ledge; aluminum tablet stamped "2138 PHNX"	Feet. 2, 138. 221
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The following bench marks were established by the Reclamation Service in 1902, 1903, and 1904:

Point 12.8 miles east of Arizona Dam to Verde Dam site at Verde River.

Arizona Dam, 12.8 miles east of, on right bank of Salt River 0.75 mile above Stewart ranch in Canyon No. 2, 250 feet from river bank, in rock ledge; bronze tablet	Feet. 1, 490. 981
Arizona Dam, 16.2 miles east of, on left bank of Salt River, 50 feet from water edge, in mouth of Canyon No. 3, at upper end of Bagley Flat, on large white granite outcrop; bronze tablet stamped "1492 PHNX"	1, 492. 362
Mormon Flat, 20.2 miles east of Arizona Dam, on right bank of Ash Creek 600 feet above its junction with Salt River, 90 feet northeast of large cottonwood tree on left bank of Ash Creek, set vertically in solid rock; bronze tablet stamped "1547 PHNX"	1, 546. 915

At Verde River.

Verde Dam site, at right bank of river in rock; bronze tablet stamped "1337 PHNX"	1, 336. 702
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Roosevelt east to mouth of Grapevine Tunnel (bench marks of Reclamation Service.)

Roosevelt, east bank of river at dam site; brass tablet marked "1908 PHNX," cemented vertically in rock at center line of borings	1, 908. 041
Roosevelt, west bank of river at dam site; brass tablet stamped "1905 PHNX," cemented vertically in rock at center line of borings	1, 905. 211
Roosevelt, northwest corner of boiler room of temporary power house, 1 foot from north wall; iron post stamped "1986 PHNX"	1, 986. 016
Roosevelt, 5 miles east of, on Windy Hill Divide, top of east bank of first canyon east of Porter Springs, 500 yards south of road; iron post stamped "2160 PHNX"	2, 160. 067
Roosevelt, 8 miles east of, at mouth of Grapevine Tunnel, power canal line; iron post stamped "2174 PHNX"	2, 174. 120

LIVINGSTONE QUADRANGLE.

Mouth of Grapevine Tunnel east to Livingstone (bench marks of Reclamation Service.)

Roosevelt, 12 miles east of, east bank of Chilton Canyon, beside station 403, power canal line; iron post stamped "2143 PHNX"	2, 142. 956
Livingstone, 200 feet southeast of station 230, power canal, 250 feet west of Globe Road; iron post stamped "2172 PHNX"	2, 172. 024
Livingstone, 3 miles east of, 15 miles east of Roosevelt, at Lee ranch, 2 feet east of corral 75 feet south of house; iron post stamped "2169 PHNX"	2, 169. 121

Livingstone, 5 miles east of, 17 miles east of Roosevelt, west entrance to box canyon, 300 yards east of junction of Pinal Creek and Salt River, 100 feet south of where trail leaves Salt River on the way to Shute's springs, in ledge; bronze tablet stamped Feet.
 "2198 PHNX"----- 2, 198. 077

Line from Livingstone along Globe and Payson Road to Horrell ranch near Globe.

Livingstone, on Livingstone Mesa, 200 feet southeast of station 230, power canal, 250 feet west of Globe Road; iron post stamped "2172 PHNX"----- 2, 172. 024
 Livingstone, 3 miles southeast of, on mesa, 20 feet north of Globe Road, 300 yards north of Round Mountain; iron post stamped "2483 PHNX"----- 2, 482. 977
 Livingstone, 6.75 miles southeast of, on ridge, 20 feet south of Globe Road; 0.75 mile east of Danforth Hill; iron post stamped "3235 PHNX"----- 3, 234. 964
 Livingstone, 9.75 miles southeast of, 20 feet north of Globe Road, opposite Smith ranch, near Summit; iron post stamped "3980 PHNX"----- 3, 979. 986
 Livingstone, 12 miles southeast of, 20 feet west of Globe Road, half way between Summit and Wheatfields (Devore ranch); iron post stamped "3275 PHNX"----- 3, 274. 969
 Wheatfields, 14 miles southeast of Livingstone, 5 feet from fence, north side of Globe Road at Devore ranch; 100 feet west of house; iron post stamped "2855 PHNX"----- 2, 855. 043
 Wheatfields, 3 miles south of, at Hicks ranch, 17 miles southeast of Livingstone, in front of circular corral on south side of road; iron post ----- 2, 990. 032

Anita, Flagstaff, Grand View, and Williams 30' Quadrangles, in Chino and San Francisco Mountain 1° Quadrangles.

COCONINO AND YAVAPAI COUNTIES.

The elevations in the following list are in agreement with the unadjusted elevations of bench marks between Ashfork and Flagstaff, established by the Coast and Geodetic Survey in 1909. Additional elevations in the Williams quadrangle are given under precise leveling.

The leveling in the Flagstaff quadrangle and part of the work in the other three quadrangles was done in 1907 by T. A. Green. Some leveling in the Anita and Grand View quadrangle was done in 1902 and 1903 by J. T. Stewart, and in these quadrangles and Williams quadrangle in 1904 by M. S. Bright.

WILLIAMS QUADRANGLE.

Williams east along Atchison, Topeka & Santa Fe Ry. to Chalender.

Williams, 8 feet west of northwest corner of Grand Canyon Hotel; Feet.
 iron post stamped "6770 CANYON"----- 6, 765. 909

¹ Elevation by Coast and Geodetic Survey unadjusted precise level line, 1909.

Williams, 0.57 mile east of, at junction with Grand Canyon Ry.; top of rail-----	Feet. 6, 752. 1
Williams, 3.19 miles east of, 80 feet north of track, 65 feet north- west of milepost 375, 12 feet south of fence, in rock; aluminum tablet stamped "6952-1907"-----	¹ 6, 950. 045
Railroad bridge No. 375-A, south side on southeast corner of east stone abutment-----	¹ 6, 928. 312
Davern siding, in front of sign block; top of rail-----	6, 978. 5
Williams, 6.35 miles east of, 786 feet east of milepost 372, at east end of Davern siding, in southeast corner of east stone abutment on south side of railroad bridge 372-B; aluminum tablet stamped "6953-1907"-----	¹ 6, 951. 580

Williams north along Grand Canyon Ry. to Prado siding.

Williams, 2.25 miles north of, 1,700 feet south of milepost 2, at south end of cut, 40 feet west of track, in volcanic rock; alumi- num tablet stamped "6753 CANYON"-----	6, 748. 419
Williams, 7.25 miles north of, 40 feet south of road crossing, 15 feet east of track, 10 feet west of wagon road; iron post stamped "6565 CANYON"-----	6, 560. 613
Williams, 10.5 miles north of, midway between mileposts 10 and 11, 20 feet north of road crossing, 3 feet south of telephone pole; iron post stamped "6463 CANYON"-----	6, 458. 961
Prado, 7.25 miles south of, 250 feet south of road crossing, 40 feet west of track, 6 feet south of milepost 13; iron post stamped "6252 CANYON"-----	6, 247. 784
Prado, 4.5 miles south of, 0.25 mile south of milepost 16, 240 feet south of bridge 14, 50 feet west of track, 30 feet east of wagon road; iron post stamped "6074 CANYON"-----	6, 069. 565

FLAGSTAFF 30' QUADRANGLE.

Chalender east along Atchison, Topeka & Santa Fe Ry. to milepost 340.

Chalender, 125 feet west of station, 50 feet west of tracks, 30 feet south of south end of snow fence, in rock; aluminum tablet stamped "6869-1907"-----	¹ 6, 866. 790
Chalender, in front of station; top of rail-----	6, 868. 8
T. 22 N., R. 4 E., sec. 32, 1.98 miles east of Chalender, 473 feet west of milepost 366, on north side of railroad bridge 367-A over wagon road, in northeast corner of stone abutment; alumi- num tablet stamped "6852-1907"-----	¹ 6, 849. 711
Chalender, 4.05 miles east of, north side of track at milepost 364, in top of west rack for emergency rail; nail-----	6, 989. 8
Maine (Rhodes post office), 90 feet north of station, 40 feet north of track, south side of pine tree, in rock; sec. 26, T. 22 N., R. 4 E.; aluminum tablet "7086-1907"-----	¹ 7, 084. 406
Maine, in front of station; top of rail-----	7, 083
Maine, 1.99 miles east of, 350 feet east of half-mile post and sec- tion post 48 and 49, on north side of track, in east end of stone culvert 361-A; aluminum tablet stamped "7178-1907"-----	¹ 7, 175. 713
Arey siding, in front of signboard; top of rail-----	7, 194

¹ Elevation by Coast and Geodetic Survey unadjusted precise level line, 1909.

Maine, 4.48 miles east of, 0.57 mile east of Arey siding, 45 feet directly north of milepost 358, 5 feet south of fence, in rock, aluminum tablet stamped "7193-1907"-----	Feet. 7, 191. 370
Bellemont, in front of station; top of rail-----	7, 131. 4
Bellemont, 0.31 mile east of station, 125 feet southwest of milepost 356, on east side of railroad bridge 357-A, in west end of east stone abutment; aluminum tablet stamped "7131-1907."-----	7, 129. 958
Bellemont, 3.32 miles east of, 100 feet southeast of milepost 353, 30 feet east of telephone pole, in rock; aluminum tablet stamped "7186-1907"-----	7, 184
Riordan, in front of station; top of rail-----	7, 311. 1
Arizona Divide, in front of signboard; top of rail-----	7, 312. 5
Riordan, 0.69 mile east of, 466 feet east of road crossing, 403 feet west of milepost 350, in south end of east stone abutment of railroad bridge 351-A; aluminum tablet stamped "7273-1907"-----	7, 271. 488
Agassiz siding, in front of signboard; top of rail-----	7, 107. 3
Riordan, 3.61 miles east of, 0.3 mile east of Agassiz siding, 175 feet east of east end of switch, north side of track, 20 feet west of telegraph pole, in rock; aluminum tablet stamped "7091-1907"-----	7, 088. 616
Flagstaff, 300 feet north of railroad, 20 feet south of front entrance to Citizens' Bank, in north end of south stone window sill; aluminum tablet stamped "6907-1907"-----	6, 904. 862
Flagstaff, in front of station; top of rail-----	6, 895. 4
Flagstaff, 2.1 miles east of, 60 feet west of milepost 342, on north end of east stone abutment of railroad bridge 343-A; cross-----	6, 838. 42
Flagstaff, 3.11 miles east of, 90 feet southwest of milepost 341, 60 feet south of track, in rock; aluminum tablet stamped "6843-1907"-----	6, 840. 421
Bellemont north along wagon road to Slate Mountain, thence west to sec. 6, T. 24 N., R. 5 E.	
Bellemont, 3.03 miles north of, 80 feet east of road, on top of hill in center of triangle formed by three pine trees, in rock; aluminum tablet stamped "7347-1907"-----	7, 344. 870
T. 22 N., R. 5 E., sec. 2, 0.45 mile north of Kipson ranch, 90 feet west of road, in pile of rocks; aluminum tablet stamped "7593-1907"-----	7, 590. 449
T. 23 N., R. 5 E., sec. 26, 3.01 miles north of Kipson ranch, 125 feet northeast of northeast corner of old ranch house, 50 feet south of wagon road, in rock; aluminum tablet stamped "7664-1907"-----	7, 661. 637
T. 23 N., R. 5 E., sec. 12, 5.9 miles north of Kipson ranch, 300 feet northeast of northeast corner of old cabin, 85 feet northeast of triangular group of pine trees, in rock; aluminum tablet stamped "7910-1907"-----	7, 907. 856
T. 24 N., R. 5 E., sec. 25, 1.05 miles northwest of Hibbon ranch, 45 feet south of road, in ledge of rock; aluminum tablet stamped "7843-1907"-----	7, 841. 017
T. 24 N., R. 5 E., secs. 14 and 15, 3.77 miles northwest of Hibbon ranch, 45 feet west of road, in east end of ledge of rock; aluminum tablet stamped "7387-1907"-----	7, 385. 018
T. 24 N., R. 5 E., sec. 5, 6.96 miles northwest of Hibbon ranch, on south side of road, on east side of shallow draw, in rock; aluminum tablet stamped "7001-1907"-----	6, 998. 613

¹ Elevation by Coast and Geodetic Survey unadjusted precise level line, 1909.

Milepost 340 on Atchison, Topeka & Santa Fe Ry. near Greenlaw's mill north along wagon road to road fork north of Smith's tanks, thence west to point 6 miles north of Kipsons River.

Greenlaw's mill, 30 feet north of northwest corner of sawmill, on west side of pine tree 4 feet in diameter, 125 feet west of wagon road, in rock; aluminum tablet stamped "6850-1907"-----	Feet. 6, 847. 495
T. 22 N., R. 8 E., sec. 21, 3.2 miles north of Greenlaw's mill, 70 feet east of road, north side of pine, in rock; aluminum tablet stamped "6792-1907"-----	6, 790. 043
T. 22 N., R. 8 E., sec. 9, 5.84 miles north of Greenlaw's mill, 20 feet east of road, 900 feet west of old cabin, in rock; aluminum tablet stamped "6723-1907"-----	6, 721. 054
T. 23 N., R. 8 E., sec. 29, 8.93 miles north of Greenlaw's mill, 80 feet east of road, just east of where road makes sharp bend to go up hill, in ledge of rock; aluminum tablet stamped "7125-1907"-----	7, 123. 066
T. 23 N., R. 8 E., sec. 17, 825 feet north of Jack Smith's tank, west side of road, in large outcrop of rock; aluminum tablet stamped "7196-1907"-----	7, 193. 500
T. 24 N., R. 8 E., sec. 6, 2.62 miles northwest of Jack Smith's tank, 25 feet south of road, in rock south of cedar bush; aluminum tablet stamped "7020-1907"-----	7, 018. 000
T. 24 N., R. 7 E., sec. 27, 5.71 miles northwest of Jack Smith's tank, 60 feet south of road, in rock beside rock monument; aluminum tablet stamped "6891-1907"-----	6, 888. 650
T. 24 N., R. 7 E., sec. 16, 7.78 miles northwest of Jack Smith's tank, 35 feet south of road, near cedar bush, in rock in pile of rocks; aluminum tablet stamped "7067-1907"-----	7, 064. 413
T. 24 N., R. 7 E., sec. 9, 9.33 miles northwest of Jack Smith's tank, at main crossroads, north side of road just east of four corners, in rock; aluminum tablet stamped "7067-1907"-----	7, 065. 204
T. 24 N., R. 7 E., sec. 19, 3.09 miles southwest of crossroads, at main forks of road, 212 feet north of center of forks, in rock; aluminum tablet stamped "7432-1907"-----	7, 429. 291
T. 24 N., R. 6 E., sec. 36, 245 feet west of milepost 20, on south side of draw, 8 feet east of pine, in rock; aluminum tablet stamped "7740-1907"-----	7, 737. 639
T. 23 N., R. 6 E., sec. 4, 3.15 miles west of milepost 20, 20 feet west of cattle trail, in outcrop of rock; aluminum tablet stamped "7874-1907"-----	7, 871. 282
T. 23 N., R. 5 E., 5.9 miles north of Kipson ranch, 300 feet northeast of northeast corner of old cabin; aluminum tablet stamped "7910-1907"-----	7, 907. 856

Flagstaff south along Old Verde Road to pump house, thence east to St. Marys Lake, thence northwest to Flagstaff.

Flagstaff, in east window sill at Citizen's Bank; aluminum tablet stamped "6907-1907"-----	6, 904. 862
Flagstaff, 3.09 miles south of, 70 feet east of road, in small draw, in rock; aluminum tablet stamped "6912-1907"-----	6, 909. 637
Flagstaff, 5.75 miles south of, 205 feet south of old railroad crossing, east side of wagon road, 75 feet northeast of fence corner; iron post stamped "6913-1907"-----	6, 910. 987

Pump house, at crossroads, on top of hill, east side of road, 20 feet north of four corners, in rock; aluminum tablet stamped "6751-1907"-----	Feet. 6, 748. 445
Pump house, 3.05 miles east of, 45 feet north of road, 500 feet west of divide, in ledge of rock; aluminum tablet stamped "6929-1907"----	6, 926. 768
Pump house, 6.06 miles east of, 50 feet south of wagon road, 5 feet south of old railroad grade, at sharp bend, in ledge of rock; aluminum tablet stamped "6814-1907"-----	6, 811. 505
St. Marys Lake, at northwest corner, 30 feet north of wagon road, 30 feet northwest of dam, in rock; aluminum tablet stamped "6809-1907"-----	6, 807. 110
St. Marys Lake, 3.06 miles northwest of, 10 feet north of road; iron post stamped "6883-1907"-----	6, 881. 022
St. Marys Lake, 5.82 miles northwest of, 20 feet south of road; iron post stamped "6908-1907"-----	6, 906. 016

Pump house west along wagon road to Oak Creek Canyon.

Flagstaff, 8.73 miles southwest of, on north side of road, 150 feet east of old house and barn, in rock; aluminum tablet stamped "6875-1907"-----	6, 873. 304
Flagstaff, 11.48 miles southwest of, 50 feet west of road, on north side of small draw, in rock; aluminum tablet stamped "6590-1907"----	6, 588. 057
Oak Creek Canyon, on east rim where wagon road starts down into canyon, west side of road, in rock; aluminum tablet stamped "6413-1907"-----	6, 410. 695

GRAND VIEW QUADRANGLE.

Northwest corner of T. 24 N., R. 5 E., northwest to Ebert ranch.

Hibbon ranch, 8.99 miles northwest of, in open prairie, on east side of cattle trail, in root of cedar tree; nail marked "U.S.B.M. 6807"--	6, 804. 96
Hibbon ranch, 10.18 miles northwest of, on west side of well-traveled wagon road running north and south, on rock; point marked "U.S.B.M. 6782"-----	6, 779. 55
T. 25 N., R. 4 E., 10.7 miles northwest of Hibbon ranch, 90 feet east of road, 30 feet west of cedar tree, in rock; aluminum tablet stamped "6770-1907"-----	6, 768. 076
Hibbon ranch, 12.19 miles northwest of, on west side of road, point on rock marked "U.S.B.M.-6713"-----	6, 711. 13
T. 25 N., R. 4 E., 12.99 miles northwest of Hibbon ranch, on west side of road, south of divide, in flint rock; aluminum tablet stamped "6710-1907"-----	6, 708. 058
Hibbon ranch, 14.32 miles northwest of, at junction with dim road running southeast, on west side of road; point on rock; stake marked "U.S.B.M. 6545"-----	6, 542. 63
Hibbon ranch, 15.20 miles northwest of, on north side of road; top of small rock; large loose rock marked "6540 B.M."-----	6, 537. 36
Hibbon ranch, 15.51 miles northwest of, on north side of road, at sharp bend where road runs into woods; point on rock marked "U.S.B.M. 6519"-----	6, 517. 29

Grand View point south to Grand View, thence northeast to New Hance trail
and down trail 1.2 miles.

Grand View Point, 150 feet north of cabin, west side of head of trail, in solid limestone ledge under rim; aluminum tablet stamped	Feet.
"7406 CANYON"-----	7, 401. 591
Grand View, 50 feet west of Grand View Hotel; iron post stamped	
"7496 CANYON"-----	7, 491. 283
Hance ranch, sec. 15, T. 30 N., R. 4 E., 150 feet southeast of old ranch house; iron post stamped "7186 CANYON"-----	7, 181. 532
Head of Red Canyon or New Hance trail, 20 feet west of limestone ledge, at rim of canyon; bronze tablet stamped "6982 CANYON"---	6, 977. 551
Head of trail, 0.4 mile north of, on east side of trail, in red ledge at foot of cliff; bronze tablet stamped "6482 CANYON"-----	6, 477. 676
Head of trail, 0.8 mile north of, 20 feet east and 20 feet south of trail, in large sandstone boulder; bronze tablet stamped "5882 CAN- YON"-----	5, 877. 199
Head of trail, 1.2 miles north of, 15 feet east of trail, in very large sandstone rock lying on sloping side of ravine; aluminum tablet stamped "5337 CANYON"-----	5, 332. 504

Hance ranch east to point 1 mile west of Deer tank.

Hance ranch, sec. 15, T. 30 N., R. 4 E., 150 feet southeast of house; iron post stamped "7186 CANYON"-----	7, 181. 532
Hull's Tank, 2.25 miles east of, north side of canyon, 20 feet north of road, in limestone ledge; aluminum tablet stamped "6805 CAN- YON"-----	6, 799. 817
Hull's Tank, 5.25 miles east of, on slight north and south ridge, 5 feet north of road, in limestone outcrop flush with ground; aluminum tablet stamped "6693 CANYON"-----	6, 687. 601
Deer Tank, 1 mile west of, in loop of road west side of small draw, in limestone outcrop; aluminum tablet stamped "6688 CANYON"----	6, 683. 459

ANITA QUADRANGLE.

Ebert ranch west along trails to milepost 19 on Grand Canyon Ry.

Ebert ranch, inside of inclosure around water tank, on south side, in rock; aluminum tablet stamped "6470-1907"-----	6, 467. 373
Ebert ranch, 1.07 miles west of; center of road at forks-----	6, 377. 51
Ebert ranch, 1.17 miles west of, 500 feet west of forks, on north side of road; point on rock, marked "U.S.B.M. 6381"-----	6, 379. 06
Ebert ranch, 1.80 miles west of, 100 feet south of southeast corner of old cabin formerly occupied by William Pitts; point on rock; house marked "6413"-----	6, 410. 28
Ebert ranch, 2.83 miles west of, on north side of mesa; point on rock, marked "U.S.B.M. 6309."-----	6, 306. 41
Ebert ranch, 3.41 miles west of, on north side of trail, 20 feet west of cedar tree, on north side of small draw, in red sandstone outcrop; aluminum tablet stamped "6304-1907"-----	6, 301. 427
Ebert ranch, 4.52 miles west of, on east side of cattle trail, in open draw; point on rock buried in ground, marked "U.S.B.M. 6217"----	6, 214. 81
Ebert ranch, 5.80 miles west of, on north side of trail, 35 feet west of clump of cedar trees, in rock buried in ground; aluminum tab- let stamped "6163-1907"-----	6, 160. 938

Ebert ranch, 6.64 miles west of, on west side of trail; point on rock, marked "U.S.B.M. 6182"-----	Feet. 6, 179. 59
Ebert ranch, 7.70 miles west of, on north nose of Beals Hill, on south side of trail; point on rock, marked "U.S.B.M. 6178"-----	6, 175. 28
Ebert ranch, 8.77 miles west of, in open prairie, 20 feet north of a cedar tree; point on rock, marked "U.S.B.M. 6163"-----	6, 160. 23
Ebert ranch, 9.47 miles west of, on east side of cattle trail, running directly southwest to Howards Lake, in rock buried in ground; aluminum tablet stamped "6165-1907"-----	6, 162. 344
Ebert ranch, 10.56 miles west of, on north side of trail, 30 feet north-west of cedar tree; point on rock, marked "U.S.B.M. 6154"-----	6, 151. 92
Ebert ranch, 10.87 miles west of, on west side of cattle trail, near top of hill leading down to draw, in rock buried in ground; aluminum tablet stamped "6161-1907"-----	6, 158. 590
Ebert ranch, 11.88 miles west of, on north side of trail, on top of hill; point on rock, marked "U.S.B.M. 6175"-----	6, 172. 38
Howards Lake, 1.08 miles east of, 40 feet south of road, in rock; aluminum tablet stamped "6166-1907"-----	6, 163. 576
Howards Lake, on north side of fence around lake, on rock point; fence post marked "U.S.B.M. 6144"-----	6, 141. 65
Howards Lake, on west side of lake, 30 feet west of Grand Canyon wagon road, 600 feet north of house occupied by ranch overseer, 400 feet north of road forks, in rock; aluminum tablet stamped "6175-1907"-----	6, 172. 183
Howards Lake, 0.92 mile west of, 100 feet north of road forks, on north side of road running northwest; point on rock, marked "U.S.B.M. 6117"-----	6, 114. 57
Howards siding, 0.75 mile north of, 1.5 miles south of Prado, on east side of railroad, 80 feet east of milepost 19; iron post stamped "6068 CANYON"-----	6, 063. 492

Grand View northwest 1.8 miles.

Grand View Hotel, 1.8 miles northwest of, 20 feet south of road at Berry's pasture gate; iron post stamped "7475 CANYON"-----	7, 470. 619
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Apex east to Grand View.

Coconino, 1.5 miles southeast of, 100 feet north of track at mileboard 56; aluminum tablet stamped "6401 CANYON"-----	6, 395. 98
Apex, 0.5 mile north of, 50 feet southeast of crossing of track by wagon road; iron post stamped "6564 CANYON"-----	6, 559. 251
Rain Tank, 0.5 mile east of, 150 feet east of road fork on top of limestone ledge; aluminum tablet stamped "6580 CANYON"-----	6, 575. 090
Rain Tank, 3.7 miles northeast of, 50 feet southeast of road near big pine tree; iron post stamped "6702 CANYON"-----	6, 697. 026
Rain Tank, 7 miles east of, 4.5 miles west of Grand View Hotel, south side of road; iron post stamped "6881 CANYON"-----	6, 875. 930
Grand View Hotel, 2.2 miles southwest of, 20 feet east of road at forks; iron post stamped "7300 CANYON"-----	7, 295. 040

Apex south along Grand Canyon Ry. to milepost 19.

Apex, 0.25 mile north of, 45 feet southeast of wagon and railroad crossing; iron post stamped "6564 CANYON"-----	6, 559. 251
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Apex, 3 miles south of, 320 feet north of milepost 49, 40 feet west of track, south end of cut, 4 feet south of telephone pole, in limestone outcrop; aluminum tablet stamped "6397 CANYON"-----	Feet. 6,392.004
Anita, 0.25 mile north of water tank, 200 feet west of water car siding, east point of ridge, in limestone outcrop; aluminum tablet stamped "5982 CANYON"-----	5,977.242
Anita, 2 miles south of, 40 feet west of track, 30 feet east of wagon road, 2 feet south of milepost 43; iron post stamped "5850 CANYON"-----	5,845.537
Anita, 5 miles south of, 250 feet south of milepost 40, 75 feet east of track, 25 feet east of old wagon road, north side of low ridge, in limestone outcrop; aluminum tablet stamped "5816 CANYON"-----	5,811.845
Willaha, 0.75 mile south of, 40 feet west of track, 4 feet southwest of milepost 37; iron post stamped "5806 CANYON"-----	5,801.510
Willaha, 3.75 miles south of, 40 feet west of track, 3 feet south of milepost 34; iron post stamped "5798 CANYON"-----	5,793.421
Valle, 1.5 miles northwest of, midway between milepost 30 and 31, top of ridge, 50 feet east of track, west edge of wagon road; iron post stamped "5871 CANYON"-----	5,866.633
Valle, 1 mile south of, 40 feet west of track, 4 feet west of milepost 28; iron post stamped "5908 CANYON"-----	5,903.443
Valle, 4 miles south of, 50 feet west of track, 2 feet west of milepost 25; iron post stamped "5962 CANYON"-----	5,957.625
Prado, 1.5 miles north of, 200 feet south of milepost 21, 400 feet west of track, 20 feet east of wagon road, 12 feet north of telephone pole; iron post stamped "6017 CANYON"-----	6,012.547
Prado, 1.5 miles south of, 60 feet east of milepost 19, 40 feet east of track, 10 feet east of wagon road; iron post stamped "6068 CANYON"-----	6,063.492

Bright Angel, Shinumo, and Vishnu Quadrangles.

COCONINO COUNTY.

The elevations in the following list are based on an aluminum tablet in rim rock north of Bright Angel Hotel at Grand Canyon, stamped "6866 CANYON." The elevation of this bench mark is accepted as 6,861.409 feet, as determined by primary levels along the Grand Canyon Railway, corrected to the unadjusted elevations of bench marks at Williams determined by precise leveling of Coast and Geodetic Survey in 1909.

The leveling was done by John T. Stewart in 1902 and 1903, and by M. S. Bright in 1904.

BRIGHT ANGEL QUADRANGLE.

Grand Canyon southeast along stage road via Grand View Hotel to Zuni Point (Bissell Point).

Grand Canyon, station, point on rim of canyon, 100 feet north of Bright Angel Hotel, in rim ledge; aluminum tablet stamped "6866 CANYON"-----	Feet. 6,861.409
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Grand Canyon, 3.4 miles southeast of, near northeast corner of sec. 1, T. 30 N., R. 2 E., 25 feet south of stage road; iron post stamped "6837 CANYON"-----	Feet. 6,832.495
Grand Canyon, 6 miles southeast of, sec. 8, T. 30 N., R. 3 E., south side of road in Long Jim Draw; iron post stamped "6811 CAN- YON"-----	6,806.467
Grand Canyon, 9.1 miles southeast of, near quarter corner west side of sec. 11, T. 30 N., R. 3 E., 25 feet west of road on bank near where road goes down into Long Jim Draw; iron post stamped "7195 CANYON"-----	7,190.587

**Grand Canyon north via Bright Angel trail down to Colorado River (single-
spur line).**

Bright Angel Hotel, 0.4 mile north of, west side of trail, top of large rock detached from ledge; aluminum tablet stamped "6327 CAN- YON"-----	6,322.227
Bright Angel Hotel, 0.7 mile north of, 15 feet north of trail, large sandstone rock detached from ledge; aluminum tablet stamped "5866 CANYON"-----	5,861.459
Bright Angel Hotel, 1.2 miles north of, west side of trail near bed of ravine, reddish sandstone ledge 2 feet higher than trail; aluminum tablet stamped "5361 CANYON"-----	5,356.105
Bright Angel Hotel, 1.5 miles north of, 25 feet north of trail on rim of red wall, 50 feet northwest of ravine, brown rock detached from ledge; aluminum tablet stamped "4850 CANYON"-----	4,845.263
Bright Angel Hotel, 1.9 miles north of, 20 feet east of trail below red wall, small limestone rock; aluminum tablet stamped "4348 CANYON"-----	4,343.723
Bright Angel Hotel, 2.8 miles north of, west side of trail, 100 feet west of ravine, limestone rock 3 feet high; bronze tablet stamped "3876 CANYON"-----	3,871.685
Bright Angel Hotel, 4.2 miles north of, rim of Granite Gorge at end of Plateau trail, 75 feet south of edge of rim, in quartzite ledge; aluminum tablet stamped "3708 CANYON" (on spur)-----	3,703.524
Bright Angel Hotel, 3.9 miles north of, east edge of trail at top of granite near Salt Creek, sandstone rock; bronze tablet stamped "3472 CANYON"-----	3,467.750
Bright Angel Hotel, 4.5 miles north of, east side of trail in Pipe Creek, limestone rock opposite mouth of Salt Creek; bronze tablet stamped "2781 CANYON"-----	2,776.525
Bright Angel Hotel, 5.4 miles north of; 100 feet northeast of mouth of Pipe Creek, high-water mark on south side of Colorado River, granite ledge; bronze tablet stamped "2436 CANYON"-----	2,431.316
Mouth of Pipe Creek, surface of water of Colorado River, June 6, 1902-----	2,412.

**Grand Canyon west to Rowes Point, thence south to Rowes Well, thence west
to Bass Camp.**

Sentinel (Maricopa) Point, sec. 14, T. 31 N., R. 2 E., top of upper stratum of solid rock near point, on rim; aluminum tablet stamped "7050 CANYON"-----	7,045.187
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Rowes Point (Hopi Point), Rowe triangulation station, sec. 14, T. 31 N., R. 2 E., 100 feet north of road to Rowes Point, 2 feet under surface at foot of 10-inch stump 10 feet high, bronze tablet stamped "7071 CANYON"-----	Feet. 7,066.311
Rowes Well, near quarter corner on south side of sec. 28, T. 31 N., R. 2 E., 150 feet north of largest cabin, 40 feet north of Supai Road, 30 feet west of Rowe Point Road, flat sheet limestone; aluminum tablet stamped "6681 CANYON"-----	6,676.524
T. 31 N., R. 2 E., SW. $\frac{1}{4}$ sec. 30, 2.7 miles southwest of Rowes Well, east edge of ridge 200 feet west of old horse ranch, north side of road, limestone ledge; aluminum tablet stamped "6462 CANYON"-----	6,457.565

Point 14.7 miles southeast of Bass Camp east to Bass siding.

T. 30 N., R. 1 E., NW. $\frac{1}{4}$ sec. 12, 3.5 miles west of Bass Siding, in canyon 50 feet north of road forks; aluminum tablet stamped "6211 CANYON"-----	6,206.368
South side of road, in root of 15-inch pine; nail-----	6,240.46
Bass siding, 100 feet north of road, SE. $\frac{1}{4}$ sec. 5, T. 30 N., R. 2 E., 250 feet northeast of camp, ledge in side of hill; aluminum tablet stamped "6417 CANYON"-----	6,412.107

VISHNU QUADRANGLE.

Head of Red Canyon or New Hance trail to Bissel Point (Zuni Point).

Morans Point, northern point of upper strata of limestone at rim; aluminum tablet stamped "7157 CANYON"-----	7,151.974
Bissell Point (Zuni Point), top of strata of limestone at rim; bronze triangulation tablet stamped "7284 CANYON"-----	7,279.387

Point 2.1 miles north of head of trail north to Colorado River.

Head of trail, 2.1 miles north of, north side of trail at top of red wall, limestone rock 8 feet square; aluminum tablet stamped "4955 CANYON"-----	4,950.726
Head of trail, 2.6 miles north of, 20 feet east of, in white limestone rock 3 feet higher than trail; aluminum tablet stamped "4292 CANYON"-----	4,287.609
Head of trail, 3.2 miles north of, east side of trail, east of junction of two ravines, sandstone rock in side of hill; aluminum tablet stamped "3665 CANYON"-----	3,660.115
Head of trail, 4.1 miles north of; 1 mile south of Colorado River, large stripped sandstone rock on west side of ravine and east side of trail; aluminum tablet stamped "2999 CANYON"-----	2,994.224
Head of trail, 5.1 miles north of, 300 feet northeast of Hance River Camp, 21 feet above high-water mark on south bank of Colorado River, sloping sandstone; aluminum tablet stamped "2614 CANYON"-----	2,609.465
Colorado River, at head of Granite Rapid; high-water mark-----	2,590
Colorado River, surface of water, June 24, 1902-----	2,571

Point 1 mile west of Deer Tank northeast to Comanche Point.

Deer Tank, 2.8 miles northwest of, 100 feet south of point where road crosses to west side of canyon, 40 feet west of road west side of canyon, in top of limestone ledge about 12 feet above road; aluminum tablet stamped "6817 CANYON"-----	Feet. 6, 812. 246
Deer Tank, 5.5 miles north of, north point of ridge, 100 feet east of point where road drops into canyon, 20 feet north of road, in limestone outcrop; aluminum tablet stamped "6452 CANYON"-----	6, 447. 160
Comanche Point, top of south edge of monument in lime rock; aluminum tablet stamped "7079 CANYON"-----	7, 074. 444

SHINUMO QUADRANGLE.

Point 12.6 miles southeast of Bass Camp northwest to Bass Camp.

Bass Camp, 12.6 miles southeast of, 3.6 miles west of Deserted Horse ranch, 50 feet south of road, limestone rock 12 inches high; aluminum tablet stamped "6340 CANYON"-----	6, 334. 853
T. 31 N., R. 1 E., sec. 19, 10 miles southeast of Bass Camp, 50 feet northwest of the intersection of Bass-Bass Siding and Bright Angel-Supai Roads; bronze tablet in rock stamped "6235 CANYON"-----	6, 230. 351
T. 31 N., R. 1 E., near quarter corner on west side of sec. 7, 6.7 miles southeast of Bass Camp, top of ridge in big patch of sage; iron post stamped "6372 CANYON"-----	6, 367. 538
T. 22 N., R. 1 W., NE. $\frac{1}{4}$ sec. 35, unsurveyed, 4.8 miles southeast of Bass Camp, north side of road on canyon rim; bronze tablet stamped "6519 CANYON"-----	6, 514. 746
Bass Camp, 2.6 miles southeast of, 25 feet west of gate in pasture fence; iron post stamped "6568 CANYON"-----	6, 563. 343
Bass Camp, 1.5 miles southeast of, 200 feet south of road to Havasupai Point, Bass triangulation station; bronze tablet stamped "6780 CANYON"-----	6, 775. 165

Bass Camp north along Mystic Spring trail, across Colorado River, and north via Shinumo Camp to rim of Kaibab Plateau (single-spur line).

Bass Camp, 0.5 mile north of, west side of trail above cistern, near top of cross-bedded sandstone; aluminum tablet stamped "6146 CANYON"-----	6, 141. 311
Bass Camp, 1 mile north of, east side of trail, in sandstone rock; aluminum tablet stamped "5635 CANYON"-----	5, 630. 407
Bass Camp, 2.1 miles north of, top of plateau west side of trail, at foot of sandstone ledge; aluminum tablet stamped "5376 CANYON"-----	5, 371. 412
Bass Camp, 2.7 miles north of, west side of trail, in Aubrey sandstone; aluminum tablet stamped "4857 CANYON"-----	4, 851. 777
Bass Camp 3.1 miles north of, west side of trail, in red wall; aluminum tablet stamped "4360 CANYON"-----	4, 354. 799
Bass Camp, 3.8 miles north of, north side of trail near foot of red wall; aluminum tablet stamped "3824 CANYON"-----	3, 819. 824
Bass Camp, 4.5 miles north of, west side of trail, in reddish rock near top of bank; aluminum tablet stamped "3345 CANYON"-----	3, 339. 941
Bass Camp, 5.4 miles north of, sandstone rock on west side of trail near Rock Camp; aluminum tablet stamped "2842 CANYON"-----	2, 837. 293

Bass Camp, 6.5 miles north of, southwest side of river, south side of trail in granite ledge at high water mark of Colorado River; aluminum tablet stamped "2230 CANYON"-----	Feet. 2, 225. 490
Bass Ferry, surface of Colorado River at 4.30 p. m., March 20, 1903-----	2, 195. 8
Bass Ferry, bottom of Colorado River-----	2, 144
Bass Ferry, north side of river, top of gorge 30 feet south of trail; aluminum tablet stamped "2272 CANYON"-----	2, 267. 182
Bass Ferry, 1 mile northwest of, top of ridge on way to Shinumo Creek, north side of trail; aluminum tablet stamped "2923 CANYON"-----	2, 918. 215
Shinumo Camp, on sandstone rock; aluminum tablet stamped "2483 CANYON"-----	2, 477. 973
Shinumo Camp, 1.1 miles above, 50 feet south of trail, 75 feet south of creek; aluminum tablet stamped "2674 CANYON"-----	2, 669. 313
Shinumo Camp, 1.6 miles above, on point of high sandstone bluff, east of trail near Blue Dick claim; aluminum tablet stamped "3156 CANYON"-----	3, 151. 358
Shinumo Camp, 3.3 miles above, north side of Moab Canyon, north side of trail; aluminum tablet stamped "3486 CANYON"-----	3, 481. 245
Shinumo Camp, 4.7 miles above, south side of sharp bend, near fall in Moab Canyon; aluminum tablet stamped "4006 CANYON"-----	4, 001. 323
Shinumo Camp, 5.6 miles above, south side and 150 feet above bottom of Moab Canyon; aluminum tablet stamped "4527 CANYON"-----	4, 521. 935
Shinumo Camp, 5.9 miles above, high point of limestone north of trail near big piñon tree; aluminum tablet stamped "5012 CANYON"-----	5, 007. 297
Shinumo Camp, 7 miles above, south of trail, where it returns to Moab Canyon, on top of red wall; aluminum tablet stamped "5181 CANYON"-----	5, 176. 222
Shinumo Camp, 8 miles above, south side of trail in dry gulch; aluminum tablet stamped "5697 CANYON"-----	5, 692. 630
Shinumo Camp, 8.4 miles above, on slide about half way between gulch and foot of cross-bedded sandstone, east side of trail, in sandstone rock; aluminum tablet stamped "6262 CANYON"-----	6, 257
Shinumo Camp, 8.9 miles above, in saddle at head of Moab Canyon, near point where trail forks for Powell and Kaibab plateaus, yellow sandstone rock; aluminum tablet stamped "6717 CANYON"-----	6, 711. 989
Shinumo Camp, 9 miles above, between saddle and rim of Kaibab plateau, north side of trail, in sandstone ledge; aluminum tablet stamped "7057 CANYON"-----	7, 052. 109
Shinumo Camp, 9.3 miles above, north rim of canyon where trail comes out on Kaibab plateau, known as swampy point, 35 feet east of rim, 50 feet south of trail, three witness trees blazed and painted, flat quartzite rock; aluminum tablet stamped "7523 CANYON"-----	7, 517. 837

Bass Camp, south along Ashfork Road, to point 9.8 miles south of Bass Camp
(mean of two lines).

Bass Camp, on rim of canyon, 100 feet from house; aluminum tablet stamped "6652 CANYON"-----	6, 646. 949
Bass Camp, 3.9 miles southwest of, 25 feet east of the intersection of Bass, Ashfork, and Bright Angel-Supai Road; iron post stamped "6302 CANYON"-----	6, 297. 416

T. 31 N., R. 1 W., near quarter corner on south side of sec. 4, 6.7 miles south of Bass Camp, 30 feet south of quarter-section corner, east side of road, at end of rocky point; aluminum tablet stamped "6154 CANYON"-----	Feet. 6, 149. 611
T. 31 N., R. 1 W., about south side of sec. 21, 9.8 miles south of Bass Camp, 15 feet west of road, near a clump of trees on ridge; iron post stamped "6012 CANYON"-----	6, 007. 090

Line from bench mark 6302 (forks) west along Supai Road to gate of Indian pasture.

Bass Camp, 6.5 miles southwest of, 25 feet north of road; iron post stamped "6144 CANYON"-----	6, 139. 203
Bass Camp, 9 miles southwest of, 25 feet northeast of gate at Indian pasture; iron post stamped "6129 CANYON"-----	6, 124. 131

Forks south of Bass Camp southeast to point 3.5 miles west of Bass siding.

T. 32 N., R. 1 W., S. $\frac{1}{2}$ sec. 35, 6.7 miles southeast of Bass Camp, 25 feet west of forks of Supai and old Bass siding roads; iron post stamped "6412 CANYON"-----	6, 407. 263
T. 31 N., R. 1 W., near center of sec. 13, 9.7 miles southeast of Bass Camp, 100 feet east of road forks, limestone ledge; aluminum tablet stamped "6243 CANYON"-----	6, 238. 287
Bass Camp, 12.4 miles southeast of, 25 feet west of road, top of ridge; iron post stamped "6221 CANYON"-----	6, 216. 231
Bass Camp, 14.7 miles southeast of, 5.5 miles northwest of Bass siding, 20 feet southeast of road fork; iron post stamped "6213 CANYON"-----	6, 208. 378

Camp Mohave, Castle Dome, Ehrenberg special, Needles special, Parker, Picacho, Quartzsite, Wellton, and Yuma quadrangles and quadrangle south of Quartzsite quadrangle.

MOHAVE AND YUMA COUNTIES.

The elevations in the following list are based on a double-rodded primary level line from San Bernardino to Yuma, based upon the Coast and Geodetic Survey unadjusted precise level line of 1906 from mean sea level at San Diego. Additional elevations in the Yuma and Wellton quadrangles are given in the precise-leveling lists from Yuma east along the Southern Pacific Railroad. Elevations in the California part of these quadrangles are given in Bulletin 342.

Most of the leveling in the Yuma and Wellton quadrangles was done in 1902-3 by G. L. Gordon and C. J. Hoover. A part of the work in the Blaisdell quadrangle was done in 1903 by L. D. Ryus. The leveling in the Picacho and Ehrenberg quadrangles was done in 1903 by C. Hartman, Gordon, and Ryus, in the Quartzsite quadrangle and the quadrangle south of it in 1903 by Ryus, in the Parker quadrangle in 1902-3 by Hartman, and in the Camp Mohave quadrangle in 1902 by Morrison. The leveling in the Needles special quadrangle was done in 1902 by Morrison, Hartman, and S. E. Blout.

In 1909 the Coast and Geodetic Survey precise-level line along the Atchison, Topeka & Santa Fe Railway redetermined bench marks near Mellen and Franconia. The unadjusted Coast and Geodetic Survey values are given in the Needles special quadrangle.

YUMA QUADRANGLE.

Yuma south along county road to Mexican boundary and return.

Yuma, railroad bridge, in east end of second pier, aluminum tablet stamped "137 S. B."-----	Feet. 138.100
T. 8 S., R. 23 W., southwest corner of sec. 31, iron post stamped "118 Y"-----	118.616
T. 9 S., R. 24 W., sec. 1, at Eta triangulation station, 6.5 miles southwest of Yuma, bronze tablet stamped "129 Y"-----	129.568
Somerton, T. 9 S., R. 24 W., southeast corner of sec. 33; iron post stamped "101 Y"-----	101.942
T. 10 S., R. 24 W., south side of sec. 14; triangulation station "Beta," bronze tablet stamped "160 Y"-----	160.320
T. 10 S., R. 24 W., sec. 32, triangulation station "Gamma," bronze tablet stamped "148 Y"-----	148.507
T. 10 S., R. 24 W., 4.5 feet south of southwest corner of sec. 32; iron post stamped "136 Y"-----	136.507
Monument 205, United States and Mexico boundary line, in foundation on United States side; top of bolt-----	90.438
Monument 204, United States and Mexico boundary line, 6 feet north of; iron post stamped "138 Y"-----	138.889
Monument 204, base of masonry-----	138.3
Monument 204, 5.1 miles east of, 1.7 miles south of township line; iron post stamped "163 Y"-----	163.316
T. 10 S., R. 23 W., southeast corner of sec. 36; iron post stamped "285 Y"-----	285.761
T. 10 S., R. 23 W., sec. 24, triangulation station; bronze tablet stamped "291 Y"-----	291.791
T. 9 S., R. 23 W., southeast corner of sec. 36; iron post stamped "203 Y"-----	203.784
T. 9 S., R. 23 W., northeast corner of sec. 1; iron post stamped "216 Y"-----	216.754

Yuma southeast along Southern Pacific R. R. to Blaisdell.

T. 9 S., R. 22 W., sec. 3, at milepost 740; iron post stamped "213 Y"-----	213.866
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Milepost 740 to triangulation station Kappa and return.

T. 8 S., R. 22 W., sec. 33, triangulation station Kappa; bronze tablet stamped "216 Y"-----	216.733
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Yuma northeast to point near Laguna.

T. 8 S., R. 23 W., sec. 28, 1.2 miles south of Yuma, triangulation station Azimuth; aluminum tablet stamped "297 Y"-----	297.275
T. 8 S., R. 22 W., northeast corner of sec. 17, 1.5 feet southwest of stake; iron post stamped "144 Y"-----	144.751

WELLTON QUADRANGLE.

Blaisdell east along Southern Pacific R. R. to Gila City.

Blaisdell, railroad station, southeast corner of; iron post stamped "188 Y"-----	Feet. 188.904
Gila City, southwest corner of station; iron post stamped "189 Y" (reported destroyed)-----	190.347

Blaisdell south to Fortuna and west to southwest corner of T. 10 S., R. 22 W.

Blaisdell, 6 miles southwest of, west side of road, iron post stamped "403 Y"-----	403.621
Fortuna, northwest corner post office; iron post stamped "746 Y"-----	746.696
Fortuna, 6 miles west of; iron post stamped "433 Y"-----	434.304
Fortuna, 11 miles west of; iron post stamped "299 Y"-----	300.178

Fortuna southwest 8 miles (single-spur line).

Fortuna, 5 miles southwest of; iron post stamped "509 Y"-----	509.868
Fortuna, 8 miles southwest of; iron post stamped "432 Y"-----	432.723

Gila City northwest along road and trail to point near Laguna.

Gila City, 6.2 miles northwest of, southwest side of trail at summit of pass between Gila and Colorado Rivers; iron post stamped "307 Y"-----	307.789
Laguna, 0.5 mile south of, east side of road at point of hill; iron post stamped "152 Y"-----	152.436

Near Laguna north to Castle Dome Landing.

Laguna, 4.5 miles northeast of, west side of road; iron post stamped "150 Y"-----	150.482
Laguna, 9.3 miles northeast of, at point of low hill, west side of road; iron post stamped "173 Y"-----	173.290
Castle Dome Landing, Arizona side of river bank, south of foot of bluff; iron post stamped "170 Y"-----	170.575

PICACHO QUADRANGLE.

Castle Dome northwest to Picacho, Cal.

Castle Dome Landing, 6 miles northwest of, 15 feet west of road; iron post stamped "175 Y"-----	175.755
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Point opposite Picacho, Cal., north along road to Trigo, Wash.

Mexican smelter, near, 500 feet east of river, 25 feet east of wagon road, at base of mountain; iron post stamped "189 Y"-----	190.258
East side of wagon road, at south end of canyon, and beginning of long flat, in solid rock; bronze tablet stamped "213 Y"-----	214.326
"Pilot Rock," 0.5 mile south of, 300 feet east of river, 15 feet east of wagon road, at base of decayed rock mountain; bronze tablet stamped "211 Y"-----	212.449
Adobe house, 0.5 mile south of, 500 feet east of river, east side of wagon road; iron post stamped "244 Y"-----	244.740

Mrs. Hart's ranch, 2.5 miles north of, on west side of wagon road, in mesquite brush; iron post stamped "215 Y"-----	Feet. 215.647
Seeley ranch, 4 miles east of river, on west side of wagon road; iron post stamped "226 Y"-----	226.530
Mule Wash, on low mesa at north end of, 500 feet east of river, 500 feet north of triangulation station, on Arizona side; iron post stamped "252 Y"-----	252.132
North side of Trigo Wash, 500 feet northeast of river, in large mesquite trunk; bronze tablet stamped "258 Y"-----	258.501

EHRENBURG SPECIAL QUADRANGLE.**Trigo Wash north to Ehrenberg.**

Ehrenberg, 5 miles south of, on sand mesa, south of triangulation station; bronze tablet stamped "286 Y"-----	286.513
Ehrenberg, opposite post office, 125 feet west of S. M. Wilson's store, 100 feet east of river landing; iron post stamped "274 Y"---	274.828

Ehrenberg north along road to first water station south of Parker.

Ehrenberg, 3 miles north of, on north end of mesa; iron post stamped "295 Y"-----	296.015
La Pas, 3 miles north of, 0.3 mile west of sand hills, on east side of Ehrenberg Road; iron post stamped "286 Y"-----	286.722
La Pas, 7 miles north of, east side of Ehrenberg Road, top of divide, 0.5 mile west of sand hills; iron post stamped "317 Y"-----	317.035
La Pas, 12 miles north of, 3 miles east of Colorado River at base of projection of mountain at south end of sand flat, in rock; bronze tablet stamped "311 Y"-----	311.449
La Pas, 18 miles north of, west side of Ehrenberg Road, north end of long open sand flat, 0.2 mile west of sand hills; iron post stamped "319 Y"-----	320.268
Parker, 11 miles south of, 0.1 mile north of the first water station south of Parker, west side of Ehrenberg Road, beside mesquite tree; iron post stamped "325 Y"-----	326.449

Ehrenberg northeast to Halfway Well.

Ehrenberg, 8 miles northeast of, at low hill point, 15 feet south of road; iron post stamped "747 Y"-----	747.964
Ehrenberg, 11.1 miles northeast of, 40 feet south of Halfway Well, on road to Tysons; iron post stamped "1004 Y"-----	1,004.914

Ehrenberg southeast 5 miles (single-spur line).

Ehrenberg, 4.9 miles southeast of, 12 feet north of road; iron post stamped "619 Y"-----	619.926
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QUARTZSITE AND CASTLE DOME QUADRANGLES.**Halfway Well east to Quartzite, thence south to Weaver Pass.**

Quartzsite, Quartzsite Mining & Smelting Co. store, northwest corner of fence in front of store; iron post stamped "871 Y"-----	872.197
Quartzsite Mining & Smelter Co. store, 6.25 miles south of, 50 feet east of road, on gravel mesa; iron post stamped "1025 Y"-----	1,024.600

Quartzsite Mining & Smelter Co. store, 11.38 miles south of, 300 feet south of wash, 20 feet west of, junction of Yuma and King of Arizona mine roads; iron post stamped "1125 Y"-----	Feet. 1, 125. 639
Weaver Pass summit, 20 feet west of road; iron post stamped "1304 Y"-----	1, 305. 055

PARKER QUADRANGLE.

Water station north to Parker, thence northeast to Bill Williams Fork, thence northwest to point near Liverpool Landing.

Parker, 5 miles south of, on west side of Ehrenberg Road; iron post stamped "344 Y"-----	345. 264
Parker, 300 feet southwest of agency building; iron post stamped "352 Y"-----	352. 834
Parker, 2.5 miles north of, 0.5 mile east of river, on wagon road running to Parker; iron post stamped "424 Y"-----	424. 939
Empire Flat, 1 mile south of north end of, 300 feet west of trail; iron post stamped "376 Y"-----	376. 293
Empire Flat, 2.5 miles north of, 0.75 mile south of big wash, 75 feet east of river, in ledge of rock; bronze tablet stamped "378 Y"---	378. 179
Bill Williams Fork, 1,000 feet north of, 500 feet east of river, in rock; bronze tablet stamped "391 Y"-----	391. 469
Bill Williams Fork, at north end of second flat, 5.2 miles north of, 300 feet east of river, on trail; aluminum tablet stamped "406 Y"---	406. 376
Bill Williams Fork, 9 miles north of, at flat, 2.5 miles long and 0.1 mile east of river, near dry stream; on trail at south end of flat; bronze tablet stamped "405 Y"-----	405. 181
Triangulation signal, 0.5 mile northeast of, 200 feet west of river, on California side, in ledge of rock; bronze tablet stamped "417 Y"---	417. 619
Pittsburg Landing, at sharp bend in river, 500 feet east of river, in rock on top of small hill; bronze tablet stamped "439 Y"-----	439. 704
Liverpool Landing, about 1 mile northeast of, 1 mile east of Colorado River, 50 feet east of highwater trail, on top of mesa; bronze tablet stamped "441 Y"-----	441. 331

NEEDLES SPECIAL QUADRANGLE.

Liverpool Landing north to Mellen.

Mellen, 15 miles south of, in sand flat 0.5 mile wide surrounded by sand hills, signal flag stands on top of sand hills 100 feet northwest; iron post stamped "428 Y"-----	428. 213
Mellen, 5 miles south of, 15 feet northeast of Colorado River, in large ledge of rock, projecting from side of high hill; bronze tablet stamped "465 Y"-----	465. 781
Mellen, east end of bridge over Colorado River, south abutment; bronze tablet stamped "504 Y 1902" (Coast and Geodetic Survey, 1909, unadjusted elevation, 504.211)-----	504. 652

Mellen east along Atchison, Topeka & Santa Fe Ry. to Franconia.

Mellen, 7 miles east of, north side of track, 75 feet north of station board at Powell; iron post stamped "762 Y"-----	762. 968
Franconia, north side of track, 30 feet south of section house; iron post stamped "1101 Y" (Coast and Geodetic Survey, 1909, unadjusted elevation, 1,100.244)-----	1, 101. 985

Mellen north along road to Spears Lake, thence west to Needles, Cal.

Powell Lake, 0.4 mile west of lake and 1 mile north of south end, 50 feet east of road, 200 feet south of road fork west; iron post stamped "444"-----	Fect. 451.671
Needles, 4.5 miles east of, 0.25 mile north of Rosenberg ranch, at windmill, 0.25 foot northwest of signboard on old tie in open flat, about 1.75 miles south of Mesa; iron post stamped "453"-----	460.552

Needles, Cal., north along county road in Arizona to Fort Mohave.

Needles, 1 mile east of, on east side of Colorado River, 17 feet north from fence of W. J. Sweeney's house, 116 feet east of front of house; iron post stamped "463 Y 1903"-----	463.697
Needles, 6 miles north of, on east side of road leading to Fort Mohave; iron post stamped "467 Y"-----	467.857
Needles, 11 miles north of, on west side of road leading to Fort Mohave; iron post stamped "479 Y"-----	479.932

CAMP MOHAVE QUADRANGLE.

At Fort Mohave.

Fort Mohave, in grounds of Indian training school, 5 feet east of flagstaff on drill ground; iron post stamped "540 Y"-----	540.735
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Camp Mohave Quadrangle.

MOHAVE COUNTY.

The elevations in the following list are based on an iron post stamped "Y 540," set 5 feet east of the flagstaff on the drill ground at the Fort Mohave Indian Training School. Its elevation is 540.735 feet.

The leveling from Fort Mohave to Bulls Head dam site was done by C. R. Oldberg and afterwards checked by Goyne Drummond, both of the Reclamation Service.

The leveling from Bulls Head dam site to the head of Cottonwood Valley and return was done by Goyne Drummond. The circuit was closed at Bulls Head.

CAMP MOHAVE QUADRANGLE.

Fort Mohave north to a point 23 miles from Bulls Head dam site.

Bulls Head Road, 1 mile south of Hardyville, in cairn of rocks on east of road; iron post stamped "Y 538"-----	Fect. 538.5
Bulls Head Road, at junction of sheep trail and Kingman Road, 50 feet from ruins of adobe house; iron post stamped "Y 522"-----	522.3
Bulls Head dam site, at Arizona bank of gaging station, in wall rock; bronze tablet stamped "Y 531"-----	531.3
Bulls Head Dam site, at upper dam site, on Arizona bank, in wall rock; copper tablet marked "Y 514"-----	515.2
Bulls Head, 2.5 miles north of; 60 feet west of Pyramid Rock, in rock ledge; bronze tablet stamped "Y 555"-----	556.1

Bulls Head, 6 miles north of, 2 feet west of trail, on rock 2 by 2 feet; bronze tablet marked "Y 547"-----	Feet. 548.1
Bulls Head, 9 miles north of, 10 feet east of trail, in rock by cairn of stones; bronze tablet marked "Y 556"-----	557.1
Bulls Head, 13.5 miles north of, 400 feet east of Colorado River, in rock 2 by 2 feet, on gravel bank; bronze tablet stamped "Y 576"---	577.5
Bulls Head, 16.6 miles north of, 1 mile east of house on island, in black rock; bronze tablet stamped "Y 584"-----	584.9
Bulls Head, 23.3 miles north of, 5 miles northeast of Quartette stamp mill, in rocky point; bronze tablet stamped "Y 561"-----	561.9

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