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UNITED STATES GEOLOGICAL SURVEY

GEORGE OTIS SMITH, DIRECTOR

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CANCELLED

RESULTS OF SPIRIT LEVELING
IN MINNESOTA

1897 TO 1914, INCLUSIVE

R. B. MARSHALL, CHIEF GEOGRAPHER

WORK DONE IN COOPERATION WITH THE STATE OF MINNESOTA FROM
1909 TO 1914, INCLUSIVE; GEORGE A. RALPH, CHIEF ENGINEER
OF STATE DRAINAGE COMMISSION



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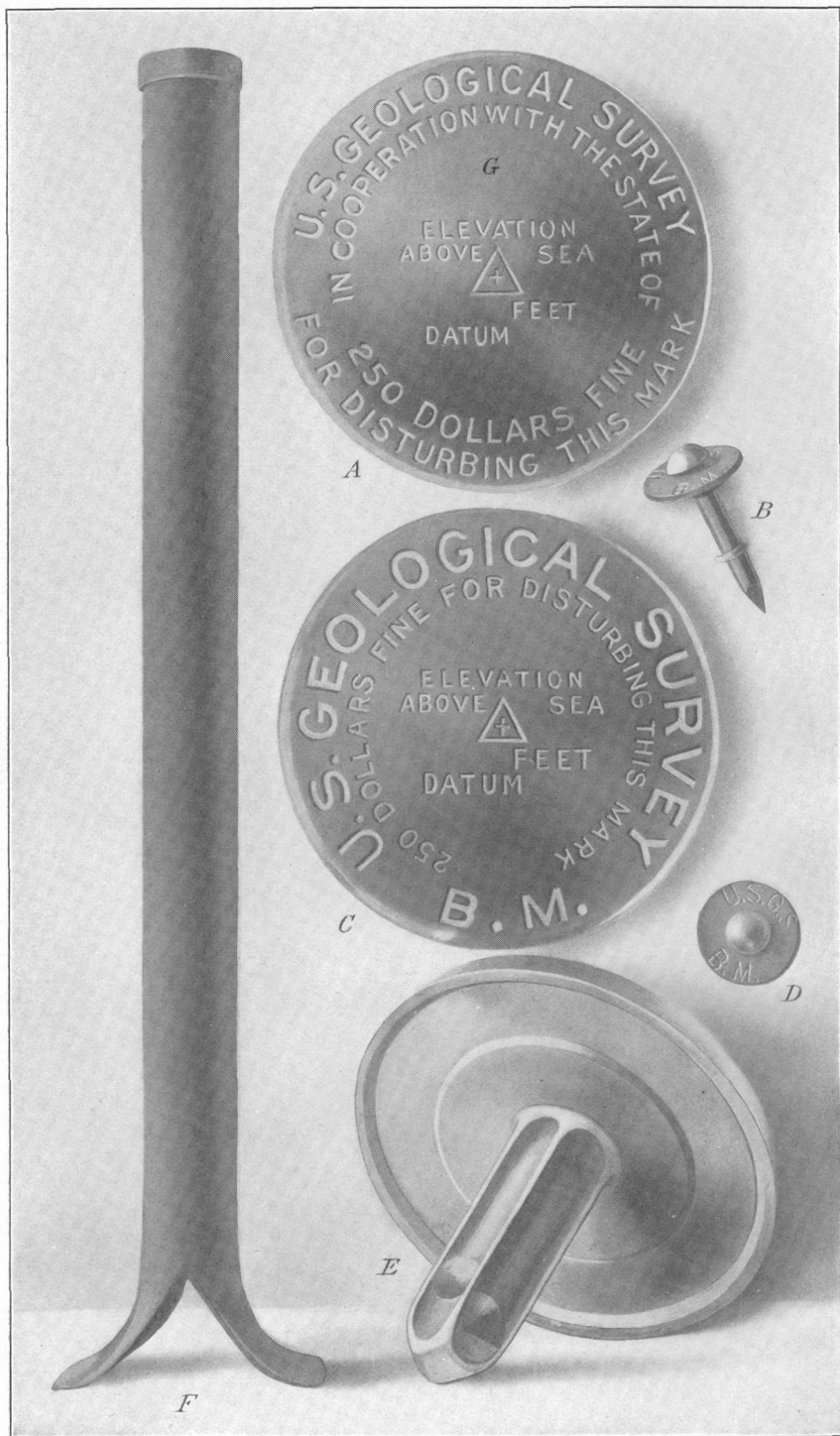
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GEOLOGICAL SURVEY BENCH MARKS.

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 MINNESOTA, 1897 TO 1914, INCLUSIVE.

R. B. MARSHALL, *Chief Geographer.*

INTRODUCTION.

Cooperation.—The State of Minnesota contributed financially to the work of 1909 to 1914, inclusive.

Previous publication.—All results of spirit leveling in Minnesota previously published by the United States Geological Survey and all the results of later work in the State are included in this report, rearranged by quadrangles. All elevations are based on the precise-level net adjustment of 1912 by the United States Coast and Geodetic Survey to a common mean sea level datum. The part of this net which lies within or along the borders of Minnesota comprises the line along Mississippi River from the southeast corner of the State to Lake Itasca, the line from Brainerd via Aitkin and Grand Rapids to Cass Lake, the line of the Corps of Engineers, United States Army, from St. Paul to Duluth, also the following lines by the Coast and Geodetic Survey: St. Cloud via Evansville and Childs to Ortonville, and Evansville via Fergus Falls and Crookston to Stephen.

Personnel.—The field work previous to 1903 was done under the general direction of J. H. Renshaw, geographer; that for 1903 to 1906, inclusive, under H. M. Wilson, geographer; and the later work under W. H. Herron, geographer, under the general direction of R. B. Marshall, chief geographer. Credit is given to the respective levelmen in the introductions to the several lists. The office work of computation, adjustment, and preparation of lists was done mainly by S. S. Gannett, geographer, 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 in both forward and backward directions, 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-fourth 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. It is split at the bottom and expanded to a width of 10 inches in order to give a firm bearing on the earth, and is set about 3 feet in the ground. A bronze or aluminum-bronze cap is riveted upon the top of the post. A third style of bench mark with abbreviated lettering (B and D , Pl. I), is used for unimportant points. This consists of a special copper nail, $1\frac{1}{2}$ inches in length, driven through a copper washer seven-eighths of an inch in diameter.

The tablets as well as the caps on the iron posts are appropriately lettered, and for cooperating States the fact of such cooperation is indicated by the addition of the State name (at G , Pl. I).

The numbers stamped on the bench marks described in the following pages represent the elevations to the nearest foot, as determined by the levelman. These numbers are stamped with $\frac{3}{16}$ -inch steel dies on the tablets or post caps, to the left of the word "feet." The office adjustment of the notes and the reduction to mean sea level datum may so change some of the figures that the original markings are 1 or 2 feet in error. It is assumed that engineers and others who have occasion to use the bench-mark elevations will apply to the Director of the United States Geological Survey at Washington, D. C., for the adjusted values, and will use the markings as identification 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 tides and winds 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 levels 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 seacoast 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 of 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.

There are included herewith the results of leveling in certain wet, overflowed, or swampy lands, ceded by the Chippewa Indians, in the counties of Beltrami, Itasca, Marshall, Polk, Red Lake, and Roseau, the Survey of which was specifically provided for by Congress June 21, 1906, and finally reported upon in House Document 27, Sixty-first Congress, first session. The elevations of bench marks given in that document have been corrected to agree with the adjustment of precise leveling made in 1912.

Topographic maps.—Maps of the following quadrangles, wholly or partly in Minnesota, have been published by the United States Geological Survey up to April 15, 1914. They may be obtained for 10 cents each, or \$3 for 50, on application to the Director of the Survey at Washington, D. C.

Anoka.	Minneapolis.
Ashby.	Minnetonka.
Barrett.	Morris.
Battle Lake.	Rockford.
Chokio.	St. Croix Dalles (Wis.-Minn.).
Duluth.	St. Paul.
Fargo (N. Dak.-Minn.).	Wahpeton (N. Dak.-Minn.).
Fergus Falls.	Wendell.
Herman.	White Bear.

PRECISE LEVELING.

Badger, Baudette, Birchdale, Clementson, Crookston, Fertile, Goos, Greenbush, Indus, International Falls, Middle River, Pelland, Red Lake Falls, Roosevelt, Roseau, Thief River Falls, Warroad, and Williams quadrangles.

BELTRAMI, ITASCA, MARSHALL, POLK, RED LAKE, AND ROSEAU COUNTIES.

The elevations in the following list are the result of a line of precise levels run by C. H. Semper in 1906 from Crookston to Middle River, and extended in 1907 by E. L. McNair from Middle River

northward along the Great Northern Railway to Greenbush; thence along highways via Badger and Roseau to Warroad, a small town on the Canadian Northern Railway at the southwestern extremity of the Lake of the Woods and only about 7 miles south of the forty-ninth parallel; thence eastward along the Canadian Northern Railway to Baudette, on Rainy River; thence along the south bank of Rainy River—the line being cut through the forest a considerable part of the distance—to International Falls, opposite the older Canadian town of Fort Francis. Elevations are based on the bench mark "City" of the Coast and Geodetic Survey at Crookston, which is taken as 867.731 feet above mean sea level.

CROOKSTON QUADRANGLE.

[Latitude, 47° 45'-48°; longitude, 96° 30'-96° 45'.]

From Crookston along Great Northern Ry. via Tilden Junction and Thief River Falls to Middle River (part of line).

Crookston, Polk County, "City" bench mark, at entrance of Merchants' National Bank building, on northwest corner of Second and Main streets; a square outline on north side of top of first step (C. & G. S. b. m.).....	Feet. 867. 731
Crookston, 3.38 miles east of, at railroad crossing, southeast corner of fence; iron post stamped "888"	886. 962
Crookston, 6.27 miles east of, south side of track, at railroad crossing, corner of fence; iron post stamped "905"	904. 113

FERTILE QUADRANGLE.

[Latitude, 47° 30'-47° 45'; longitude, 96° 15'-96° 30'.]

From Crookston along Great Northern Ry. via Tilden Junction and Thief River Falls to Middle River (part of line).

Burwell, 1.82 miles east of, 50 feet south of track, 60 feet west of road, in corner of fence; iron post stamped "927"	925. 844
Burwell, 4.63 miles east of, north side of track, 8 feet east of milepost 11; iron post stamped "991"	989. 658
Burwell, 7.31 miles east of, 60 feet north of railroad, 50 feet west of road; near crossing; iron post stamped "1035"	1, 034. 250
Burwell, 10.43 miles east of, south side of track, second telegraph pole west of milepost 17; iron post stamped "1103"	1, 101. 552
Tilden Junction, 2.02 miles north of, east side of track, opposite milepost 59, at fence line; iron post stamped "1095"	1, 093. 522

RED LAKE FALLS QUADRANGLE.

[Latitude, 47° 45'-48°; longitude, 96° 15'-96° 30'.]

From Crookston along Great Northern Ry. via Tilden Junction and Thief River Falls to Middle River (part of line).

Delorme, 0.57 mile north of, railroad crossing, 30 feet west of track, 3 feet north of crossing signboard, 389 feet south of milepost 63; iron post stamped "1092"	1, 090. 750
Perault, 0.34 mile north of, railroad crossing, east side of track, 358 feet south of milepost 65; iron post stamped "1043"	1, 041. 757
Perault, 3.13 miles north of, west side of track, 30 feet north of switch to Red Lake Falls, on east margin of highway; iron post stamped "1035"	1, 033. 909

Red Lake Falls, 1.07 miles north of, between main line track and switch to Red Lake Falls Milling Co., 25 feet east of main track, Great Northern Ry.; iron post stamped "984".....	Feet. 983. 124
Red Lake Falls, 4.31 miles north of, west side of track, 8 feet northwest of milepost 5; iron post stamped "1071".....	1, 069. 941
Red Lake Falls, 7.26 miles north of, east side of track, 150 feet east of milepost 2; iron post stamped "1086".....	1, 084. 491

THIEF RIVER FALLS QUADRANGLE.

[Latitude, 48°-48° 15'; longitude, 96°-96° 15'.]

From Crookston along Great Northern Ry. via Tilden Junction and Thief River Falls to Middle River (part of line).

St. Hilaire, 362 feet north of station, road crossing, 30 feet west of track; iron post stamped "1091".....	1, 089. 584
St. Hilaire, 2.59 miles north of, railroad crossing, west of track, at northwest corner of fence; iron post stamped "1102".....	1, 101. 060
St. Hilaire, 5.63 miles north of, northeast corner of road crossing, at fence corner; iron post stamped "1124".....	1, 122. 556
Thief River Falls, First National Bank building, west face, between windows; aluminum tablet stamped "1137".....	1, 136. 129
Thief River Falls, 3.58 miles north of, road crossing, 100 feet east of track, at southwest corner of fence; iron post stamped "1133".....	1, 131. 393
Thief River Falls, 6.38 miles north of, west side of track, 3 feet north of milepost 35; iron post stamped "1139".....	1, 137. 538
Steiner, 2.46 miles north of, west side of track, 5 feet north of milepost 38; iron post stamped "1152".....	1, 151. 221

MIDDLE RIVER QUADRANGLE.

[Latitude, 48° 15'-48° 30'; longitude, 96°-96° 15'.]

From Crookston along Great Northern Ry. via Tilden Junction and Thief River Falls to Middle River (part of line).

Sandridge, 287 feet north of station, west side of track, 30 feet south of water tank; iron post stamped "1157".....	1, 155. 317
Sandridge, 3.02 miles north of, west side of track, 15 feet west of milepost 44; iron post stamped "1144".....	1, 143. 057
Sandridge, 5.95 miles north of, northwest side of track, 20 feet northwest of milepost 47; iron post stamped "1143".....	1, 142. 202
Middle River, 0.75 mile south of, 6 feet west of milepost 50; iron post stamped "1147".....	1, 146. 129

From Middle River along Great Northern Ry. to Greenbush (part of line).

Middle River, 2.1 miles north of, 200 feet north of milepost 63; 60 feet east of track; iron post stamped "1169".....	1, 167. 561
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GREENBUSH QUADRANGLE.

[Latitude, 48° 30'-48° 45'; longitude, 96°-96° 15'.]

From Middle River along Great Northern Ry. to Greenbush (part of line).

Strathcona, 1.2 miles south of, 360 feet north of milepost 58, 45 feet east of track, at edge of right of way; iron post stamped "1139".....	1, 137. 772
Strathcona, 96 feet west of center of track, 18 feet north of center of wagon road, 9 feet west of ditch; iron post stamped "1126".....	1, 125. 059
Strathcona, 0.75 mile north of, 50 feet west of center of track, 35 feet northwest of milepost 60, at edge of right of way; iron post stamped "1120".....	1, 118. 411

Strathcona, 3.8 miles north of, opposite milepost 63, 45 feet east of track, at edge of right of way; iron post stamped "1099".....	Feet. 1, 097. 788
Greenbush, 3.6 miles south of, opposite milepost 66, 45 feet west of track; iron post stamped "1071".....	1, 069. 816
Greenbush, 0.5 mile south of, 45 feet west of track, 15 feet northwest of second telegraph pole north of milepost 69; iron post stamped "1073"....	1, 071. 526

From Greenbush along highway via Badger, Roseau, and Pequis to Warroad (part of line).

Greenbush, 1.2 miles north of, on main highway, 30 feet east of road, 45 feet west of railroad grade, 6 feet north of telephone pole; iron post stamped "1075".....	1, 074. 024
Greenbush, 3.6 miles northeast of, 90 feet northeast of schoolhouse, T. 161 N., R. 42 W., about at corner of secs. 29, 30, 31, and 32, 20 feet west of road; iron post stamped "1080".....	1, 078. 665
Greenbush, 6.4 miles northeast of, 4 feet north of third telephone pole north of house, 21 feet west of road; iron post stamped "1086".....	1, 084. 356

BADGER QUADRANGLE.

[Latitude, 48° 45'-49°; longitude, 96°-96° 15'.]

Near Badger.

Badger Creek; water surface June 27, 1907	1, 064. 4
Badger, 375 feet northwest of church, 186 feet northeast of Badger Feed and Sale Stable, 6 feet east of sidewalk, at corner of fence; iron post stamped "1084".....	1, 082. 600

ROSEAU QUADRANGLE.

[Latitude, 48° 45'-49°; longitude, 95° 45'-96°.]

From Greenbush along highway via Badger, Roseau, and Pequis to Warroad (part of line).

Badger, 3.2 miles northeast of, 42 feet north of fence corner, 12 feet east of center of main road, 170 feet north of house owned by Mr. Anderson, in NE. $\frac{1}{4}$ sec. 32 T. W.; iron post stamped "1086".....	1, 084. 632
Fox, 20 feet west of north-south section line between secs. 26 and 27, 135 feet south of corner of secs. 22, 23, 26, and 27, T. 162 N., R. 41 W.; iron post stamped "1092".....	1, 091. 137
Fox, 3.8 miles east of, 24 feet west of center of road, at fence corner, NE. $\frac{1}{4}$ sec. 20, T. 162 N., R. 40 W., on line with north-south fence; iron post stamped "1094".....	1, 092. 807
Roseau, 0.25 mile west of main street, southwest corner of sec. 13, T. 162 N., R. 39 W., 28 feet north of center of road on section line and 38 feet east of center of road on section line, diagonally across from Norwegian Free Church; iron post stamped "1049".....	1, 047. 869
Roseau River; water surface July 1, 1907.....	1, 030. 4

GOOS QUADRANGLE.

[Latitude, 48° 45'-49°; longitude, 95° 30'-95° 45'.]

From Greenbush along highway via Badger, Roseau, and Pequis to Warroad (part of line).

T. 162 N., R. 39 W., 0.37 mile south of corner of secs. 19, 20, 29, and 30, at bend of road to southeast, 84 feet east of house of Mr. Seilstrom, 25 feet east of north-south road; iron post stamped "1066".....	1, 064. 528
Tamarack swamp in sec. 33.....	1, 053

T. 161 N., R. 39 W., sec. 3, 2 miles west of Goos post office, in burnt clearing east of tamarack and spruce timber, 20 feet south of road and 20 feet north of large rock, in plain view; iron post stamped "1078".....	Feet. 1,076.781
Goos post office, 0.9 mile east of, sec. 1, T. 161 N., R. 39 W., about 45 feet southwest of corner of secs. 1 and 36; iron post stamped "1101".....	1,099.672
Pequis post office, just east of Hay Creek, southeast corner of yard fence at residence of Fred Pieper, 30 feet southeast of house and 25 feet north of center of road in sec. 26; iron post stamped "1101".....	1,099.563

WARROAD QUADRANGLE.

(Latitude, 48° 45'-49°; longitude, 95° 15'-95° 30'.]

From Greenbush along highway via Badger, Roseau, and Pequis to Warroad (part of line).

T. 162 N., R. 37 W., sec. 29, probably NE. $\frac{1}{4}$, 3.6 miles east of Pequis, 40 feet south of log cabin in clearing on claim of Alfred Otterson, 36 feet north of center of road, 1 foot south of fence; iron post stamped "1103".....	1,102.015
Cedarbend post office, near NE. $\frac{1}{4}$ sec. 36, T. 162 N., R. 37 W., 75 feet west of Warroad River bank, 19 feet north of center of road, at southeast corner of garden fence, residence of Henry Stolz; iron post stamped "1103".....	1,102.138
Cedarbend post office; water surface of Warroad River, July 8, 1907.....	1,093
T. 162 N., R. 36 W., near line between secs. 5 and 8, 0.33 mile northeast of schoolhouse, at angle in road, 25 feet west of road, 5 feet north of corner fence post; iron post stamped "1082".....	1,080.324
Warroad, at west end of lake, 39 feet southwest of crossing of Lake and State streets, on public school grounds, 163 feet east of schoolhouse; iron post stamped "1069".....	1,067.840
Lake of the Woods; water surface July 10, 1907, range of level between 3 and 4 feet, now about medium.....	1,060.0
Warroad, 1,100 feet east of Lake Street crossing of Canadian Northern Ry., 145 feet east of Mr. Moody's residence, 40 feet north of edge of river and 55 feet southeast of corner of outbuilding on Mr. Moody's grounds; iron post No. 303 of U. S. Engineer Corps; elevation taken on top of cap...	1,065.956
Warroad, in front of station; top of rail.....	1,070.3

ROOSEVELT QUADRANGLE.

(Latitude, 48° 45'-49°; longitude, 95°-95° 15'.]

From Warroad along Canadian Northern Ry. to Baudette (part of line).

Swift flag station, 360 feet west of road crossing on township line, 40 feet north of track and 57 feet south of Warroad Mercantile Co.'s store, NE. $\frac{1}{4}$ sec. 13, T. 162 N., R. 36 W.; iron post stamped "1085".....	1,083.622
Roosevelt, 156 feet west of Canadian Northern Ry. station, 35 feet north of track, just west of telegraph pole; iron post stamped "1163".....	1,161.577
Roosevelt, in front of station; top of rail.....	1,163.7

WILLIAMS QUADRANGLE.

(Latitude, 48° 45'-49°; longitude, 94° 45'-95°.]

From Warroad along Canadian Northern Ry. to Baudette (part of line).

Milepost 308, 8 feet west of, 35 feet south of track; post stamped "1181".....	1,180.014
Williams, in front of station; top of rail.....	1,153.4
Williams, 180 feet west of station, 70 feet east of head block at west end of switch, 43 feet south of center of track, 57 feet north of northwest corner of hotel; iron post (not stamped).....	1,153.455

Feet.

Graceton, in front of station; top of rail.....	1, 139. 6
Graceton, 57 feet southeast of corner of station, 36 feet south of center of track, 2 feet south of telegraph pole; iron post stamped "1140".....	1, 138. 414

BAUDETTE QUADRANGLE.

[Latitude, 48° 30'-48° 45'; longitude, 94° 30'-94° 45'.]

From Warroad along Canadian Northern Ry. to Baudette (part of line).

Pitt flag station, 220 feet west of switch block at east end of siding, 33 feet south of center of track, 3 feet west of telegraph pole; iron post stamped "1110".....	1, 108. 712
Winterroad River; water surface, July 20, 1907.....	1, 075
Baudette, in front of station; top of rail.....	1, 083. 9
Baudette, 650 feet east of station, on north wing wall of west abutment of Canadian Northern Ry. bridge over Rainy River, set vertically in capstone; aluminum tablet stamped "1084".....	1, 082. 652
Rainy River, at Canadian Northern Ry. bridge; water surface July 22, 1907.....	1, 060. 5

From Baudette along south bank of Rainy River to International Falls (part of line).

T. 160 N., R. 30 W., corner of secs. 5, 6, 7, and 8, set on south side of and in contact with corner post; iron post stamped "1093".....	1, 092. 031
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CLEMENTSON QUADRANGLE.

[Latitude, 48° 30'-48° 45'; longitude, 94° 15'-94° 30'.]

From Baudette along south bank of Rainy River to International Falls (part of line).

Rainy River, at mouth of Rapid River; water surface July 29, 1907.....	1, 061
Rapid River, near mouth of, 64 feet northeast of corner of H. Clementson's house, 175 feet west of rapids, in exposed ledge of bedrock, slightly above surface of ground; aluminum tablet stamped "1088".....	1, 086. 346
Rapid River, above rapids, about 300 feet from mouth; water surface July 29, 1907.....	1, 069
T. 160 N., R. 29 W., NE. $\frac{1}{4}$ sec. 5, 35 feet south of corner of house owned by S. Tornquist, 400 feet from river bank; iron post stamped "1089"....	1, 087. 778
T. 160 N., R. 29 W., sec. 1, opposite mouth of Pine River on Canadian side, 520 feet east of house of James Pirie (deceased), 250 feet west of Henry Vog's house, close to boundary line between two places, on brow of river bank; iron post stamped "1086".....	1, 084. 799
Black Creek, at mouth of; water surface Aug. 9, 1907.....	1, 061. 08

BIRCHDALE QUADRANGLE.

[Latitude, 48° 30'-48° 45'; longitude, 94°-94° 15'.]

From Baudette along south bank of Rainy River to International Falls (part of line).

T. 160 N., R. 28 W., corner of secs. 20, 21, 28, and 29, beside corner stake, 815 feet southwest of Mr. Murphy's store, Frontier post office, 815 feet southwest of nearest point of river bank; iron post stamped "1086"....	1, 085. 030
T. 160 N., R. 28 W., sec. 25, 215 feet west of line between Rs. 27 and 28, on point of land between creek and river, opposite Bernstein's house on Canadian side, just below Boucherville, about 330 feet east of Brindle's house; iron post stamped "1081".....	1, 080. 805

T. 160 N., R. 27 W., on cleared land 30 feet due west of corner of secs. 27, 28, 29, and 30, 1 mile north of Birchdale post office; iron post stamped "1111".....	Feet. 1, 110. 124
Rainy River, at Birchdale Landing; water surface July 20, 1907.....	1, 062. 1
T. 160 N., Rs. 26 and 27 W., on range line between secs. 31 and 36, on south side of well-cut trail or road, 85 feet south of bearing trees for meander corner at river's edge; iron post stamped "1093".....	1, 091. 873

INDUS QUADRANGLE.

[Latitude, 48° 30'–48° 45'; longitude, 93° 45'–94°.]

From Baudette along south bank of Rainy River to International Falls (part of line).

T. 160 N., R. 26 W., sec. 34, 150 feet east of line between secs. 33 and 34, at edge of Rainy River, in rock about 6 feet long, standing 3 feet out of water; aluminum tablet stamped "1074".....	1, 072, 332
Rainy River, at Lundy's mill, opposite Barwick, Ontario; water surface Aug. 28, 1907.....	1, 070. 0
Tps. 159 and 160 N., Rs. 25 and 26 W., near corner of, 35 feet west of range line, 15 feet north of township line; iron post stamped "1113".....	1, 111. 404
T. 159 N., R. 25 W., NE. $\frac{1}{4}$ sec. 3, Indus post office, on brow of slope descending to river, at edge of board walk between H. Scholta's saloon and Indus Mercantile Co.'s store; iron post stamped "1106".....	1, 105. 242
Rainy River, at Indus; water surface Sept. 3, 1907.....	1, 074. 0
T. 159 N., R. 25 W., in southwest corner of sec. 23, 30 feet east of corner of secs. 22, 23, 26, and 27; iron post stamped "1097".....	1, 095. 830
Tps. 158 and 159 N., R. 25 W., 93 feet due east of corner of secs. 2, 3, 34, and 35, 5 feet west of balsam line tree; iron post stamped "1100".....	1, 098. 766

PELLAND QUADRANGLE.

[Latitude, 48° 30'–48° 45'; longitude, 93° 30'–93° 45'.]

From Baudette along south bank of Rainy River to International Falls (part of line).

Black River; water surface Sept 11, 1907.....	1, 076. 2
T. 158 N., R. 25 W., corner of secs. 11, 12, 13, and 14 (corner post not found, but its position closely located by Mr. Metcalf, farmer); iron post stamped "1098".....	1, 097. 062
Big Fork River, one-half mile above mouth; water surface Sept. 12, 1907..	1, 077. 0
T. 70 N., R. 26 W., NE. $\frac{1}{4}$ sec. 32, 370 feet south of bank of Rainy River at Fred Smith's place (Laurel store and post office), 40 feet east of southeast corner of Smith's barn, in fence corner; iron post stamped "1102".....	1, 100. 775
T. 70 N., on line between Rs. 25 and 26 W., 528 feet due north of corner of secs. 25, 30, 31, and 36; iron post stamped "1106".....	1, 104. 532
Little Fork River; water surface Oct. 2, 1907.....	1, 079. 1
T. 70 N., R. 25 W., corner of secs. 23, 24, 25, and 26, beside corner post; iron post stamped "1124".....	1, 123. 132

INTERNATIONAL FALLS QUADRANGLE.

[Latitude, 48° 30'–48° 45'; longitude, 93° 15'–93° 30'.]

From Baudette along south bank of Rainy River to International Falls (part of line).

T. 70 N., R. 24 W., 246 feet west of corner of secs. 16, 17, 20, and 21, on section line; iron post stamped "1149".....	1, 148. 094
T. 70 N., R. 24 W., SW. $\frac{1}{4}$ SE. $\frac{1}{4}$ sec. 4, 860 feet northeast of end of curve, 50 feet northwest of center of track, at clay cut, on land of Robert Irwin; iron post stamped "1152".....	1, 150. 392

International Falls, 300 feet north of First Street, in line with Third Avenue, 180 feet southwest of edge of Rainy River, in ledge of solid rock in front of office of Maguire & Penniman (temporary); aluminum tablet stamped "1126"	Feet. 1, 124. 376
International Falls, near station; top of rail.....	1, 117. 6
International Falls, north side of Riverside drive, 10 feet south of brow of river bank, 650 feet northeast of Eighth Avenue, in line with Seventh Avenue; iron post stamped "1121"	1, 120. 250
Rainy River, above falls; water surface, Oct. 10, 1907.....	1, 106. 1
Rainy River, below falls, water surface, Oct. 10, 1907.....	1, 082. 1

PRIMARY LEVELING.

PRIMARY LEVELS ENCIRCLING AND WITHIN THE AREA OF THE MUD LAKE DRAINAGE PROJECT.

Bagley, Bemidji, Buena Vista, E, Esplee, Foy, Garland, Germantown, Grit, Jelle,
Lindford, Liner, Malcolm, Middle River, Nebish, Pencerc, Quiring, Rollis, Solway,
Thief River Falls, Winsor, and Winterroad quadrangles.

BELTRAMI, CLEARWATER, MARSHALL, POLK, RED LAKE, AND ROSEAU COUNTIES.

The elevations in the following list were obtained as the result of
primary leveling in the fall of 1906, by C. H. Semper, A. P. Meade, jr.,
Paul Funderhide, and R. P. Thompson. None of the bench marks
have elevations stamped upon them.

THIEF RIVER FALLS QUADRANGLE.

[Latitude, 48°-48° 15'; longitude, 96°-96° 15'.]

From Thief River Falls east to Beltrami County line (part of line).

T. 154 N., Rs. 42 and 43 W., corner of secs. 25, 30, 31, and 36; iron post..	Feet. 1, 129. 769
Tps. 153 and 154 N., R. 42 W., corner of secs. 4, 5, 32, and 33; iron post..	1, 135. 906
Tps. 153 and 154 N., R. 42 W., corner of secs. 1, 2, 35, and 36; iron post..	1, 149. 149

From Thief River Falls to Thorwick.

T. 154 N., R. 43 W., corner of secs. 22, 23, 26, and 27; iron post.....	1, 128. 211
T. 154 N., Rs. 42 and 43 W., corner of secs. 7, 12, 13, and 18; iron post....	1, 138. 101
Tps. 154 and 155 N., Rs. 42 and 43 W., corner of secs. 1, 6, 31, and 36, on range line; iron post.....	1, 140. 520

From Thorwick east to Germantown and northeast to Liner (part of line).

Tps. 154 and 155 N., R. 42 W., corner of secs. 3, 4, 33, and 34, 35 feet north- west of; iron post.....	1, 146. 683
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MIDDLE RIVER QUADRANGLE.

[Latitude, 48° 15'-48° 30'; longitude, 96°-96° 15'.]

From Thorwick to Mud Lake.

T. 155 N., R. 42 W., corner of secs. 18 and 19, on range line; iron post....	1, 137. 620
Tps. 155 and 156 N., R. 42 W., quarter corner between secs. 5 and 32; iron post	1, 137. 943
Elm Lake; water surface Aug. 31, 1906.....	1, 141. 4
Mud Lake; water surface Sept. 2, 1906.....	1, 139. 3

From Gatzke west to Middle River (part of line).

	Feet.
T. 157 N., R. 42 W., corner of secs. 9, 10, 15, and 16; iron post.....	1, 152. 738
T. 157 N., Rs. 42 and 43 W., corner of secs. 7, 12, 13, and 18; iron post....	1, 142. 675

GERMANTOWN QUADRANGLE.

[Latitude, 48°-48° 15'; longitude, 95° 45'-96°.]

From Thief River Falls east to Beltrami County line (part of line).

Tps. 153 and 154 N., R. 41 W., corner of secs. 4, 5, 32 and 33; iron post....	1, 155. 584
Tps. 153 and 154 N., R. 41 W., corner of secs. 1, 2, 35, and 36; iron post....	1, 164. 896
Tps. 153 and 154 N., R. 40 W., corner of secs. 4, 5, 32, and 33; iron post....	1, 172. 727

From Thorwick east to Germantown and northeast to Liner (part of line).

Tps. 154 and 155 N., Rs. 41 and 42 W., 60 feet south of corner of secs. 1, 6, 31, and 36; iron post.....	1, 149. 190
Germantown, corner of William Vaughan's house; iron post.....	1, 156. 858
T. 155 N., Rs. 40 and 41 W., 300 feet north of quarter corner between secs. 13, and 18; iron post.....	1, 154. 166
T. 156 N., R. 40 W., SW. $\frac{1}{4}$ sec. 34; iron post.....	1, 158. 580

On Germantown and Grygia road.

T. 155 N., R. 40 W., NW. $\frac{1}{4}$ sec. 22, near bridge; iron post.....	1, 161. 614
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ESPLEE QUADRANGLE.

[Latitude, 48°-48° 15'; longitude, 95° 30'-95° 45'.]

From Thief River Falls east to Beltrami County line (part of line).

Tps. 153 and 154 N., R. 40 W., corner of secs. 1, 2, 35, and 36; iron post..	1, 177. 009
Tps. 153 and 154 N., R. 39 W., corner of secs 4, 5, 32 and 33, northwest corner of crossroads; iron post.....	1, 181. 625
Tps. 153 and 154 N., R. 39 W., corner of secs. 1, 2, 35, and 36, 33 feet south of large granite boulder; iron post.....	1, 181. 314

NOTE.—Ground very boggy and bench mark loose.

North along range line to McPhail.

T. 154 N., Rs. 38 and 39 W., corner of secs. 24, 25, 19, and 30 (no section post); iron post.....	1, 184. 346
T. 154 N., R. 39 W., SE. $\frac{1}{4}$ sec. 1, 150 feet east of N. J. Jorgenson's house, at barnyard fence (no section corner found); iron post.....	1, 182. 920

Scattered bench marks.

Erie post office, T. 153 N., Rs. 39 and 40 W., corner of secs. 13, 18, 19, and 24; iron post.....	1, 167. 895
Tps. 152 and 153 N., R. 39 W., corner on township line common to secs. 3, 4, 33, and 34; iron post.....	1, 166. 164

ROLLIS QUADRANGLE.

[Latitude, 48° 15'-48° 30'; longitude, 95° 45'-96°.]

Scattered bench marks.

T. 157 N., Rs. 38 and 39 W., corner of secs. 1, 6, 7, and 12; iron post.....	1, 180. 645
T. 158 N., R. 40 W., between secs. 27 and 28, at corner of fence opposite house, 40 feet south of Moose River. Established in 1907; no elevation stamped.....	1, 164. 927

	Feet.
T. 157 N., R. 40 W., NE. $\frac{1}{4}$ sec. 36, on John Saxvold's farm; iron post	1, 170. 786
T. 157 N., R. 40 W., corner of secs. 11, 12, 13, and 14, west side of road; iron post.....	1, 181. 472

From Gatzke west to Middle River (part of line).

T. 157 N., R. 40 W., corner of secs. 3, 4, 9, and 10, south side of road; iron post.....	1, 180. 074
Thief Lake; water surface Oct. 13, 1906.....	1, 161. 5
T. 157 N., Rs. 40 and 41 W., corner of secs. 1, 6, 7, and 12, north side of road; iron post.....	1, 172. 260
Thief River, at section line between secs. 5 and 8; water surface Oct. 13, 1906.....	1, 146. 2
T. 157 N., R. 41 W., at quarter corner between secs. 6 and 7; iron post....	1, 153. 347

LINER QUADRANGLE.

[Latitude, $48^{\circ} 15' - 48^{\circ} 30'$; longitude, $95^{\circ} 30' - 95^{\circ} 45'$.]

From Malcolm west via Grygla to Liner, thence north to Gatzke (part of line).

T. 155 N., R. 38 W., sec. 2, 768 feet north of Carmel post office; iron post..	1, 200. 477
Tps. 155 and 156 N., R. 38 W., corner of secs. 5, 6, 31, and 32, at northwest corner of fence; iron post.....	1, 185. 655
T. 156 N., R. 39 W., southeast corner of sec. 26, Grygla post office, A. O. Fladeland's yard; iron post.....	1, 177. 499
T. 156 N., R. 39 W., sec. 19, 110 feet southeast of store at Liner post office, at corner of wire fence; iron post.....	1, 165. 408

JELLE QUADRANGLE.

[Latitude, $48^{\circ} - 48^{\circ} 15'$; longitude, $95^{\circ} 15' - 95^{\circ} 30'$.]

From McPhail east to Sand Ridge.

T. 155 N., R. 38 W., corner of secs. 29, 30, 31, and 32, near wire fence; iron post.....	1, 187. 662
T. 155 N., R. 38 W., corner of secs. 26, 27, 34, and 35; iron post.....	1, 194. 579
T. 155 N., R. 37 W., corner of secs. 29, 30, 31, and 32, near wire fence line; iron post.....	1, 205. 878
T. 155 N., R. 37 W., corner of secs. 26, 27, 34, and 35, near wire fence line; iron post.....	1, 210. 988
T. 155 N., R. 36 W., corner of secs. 19, 20, 29, and 30; iron post.....	1, 224. 114
T. 155 N., R. 36 W., center of sec. 27, 35 feet north of quarter corner; iron post.....	1, 229. 061

GARLAND QUADRANGLE.

[Latitude, $48^{\circ} 30' - 48^{\circ} 45'$; longitude, $95^{\circ} 45' - 96^{\circ}$.]

Other scattered bench marks.

T. 158 N., R. 40 W., in southwest corner of sec. 14, at forks of Randen road and trail north; iron post.....	1, 204. 996
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MALCOLM QUADRANGLE.

[Latitude, $48^{\circ} 15' - 48^{\circ} 30'$; longitude, $95^{\circ} 15' - 95^{\circ} 30'$.]

From Sand Ridge north 8 miles, thence west to Malcolm.'

T. 155 N., R. 36 W., NE. $\frac{1}{4}$ sec. 14, at north end of Sand Ridge, east end of clearing, 25 feet east of large poplar tree; iron post.....	1, 244. 280
T. 156 N., R. 36 W., corner of secs. 15, 16, 21, and 22, near fence line; iron post.....	1, 237. 664

T. 156 N., Rs. 36 and 37 W., corner of secs. 13, 18, 19, and 24, near fence line; iron post.....	Feet. 1, 227. 746
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From Malcolm west via Grygla to Liner, thence north to Gatzke (part of line).

T. 156 N., R. 37 W., corner of secs. 22, 23, 26, and 27; iron post.....	1, 223. 166
T. 156 N., R. 37 W., northwest corner of NE. $\frac{1}{4}$ sec. 31, northwest corner of Ole Baklund's farm; iron post.....	1, 208. 990

PENCER QUADRANGLE.

[Latitude, 48° 30'–48° 45'; longitude, 95° 30'–95° 45'.]

Scattered bench marks.

T. 159 N., R. 39 W., sec. 34, probably in NE. $\frac{1}{4}$, along road going up Roseau River, about 400 feet southeast of vacant cabin, between river and road at bridge crossing river; iron post.....	1, 177. 657
T. 160 N., Rs. 38 and 39 W., corner of secs. 1, 6, 7, and 12; iron post. (This elevation is in doubt within limit of 1 foot).....	1, 106. 21
T. 159 N., R. 39 W., SE. $\frac{1}{4}$ sec. 18, on east side of road 300 feet north of old Casperson post office, at bridge crossing Roseau River; iron post.....	1, 148. 08

WINTERROAD QUADRANGLE.

[Latitude, 48° 30'–48° 45'; longitude, 95°–95° 15'.]

Scattered bench marks.

T. 161 N., R. 35 W., SW. $\frac{1}{4}$ sec. 35, 150 feet east of Jack Meise's cabin, 500 feet east of section line, about 200 feet north of Roseau-Beltrami county line; iron post.....	1, 225. 88
T. 159 N., R. 36 W., SW. $\frac{1}{4}$ sec. 14, on old Government inspector's trail; iron post.....	1, 266. 44

E QUADRANGLE.

[Latitude, 48° 30'–48° 45'; longitude, 95° 15'–95° 30'.]

T. 159 N., R. 37 W., near center of sec. 17, at junction of trails, one north and one up Roseau River; iron post.....	1, 223. 62
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LINDFORD QUADRANGLE.

[Latitude, 48° 15'–48° 30'; longitude, 93° 45'–94°.]

From Loman up Black River (spur line).

T. 158 N., R. 25 W., corner of secs. 28, 29, 32, and 33, 8 inches west of corner post; iron post stamped "1135".....	1, 134. 174
T. 158 N., Rs. 26 and 27 W., corner of secs. 19, 30, 24, and 25, 1.5 feet west of corner post; iron post stamped "1144".....	1, 143. 238

BEMIDJI QUADRANGLE.

[Latitude, 47° 15'–47° 30'; longitude, 94° 45'–95°.]

From Bemidji along Minneapolis, Red Lake & Manitoba Ry. to Red Lake (part of line).

Bemidji, 800 feet west of Great Northern Ry. station, in corner of E. J. Willett's yard, on west side of Irving Avenue, north of Great Northern Ry. right of way; cap on top of iron post (Miss. R. Comm. b. m.).....	1, 361. 717
T. 146 N., Rs. 33 and 34 W., 60 feet southeast of corner of secs. 6, 7, 1, and 12, corner of wire fence, 325 feet north of Great Northern Ry. (corner stake not found); iron post stamped "1387 Minnesota".....	1, 385. 750

BUENA VISTA QUADRANGLE.

[Latitude, 47° 30'-47° 45'; longitude, 94° 45'-95°.]

From Bemidji along Minneapolis, Red Lake & Manitoba Ry. to Red Lake (part of line).

Marsh flag station, 27 feet east of platform, 40 feet east of center of track, directly opposite flag station signboard, 80 feet north of switch stand at south end of siding; iron post stamped "1402 Minnesota".....	Feet. 1, 399. 452
Werner flag station (Campbell Lake), 50 feet east of center of track and opposite station platform, 150 feet south of road crossing; iron post stamped "1371 Minnesota".....	1, 370. 109
Campbell Lake; water surface October 19, 1907.....	1, 353. 2
Puposky station, 275 feet southeast of, at northeast corner of block 13, Puposky town site, in exact position of corner stake, 180 feet east of railroad track, in front of house of A. E. Hodgson; iron post stamped "1368 Minnesota".....	1, 366. 502
Mud Lake; water surface October 27, 1907.....	1, 353. 3

From Puposky west via Fowlds, Aure, Winsor, Gully, and Espetvet to Rhoda (part of line).

T. 149 N., R. 34 W., road crossing at Fowlds station, foot of telephone pole on west side of track; iron post marked "1391".....	1, 390. 111
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NEBISH QUADRANGLE.

[Latitude, 47° 45'-48°; longitude, 94° 45'-95°.]

From Bemidji along Minneapolis, Red Lake & Manitoba Ry. to Red Lake (part of line).

T. 149 N., R. 33 W., corner of secs. 15, 16, 21, and 22, 65 feet east of railroad track, 70 feet north of center of platform at Neeley siding flag station; iron post stamped "1382 Minnesota." (Exact corner not found, but location is close according to bearing trees).....	1, 380. 719
Nebish station, 0.4 mile north of, 365 feet north of switch stand at point of spursouth to station, 50 feet west of center of track, on rise of ground about level with track, in front of buildings of John Lauk in NW. $\frac{1}{4}$ sec. 27; iron post stamped "1351 Minnesota".....	1, 349. 404
Nebish Lake; water surface October 23, 1907.....	1, 352. 7
Nebish station, 4.33 miles north of, 2,000 feet north of milepost 29, at south end of cut near old abandoned log camp, 28 feet west of center of tracks and 0.6 foot lower than top of rail, on steep side hill, probably in NE. $\frac{1}{4}$ sec. 8; iron post stamped "1274 Minnesota".....	1, 272. 891
Redby station, 0.4 mile south of, 460 feet south of roundhouse and opposite switch stand, at south end of Y, 60 feet west of center of track and 2.5 feet lower than top of rail; iron post stamped "1229 Minnesota".....	1, 227. 791
Red Lake; water surface October 25, 1907.....	1, 174. 7

From Redby around east end of Red Lake via Quiring, Foy, and Shotley to Tamarack River (part of line).

T. 151 N., R. 32 W., sec. 30, near south boundary and approximately 0.25 mile west of southeast corner of, 500 feet east of Hay Creek, at abandoned lumber camp, in open grassy land, 150 feet south of largest log building in camp, just on north side of an east-west log fence, in line with a log fence running south, 3 feet north of bars through fence; iron post stamped "1221 Minnesota".....	1, 220. 056
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QUIRING QUADRANGLE.

[Latitude, $47^{\circ} 45' - 48^{\circ}$; longitude, $94^{\circ} 30' - 94^{\circ} 45'$.]

From Redby around east end of Red Lake via Quiring, Foy, and Shotley to Tamarack River (part of line).

T. 151 N., R. 32 W., northeast corner of sec. 27, 0.12 mile south of section corner, 250 feet west of section line, inside of yard fence at residence of D. W. Carter (Quiring post office), 40 feet south of east end of house; iron post stamped "1202 Minnesota"	Feet. 1, 200.420
Tps. 151 and 152 N., R. 32 W., corner of secs. 2, 3, 34, and 35, in position of corner stake, in low swampy ground, 950 feet north of Cormorant Creek; iron post stamped "1179 Minnesota"	1, 177.461
NOTE.—This post is liable to settlement, as it settled $\frac{1}{4}$ inch under two blows with iron bar after being well tamped and set. Ground is soft.	
T. 152 N., R. 32 W., SE. $\frac{1}{4}$ SW. $\frac{1}{4}$ sec. 27, Battle River post office, residence of Joseph Peronie, 3.5 feet south and 3 feet east of southwest corner of store, 160 feet east of Indian reservation line; iron post stamped "1188".	1, 186.401
T. 152 N., R. 31 W., 43 feet N. 27° E. (magnetic bearing) from southwest corner sec. 18, about 350 feet north of Saum post office and store; iron post stamped "1192 Minnesota"	1, 191.229
T. 152 N., R. 31 W., 225 feet N. 45° W. (magnetic bearing) from quarter corner between secs. 6 and 7, 48 feet south of front of house of John Carlson (Foy post office), 4 feet south of yard fence; iron post stamped "1199 Minnesota"	1, 197.369

FOY QUADRANGLE.

[Latitude, $48^{\circ} - 48^{\circ} 15'$; longitude, $94^{\circ} 30' - 94^{\circ} 45'$.]

From Redby around east end of Red Lake via Quiring, Foy, and Shotley to Tamarack River (part of line).

T. 153 N., R. 31 W., corner of secs. 19, 20, 29, and 30 (exact position of corner stake, which was lying on ground, could not be determined, but post must be within 3 or 4 feet of corner); iron post stamped "1212 Minnesota"	1, 210.515
T. 153 N., R. 31 W., 22 feet northwest of corner of secs. 9, 10, 15, and 16, 10 feet northwest of 2-foot oak bearing tree; iron post stamped "1183 Minnesota"	1, 182.042
T. 154 N., R. 31 W., sec. 36, 30 feet west of range line on bank of lake, 125 feet north of schoolhouse and in line with northeast side of building, about 400 feet southwest of Domaas post office; iron post stamped "1183 Minnesota"	1, 182.066
T. 154 N., R. 30 E., NE. $\frac{1}{4}$ sec. 8, on north bank of Tamarack River, near its mouth, 70 feet north of river bank, 15 feet east of an oak tree which is most southerly on first ridge from beach, 28 feet north of an old log cabin; iron post stamped "1183 Minnesota"	1, 181.535
T. 155 N., R. 31 W., SE. $\frac{1}{4}$ sec. 36, 500 or 600 feet north of Red Lake, 150 feet west of Moose Creek, on firm ground in birch and balsam timber, 20 feet east of small log cabin; iron post stamped "1182 Minnesota"	1, 181.292

The elevations in the following lists were obtained as the result of primary leveling in 1908 by A. P. Meade, jr., and Paul Funderhide:

SOLWAY QUADRANGLE.

[Latitude, $47^{\circ} 30' - 47^{\circ} 45'$; longitude, $95^{\circ} - 95^{\circ} 15'$.]

From Puposky west via Fowlds, Aure, Winsor, Gully, and Espetvet to Rhoda (part of line).

	Feet.
T. 149 N., R. 34 W., sec. 32; water surface of lake.....	1,370
T. 149 N., R. 35 W., sec. 35; water surface of Sandy Lake.....	1,352

BAGLEY QUADRANGLE.

[Latitude, $47^{\circ} 30' - 47^{\circ} 45'$; longitude, $95^{\circ} 15' - 95^{\circ} 30'$.]

From Puposky west via Fowlds, Aure, Winsor, Gully, and Espetvet to Rhoda (part of line).

T. 148 N., R. 35 W., 300 feet west of northeast corner of sec. 4 (Aure post office); iron post stamped "1420".....	1,419.010
T. 148 N., R. 36 W., NW. $\frac{1}{4}$ sec. 2, 300 feet east of cabin, 600 feet west of barn; iron post stamped "1483".....	1,481.582
T. 149 N., R. 36 W., 700 feet south of quarter corner between secs. 32 and 33; iron post stamped "1472".....	1,470.775
T. 149 N., R. 37 W., corner of secs. 22, 23, 26, and 27, at northeast fence corner of crossroads; iron post stamped "1331".....	1,329.609
Ruffy Brook; water surface near last-mentioned post.....	1,313.4
Ruffy Brook; water surface in sec. 15.....	1,292
T. 149 N., R. 37 W., near corner of secs. 4, 5, 8, and 9, 0.25 mile north of Leon post office, at northwest corner of crossroads, at foot of fence and opposite schoolhouse; iron post stamped "1241".....	1,239.600
Ruffy Brook; water surface in sec. 5.....	1,230
T. 149 N., R. 38 W., Lost River, on line between secs. 1 and 12; water surface.....	1,226

WINSOR QUADRANGLE.

[Latitude, $47^{\circ} 45' - 48^{\circ}$; longitude, $95^{\circ} 30' - 95^{\circ} 45'$.]

From Puposky west via Fowlds, Aure, Winsor, Gully, and Espetvet to Rhoda (part of line).

T. 150 N., R. 38 W., Winsor post office, near quarter corner between secs. 27 and 28, at southeast fence corner opposite store and at road forks; iron post stamped "1215".....	1,213.953
T. 150 N., R. 39 W., Gully post office, SW. $\frac{1}{4}$ sec. 26, at fence corner, forks of road, opposite store; iron post stamped "1223".....	1,222.189
T. 150 N., R. 40 W., sec. 9, Espetvet post office, at northeast corner of store building; iron post stamped "1150".....	1,148.977

GRIT QUADRANGLE.

[Latitude, $47^{\circ} 45' - 48^{\circ}$; longitude, $95^{\circ} 45' - 96^{\circ}$.]

From Puposky west via Fowlds, Aure, Winsor, Gully, and Espetvet to Rhoda (part of line).

Lost River, near Espetvet; water surface.....	1,140
T. 151 N., R. 40 W., near corner of secs. 3, 4, 9, and 10, at fence corner in sec. 10; iron post stamped "1161".....	1,159.998
T. 152 N., R. 40 W., sec. 33, Clear Water River at bridge; water surface....	1,150
T. 152 N., R. 40 W., near corner of secs. 8, 9, 17, and 16, one-half mile north of Rhoda post office, at fence corner; iron post stamped "1158".....	1,157.316

Ashby, Barnesville, Barrett, Battle Lake, Chokio, Detroit Lake, Fergus Falls, Herman, Morris, Pelican Rapids, Perham, Rothsay, Underwood, Vergas, and Wendell quadrangles.

GRANT, OTTER TAIL, AND STEVENS COUNTIES.

The elevations in the following list were determined by primary leveling extended from the precise-level line of the Coast and Geodetic Survey which crosses the Barrett, Herman, Ashby, Wendell, and Fergus Falls quadrangles.

The leveling was done in the Ashby quadrangle in 1910 by J. M. Ray, in Barrett and Herman quadrangles in 1909 by C. R. Beckler, in Battle Lake quadrangle by E. C. Bibbee in 1910 and by Ray in 1910 and 1911, in Chokio quadrangle in 1909 by G. E. Halstead and in 1910 by Bibbee, in Barnesville quadrangle in 1912 by Ray, in Detroit Lake and Vergas quadrangles in 1911 by Ray, in Fergus Falls quadrangle by Ray in 1910, 1911, and 1912, in Morris quadrangle in 1909 by Halstead, in Pelican Rapids quadrangle in 1911 and 1912 by Ray, in Perham quadrangle in 1911 by Ray, in Rothsay and Underwood quadrangles by Ray and Bibbee in 1910, in Wendell quadrangle by Beckler in 1909 and by Ray and Bibbee in 1910.

ASHBY QUADRANGLE.

[Latitude, 46°-46° 15'; longitude, 95° 45'-96°.]

From Elbow Lake north along highways to Parkdale.

Elbow Lake, in north end of sandstone doorsill of First National Bank building, 1.8 meters north of south side of building, 0.4 meter above sidewalk, 0.1 meter east of front edge of sill, 0.08 meter south of brickwork	Feet.
0.5 meter north of center of doorway; red metal disk (C. & G. S. b. m. X 1)	1, 212. 508
T. 130 N., R. 42 W., northeast corner of sec. 31, 0.2 mile south of Woensner's house, 2 feet from fence line; iron post stamped "1179".....	1, 177. 695
T. 130 N., R. 42 W., southeast corner of sec. 7, 0.5 mile west of Fourmile Lake, 3 feet south of fence corner; iron post stamped "1177".....	1, 175. 702
Tenmile Lake, 0.2 mile west of, 150 feet east of E. T. Reesburg's lane, on south side of road, 2 feet north of fence line; iron post stamped "1236".....	1, 234. 114
Tenmile Lake; water surface July 21, 1910	1, 187. 1
T. 131 N., R. 42 W., near southeast corner of sec. 16, 0.2 mile east of north end of Tenmile Lake, 1,000 feet northwest of S. Fossen's house, 3 feet inside of fence and 4 feet on west side of road, on summit; iron post stamped "1229".....	1, 227. 908
Parkdale Mill, 0.4 mile north of, southwest corner of sec. 33, T. 132 N., R. 42 W., 3 feet east of lane to Hans Rynn's house; iron post stamped "1259".....	1, 257. 317
Parkdale, between fifteenth and sixteenth telegraph poles west of milepost 181, on public road, two-thirds meter south of right-of-way fence, in stone post lettered "U. S. B. M."; copper bolt (C. & G. S. b. m. V 3).....	1, 232. 101
From point 2 miles south of Swan Lake church north and east along highways to point 1.6 miles northeast of old Tordenskj post office, thence south along highways to point 1.5 miles northwest of Ashby.	
Swan Lake Church, 75 feet northeast of, 6 miles southeast of Fergus Falls, 2 feet east of fence; iron post stamped "1313".....	1, 312. 004

T. 132 N., R. 42 W., southeast corner of sec. 14, 700 feet southeast of P. Johnson's house, 30 feet west by 10 feet north of corner, near fence line; iron post stamped "1345"	Feet. 1, 343. 530
Tordenskj post office (old), 0.9 mile northeast of, 120 feet north of mail box near forks of road to J. S. Torgenson's, 10 feet east of road; iron post stamped "1295"	1, 293. 610
T. 131 N., R. 41 W., east quarter corner of sec. 7; 2 miles east of Dalton, 100 feet northeast of Synod Church; iron post stamped "1358"	1, 356. 827
T. 131 N., R. 41 W., southeast corner of sec. 29, 3 miles northwest of Ashby, 60 feet northwest of A. L. Anderson's mail box, 3 feet east of fence; iron post stamped "1326"	1, 324. 836
From bench mark at southeast corner of sec. 29, T. 131 N., R. 41 W., south along highways to Thorsborg.	
T. 130 N., R. 41 W., southwest corner of sec. 31, 4 miles northwest of Ashby, 2 feet west of fence; iron post stamped "1265"	1, 263. 501
T. 130 N., R. 42 W., northeast corner of sec. 24, at old Pomme de Terre post office, 400 feet south of crossroads, 3 feet east of fence; iron post stamped "1248"	1, 246. 441
T. 130 N., R. 42 W., northeast corner of sec. 35, 4 miles north of Thorsborg, corner of land owned by A. Woesner, 3 feet east of fence; iron post stamped "1199 Min"	1, 197. 334
Thorsborg, in NW. $\frac{1}{4}$ sec. 13, 110 meters north by 60 meters west of station, at southwest corner of pasture belonging to Henry Lajord, at northeast corner of crossroads, 10 meters east by 5 meters north of line of travel; iron post (C. & G. S. b. m. V 1)	1, 203. 584
From Erdahl north along highways to Ashby.	
Erdahl, on land of T. Tokiason, of Ashby, at east line of Main Street, 58 meters south of railway at point 70 meters west of station, 7 meters east of line of travel, 17 meters northeast of frame store of A. J. Okelgren, 24 meters south of a grain elevator; iron post (C. & G. S. b. m. U 1)	1, 265. 371
Erdahl, 3 miles north of, 250 feet west of K. E. Johnson's mail box, 30 feet north of road, inside of fence, near northeast corner of sec. 24, T. 130 N., R. 41 W.; iron post stamped "1225"	1, 223. 377
Pelican Lake; water surface August 24, 1910	1, 212. 9
T. 130 N., R. 41 W., 700 feet east of northwest corner of sec. 22, 2.5 miles south of Ashby, near telephone pole; iron post stamped "1250"	1, 248. 595
Ashby, at southwest corner of Melby Street and street one block south of Main Street, at northeast corner of property owned by J. Madland, 3 meters from property line; stone post lettered "U. S. B. M." (C. & G. S. b. m. P 3)	1, 294. 292
From Ashby north and west along highways to point near old Tordenskj post office.	
Ashby, southwest corner of city park, northeast corner of Larson Street and street one block south of Main Street, 4 feet from sidewalk; iron post stamped "1295" Minn.	1, 293. 744
Ashby, 3 miles northeast of, at junction of road to Eagle Lake, 20 feet north of signpost reading "Eagle Lake 4 miles," at corner of Soren Knudson's land; iron post stamped "1281 Minn"	1, 279. 887
T. 131 N., R. 41 W., northwest corner of sec. 12, 6.8 miles northeast of Ashby, 30 feet north of circular mail box; iron post stamped "1318"	1, 316. 557
T. 132 N., R. 41 W., 0.2 mile west of southeast corner of sec. 25, 9.3 miles north of Ashby, 60 feet northeast of signpost reading "8 miles to Battle Lake," 20 feet east of road; tack in stump painted "U. S. B. M. 1356.6" ..	1, 355. 18

T. 132 N., R. 41 W., 0.5 mile east of northwest corner of sec. 25, 10.4 miles northeast of Ashby, 60 feet east of signpost at forks of road reading "Battle Lake 7 miles, Fergus Falls, 17 miles," east side of north-south road; iron post stamped "1381".....	Feet. 1, 379. 355
T. 132 N., R. 41 W., 0.2 mile west of center of sec. 27, 800 feet southeast of G. Krilvang's house, 12.9 miles north of Ashby, 20 feet north of road; iron post stamped "1282 Minn".....	1, 280. 718

BARNESVILLE QUADRANGLE.

[Latitude, 46° 30'-46° 45'; longitude, 96° 15'-96° 30'.]

From T. 137 N., R. 44 W., sec. 30 south to Rothsay.

T. 137 N., R. 44 W., 0.2 mile north of southeast corner of sec. 30, 50 feet west by 30 feet north of crossroads; iron post stamped "Prim. Trav. Sta. No. 4, 1241, Minn., 1911".....	1, 238. 222
T. 137 N., R. 44 W., southeast corner of sec. 31, 200 feet northeast of small pond at T road north, 1 foot southwest of section corner stone; chiseled ring on rock, painted "U.S.B.M. 1209.8".....	1, 207. 21
T. 136 N., R. 44 W., 0.2 mile north of southwest corner of sec. 6, 200 feet northwest of white church, 60 feet southeast of Andrew Evanson's mail box; copper nail in corner fence post, painted "U. S. B. M. 1197.4"....	1, 194. 85
T. 136 N., R. 44 W., west quarter corner of sec. 7, 11.2 miles north of Rothsay, at T road east, 35 feet south by 30 feet east of T road east; copper nail in corner fence post, painted "U. S. B. M. 1205.5".....	1, 202. 95
T. 136 N., R. 44 W., east quarter corner sec. 7, 10.3 miles northeast of Rothsay, at schoolhouse (district 201); iron post stamped "1230".....	1, 228. 327
T. 136 N., R. 44 W., southwest corner of sec. 17, 8.8 miles northeast of Rothsay, at crossroads; copper nail in telephone pole, painted "U. S. B. M. 1231.1".....	1, 229. 57
T. 136 N., R. 44 W., southwest corner of sec. 20, 7.8 miles northeast of Rothsay, at T road east; copper nail in corner fence post, painted "U. S. B. M. 1253.2".....	1, 251. 72
T. 136 N., R. 44 W., southeast corner of sec. 30, 6.8 miles northeast of Rothsay, 30 feet north by 40 feet west of crossroads, 200 feet southwest of schoolhouse (district 59); iron post stamped "1249".....	1, 247. 597
T. 136 N., R. 44 W., southeast corner of sec. 31, 5.8 miles northeast of Rothsay, 15 feet south by 20 feet west of crossroads, at north edge of large rock pile; chiseled ring on granite boulder, painted "U. S. B. M. 1308.0"....	1, 306. 47
T. 135 N., R. 44 W., northeast corner of sec. 7, 4.8 miles northeast of Rothsay, 45 feet west by 25 feet south of crossroads; copper nail in telephone pole, painted "U. S. B. M. 1262.3".....	1, 260. 75
T. 135 N., R. 44 W., northeast corner of sec. 18, 3.8 miles northeast of Rothsay, 20 feet west by 20 feet south of crossroads; iron post stamped "1312" ..	1, 310. 060
T. 135 N., R. 44 W., northwest corner of sec. 20, 2.8 miles northeast of Rothsay, 25 feet south by 25 feet east of crossroads; copper nail in telephone pole, painted "U. S. B. M. 1287.0".....	1, 285. 50
T. 135 N., R. 44 W., northwest corner of sec. 19, 1.9 miles north of Rothsay, 25 feet south by 70 feet east of crossroads; copper nail in telephone pole, painted "U. S. B. M. 1238.6".....	1, 237. 08
Rothsay, 0.9 mile north of, southeast corner of sec. 24, T. 135 N., R. 45 W., 35 feet north by 30 feet west of crossroads; copper nail in telephone pole, painted "U. S. B. M. 1218.4".....	1, 216. 91

BARRETT QUADRANGLE.

[Latitude, 45° 45'-46°; longitude, 95° 45'-96°.]

From Thorsborg south along highway to county line at southeast corner of sec. 1,
T. 126 N., R. 42 W.

Thorsborg, Grant County, Sanford Township, in NW. $\frac{1}{4}$ sec. 13, 110 meters north and 60 meters west of railway station, at southwest corner of pasture belonging to Henry Lajord, at northeast corner of crossroads, 10 meters east and 5 meters north of line of travel; iron pipe (C. & G. S. b. m. V 1)...	Feet. 1,203.584
T. 129 N., R. 42 W., in southeast corner of SW. $\frac{1}{4}$ sec. 24, at northwest corner of crossroads, 5 feet west of line of travel, on granite boulder; chiseled square, marked "1247".....	1,245.51
T. 129 N., R. 42 W., in southwest corner of SE. $\frac{1}{4}$ sec. 36, 25 feet north by 25 feet east of center of crossroads; iron post stamped "1212".....	1,211.070
Barrett, in front of station; top of east rail, marked on face of platform "1168.0".....	1,166.6
Barrett, in south end of west doorsill (sandstone) of the Barrett public school building; aluminum tablet stamped "1168".....	1,166.910
T. 128 N., R. 41 W., in northwest corner of sec. 31, 25 feet north by 25 feet east of center of intersection of T road east; iron post stamped "1179"...	1,177.990
T. 127 N., R. 41 W., in northwest corner of sec. 6, at crossroads; top of iron section-corner post.....	1,173.76
T. 127 N., R. 41 W., in northwest corner of sec. 18, 30 feet east by 30 feet south of point on line of travel; iron post stamped "1183".....	1,182.031
T. 127 N., R. 41 W., in northwest corner of sec. 31, 40 feet east by 25 feet south of center of T road east; iron post stamped "1178".....	1,176.833

From southeast corner of sec. 32, T. 127 N., R. 41 W., east along county-line road 3 miles, thence north along highway to Erdahl.

T. 127 N., R. 41 W., in southeast corner of sec. 32, 30 feet west by 20 feet south of center of crossroads; iron post stamped "1133".....	1,231.570
T. 127 N., R. 41 W., in southeast corner of sec. 35, 25 feet west by 25 feet north of crossroads; iron post stamped "1232".....	1,230.731
T. 127 N., R. 41 W., in center of south side of SE. $\frac{1}{4}$ sec. 14, 25 feet west by 25 feet north of center of T road west; iron post stamped "1193"....	1,192.094
Hoffman, in south end of west doorsill (sandstone) of the Hoffman public school building; aluminum tablet stamped "1256".....	1,254.511
Hoffman, 1.4 miles north of, on west side of road, 10 feet from center of line of travel; point on granite boulder.....	1,232.40
T. 128 N., R. 41 W., in northeast corner of SE. $\frac{1}{4}$ sec. 26, 55 feet south of center of line of travel at right angle in road; iron post stamped "1234"...	1,233.033
T. 128 N., R. 41 W., in northwest corner of sec. 14, 20 feet east by 20 feet south of center of T road east; iron post stamped "1252".....	1,250.603
T. 129 N., R. 41 W., in southwest corner of sec. 25, 35 feet east by 30 feet north of center of T road east; iron post stamped "1236".....	1,234.531
Erdahl (Cork post office), Grant County, on land of T. Tobiason, of Ashby, at the east line of main street, 58 meters south of railway at a point 70 meters west of station, 7 meters east of line of travel, 17 meters northeast of frame store of A. J. Okelgren, 24 meters south of grain elevator; iron post (C. & G. S. b. m. U 1).....	1,265.371

From southwest corner of sec. 19, T. 127 N., R. 41 W., west along highway 1.5 miles, thence south 1 mile, thence west 3 miles, thence north to Elbow Lake.

T. 127 N., R. 42 W., near quarter corner north side of sec. 26, on stone foundation of schoolhouse (district 16), at northeast corner; chiseled square..	1,186.68
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T. 127 N., R. 42 W., in northeast corner of sec. 34, 35 feet west by 35 feet south of center of crossroads; iron post stamped "1197"	Feet. 1, 195. 385
T. 127 N., R. 42 W., in southeast corner of sec. 30, in southeast corner of school lot, 30 feet west by 30 feet north of center of crossroads; iron post stamped "1147"	1, 145. 202
T. 127 N., R. 42 W., in northwest corner of sec. 20, 35 feet south by 38 feet east of center of crossroads, on stone boulder; chiseled square	1, 151. 58
T. 127 N., R. 42 W., 40 feet west by 25 feet south of center of crossroads; iron post stamped "1146"	1, 144. 157
T. 128 N., R. 42 W., in northwest corner of sec. 32, 30 feet east by 20 feet south of center of crossroads; iron post stamped "1156"	1, 154. 685
T. 128 N., R. 42 W., in northeast corner of sec. 18, 25 feet west by 20 feet south of center of crossroads, near Huset Church; iron post stamped "1178"	1, 175. 977
T. 129 N., R. 42 W., in southeast corner of sec. 29, 30 feet west by 20 feet north of center of crossroads; iron post stamped "1162"	1, 160. 644
Elbow Lake, Grant County, in north end of south doorsill (sandstone) of First National Bank Building, 1.8 meters north of south side of building, 0.1 meter east of front edge of sill, 0.08 meter south of brickwork, 0.4 meter above sidewalk, 0.5 meter north of center of doorway; red metal disk (C. & G. S. b. m. X 1)	1, 212. 508

BATTLE LAKE QUADRANGLE.

[Latitude, 46° 15'–46° 30'; longitude, 95° 30'–95° 45'.]

From point 5.2 miles east of Underwood east along Great Northern Ry. to Battle Lake, thence north along highways to southwest corner of sec. 16, T. 134 N., R. 40 W.

Underwood, 5.2 miles east of, 25 feet south of railroad, 50 feet east of wagon road, at private crossing; highest point on granite rock	1, 338. 46
Battle Lake, southeast corner of yard of new schoolhouse; iron post stamped "1373 Prim. Trav. Sta. No. 14" (on unchecked spur line)	1, 371. 836
T. 133 N., R. 40 W., 20 feet east by 25 feet north of southwest corner of SE. $\frac{1}{4}$ sec. 20, 3.2 miles northwest of Battle Lake; iron post stamped "1338"	1, 386. 776
T. 133 N., R. 40 W., near southeast corner of NW. $\frac{1}{4}$ sec. 9; iron post stamped "Prim. Trav. Sta. No. 15, 1363"	1, 361. 183
T. 133 N., R. 40 W., bridge over Red River at outlet of Ottertail Lake, on northeast corner, north of first bolt head	1, 325. 66
Red River, under bridge; surface of water Nov. 1, 1910	1, 317. 8
T. 134 N., R. 40 W., at T road west, on west end of Ottertail Lake; iron post stamped "Prim. Trav. Sta. No. 16, 1330"	1, 328. 998
T. 134 N., R. 40 W., near southwest corner of sec. 16, in southwest corner of church lot; iron post stamped "Prim. Trav. Sta. No. 17, 1368"	1, 366. 910

From Amor northeast to point near Richville, thence southeast to Ottertail, thence south to Vining, thence west to Battle Lake.

Amor, near southwest corner of sec. 16, T. 134 N., R. 40 W., southwest corner of church lot; iron post stamped "Prim. Trav. Sta. No. 17, 1368"	1, 366. 910
T. 134 N., R. 40 W., northwest corner of sec. 22; copper nail in telephone pole, marked "1356.2"	1, 354. 74
T. 134 N., R. 40 W., northeast corner of NW. $\frac{1}{4}$ NW. $\frac{1}{4}$ sec. 15, on east side of road, opposite lane leading to Mrs. Young's house; copper nail in fence post, marked "1355.0"	1, 353. 54
T. 134 N., R. 40 W., northwest corner of sec. 11, at T road east, near Dead River; iron post stamped "1343"	1, 341. 125

T. 134 N., R. 40 W., near northeast corner of sec. 2, at crossroads south of Basswood store; copper nail in telephone pole, marked "1362.1"	Feet. 1,360.67
T. 135 N., R. 40 W., 80 rods south of northwest corner of sec. 36, 250 feet south of P. L. Bunis's house, west side of road; chiseled square on granite boulder, marked "1354.6"	1,353.11
T. 135 N., R. 40 W., near center of sec. 25, 40 feet southeast of forks; copper nail in root of elm tree, marked "1362.2"	1,360.74
T. 135 N., R. 39 W., 80 rods east of northwest corner of sec. 30, 2.7 miles southwest of Richville, 100 feet northeast of church used as schoolhouse at T road west; iron post stamped "1358"	1,356.329
Richville, 1.5 miles southwest of, 80 rods west of northeast corner of sec. 19, T. 135 N., R. 39 W.; copper nail in corner fence post, marked "1379.2" ..	1,377.72
Richville, 0.6 mile southeast of, 80 rods north of southeast corner of sec. 17, T. 135 N., R. 39 W., on west side of track; copper nail in crossing sign post, marked "1357.6"	1,356.08
T. 135 N., R. 39 W., in sec. 21, 1.8 miles southeast of Richville, 0.3 mile northwest of center of large curve, on east side of track; copper nail in telegraph pole, marked "1334.5"	1,333.00
T. 135 N., R. 39 W., near northwest corner of sec. 27, east side of track, north of road crossing; copper nail in telegraph pole, marked "1332.6"	1,331.09
Ottertail, 2.9 miles northwest of, 1,200 feet north of bridge over Red River, on west side of track; iron post stamped "1345"	1,343.270
Ottertail, 1.8 miles northwest of, 0.4 mile north of road crossing, on east side of track; copper nail in pole, marked "1348.4"	1,346.94
T. 134 N., R. 38 W., near west quarter corner of sec. 11, 100 feet south of private crossing, on east side of track, 1 mile northwest of Ottertail; copper nail in pole, marked "1337.8"	1,336.38
Ottertail, at southwest corner of station; iron post stamped "1355"	1,353.098
Ottertail, 1.1 miles southeast of, in sec. 14, T. 134 N., R. 39 W., on east side of track, 7 telegraph poles south of hedge; copper nail in pole, marked "1334.9"	1,331.46
T. 134 N., R. 39 W., in sec. 24, 2.2 miles southeast of Ottertail, on east side of track; copper nail in telegraph pole, marked "1335.3"	1,333.85
T. 134 N., R. 39 W., east quarter corner of sec. 24, 2.5 miles southeast of Ottertail, at crossing, on west side of track, about 60 feet north of bridge; iron post stamped "1329"	1,327.251
Ottertail, 3.5 miles southeast of, 0.5 mile west of southeast corner of sec. 30, T. 134 N., R. 38 W., 50 feet north of road crossing; copper nail in telegraph pole, marked "1373.1"	1,371.68
T. 134 N., R. 38 W., 0.5 mile north of southeast corner of sec. 31, 4.4 miles southeast of Ottertail, 100 feet south of crossing; iron post stamped "1392" ..	1,390.559
Vining, 8.3 miles northeast of, east quarter corner of sec. 6, T. 133 N., R. 38 W.; copper nail in corner fence post, marked "1421.2"	1,419.76
T. 133 N., R. 38 W., 80 rods north of southwest corner of sec. 8, near H. F. Vought's mailbox; copper nail in fence post, marked "1408.2"	1,406.73
T. 133 N., R. 38 W., northwest corner of sec. 20; iron post stamped "1382" ..	1,380.832
T. 133 N., R. 38 W., southwest corner of sec. 20, 200 feet east of schoolhouse (district 152); copper nail in telephone pole, marked "1356.5"	1,355.07
Vining, 3.6 miles northeast of, south quarter corner of sec. 29, T. 133 N., R. 38 W., at foot of Mrs. Sammeker's mailbox; iron spike, marked "1392.5" ..	1,391.04
T. 133 N., R. 38 W., southwest corner of sec. 32; iron post stamped "1420" ..	1,418.314
T. 132 N., R. 38 W., near center of sec. 6, 45 feet north of railroad crossing; copper nail in telephone pole, marked "1390.9"	1,389.51

Vining, 150 feet northeast of station, on north side of track; iron post stamped "1389".....	Feet. 1, 388. 067
T. 132 N., R. 39 W., center of sec. 11, 0.6 mile west of Vining, on south side of track at crossing; copper nail in pole, marked "1389.1"	1, 387. 70
T. 132 N., R. 39 W., center of sec. 10, 1.6 miles west of Vining, southeast corner of railroad crossing on private drive; copper nail in pole, marked "1363.7"	1, 362. 26
T. 132 N., R. 39 W., sec. 9, in northwest corner of bridge 24; iron bolt, marked "1344.5"	1, 343. 11
T. 132 N., R. 39 W., 0.25 mile south of northwest corner of sec. 9, on north side of railroad crossing; iron post, stamped "1361"	1, 359. 520
T. 132 N., R. 39 W., sec. 5, 150 feet west of private road, 1 mile east of Clitheral; copper nail in pole, marked "1351.6"	1, 350. 19
Clitheral, south of crossing, east of station; copper nail in telegraph pole, marked "1350.90"	1, 349. 48
T. 132 N., R. 40 W., near east quarter corner of sec. 1, south of road crossing, 0.8 mile west of Clitheral; iron post, stamped "1367"	1, 365. 774
T. 132 N., R. 40 W., in sec. 2, 1.6 miles east of Battle Lake, five telegraph poles west of milepost 29; copper nail in pole, marked "1354.1"	1, 352. 66
Battle Lake, 0.6 mile east of, near east quarter corner of sec. 3, 1,200 feet east of "Battle Lake 1 mile" post; copper nail, marked "1344.1"	1, 342. 66
Battle Lake, opposite Northern Pacific Ry. station, south side of track; copper nail in telegraph pole, marked "1354.5"	1, 353. 11
Battle Lake, southeast corner of new schoolhouse yard; iron post, stamped "Prim. Trav. Sta. No. 14, 1373"	1, 371. 836

From Battle Lake via Balmoral to Ottertail.

Battle Lake, 0.7 mile north of, near west quarter corner of sec. 34, T. 133 N., R. 40 W., opposite ball park; copper nail in pole, marked "1344.6"	1, 343. 14
T. 133 N., R. 40 W., at center of sec. 27, on west side of road; copper nail in telephone pole, marked "1343.0"	1, 341. 59
T. 133 N., R. 40 W., north quarter corner of sec. 27; copper nail in telephone pole, marked "1371.2"	1, 369. 78
T. 133 N., R. 40 W., near north quarter corner of sec. 26, on south side of road at T road north; iron post, stamped "1357"	1, 356. 097
T. 133 N., R. 40 W., near east quarter corner of sec. 24, about 1,000 feet east of A. G. Myhre's house, at edge of woods, on north side of road; copper nail in root of large tree, marked "1345.8"	1, 344. 41
T. 133 N., R. 39 W., near northeast corner of sec. 19, 350 feet east of turn in road, 800 feet north of house on D. Berg's farm, on south side of road; copper nail in stump, marked "1347.66"	1, 346. 23
T. 133 N., R. 39 W., southeast corner of sec. 18, in front of W. N. Wilkin's stock farm; iron post stamped "1368"	1, 366. 466
T. 133 N., R. 39 W., 80 rods northeast of southwest corner of sec. 16; copper nail in corner fence post, marked "1362.6"	1, 361. 20
T. 133 N., R. 39 W., 80 rods northeast of southwest corner of sec. 4, on west side of road; copper nail in corner post of J. C. Kimber's garden, marked "1356.0"	1, 354. 57
T. 133 N., R. 39 W., 80 rods west of center of sec. 4, at T road east, east end of Lake Ethel; iron post stamped "1358"	1, 356. 431
T. 133 N., R. 39 W., northwest corner of sec. 4, at T road west; copper nail in telephone pole, marked "1376.9"	1, 375. 44
T. 134 N., R. 39 W., southwest corner of sec. 32, at T road north; copper nail in fence post, marked "1333.2"	1, 331. 75

T. 134 N., R. 39 W., center of sec. 31, 0.25 mile north of Balmoral, at forks of road; iron post stamped "1346"	Feet. 1, 345. 023
T. 134 N., R. 39 W., 80 rods south of north quarter corner of sec. 32, opposite schoolhouse (District 131); copper nail in pole, marked "1372.8"	1, 371. 41
T. 134 N., R. 39 W., 600 feet east of west quarter corner of sec. 28, near H. Wiebe's house; copper nail in fence post, marked "1347.8"	1, 346. 36
T. 134 N., R. 39 W., west quarter corner of sec. 27; iron post stamped "Prim. Trav. Sta. No. 26, 1356"	1, 354. 636
T. 134 N., R. 39 W., 600 feet east of south quarter corner of sec. 22, in front of cemetery; copper nail in hitch rack, marked "1370.3"	1, 368. 88
T. 134 N., R. 39 W., north quarter corner of sec. 22, at T road east; copper nail in corner fence post, marked "1356.3"	1, 354. 87
T. 134 N., R. 39 W., south quarter corner of sec. 14, at T road north; copper nail in corner fence post, marked "1348.5"	1, 347. 11
Ottertail, at southwest corner of station; iron post stamped "1355"	1, 353. 098

CHOKIO QUADRANGLE.

[Latitude, 45° 30'-45° 45'; longitude, 96°-96° 15'.]

From southwest corner of sec. 2, T. 126 N., R. 44 W., west to sec. 4, T. 126 N., R. 44 W.

T. 126 N., R. 44 W., in southwest corner of sec. 2, 35 feet east by 35 feet north of center of crossroads, 320 feet northeast of schoolhouse; iron post stamped "1080"	1, 078. 490
T. 126 N., R. 44 W., in southeast corner of sec. 4, 220 feet northwest of section corner in base of 8-inch cottonwood tree; spike	1, 075. 10

From northeast corner of sec. 36, T. 125 N., R. 43 W., north along highway to southeast corner of sec. 12, T. 126 N., R. 43 W.

T. 125 N., R. 43 W., in northeast corner of sec. 36, 45 feet west by 30 feet south of 4-inch by 12-inch rock near corner, 60 feet north of center of road; iron post stamped "1110"	1, 108. 908
T. 125 N., R. 42 W., in northwest corner of sec. 18, 30 feet east by 65 feet south of center of crossroads, in top of concrete post; aluminum tablet stamped "1105"	1, 103. 601
Donnelly, on main line, opposite signal in front of station, 1 foot south of joint of east rails, on top of rail	1, 127. 7
Donnelly, at street crossing, 95 feet south of post office, west side of Main Street, at northeast entrance to park, in top of concrete post; aluminum tablet stamped "1131"	1, 129. 386
T. 126 N., R. 43 W., in southeast corner of sec. 12, 40 feet west by 20 feet north of center of crossroads, 210 feet west of church, in top of concrete post; aluminum tablet stamped "1144"	1, 143. 051

From southwest corner of sec. 19, T. 124 N., R. 42 W., to northwest corner of sec. 4, T. 126 N., R. 44 W.

T. 124 N., R. 42 W., in southwest corner of sec. 19, 25 feet east by 35 feet north of center line of travel at crossroads, in top of concrete post; aluminum tablet stamped "1158"	1, 156. 070
T. 124 N., R. 43 W., northwest corner of NE. $\frac{1}{4}$ NW. $\frac{1}{4}$ sec. 25, 3 feet from trunk of tree and 35 feet west of center line of travel at jog around lake; nail in root of 32-inch tree	1, 142. 88
T. 124 N., R. 43 W., southwest corner of sec. 22, 25 feet north by 25 feet east of center line of travel at crossroads, in top of concrete post; aluminum tablet stamped "1149"	1, 147. 611

T. 124 N., R. 43 W., near northwest corner of sec. 32; iron post stamped "1156".....	Feet. 1, 154. 489
T. 124 N., R. 44 W., near southeast corner of sec. 25; nailhead in west end of small bridge painted white.....	1, 151. 22
T. 124 N., R. 44 W., southwest corner of sec. 26, in top of concrete post; aluminum tablet stamped "1157".....	1, 155. 751
T. 124 N., R. 44 W., near southwest corner of sec. 29, in top of concrete post; aluminum tablet stamped "1163".....	1, 162. 032
T. 124 N., R. 44 W., 200 feet northeast of southwest corner of sec. 20; chiseled square on top of large stone.....	1, 157. 00
T. 124 N., R. 44 W., near southeast corner of sec. 7; iron post stamped "1143".....	1, 141. 587
T. 125 N., R. 44 W., near southwest corner of sec. 32; iron post stamped "1124".....	1, 122. 849
T. 125 N., R. 44 W., near southeast corner of sec. 18; iron post stamped "1102".....	1, 100. 768
T. 125 N., R. 44 W., northeast corner of sec. 6; iron post stamped "1073"....	1, 071. 428
T. 126 N., R. 44 W., near northeast corner of sec. 19; iron post stamped "1064".....	1, 062. 629
T. 126 N., R. 44 W., near northwest corner of sec. 4, 30 feet east by 25 feet south of center of crossroads; iron post stamped "1057".....	1, 055. 887

From southwest corner of sec. 2, T. 126 N., R. 44 W., to southwest corner of sec. 22,
T. 124 N., R. 43 W.

T. 126 N., R. 44 W., southwest corner of sec. 2, 35 feet east by 35 feet north of center line of travel at crossroads, 320 feet northeast of schoolhouse; iron post stamped "1080".....	1, 078. 490
T. 126 N., R. 43 W., near northwest corner of sec. 7, in top of concrete post; aluminum tablet stamped "1089".....	1, 087. 924
T. 126 N., R. 43 W., southwest corner of sec. 7; top of iron pipe.....	1, 089. 449
T. 126 N., R. 43 W., near northwest corner of sec. 20, in top of concrete post; aluminum tablet stamped "1089".....	1, 087. 568
T. 126 N., R. 43 W., near northeast corner of sec. 32, in top of concrete post; aluminum tablet stamped "1110".....	1, 108. 918
T. 125 N., R. 43 W., near southeast corner of sec. 8; iron post stamped "1122".....	1, 120. 981
T. 125 N., R. 43 W., near corner of secs. 16, 17, 20, and 21; chiseled square on stone.....	1, 123. 21
T. 125 N., R. 43 W., 1,320 feet north of northwest corner of sec. 28; chiseled square on large stone.....	1, 121. 94
T. 125 N., R. 43 W., near center of SE. $\frac{1}{4}$ sec. 32, in top of concrete post at tower; aluminum tablet stamped "1123".....	1, 121. 346
T. 124 N., R. 43 W., in northwest corner of sec. 10, 30 feet south by 40 feet east of center line of travel at road intersection, 0.25 mile west of Alberta, in top of concrete post; aluminum tablet stamped "1109".....	1, 107. 405

DETROIT LAKE QUADRANGLE.

[Latitude, 46° 45'-47°; longitude, 95° 45'-96°.]

From point near Frazee west along highway to Shoreham.

T. 138 N., R. 40 W., 0.2 mile east of west quarter corner of sec. 20, 200 feet southwest of D. Graham's house; copper nail in telephone pole, marked "1409.4".....	1, 408. 22
T. 138 N., R. 40 W., northwest corner of sec. 19, at angle in road southeast, 5 feet west of road; copper nail in stump, marked "1365.4".....	1, 364. 19

T. 138 N., R. 41 W., near center of sec. 24, about 200 feet northeast of John Munson's house, on south side of road; iron post stamped "1401".....	Feet. 1, 399. 560
T. 138 N., R. 41 W., northwest corner of sec. 23, at T road west; copper nail in telephone pole, marked "1386.0".....	1, 384. 82
T. 138 N., R. 41 W., northwest corner of sec. 22, 400 feet northeast of Lakeview schoolhouse, on east side of railroad and public highway at cross-roads; iron post stamped "1355".....	1, 353. 605
T. 138 N., R. 41 W., 600 feet north of northeast corner of sec. 21, at Y road; copper nail in telephone pole, marked "1344.8".....	1, 343. 57
T. 138 N., R. 41 W., near center of sec. 20, at T road north; copper nail in telephone pole, marked "1340.0".....	1, 338. 78
T. 138 N., R. 41 W., near center of sec. 19, near Dr. Neh Tronner's cottage, on south side of road ; nail in stump, marked "1341.0".....	1, 339. 74

VERGAS QUADRANGLE.

[Latitude, 46° 30'-46° 45'; longitude, 95° 45'-96°.]

From point near Dent southwest along highway to point near Star Lake store.

Dent 1.1 miles west of, near northwest corner of sec. 33, T. 136 N., R. 40 W., south end of Big McDonald Lake, north side of road; copper nail in telephone pole, marked "1359.7".....	1, 358. 26
T. 136 N., R. 40 W., near northwest corner of sec. 32, at turn in road; copper nail in telephone pole, marked "1393.9".....	1, 392. 43
T. 136 N., R. 40 W., 75 feet east of northwest corner of sec. 31, on north side of road; iron post stamped "1384".....	1, 282. 803
T. 136 N., R. 41 W., 500 feet northwest of southeast corner of sec. 36, north side of lake, on township corner; copper nail in telephone pole, marked "1350.9".....	1, 349. 48
T. 135 N., R. 40 W., about 350 feet south of west quarter corner of sec. 6; copper nail in telephone pole, painted "U. S. B. M. 1358.5".....	1, 357. 05
T. 135 N., R. 40 W., 1,000 feet southeast of northwest corner of sec. 7; 15 feet east of road, 10 feet north of drive leading to H. Wishnach's house; iron post stamped "1336".....	1, 334. 272
T. 135 N., R. 40 W., near northwest corner of sec. 18, 0.3 mile north of forks of road; copper nail in telephone pole, painted "U. S. B. M. 1334.7".....	1, 333. 26
T. 135 N., R. 41 W., 0.25 mile north of south quarter corner of sec. 12, in northeast corner of bridge over Star Lake outlet; copper nail marked "1334.1".....	1, 332. 69
T. 135 N., R. 41 W., 200 feet north of southwest corner of sec. 13; iron post stamped "1348 Minn".....	1, 346. 884

From point near Star Lake north along highway to Vergas, thence southeast 2.8 miles.

T. 135 N., R. 41 W., near east quarter corner of sec. 17, 4.4 miles northwest of Star Lake; copper nail in southwest corner of bridge, marked "1346.3".....	1, 344. 89
T. 135 N., R. 41 W., northeast corner of sec. 17, 4.9 miles northwest of Star Lake, 45 feet southwest of T road south; copper nail in root of stump, marked "1389.1".....	1, 387. 69
T. 135 N., R. 41 W., 0.25 mile west of northeast corner of sec. 18, on south side of road; iron post stamped "1394".....	1, 392. 914
T. 135 N., R. 41 W., center of sec. 7, at T road west, at north side of triangle; copper nail in telephone pole, marked "1360.5".....	1, 359. 15
T. 135 N., R. 41 W., near northeast corner of sec. 7, on north side of road, near blacksmith shop; copper nail in telephone pole, marked "1371.4".....	1, 370. 06
T. 135 N., R. 41 W., northeast corner of sec. 8, at T road north, on south side of road; iron post stamped "1361 Minn".....	1, 359. 158

T. 135 N., R. 41 W., northwest corner of sec. 4, at T road east; copper nail in telephone pole, marked "1366.7"	Feet. 1, 365. 38
T. 136 N., R. 41 W., northeast corner of sec. 32, northeast corner of school-house (district 166), in baseboard; copper nail marked "1420.2"	1, 418. 84
T. 136 N., R. 41 W., west quarter corner of sec. 28, at T road west, on east side of road; iron post stamped "1403"	1, 401. 700
T. 136 N., R. 41 W., north quarter corner of sec. 28, at T road north, on south side of road; copper nail in root of tree marked "1405.4"	1, 404. 03
T. 136 N., R. 41 W., north quarter corner of sec. 21, at T road south; copper nail in stump, marked "1372.8"	1, 371. 49
T. 136 N., R. 41 W., northwest corner of sec. 15, at northwest corner of graveyard; iron post stamped "1388"	1, 386. 356
T. 136 N., R. 41 W., 0.25 mile south of northeast corner of sec. 4, 30 feet east of forks in road; chiseled point on granite boulder marked "U.S.B.M. 1402.5"	1, 400. 21
T. 137 N., R. 41 W., east quarter corner of sec. 34, on west side of forks of road; iron post stamped "1390"	1, 387. 358
T. 137 N., R. 41 W., near northeast corner of sec. 35, at forks of road, on west side of road; copper nail in telephone pole marked "1380.9"	1, 378. 63
Vergas, 150 feet north of station, on south side of public highway; iron post stamped "1400"	1, 398. 498
T. 137 N., R. 41 W., east quarter corner of sec. 25, on east side of track; copper nail in crossing sign, marked "1400.9"	1, 398. 64
T. 137 N., R. 40 W., in sec. 31, 16 telegraph poles west of milepost 199, at private crossing; copper nail in telegraph pole marked "1393.6"	1, 392. 29
T. 137 N., R. 40 W., near center of sec. 32, 40 feet east of overhead railroad bridge, near Lake Sybil; iron post stamped "1366"	1, 364. 917

From Vergas northwest along Soo Line and Northern Pacific Ry. to point near Shoreham.

Vergas, 150 feet north of station, on south side of public highway; iron post stamped "1400"	1, 398. 498
T. 137 N., R. 41 W., west quarter corner of sec. 24, six telegraph poles east of milepost 202; copper nail in pole marked "1437.9"	1, 436. 64
T. 137 N., R. 41 W., 0.25 mile east of northwest corner of sec. 23, at public road crossing; copper nail in crossing post, marked "1421.3"	1, 420. 07
T. 137 N., R. 41 W., SE. $\frac{1}{4}$ sec. 10, 100 feet west of public road crossing; iron post stamped "1399"	1, 398. 079
T. 137 N., R. 41 W., 0.25 mile west of northeast corner of sec. 10, 0.4 mile west of milepost 205; copper nail in pole marked "1407.6"	1, 406. 34
T. 138 N., R. 41 W., south quarter corner of sec. 34, at public-road crossing, on east side of track and south side of road; iron post stamped "1372"	1, 370. 499
T. 138 N., R. 41 W., near north quarter corner of sec. 34, on east side of culvert G 207 P, in timber of culvert; copper nail marked "1338.2" ..	1, 336. 94
T. 138 N., R. 41 W., near northwest corner of sec. 27, at public-road crossing; copper nail in crossing signpost, marked "1352.9"	1, 351. 70

From T. 138 N., R. 42 W., sec. 33, northeast to point near Shoreham.

T. 138 N., R. 42 W., northeast corner of sec. 33, at T road west; iron post stamped "Prim. Trav. Sta. No. 17, 1372, Minn., 1911"	1, 370. 617
T. 138 N., R. 42 W., northeast corner of sec. 27, at T road north, at old Lake Eunice post office; copper nail in telephone pole marked "1346.8"	1, 345. 51
T. 138 N., R. 42 W., southeast corner of sec. 23, at crossroads; copper nail in telephone pole marked "1386.9"	1, 385. 60

T. 138 N., R. 41 W., 0.2 mile north of northwest corner of sec. 30, at T road east; iron post stamped "Prim. Trav. Sta. No. 16, 1357 Minn., 1911" ..	Feet. 1, 356. 131
Frazee, 2.7 miles northwest of, east quarter corner of sec. 29, T. 138 N., R. 40 W., on north side of road at T road south; iron post stamped "1396" ..	1, 395. 233
T. 138 N., R. 40 W., center of northeast quarter of sec. 29, northwest corner in base board of schoolhouse; copper nail marked "1403.3";	1, 402. 13

From point 1.4 miles southwest of Shoreham south to sec. 20, T. 135 N., R. 42 W.

Shoreham, 1.4 miles southwest of, 0.2 mile north of northwest corner of sec. 30, T. 138 N., R. 41 W., at T road east; iron post stamped "Prim. Trav. Sta. No. 16, 1357"	1, 356. 131
T. 138 N., R. 41 W., near southwest corner of sec. 30, 250 feet northwest of Roosevelt Beach, on east side of road, on shore of Lake Melissa; copper nail in telephone pole, marked "1337.3"	1, 336. 06
Bucks Mills, near west quarter corner of sec. 31, T. 138 N., R. 41 W., 70 feet northeast of cement mill, on south side of road; iron post stamped "1336"	1, 334. 987
T. 137 N., R. 41 W., 0.2 mile north of center of sec. 6, 0.8 mile south of Bucks Mills, 300 feet south of Five Points, at T road east; copper nail in telephone pole, marked "1359.7"	1, 358. 46
T. 137 N., R. 41 W., about 0.25 mile east of northwest corner of sec. 7, 1.8 miles south of Bucks Mills, at forks of road; copper nail in telephone pole marked "1361.9"	1, 360. 63
T. 137 N., R. 41 W., 300 feet north of northeast corner of NW. $\frac{1}{4}$ NW. $\frac{1}{4}$ sec. 18, 300 feet northeast of schoolhouse, on west side of road; chiseled point on granite rock marked "1435.7"	1, 434. 48
T. 137 N., R. 41 W., 0.2 mile south of northeast corner of NW. $\frac{1}{4}$ NW. $\frac{1}{4}$ sec. 18, 0.2 mile south of schoolhouse, on shore of School Lake, on west side of road; iron post stamped "1435"	1, 433. 390
T. 137 N., R. 41 W., northeast corner of sec. 19, at T road south; copper nail in telephone pole, marked "1453.7"	1, 452. 43
T. 137 N., R. 41 W., near west quarter corner of sec. 19, at T road south; copper nail in telephone pole, marked "1448.4"	1, 447. 14
T. 137 N., R. 41 W., near northwest corner of sec. 30, 4.8 miles northeast of Patterson bridge, 400 feet north of T. Erickson's mail box, on east side of road; chiseled point on granite boulder marked "1474.6"	1, 472. 37
T. 137 N., R. 41 W., 0.25 mile north of northwest corner of sec. 31, 4.2 miles northeast of Patterson bridge, on east side of road, at gate to J. Trosdahl's house; iron post stamped "1432"	1, 430. 714
T. 137 N., R. 42 W., southeast corner of sec. 36, 2.4 miles northeast of Patterson's bridge, at angle in road northwest; copper nail in telephone pole painted "U. S. B. M. 1472.2"	1, 470. 96
T. 137 N., R. 42 W., 450 feet east of south quarter corner of sec. 35, 1.3 miles from Patterson's bridge, 450 feet east of T road north, on north side of road; iron post stamped "1330"	1, 328. 444
T. 136 N., R. 42 W., west quarter corner of sec. 3, 470 feet northwest of Patterson's bridge, at forks of road; copper nail in A. Thompson's mail box, marked "1320.0"	1, 318. 76
Lake Lizzie; surface of water Sept. 7, 1911	1, 311. 9
T. 136 N., R. 42 W., 0.25 mile west of east quarter corner of sec. 9, 1.1 miles south of Patterson's bridge, at forks of road; copper nail in telephone pole, marked "1321.6"	1, 320. 29
T. 136 N., R. 42 W., near southeast corner of sec. 10, 0.9 mile west of old Lida post office; copper nail in telephone pole, marked "1382.8"	1, 381. 50

T. 136 N., R. 42 W., 90 feet west of north quarter corner of sec. 14, 530 feet northwest of old Lida post office, at T road south; iron post stamped "1324" set near signboard.....	Feet. 1, 322. 30
T. 136 N., R. 42 W., northwest corner of sec. 24, 1.1 miles south of old Lida post office; nail in J. P. Sturgis's mail box, marked "1364.1".....	1, 362. 84
T. 136 N., R. 42 W., about center of NE. $\frac{1}{4}$ sec. 26, 0.4 mile south of A. Moberg's house, on east side of road; copper nail in root of basswood tree, marked "1345.3".....	1, 344. 10
T. 136 N., R. 42 W., 0.25 mile north of south quarter corner of sec. 26, 800 feet south of B. P. Pierce's house, on east side of road, near gate to pasture; iron post stamped "1481".....	1, 479. 902
T. 136 N., R. 42 W., 0.25 mile east of southwest corner of sec. 27, 1.2 miles east of Stoney Bar, at gate leading to Henry Drayton's, on north side of road; copper nail in gate post, marked "1376.9".....	1, 375. 64
T. 136 N., R. 42 W., near west quarter corner of sec. 33, at Stoney Bar, near Nick Stergin's mail box; iron post stamped "Prim. Trav. Sta. No. 1, 1326 Minn. 1911".....	1, 324. 920
T. 136 N., R. 42 W., near east quarter corner of sec. 33, 0.9 mile southeast of Stoney Bar; copper nail in John A. Johnson's mail box, marked "1369.3".....	1, 368. 09
T. 135 N., R. 42 W., near center of NE. $\frac{1}{4}$ sec. 4, 300 feet northwest of John A. Johnson's house, on north side of road; copper nail in telephone pole, marked "1376.7".....	1, 375. 47
T. 135 N., R. 42 W., near north quarter corner sec. 9, 75 feet south of C. H. Bakken's house; copper nail in telephone pole, marked "1335.9".....	1, 334. 76
T. 135 N., R. 42 W., east quarter corner of sec. 8, at south end of Lake Lida, 150 feet west of forks of road, near C. H. Bakken's mail box; iron post stamped "1322".....	1, 320. 36

From point 4.3 miles northeast of Pelican Rapids to point near Patterson bridge.

T. 136 N., R. 42 W., near northeast corner of sec. 18, at T road south; iron post stamped "1322 Prim. Trav. Sta. No. 2, Minn".....	1, 320. 548
T. 136 N., R. 42 W., about 0.25 mile north of northeast corner of sec. 17, on southeast corner of T road south; iron post stamped "1319".....	1, 318. 053

In sec. 23, T. 138 N., R. 41 W.

T. 138 N., R. 41 W., center of SW. $\frac{1}{4}$ sec. 23, at forks of road; copper nail in telephone pole, marked "1341.8".....	1, 340. 56
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FERGUS FALLS QUADRANGLE.

[Latitude, $46^{\circ} 15' - 46^{\circ} 30'$; longitude, $96^{\circ} - 96^{\circ} 15'$.]

From Fergus Falls south along highways 2.5 miles.

Fergus Falls, at southeast corner of Lincoln Avenue and Mill Street, at northern entrance of Pickett Block (First State Bank building), in middle of building, 10 centimeters from north edge and 15 centimeters from east edge of doorstep; chiseled square (C. & G. S. b. m. Y 3).....	1, 194. 575
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From Fergus Falls north along highways to Erharts, thence east along highways to southeast corner of sec. 28, T. 135 N., R. 44 W.

Fergus Falls, 3.7 miles northeast of, near southeast corner of sec. 24, T. 133 N., R. 43 W., 30 feet south by 30 feet west of forks in road, 150 feet west of schoolhouse (district 80); iron post stamped "1313 Minn.".....	1, 311. 168
T. 133 N., R. 42 W., northwest corner of sec. 7, 150 feet northwest of H. Holdhusen's house, 20 feet east of road; iron post stamped "1300 Minn".....	1, 298. 520

T. 134 N., R. 43 W., southeast corner of sec. 23, 55 feet north by 10 feet west of crossroads, at edge of C. F. Ladwig's farm; iron post stamped "1354 Minn"	Feet. 1, 352. 376
T. 134 N., R. 43 W., southwest corner of sec. 23, 20 feet north of W. B. Chapin's mail box; spike in silver poplar tree marked "1317.6"	1, 316. 20
T. 134 N., R. 43 W., southwest corner of sec. 14, 35 feet northeast of B. Langer's mail box; iron post stamped "1345 Minn"	1, 343. 515
T. 134 N., R. 43 W., 800 feet west of northwest corner of sec. 14, 5 feet north of road; spike in stump, marked "1287.8"	1, 286. 40
T. 134 N., R. 43 W., 0.25 mile south of northwest corner of sec. 11, at foot of T. Svensgaard's mail box; iron stake marked "1336.5"	1, 335. 07
T. 134 N., R. 43 W., north quarter corner of sec. 11, 60 feet southwest of schoolhouse, 20 feet east of road; iron post stamped "1361 Minn"	1, 359. 895
T. 135 N., R. 43 W., northeast corner of sec. 34, 10 feet south of P. Ganen's mail box; iron post stamped "1431 Minn"	1, 429. 720
Erharts, on southwest corner of cement walk leading to A. O. Solom's house on main street; chiseled square	1, 291. 82
T. 135 N., R. 43 W., southwest corner of sec. 21, 1 mile west of Erharts, 200 feet north of schoolhouse (district 36); iron post stamped "1322 Minn." ..	1, 320. 657
T. 135 N., R. 44 W., southwest corner of sec. 25, 30 feet north of road near slough; iron post stamped "1281 Minn"	1, 279. 357

From southeast corner of sec. 25, T. 135 N., R. 44 W., south along highways to Fergus Falls.

T. 134 N., R. 43 W., 1,600 feet southeast of southwest corner of sec. 6, 15 feet north by 30 feet west of forks in road, at edge of O. Zimmerman's farm; iron post stamped "1338 Minn"	1, 336. 523
T. 134 N., R. 44 W., southeast corner of sec. 24, 175 feet north by 20 feet west of forks in road; iron post stamped "1338 Minn"	1, 336. 957
T. 133 N., R. 43 W., northwest corner of sec. 5, 30 feet north by 25 feet east of forks in road; iron post stamped "1308"	1, 306. 840
Fergus Falls, 5 miles northwest of, on northeast corner of bridge over Pelican River; bolt marked "1193.5"	1, 191. 97
T. 134 N., R. 43 W., southeast corner of sec. 31, 20 feet north by 30 feet west of crossroads; iron post stamped "1231"	1, 229. 414

From Fergus Falls east 2.5 miles along Great Northern Ry.

Fergus Falls, south of track, on southeast foundation of Great Northern Ry. water tank, at southeast corner of stone, in a horizontal surface; bottom of hole 25 millimeters square and 4 millimeters deep (C. & G. S. b. m. X ₃)	1, 194. 270
Fergus Falls, 2.5 miles east of, 9 feet north of railroad, 720 feet west of Electric Power Co.'s dam across Otter Tail River; highest point of granite rock	1, 224. 88

From northeast corner of sec. 32, T. 135 N., R. 42 W., to north line of sec. 11, T. 134 N., R. 43 W.

T. 135 N., R. 42 W., 60 feet west by 25 feet south of northeast corner of sec. 32; highest point on granite rock	1, 468. 54
T. 135 N., R. 42 W., 20 feet north by 25 feet east of southwest corner of sec. 32; iron post stamped "1449"	1, 447. 230
T. 135 N., R. 43 W., southeast corner of sec. 36, 60 feet west by 25 feet north of; chiseled square on granite rock	1, 482. 41
T. 134 N., R. 43 W., north quarter corner of sec. 11, 60 feet southwest of schoolhouse, 20 feet east to public road; iron post stamped "1361 Minn" ..	1, 359. 895

From point near southwest corner of sec. 3, T. 132 N., R. 44 W., to point near southwest corner of sec. 8, T. 134 N., R. 44 W.

French, T. 133 N., R. 44 W., 60 feet west of station, 60 feet north of Northern Pacific Ry.; iron post stamped "1111".....	Feet. 1, 109.850
T. 133 N., R. 44 W., 30 feet west of southeast corner of sec. 16; iron post stamped "1191".....	1, 189.754
T. 133 N., R. 44 W., 15 feet south of northwest corner of sec. 16; highest point on granite rock.....	1, 142.78
T. 133 N., R. 44 W., 30 feet south by 30 feet east of northwest corner of sec. 8; iron post stamped "1124".....	1, 122.894
T. 134 N., R. 44 W., 20 feet south of northwest corner of sec. 31; top of granite rock.....	1, 150.75
T. 134 N., R. 44 W., 45 feet west by 25 feet south of northeast corner of sec. 30; iron post stamped "1161".....	1, 159.459

From T. 135 N., R. 44 W., sec. 25 north to T. 135 N., R. 44 W., sec. 23.

T. 135 N., R. 44 W., southwest corner of sec. 25, 30 feet north of road, near slough; iron post stamped "1281 Minn.".....	1, 279.357
T. 135 N., R. 44 W., 0.2 mile south of north quarter corner of sec. 26, 0.2 mile south of white schoolhouse, 1,000 feet north of K. Nygaard's house, 100 feet west of small lake, at edge of clearing; copper nail in telephone pole, painted "U. S. B. M. 1290.3".....	1, 288.92
T. 135 N., R. 44 W., southeast corner of sec. 23, 4 miles west of Echards, at T road north; copper nail in section-corner post, painted "U. S. B. M. 1305.4".....	1, 304.00

HERMAN QUADRANGLE.

[Latitude, 45° 45'–46°; longitude, 96°–96° 15'.]

From Wendell south along highway to northwest corner of sec. 4, T. 128 N., R. 43 W., thence east to sec. 5, T. 128 N., R. 42 W.

T. 129 N., R. 42 W., in northwest corner of sec. 28, 20 feet south by 30 feet east of center of crossroads; iron post stamped "1106".....	1, 104.765
T. 128 N., R. 43 W., in northwest corner of sec. 2, in southeast corner of bridge abutment, bridge spanning Mustinka River; aluminum tablet stamped "1091".....	1, 089.799
T. 129 N., R. 43 W., at northeast corner of sec. 1, on quarter line of sec. 31; monument.....	1, 160.36

From northwest corner of sec. 4, T. 128 N., R. 43 W., south along highway to southeast corner of sec. 16, T. 127 N., R. 43 W., thence east to sec. 30, T. 127 N., R. 42 W.

T. 128 N., R. 43 W., 0.2 mile south of northwest corner of sec. 9, 25 feet east of center line of travel; iron post stamped "1100".....	1, 098.914
T. 128 N., R. 43 W., southwest corner of sec. 8, on west side of road, 20 feet west of center line of travel; spike in base of tree.....	1, 098.05
T. 128 N., R. 43 W., in northwest corner of SW. $\frac{1}{4}$ sec. 21, 20 feet east of center of line of travel; iron post stamped "1089".....	1, 088.025
T. 128 N., R. 43 W., in southwest corner of sec. 22, at T road west, on granite boulder; chiseled square.....	1, 106.55
T. 127 N., R. 43 W., in northeast corner of sec. 4, 30 feet west by 15 feet south of center of crossroads; iron post stamped "1100".....	1, 098.491
T. 127 N., R. 43 W., in southeast corner of sec. 23, 35 feet west by 25 feet north of center of crossroads; iron post stamped "1128".....	1, 126.836

From southeast corner of sec. 16, T. 127 N., R. 43 W., west along highway 4.5 miles, thence south to county line.

T. 127 N., R. 43 W., in sec. 21, 30 feet north and 35 feet south of respective lines of travel at road fork; iron post stamped "1093".....	Feet. 1, 091. 853
T. 127 N., R. 43 W., at corner of secs. 18 and 19 and secs 13 and 24, T. 127 N., R. 44 W., in center of line of travel at crossroads; iron stake.....	1, 074. 05
Herman, in north end of west doorsill (sandstone) of the Grant County State Bank; aluminum tablet stamped "1076".....	1, 074. 156
Herman, in front of station; top of east rail	1, 073. 5

From county line at northwest corner of sec. 4, T. 126 N., R. 44 W., indirectly north along highway to southwest corner of sec. 10, T. 129 N., R. 44 W.

T. 126 N., R. 44 W., in northwest corner of sec. 4, 30 feet east by 25 feet south of center of crossroads; iron post stamped "1057".....	1, 055. 877
T. 127 N., R. 44 W., in southeast corner of sec. 29, on granite boulder at crossroads; chiseled square.....	1, 053. 56
T. 127 N., R. 44 W., in northwest corner of sec. 20, 30 feet south of center of intersection at T road north; iron post stamped "1046".....	1, 043. 740
T. 127 N., R. 44 W., in northeast corner of sec. 7, 100 feet south by 50 feet west of center of crossroads, on granite boulder; chiseled square.....	1, 034. 34
T. 127 N., R. 44 W., in northwest corner of sec. 5, 30 feet south by 30 feet east of center of crossroads; iron post stamped "1032".....	1, 030. 400
T. 128 N., R. 44 W., in southwest corner of sec. 16, 840 feet east of Great Northern Ry., about 1.5 miles northwest of Norcross, 25 feet east by 35 feet north of center of crossroads; iron post stamped "1029".....	1, 027. 174
T. 129 N., R. 44 W., in southeast corner of sec. 33; 50 feet north by 25 feet west of center of T road north; iron post stamped "1024".....	1, 021. 988
T. 129 N., R. 44 W., in northwest corner of sec. 22, 40 feet south by 30 feet east of center of crossroads; iron post stamped "1025".....	1, 023. 417

From Herman north along highway 6 miles, thence west to point 1.5 miles northwest of Norcross.

T. 127 N., R. 44 W., in northeast corner of sec. 2, in base of cottonwood tree, on west side of Y road; spike.....	1, 072. 17
T. 127 N., R. 44 W., in northwest corner of sec. 1, 20 feet east by 20 feet south of center of crossroads; iron post stamped "1056".....	1, 054. 645
T. 128 N., R. 44 W., in southeast corner of sec. 14, 35 feet north by 35 feet west of center of crossroads; iron post stamped "1052".....	1, 050. 158
T. 128 N., R. 44 W., in southwest corner of sec. 16, 35 feet north by 25 feet east of center of crossroads; iron post stamped "1029".....	1, 027. 174

MORRIS QUADRANGLE.

[Latitude, 45° 30' - 45° 45'; longitude, 95° 45' - 96°.]

From sec. 1, T. 126 N., R. 42 W., south along highway and Great Northern Ry. to southwest corner of sec. 25, T. 124 N., R. 42 W., thence east along highway 6 miles, and north to county line.

T. 126 N., R. 41 W., in northwest corner of sec. 19, 23 feet east of center line of travel at road intersection, 3 feet south of east-west fence line; iron post stamped "1153".....	1, 151. 963
T. 126 N., R. 42 W., in southeast corner of sec. 25, 36 feet north by 9 feet west of center of road intersection, in base of 12-inch poplar tree; spike..	1, 120. 18
T. 125 N., R. 41 W., in northwest corner of sec. 6, 18 feet south by 17 feet east of center of crossroads; iron post stamped "1129".....	1, 127. 936

T. 125 N., R. 42 W., northeast of center of sec. 24, 91 feet south of east-west fence line, 15 feet east of center of line of travel, 40 feet southeast of sign-post 8 inches in diameter; iron post stamped "1138".....	Feet. 1, 136. 081
T. 125 N., R. 42 W., southwest corner of sec. 24, at base of fence post, at jog in road to west, on $\frac{1}{2}$ -inch bump on bowlder (5 feet around).....	1, 137. 19
T. 125 N., R. 42 W., in southeast corner of NE. $\frac{1}{4}$ sec. 35, in base of telegraph pole at road intersection and railroad crossing, 15 feet south of fence line, 50 feet northwest of railroad crossing; three nails.....	1, 126. 86
Morris, southwest corner of Citizens Bank, east of entrance, in water table; aluminum tablet stamped "1138".....	1, 136. 546
T. 124 N., R. 42 W., in southwest corner of sec. 13, 12 feet east by 11 feet north of center of road intersection; iron post stamped "1078".....	1, 076. 768
T. 124 N., R. 42 W., in southwest corner of sec. 25, 32 feet east by 46 feet north of center of crossroads; iron post stamped "1125".....	1, 123. 061
T. 124 N., R. 41 W., in southeast corner of SW. $\frac{1}{4}$ NE. $\frac{1}{4}$ sec. 29, 20 feet north by 30 feet west of center of crossroads; iron post stamped "1163".....	1, 161. 801
T. 124 N., R. 41 W., in northeast corner of NW. $\frac{1}{4}$ sec. 35, 18 feet west by 30 feet south of center of road intersection, 0.5 mile east by 1 mile north of Hancock; iron post stamped "1161".....	1, 159. 242
T. 124 N., R. 41 W., in southeast corner of sec. 10, 35 feet west by 25 feet north of center of intersection, 10 feet west of north-south fence line; iron post stamped "1175".....	1, 173. 686
T. 125 N., R. 41 W., in southeast corner of sec. 34, 20 feet north of red granary, 120 feet east by 53 feet north of fence line, on 24-inch rock; $\frac{7}{8}$ -inch knob.....	1, 147. 64
T. 125 N., R. 41 W., in northwest corner of sec. 35, 358 feet south of section line, 16 feet east of center of road, 9 feet southwest of telephone pole; iron post stamped "1150".....	1, 148. 548
T. 125 N., R. 41 W., in southeast corner of NE. $\frac{1}{4}$ SW. $\frac{1}{4}$ sec. 14, 15 feet west by 100 feet north of center of road intersection, 70 feet north of sign; iron post stamped "1158".....	1, 156. 662
T. 125 N., R. 41 W., in southwest corner of sec. 1, 16 feet north by 51 feet east of center of road at intersection; iron post stamped "1173".....	1, 171. 075
T. 126 N., R. 41 W., in southeast corner of sec. 26, 90 feet north by 32 feet west of center of road, on north part of 18-inch by 28-inch rock; 1-inch knob.....	1, 182. 38
T. 126 N., R. 41 W., in southeast corner of sec. 23, 10 feet west by 70 feet north of center of road, on 15-foot by 28-inch rock; 1-inch knob.....	1, 175. 39
T. 126 N., R. 41 W., in northeast corner of sec. 23, 33 feet west by 45 feet south of center of crossroads; iron post stamped "1170".....	1, 168. 375
T. 127 N., R. 41 W., in southeast corner of sec. 35, 25 feet west by 25 feet north of corner of crossroads; iron post stamped "1232".....	1, 230. 741
From southwest corner of sec. 13, T. 124 N., R. 42 W., west, south, and west along highway to southwest corner of sec. 19, T. 124 N., R. 42 W., thence northeast, north, and west to southwest corner of sec. 31, T. 125 N., R. 42 W.	
T. 124 N., R. 42 W., in northwest corner of sec. 27, 25 feet south by 25 feet east of center of crossroads, in top of concrete post; aluminum tablet stamped "1122".....	1, 120. 444
T. 124 N., R. 42 W., in southwest corner of sec. 19, 25 feet east by 35 feet north of center of crossroads, in top of concrete post; aluminum tablet stamped "1158".....	1, 156. 070
T. 124 N., R. 42 W., in southeast corner of sec. 7, on north side of east abutment of bridge; 1-inch knob.....	1, 079. 73

T. 124 N., R. 42 W., in southeast corner of sec. 6, 40 feet north by 22 feet west of center of road intersection, in top of concrete post; aluminum tablet stamped "1118".....	Feet. 1, 116. 174
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From southeast corner of sec. 12, T. 126 N., R. 43 W., east along highway 1 mile, thence north to county line.

T. 126 N., R. 42 W., in northwest corner of SW. $\frac{1}{4}$ SW. $\frac{1}{4}$ sec. 8, 33 feet east of section line, in base of 5-inch tree; two spikes.....	1, 147. 41
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PELICAN RAPIDS QUADRANGLE.

[Latitude, 46° 30'-46° 45'; longitude, 96°-96° 15'.]

From point near Erharts north through Pelican Rapids to sec. 32, T. 138 N., R. 42 W.

Erharts, main track of Great Northern Ry., at crossing of main traveled road; top of east rail near joint, marked "1288.293".....	1, 286. 86
T. 135 N., R. 43 W., 0.25 mile west of northeast corner of sec. 21, at public road crossing; copper nail in telegraph pole, painted "U. S. B. M. 1281.4".....	1, 279. 96
T. 135 N., R. 43 W., about 0.25 mile west of northeast corner of sec. 16, 0.5 mile south of crossing; copper nail in telegraph pole, marked "1279.6".....	1, 278. 19
T. 135 N., R. 43 W., near center of sec. 9, at public road crossing, in southwest corner near fence; iron post stamped "1296".....	1, 295. 127
T. 135 N., R. 43 W., about center of NE. $\frac{1}{4}$ sec. 4, at public-road crossing, in southwest corner; copper nail in telephone pole, marked "1290.9".....	1, 289. 53
T. 136 N., R. 43 W., 0.25 mile south of northeast corner of sec. 33, 500 feet west of public highway; copper nail in telegraph pole, marked "1304.7".....	1, 303. 31
Pelican Rapids, southeast corner of Great Northern Ry. land reserve, corner of Broadway and Depot Street; iron post stamped "1309".....	1, 307. 190
T. 136 N., R. 43 W., north quarter corner of sec. 22, 150 feet east of crossroads, on north side of road; copper nail in telephone pole, marked "1377.6".....	1, 376. 25
T. 136 N., R. 43 W., about 0.25 mile north of south quarter corner of sec. 14, at T road west; copper nail in telephone pole, marked "1336.5".....	1, 335. 11
T. 136 N., R. 43 W., near north quarter corner of sec. 14, 150 feet southwest of A. Jacob's house; copper nail in telephone pole, marked "1341.0".....	1, 339. 71
T. 136 N., R. 43 W., northeast corner of sec. 14, at northeast corner of crossroads; iron post stamped "1352".....	1, 350. 739
T. 136 N., R. 43 W., northeast corner of sec. 13, at crossroads; copper nail in telephone pole, marked "1390.4".....	1, 389. 10
T. 136 N., R. 43 W., northwest corner of sec. 12, at crossroads; copper nail in telephone pole, marked "1352.1".....	1, 350. 74
T. 136 N., R. 43 W., northwest corner of sec. 1, 150 feet northwest of W. Bronk's house; copper nail in telephone pole, marked "1356.8".....	1, 355. 49
T. 137 N., R. 43 W., northeast corner of sec. 36, at southwest corner of crossroads; iron post stamped "1339".....	1, 337. 975
T. 137 N., R. 42 W., southwest corner of sec. 14; copper nail in telephone pole, marked "1349.0".....	1, 347. 66
T. 137 N., R. 42 W., about 0.25 mile northeast of southwest corner of sec. 20, northeast corner of red bridge over Pelican River; chiseled square marked "1321.5".....	1, 320. 20
T. 137 N., R. 42 W., 0.25 mile east of west quarter corner of sec. 20, at southwest corner of T road south; iron post stamped "1366".....	1, 365. 053
T. 137 N., R. 42 W., northwest corner of sec. 20, at T road west; copper nail in telephone pole, marked "1331.3".....	1, 329. 97

T. 137 N., R. 42 W., southeast corner of sec. 7, at angle in road southwest, on north side of road; copper nail in elm tree, marked "1352.0".....	Feet. 1, 350. 70
T. 137 N., R. 42 W., southwest corner of sec. 7, at T road south, on east side of road; iron post stamped "1342".....	1, 340. 428
T. 137 N., R. 43 W., southwest corner of sec. 12, at northeast corner at T road east; copper nail in telephone pole, marked "1330.7".....	1, 329. 41
T. 137 N., R. 43 W., near north quarter corner of sec. 11, at west end of Pelican Lake, at T road west; copper nail in telephone pole, marked "1326.2".....	1, 324. 87
Pelican Lake; surface of water September 26, 1911.....	1, 316. 6
T. 137 N., R. 43 W., 0.25 mile east of west quarter corner of sec. 1, 1.5 miles south of Cormorant, 40 feet west by 10 feet north of T road north, at Chas. Bosoer's mail box; iron post stamped "1327".....	1, 326. 097
T. 138 N., R. 43 W., 0.25 mile east of west quarter corner of sec. 36, 0.4 mile southeast of Cormorant, at T road east, on east side of road; copper nail without washer in telephone pole, marked "1348.9".....	1, 347. 57
Cormorant, 0.2 mile northeast of, 0.25 mile east of northwest corner of sec. 36, T. 138 N., R. 43 W., on south side of road; copper nail in telephone pole, marked "1369.0".....	1, 367. 70
T. 138 N., R. 43 W., northeast corner of sec. 36, south side of road; iron post stamped "1374".....	1, 372. 583
T. 138 N., R. 42 W., northwest corner of sec. 32, at crossroads; copper nail in telephone pole, marked "1372.1".....	1, 370. 84

From T. 137 N., R. 43 W., sec. 1, west and south to T. 137 N., R. 44 W., sec. 30.

T. 138 N., R. 43 W., west quarter corner of sec. 36, 0.4 mile southeast of Cormorant, 20 feet east by 60 feet north of T road east; copper nail in telephone pole, painted "U. S. B. M. 1349.1".....	1, 347. 65
Cormorant, in southeast corner of Cherry's store; spike.....	1, 369. 83
T. 138 N., R. 43 W., west quarter corner of sec. 25, 0.7 mile northwest of Cormorant, 95 feet west by 30 feet south of T road south; copper nail in telephone pole, painted "U. S. B. M. 1377.6".....	1, 376. 15
T. 138 N., R. 43 W., east quarter corner of sec. 27, 1.8 miles northwest of Cormorant, 30 feet west by 20 feet north of crossroads; iron post stamped "1373".....	1, 371. 379
T. 138 N., R. 43 W., west quarter corner of sec. 27, 2.9 miles northwest of Cormorant, 0.2 mile west of white church, at T road east; copper nail in telephone pole, painted "U. S. B. M. 1382.0".....	1, 380. 55
T. 138 N., R. 43 W., west quarter corner of sec. 28, northwest corner of school house; copper nail in cornice, painted "U. S. B. M. 1405.7".....	1, 404. 23
T. 138 N., R. 43 W., northeast corner of sec. 29, 40 feet north of L road southwest; iron post stamped "Prim. Trav. Sta. No. 6, 1403, 1911".....	1, 401. 340
T. 138 N., R. 43 W., southwest corner of sec. 20, at crossroads; copper nail in corner fence post, painted "U. S. B. M. 1413.9".....	1, 412. 44
T. 138 N., R. 44 W., southeast corner of sec. 24, at crossroads; copper nail in Adolph Poalson's mail box, painted "U. S. B. M. 1442".....	1, 440. 91
T. 138 N., R. 43 W., quarter mile north of southwest corner of sec. 30, 1,000 feet northeast of Svoen Carlson's house, 25 feet north of lane, 10 feet east of road; iron post stamped "1464".....	1, 462. 623
T. 138 N., R. 44 W., 0.2 mile south of north quarter corner of sec. 25, 30 feet east of C. Arneson's mail box, at T road west; chiseled ring on highest point of granite boulder, painted "U. S. B. M. 1429.7".....	1, 428. 30
T. 138 N., R. 44 W., 0.2 mile south of northwest corner of sec. 26, at T road east; copper nail in corner fence post, painted "U. S. B. M. 1375.0".....	1, 373. 52

T. 138 N., R. 44 W., 0.2 mile south of northeast corner of sec. 28, 100 feet south of T road east, 300 feet north of Rollag; copper nail in corner telephone pole, painted "U. S. B. M. 1363.1".....	Feet. 1, 361. 62
T. 138 N., R. 44 W., northeast corner of sec. 33, 0.8 mile south of Rollag, 20 feet west by 60 feet south of crossroads; iron post stamped "1299"....	1, 297. 720
T. 138 N., R. 44 W., southeast corner of sec. 29, 1.8 miles southwest of Rollag, at crossroads; copper nail in telephone pole, painted "U. S. B. M. 1196.3".....	1, 194. 88
T. 138 N., R. 44 W., southeast corner of sec. 32, 2.8 miles southwest of Rollag, at crossroads; copper nail in telephone pole, painted "U. S. B. M. 1331.3".....	1, 329. 84
T. 137 N., R. 44 W., southwest corner of sec. 4, 40 feet east by 15 feet north of crossroads, 10 feet east of Albert Anderson's mail box; iron post stamped "1397".....	1, 395. 587
T. 137 N., R. 44 W., 600 feet northeast of southwest corner of sec. 9, 35 feet northwest of H. O. Nelson's mail box, 60 feet northeast of pond; copper nail in telephone pole, painted "U. S. B. M. 1341.7".....	1, 340. 25
T. 137 N., R. 44 W., southwest corner of sec. 16, 40 feet north by 25 feet east of crossroads; iron post stamped "1303".....	1, 300. 209
T. 137 N., R. 44 W., southeast corner of sec. 20, at T road north; copper nail in telephone pole, painted "U. S. B. M. 1252.2".....	1, 249. 69
T. 137 N., R. 44 W., 0.2 mile north of south quarter corner of sec. 29, 20 feet north by 40 feet west of T road west; copper nail in corner fence post, painted "U. S. B. M. 1215.1".....	1, 212. 55
From T. 135 N., R. 44 W., sec. 13, north to T. 138 N., R. 43 W.	
T. 135 N., R. 44 W., southwest corner of sec. 13, 3 miles southeast of Stod, at T road north; copper nail in telephone pole, painted "U. S. B. M. 1329.6".....	1, 328. 14
T. 135 N., R. 44 W., northeast corner of sec. 14, 2 miles east of Stod, 30 feet south by 50 feet west of crossroads; iron post stamped "1339".....	1, 337. 200
T. 135 N., R. 44 W., southwest corner of sec. 1, 3 miles northeast of Stod, at crossroads; copper nail in telephone pole, painted "U. S. B. M. 1377.5"....	1, 376. 13
T. 135 N., R. 44 W., near northeast corner of sec. 2, 4 miles northeast of Stod, 90 feet south by 70 feet east of T road west, 50 feet south of north edge of grove; copper nail in willow tree, painted "U. S. B. M. 1361.2".....	1, 359. 73
T. 136 N., R. 44 W., 0.2 mile west of northeast corner of sec. 35, 200 feet south by 20 feet west of crossroads; iron post stamped "1350 Minn".....	1, 348. 170
T. 136 N., R. 44 W., 0.2 mile west of northeast corner of sec. 26, 5 miles west of Pelican Rapids, 30 feet north by 10 feet east of T road south, on north side of granite boulder; chiseled ring painted "U. S. B. M. 1341.6".....	1, 340. 13
T. 136 N., R. 44 W., northeast corner of sec. 23, 6.3 miles northwest of Pelican Rapids, 140 feet west by 10 feet south of crossroads; copper nail in telephone pole, painted "U. S. B. M. 1376.4".....	1, 374. 96
T. 136 N., R. 44 W., 0.2 mile north of southwest corner of sec. 12, 7.7 miles northwest of Pelican Rapids, 20 feet south by 20 feet west of crossroads; iron post stamped "1320".....	1, 318. 965
T. 136 N., R. 44 W., southwest corner of sec. 1, 100 feet south by 15 feet west of T road east, 300 feet north of slough; copper nail in telephone pole, painted "U. S. B. M. 1318.8".....	1, 317. 34
T. 136 N., R. 43 W., southwest corner of sec. 6, at lane leading to Anstern Melby's house; copper nail in mail-box post, painted "U. S. B. M. 1384.3".....	1, 382. 83
T. 136 N., R. 43 W., southeast corner of sec. 6, 90 feet north by 10 feet west of crossroads; copper nail in telephone pole, painted "U. S. B. M. 1374.5".....	1, 373. 04

T. 136 N., R. 43 W., northwest corner of sec. 5, 25 feet south by 40 feet east of T road south; iron post stamped "Prim. Trav. Sta. No. 3, 1376 Minn. 1911".....	Feet. 1, 374.360
T. 137 N., R. 43 W., northeast corner of sec. 32, 30 feet west by 100 feet south of crossroads; copper nail in telephone pole, painted "U. S. B. M. 1424.1".....	1, 422.64
T. 137 N., R. 43 W., northeast corner of sec. 29, 30 feet west by 25 feet south of crossroads; copper nail in telephone pole, painted "U. S. B. M. 1409.0".....	1, 407.54
T. 137 N., R. 43 W., southeast corner of sec. 17, 60 feet north by 20 feet west of T road east; iron post stamped "1398".....	1, 396.678
T. 137 N., R. 43 W., center of sec. 17, at road leading to A. Seim's house; copper nail in fence prop, painted "U. S. B. M. 1408.8".....	1, 407.34
T. 137 N., R. 43 W., 0.2 mile north of south quarter corner of sec. 18, at turn in road; 35 feet south of road; copper nail in telephone pole, painted "U. S. B. M. 1398.3".....	1, 396.90
T. 137 N., R. 44 W., northeast corner of sec. 13, 35 feet west of John Thompson's mail box; iron post stamped "1428".....	1, 426.703
T. 137 N., R. 43 W., southwest corner of sec. 6, at crossroads; copper nail in corner fence post, painted "U. S. B. M. 1456.6".....	1, 455.10
T. 138 N., R. 43 W., southwest corner of sec. 31, 60 feet east by 30 feet north of crossroads; copper nail in telephone pole, painted "U. S. B. M. 1418.9".....	1, 417.47

PERHAM QUADRANGLE.

[Latitude, 46° 30'–46° 45'; longitude, 95° 30'–95° 45'.]

From Richville north via Becker County line to point near Frazee, thence southeast to Perham, thence southwest to Richville.

Richville, 0.7 mile northwest of, 25 feet south of tracks at crossing; copper nail in signpost, marked "1368.4".....	1, 366.91
Lake Marion; surface of water July 6, 1911.....	1, 337.6
Richville, 1.5 miles north of, near northwest corner of sec. 8, T. 135 N., R. 39 W., east side of road and Lake Marion; copper nail in telephone pole, marked "1343.5".....	1, 341.96
T. 135 N., R. 39 W., near northeast corner of sec. 5, 0.25 mile south of crossroads; copper nail in telephone pole, marked "1383.4".....	1, 381.91
T. 136 N., R. 39 W., east quarter corner of sec. 32, on east side of T road west; iron post stamped "1388".....	1, 386.375
T. 136 N., R. 39 W., west quarter corner of sec. 32; copper nail in corner fence post, marked "1383.8".....	1, 382.27
T. 136 N., R. 39 W., west quarter corner of sec. 29, at T road west; copper nail in corner fence post, marked "1393.2".....	1, 391.64
T. 136 N., R. 39 W., west quarter corner of sec. 20; iron post stamped "1383".....	1, 381.114
T. 136 N., R. 39 W., east quarter corner of sec. 18, at crossroads; copper nail in telephone pole, marked "1372.6".....	1, 371.05
T. 136 N., R. 39 W., east quarter corner of sec. 7, north of brick schoolhouse; copper nail in pole, marked "1380.4".....	1, 378.86
T. 136 N., R. 39 W., southeast corner of sec. 6; iron post stamped "1370".....	1, 368.672
T. 136 N., R. 39 W., northwest corner of sec. 5, at T road south; copper nail in pole, marked "1368.1".....	1, 366.55
T. 136 N., R. 39 W., northwest corner of sec. 4, on north side of road; copper nail in telephone pole, marked "1369.3".....	1, 367.80

	Feet.
T. 137 N., R. 39 W., west quarter corner between secs. 34, and at lane to east; copper nail in telephone pole, marked "1362.5".....	1, 361. 00
T. 137 N., R. 39 W., near north quarter corner of sec. 34, 200 feet east of bridge over Red River, on east side of road; iron post stamped "1348"....	1, 346. 202
Perham, 6.1 miles north of, at west quarter corner of sec. 27, T. 137 N., R. 39 W., 150 feet southwest of white schoolhouse (district 51), at T road east; copper nail in telephone pole, marked "1383.4".....	1, 381. 87
T. 137 N., R. 39 W., west quarter corner of sec. 22, on west side of road; copper nail in telephone pole, marked "1370.5".....	1, 368. 91
T. 137 N., R. 39 W., west quarter corner of sec. 15, on west side of road near John Rick's house; copper nail in telephone pole, marked "1374.8".	1, 373. 26
T. 137 N., R. 39 W., northwest corner of sec. 15, 0.5 mile south of white church, on east side of road; iron post stamped "1371".....	1, 369. 752
T. 137 N., R. 39 W., center of sec. 9, 175 feet northwest of schoolhouse (district 147), on west side of road; copper nail in telephone pole, marked "1391.8".....	1, 390. 24
T. 137 N., R. 39 W., 0.25 mile north of southwest corner of sec. 4, at T road west; copper nail in telephone pole, marked "1387.9".....	1, 386. 29
T. 138 N., R. 39 W., 0.25 mile northeast of southwest corner of sec. 33, in center of old road; chiseled square on granite rock, painted "1397.9"....	1, 396. 32
T. 138 N., R. 39 W., 0.25 mile east of northwest corner of sec. 34, at road leading to P. Schmidt's house, on south side of road; iron post stamped "1454".....	1, 452. 731
T. 138 N., R. 39 W., 0.25 mile east of northwest corner of sec. 35, east of gate leading to St. Germain's house; copper nail in root of pine tree, marked "1444.2".....	1, 442. 65
T. 138 N., R. 39 W., northeast corner of sec. 35, on west side of road, 200 feet south of T road west; copper nail in poplar tree, marked "1402.5"....	1, 400. 95
T. 137 N., R. 39 W., near northwest corner of sec. 1, 0.4 mile north of T road east, on east side of road; copper nail in root of poplar tree, marked "1401.4".....	1, 399. 82
T. 137 N., R. 39 W., near center of sec. 1, 20 feet west of State ditch, at south end of Dead Lake, on south side of road; iron post stamped "1381".....	1, 379. 906
T. 137 N., R. 38 W., northwest corner of sec. 6, in northwest corner of bridge over Toad River; copper nail marked "1381.3".....	1, 379. 78
T. 137 N., R. 38 W., northeast corner of sec. 6, at crossroads; copper nail in telephone pole, marked "1450.5".....	1, 449. 01
T. 137 N., R. 38 W., southeast corner of sec. 6, 300 feet northwest of schoolhouse (district 242), on west side of road, at corner of fence; copper nail in stake, marked "1443.6".....	1, 442. 10
T. 137 N., R. 38 W., near west quarter corner of sec. 8, in front of John Schmidt's house; iron post stamped "1427".....	1, 425. 725
T. 137 N., R. 38 W., near west quarter corner of sec. 17, 30 feet north of turn in road, on east side of road; copper nail in root of poplar tree, marked "1408.4".....	1, 406. 96
T. 137 N., R. 38 W., 0.25 mile north of center of sec. 20, 0.25 mile south of Red Eye road forks, near second-class road forks; copper nail in pine tree, marked "1398.8".....	1, 397. 37
T. 137 N., R. 38 W., center of sec. 19, at T road south; iron post stamped "1385".....	1, 383. 546
T. 137 N., R. 38 W., 80 rods north of south quarter corner of sec. 30, 70 feet west of road, on hill overlooking Pine Lakes; copper nail in oak tree, marked "1381.8".....	1, 380. 35

T. 137 N., R. 38 W., near southwest quarter corner of sec. 31, east side of road, at forks of road; copper nail in telephone pole, marked "1374.9".....	Feet. 1, 373. 46
T. 136 N., R. 39 W., in sec. 1, 30 feet south of George Robertson's saloon, at outlet of Little Pine Lake; iron post stamped "1338".....	1, 336. 651
T. 136 N., R. 39 W., northeast corner of sec. 11; copper nail in pole, marked "1363.0".....	1, 361. 62
T. 136 N., R. 39 W., north quarter corner of sec. 11, at crossroads; copper nail in pole, marked "1371.2".....	1, 369. 77
T. 136 N., R. 39 W., south quarter corner of sec. 11, at crossroads; copper nail in telephone pole, marked "1370.3".....	1, 368. 94
Perham, corner of Northern Pacific Ry. right of way and main east-west street, at rear of Louis Stuart's property; iron post stamped "1371".....	1, 369. 263
T. 136 N., R. 39 W., near southwest corner of sec. 13, at north side of crossing, east side of Northern Pacific Ry. tracks; copper nail in telegraph pole, marked "1363.4".....	1, 362. 01
T. 136 N., R. 39 W., in sec. 24, on north side of Ottertail River, at Schroeder's brewery, on west side of track at crossing; copper nail in telegraph pole, marked "1344.5".....	1, 343. 15
T. 136 N., R. 38 W., northwest corner of sec. 30, on west side of forks of road; iron post stamped "1341".....	1, 339. 731
T. 136 N., R. 38 W., near east quarter corner of sec. 30, on south side of Northern Pacific Ry. at crossing of public highway; copper nail in telegraph pole, marked "1364.4".....	1, 363. 04
T. 136 N., R. 38 W., northwest corner of sec. 32, 150 feet south of school-house (district 130); copper nail in corner fence post, marked "1353.75".....	1, 352. 41
T. 136 N., R. 38 W., southeast corner of sec. 31, on west side of road, near fence corner; iron post stamped "1347".....	1, 345. 293
T. 135 N., R. 38 W., southeast corner of sec. 6, west of crossroads; copper nail in scrub-oak tree, marked "1352.8".....	1, 351. 44
T. 136 N., R. 38 W., southwest corner of sec. 6, 125 feet southeast of school-house (district 13), on north side of east-west road, at crossroads; iron post stamped "1341".....	1, 339. 970
T. 135 N., R. 39 W., northeast corner of sec. 10, 100 feet southwest of crossroads; copper nail in corner fence post, marked "1338.3".....	1, 336. 99
T. 135 N., R. 39 W., southeast corner of sec. 3; iron post stamped "1370".....	1, 368. 352
T. 135 N., R. 39 W., northwest corner of sec. 14, in base of scrub-oak tree; copper nail, marked "1350.7".....	1, 349. 47
T. 135 N., R. 39 W., center of sec. 15, on south side of road; copper nail in oak tree, marked "1356.0".....	1, 354. 70
Richville, 75 feet north of station; iron post stamped "1354".....	1, 352. 923

From Richville northwest to Dent, thence north to Frazee, thence east along highway about 6 miles.

Richville, 1.5 miles northwest of, near west quarter corner of sec. 7, T. 135 N., R. 39 W.; copper nail in crossing sign, marked "1364.2".....	1, 362, 70
T. 135 N., R. 40 W., in sec. 12, 700 feet northwest of private crossing and house; copper nail in telegraph pole, marked "1360.9".....	1, 359. 40
T. 135 N., R. 40 W., near south quarter corner of sec. 2, at southeast corner of crossing of public highway; iron post stamped "1345".....	1, 343. 79
T. 135 N., R. 40 W., northwest corner of sec. 2, at crossing of public highway; copper nail in telegraph pole, marked "1362.3".....	1, 360. 78
Dent, 1,000 feet north of station, at railroad crossing, on east side of track; iron post stamped "1364".....	1, 362. 668

	Feet.
Dent, 1 mile northwest of, in sec. 28, T. 136 N., R. 40 W., at abandoned crossing; copper nail in telegraph pole, marked "1373.7"	1, 372. 20
T. 136 N., R. 40 W., near south quarter corner of sec. 9, at crossing of public highway, at east edge of right of way and edge of Jacob Rusch's land; iron post stamped "1364"	1, 362. 915
T. 136 N., R. 40 W., sec. 8, 600 feet north of private crossing, 0.25 mile north of wood spur; copper nail in pole, marked "1375.9"	1, 374. 44
T. 136 N., R. 40 W., in northwest part of sec. 5, 0.25 mile south of public road crossing, at private crossing; copper nail in crossing signal, marked "1380.3"	1, 378. 80
T. 137 N., R. 40 W., near center of sec. 32, 40 feet east of overhead railroad bridge, near Lake Sybil; iron post stamped "1366"	1, 364. 917
T. 137 N., R. 40 W., east quarter corner of sec. 33, at T road west; copper nail in telephone pole, marked "1368.3"	1, 366. 76
T. 137 N., R. 40 W., north quarter corner of sec. 34, 300 feet west of H. Plouman's mail box; copper nail in telephone pole, marked "1412.4" ..	1, 410. 90
T. 137 N., R. 40 W., northwest corner of sec. 35, at T road north; copper nail in telephone pole, marked "1362.3"	1, 360. 81
T. 137 N., R. 40 W., southwest corner of sec. 23, at T road south; copper nail in telephone pole, marked "1363.9"	1, 362. 37
T. 137 N., R. 40 W., 0.25 mile south of center of sec. 23, on west side of forks of road to Luce, near telephone pole; iron post stamped "1394" ..	1, 392. 501
T. 137 N., R. 40 W., southeast corner of sec. 14, at T road west; copper nail in telephone pole, marked "1361.2"	1, 359. 75
T. 137 N., R. 40 W., 0.25 mile east by 0.25 mile south of northwest corner of sec. 13, at T road north; copper nail in telephone pole, marked "1367.2" ..	1, 365. 69
T. 137 N., R. 40 W., near east quarter corner of sec. 11, at crossroads; iron post stamped "1378"	1, 376. 665
T. 137 N., R. 40 W., near southwest corner of sec. 1, at junction of north-south road and Northern Pacific Ry. right of way; copper nail in telephone pole, marked "1386.9"	1, 385. 46
T. 138 N., R. 40 W., in south part of sec. 35, at private crossing, on east side of track; copper nail in telegraph pole, marked "1393.2"	1, 391. 75
Frazee, 100 feet south by 100 feet west of station, in northeast corner of small park; iron post stamped "1399"	1, 397. 581
T. 138 N., R. 40 W., northwest corner of sec. 36, 150 feet north of F. Fogel's house, at forks of road; copper nail in telephone pole, marked "1410.6" ..	1, 409. 18
T. 138 N., R. 39 W., 0.25 mile east by 0.25 mile north of southwest corner of sec. 30, at T road north; copper nail in telephone pole, marked "1389.6"	1, 388. 15
T. 138 N., R. 39 W., 0.25 mile north by 0.25 mile east of southwest corner of sec. 29, at turn of road west; iron post stamped "1401"	1, 400. 054
T. 138 N., R. 39 W., southeast corner of sec. 29, on north side of road at T road south; copper nail in root of stump, marked "1392.1"	1, 390. 75

From point 2 miles west of Frazee to Frazee.

Frazee, 1.9 miles northwest of, near east quarter corner of sec. 28, T. 138 N., R. 40 W., at public crossing, on east side of track; copper nail in telegraph pole, marked "1398.2"	1, 397. 10
T. 138 N., R. 40 W., in sec. 27, 6 telegraph poles east of "1 mile to Frazee" sign, on north side of track; copper nail in pole, marked "1402.3"	1, 401. 19
Frazee, 100 feet south by 100 feet southwest of station, at northeast corner of small park; iron post stamped "1399"	1, 397. 581

ROTHSAY QUADRANGLE.

[Latitude, 46° 15'–46° 30'; longitude, 96° 15'–96° 30'.]

From northeast corner of sec. 32, T. 135 N., R. 44 W., to Rothsay.

T. 135 N., R. 44 W., 0.2 mile west of northeast corner of sec. 32, 30 feet south of road; iron post stamped "1279 Minn".....	Feet. 1,277.812
Rothsay, on cement step of east door on north side of brick creamery; chiseled point.....	1,197.03
Rothsay, First State Bank building corner of Second and Main streets; chiseled hole in step on south side (C. & G. S. b. m. G ₄).....	1,200.195

From northwest corner of sec. 8, T. 134 N., R. 44 W., north to Rothsay.

T. 134 N., R. 44 W., 40 feet south by 25 feet west of northwest corner of sec. 8; iron post stamped "1188".....	1,187.144
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UNDERWOOD QUADRANGLE.

[Latitude, 46° 15'–46° 30'; longitude, 95° 45'–96°.]

From point 3.3 miles east of Fergus Falls along Northern Pacific Ry. to Underwood, thence north along highways to point near corner of sec. 20, T. 135 N., R. 42 W.

Wall Lake, 0.6 mile west of, 40 feet south of railroad, in northwest corner of railroad right-of-way, at railroad crossing; iron post stamped "1257".....	1,255.457
Wall Lake, in front of station; top of rail.....	1,287.0
Underwood, 3.2 miles west of, 50 feet north of railroad, in southeast corner of T road; iron post stamped "1339".....	1,337.595
Underwood, 40 feet west of station, 20 feet south of railroad track, in small grass park; iron post stamped "1343".....	1,341.220
Underwood, 1 mile north of, at T road east, west side of road; paint spot on highest point of large rock.....	1,359.58
T. 133 N., R. 41 W., near center of sec. 20, 75 feet northwest of schoolhouse (district 109), in southeast corner of C. A Weaver's farm; iron post stamped "1347".....	1,345.839
Underwood, 3.5 miles north of, on concrete foundation of guidepost marked "Fergus Falls 12 miles, Underwood 3.5 miles, Phelps 6 miles"; chiseled square.....	1,339.80
Underwood, 5.6 miles north of, northwest corner of bridge over ditch that connects Lake Anna with Little Lake Anna; nailhead.....	1,324.24
T. 133 N., R. 41 W., near southwest corner of sec. 4, on east side of road; iron post stamped "1345".....	1,343.447
T. 133 N., R. 41 W., near northwest corner of sec. 4, 150 feet northwest of schoolhouse; iron bolt in root of elm tree.....	1,378.13
T. 134 N., R. 41 W., in sec. 31, on east side of road, at Y road between Lost Lake and Little Lost Lake; iron post stamped "1321".....	1,319.586
Wegland post office, 0.6 mile south of, on west side of road opposite lake; chiseled square on granite rock.....	1,338.08
Wegland, in front of post office; ground elevation.....	1,349.4
Wegland, 0.4 mile northeast of, in sec. 26, T. 134 N., R. 42 W., 60 feet north of north end of Wegland bridge over Ottertail River, in forks of road; iron post stamped "1313 Minn".....	1,311.200
T. 134 N., R. 42 W., 22 feet northeast of southwest corner of sec. 14; chiseled square on large granite rock.....	1,330.59
T. 134 N., R. 42 W., in south part of sec. 14, 17 feet south of road at Y road; chiseled square on top of large granite rock.....	1,396.15
T. 134 N., R. 42 W., 2 feet south of northeast corner of SE. $\frac{1}{4}$ sec. 14; iron post stamped "1372".....	1,370.304

T. 135 N., R. 41 W., 555 feet north of southwest corner of SE. $\frac{1}{4}$ sec. 31; iron post stamped "1363 Minn".....	Feet. 1, 361. 277
T. 135 N., R. 41 W., near southwest corner of NW. $\frac{1}{4}$ sec. 30, in northwest corner of crossroads; chiseled square on granite rock.....	1, 401. 68
T. 135 N., R. 42 W., 30 feet south of northeast corner of sec. 26; iron post stamped "1415".....	1, 413. 422
T. 135 N., R. 42 W., 20 feet south by 30 feet west of northeast corner of sec. 27, 270 feet west of schoolhouse; chiseled square on rock.....	1, 458. 13
T. 135 N., R. 42 W., near southeast corner of sec. 20, 30 feet north by 30 feet east of center of crossroads; iron post stamped "1439".....	1, 437. 224

From Underwood east along Northern Pacific Ry. 3.57 miles.

Underwood, 2 miles east of, 25 feet south of railroad, 20 feet west of wagon road at railroad crossing; highest point on granite rock.....	1, 343. 35
Underwood, 3.6 miles east of, 45 feet south of railroad, on right of way, 15 feet east of T road north; iron post stamped "1342".....	1, 340. 153

From point near northwest corner of sec. 20, T. 134 N., R. 40 W., east along highways to southwest corner of NW. $\frac{1}{4}$ sec. 30, T. 135 N., R. 41 W.

T. 134 N., R. 41 W., 330 feet west of southeast corner of sec. 1, on east side of road; iron post stamped "1332".....	1, 330. 114
T. 134 N., R. 41 W., 16.5 feet south by 650 feet east of northwest corner of sec. 3; iron post stamped "1337" (in forks of road).....	1, 336. 864
T. 135 N., R. 41 W., northwest corner of T road north, at Star Lake; spike in root of elm tree.....	1, 332. 74
Bridge at west end of Dead Lake.....	1, 331. 4
T. 135 N., R. 41 W., near northeast corner of SW. $\frac{1}{4}$ sec. 28, 1.2 miles north of Star Lake; spike in root of oak tree.....	1, 352. 68
T. 135 N., R. 41 W., near northeast corner of sec. 29; iron post stamped "Prim. Trav. Sta. No. 20, 1375".....	1, 374. 413
T. 135 N., R. 41 W., near southwest corner of NW. $\frac{1}{4}$ sec. 30, in northwest corner of crossroads; chiseled square on granite rock.....	1, 401. 683

At a point 6 miles northeast of Erharts.

T. 135 N., R. 42 W., northeast corner of sec. 20, at northeast corner of crossroads; iron post stamped "Prim. Trav. Sta. No. 4, 1436 Minn. 1910".....	1, 434. 419
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Near Star Lake.

T. 135 N., R. 41 W., 0.25 mile east of southwest corner of sec. 23; copper nail in signboard, marked "1359.4".....	1, 358. 01
T. 135 N., R. 41 W., northwest corner of sec. 27, at T road east; copper nail in telephone pole, marked "1349.0".....	1, 347. 67
T. 135 N., R. 41 W., near northeast corner of SE. $\frac{1}{4}$ sec. 28; spike in root of oak tree, marked "1353.3".....	1, 352. 68
T. 135 N., R. 41 W., 3.4 miles northwest of Star Lake, 0.2 mile south of northwest corner of sec. 21 (forks of road), on east side of road; copper nail in root of birch tree, marked "1360.6".....	1, 359. 18

From point near schoolhouse No. 80 northeast to corner of sec. 31, T. 134 N., R. 41 W.

T. 133 N., R. 42 W., northeast corner of NW. $\frac{1}{4}$ sec. 21, 15 feet west by 45 feet south of crossroads, 70 feet northeast of white church; iron post stamped "1326".....	1, 325. 082
T. 133 N., R. 42 W., in sec. 9, 15 feet east of road, in southwest corner of H. C. Biekke's barn, painted and marked with copper nail, marked "1368.3".....	1, 366. 92

T. 133 N., R. 42 W., southwest corner of sec. 4, at crossroads, in corner fence post, painted and marked with copper nail, marked "1326.9"....	Feet. 1, 325. 58
T. 133 N., R. 42 W., sec. 4, 20 feet east by 30 feet north of forks, in road near fence line; iron post stamped "1329".....	1, 327. 290
T. 133 N., R. 42 W., northeast corner of sec. 3, 850 feet east of schoolhouse No. 207, south side of road; chisel mark on rock, marked "1354.1".....	1, 352. 85
T. 134 N., R. 41 W., 50 feet north of southwest corner of sec. 31; highest point on granite rock, marked "1338.5".....	1, 337. 10
T. 134 N., R. 41 W., 35 feet northwest of southeast corner of sec. 31; highest point on granite boulder, marked "1370.0".....	1, 368. 60
T. 134 N., R. 41 W., 0.2 mile north of southwest corner of sec. 21; iron post stamped "1349".....	1, 347. 423

From southwest corner of sec. 4, T. 133 N., R. 41 W., to southeast corner of sec. 31, T. 134 N., R. 41 W.

T. 133 N., R. 41 W., near southwest corner of sec. 4, on east side of road; iron post stamped "1345".....	1, 343. 447
T. 133 N., R. 41 W., near northwest corner of sec. 4, 150 feet northwest of schoolhouse No. 182; spike in root of elm tree, marked "1379.6".....	1, 378. 08
T. 133 N., R. 41 W., northwest corner of sec. 4, 250 feet northwest of schoolhouse No. 182; iron post stamped "Prim. Trav. Sta. No. 27, 1379".....	1, 377. 407
T. 134 N., R. 41 W., 35 feet northwest of southeast corner of sec. 31; highest point on granite boulder, marked "1370.0".....	1, 368. 60

From northwest corner of sec. 4, T. 133 N., R. 41 W., north to northwest corner of sec. 3, T. 134 N., R. 41 W.

T. 133 N., R. 41 W., near northeast corner of sec. 3, 200 feet north of G. Randall's house, on north side of road; copper nail in telephone pole, marked "1361.0".....	1, 359. 64
T. 134 N., R. 41 W., southeast corner of SW. $\frac{1}{4}$ sec. 34, near crossroads; iron post stamped "1341".....	1, 339. 874
T. 134 N., R. 41 W., near northwest corner of sec. 35, on southwest corner of red bridge at Phelps's mill; copper nail marked "1324.5".....	1, 323. 08
Red River; surface of water June 7, 1911.....	1, 316. 0
T. 134 N., R. 41 W., near center of sec. 26, on south side of road; copper nail in telephone pole, marked "1343.5".....	1, 342. 07
T. 134 N., R. 41 W., northwest corner of NE. $\frac{1}{4}$ NW. $\frac{1}{4}$ sec. 26; copper nail in telephone pole, marked "1408.9".....	1, 407. 44
T. 134 N., R. 41 W., southeast corner of SW. $\frac{1}{4}$ SE. $\frac{1}{4}$ sec. 23; iron post stamped "1361".....	1, 359. 902
T. 134 N., R. 41 W., southeast corner of SW. $\frac{1}{4}$ sec. 22, 150 feet southeast of John Sherer's house; copper nail in telephone pole, marked "1425.5".....	1, 424. 03
T. 133 N., R. 41 W., near northwest corner of SW. $\frac{1}{4}$ sec. 22, on south side of road; spike at foot of basswood tree, marked "1395.3".....	1, 393. 83
T. 134 N., R. 41 W., near northwest corner of sec. 21, 500 feet north of L. Larson's house, on west side of road; copper nail in corner fence post, marked "1349".....	1, 347. 43
T. 134 N., R. 41 W., 1,000 feet east of northwest corner of sec. 16, 20 feet south of road, 100 feet west of J. Chapman's house; copper nail in root of tree, marked "1350.5".....	1, 348. 97
T. 134 N., R. 41 W., near northwest corner of sec. 15, 400 feet north of O. Bull's house on south side of road, painted "1360.3".....	1, 358. 80
T. 134 N., R. 41 W., 0.5 mile west of northwest corner of sec. 15, at foot of guide-board post; iron post stamped "1366".....	1, 364. 272
T. 134 N., R. 41 W., near southwest corner of SE. $\frac{1}{4}$ sec. 3; spike in base of telephone pole, marked "1340.8".....	1, 339. 270

WENDELL QUADRANGLE.

[Latitude, 46°-46° 15'; longitude, 96°-96° 15'.]

From point 2.5 miles west of Hereford, south to sec. 10, T. 129 N., R. 44 W.

Hereford, 2.5 miles west of, 30 feet south of Great Northern Ry., 0.5 mile west of grade crossing at the right-of-way line, west side of private road crossing; iron pipe (C. & G. S. b. m. C ₂).....	Feet. 1, 028. 695
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From point 2.5 miles west of Hereford along highway west 2.5 miles, thence north 15.5 miles, thence east 1 mile, thence north 2 miles, thence east to point 0.7 mile east of Dayton dam, thence southwest to sec. 1, T. 131 N., R. 44 W., thence south 10.5 miles and east to Wendell, thence south 1.2 miles.

T. 130 N., R. 44 W., in southeast corner of sec. 31, 15 feet west and 25 feet north of center of crossroads; iron post stamped "1013".....	1, 011. 998
T. 130 N., R. 44 W., in southeast corner of sec. 18, 50 feet west by 35 feet north of center of crossroads; iron post stamped "1019".....	1, 018. 044
T. 131 N., R. 44 W., in southeast corner of sec. 31, 30 feet north by 30 feet west of center of crossroads; iron post stamped "1028".....	1, 026. 991
T. 131 N., R. 44 W., in southwest corner of sec. 17, 25 feet north by 25 feet east of center of crossroads; iron post stamped "1044".....	1, 042. 155
T. 132 N., R. 44 W., southeast corner of sec. 31, 15 feet north by 35 feet west of center of T road south; iron post stamped "1049".....	1, 047. 355
T. 132 N., R. 44 W., in southeast corner of sec. 20, 20 feet west by 25 feet north of center of crossroads, in southeast corner of school lot; iron post stamped "1061".....	1, 059. 886
T. 132 N., R. 44 W., in southeast corner of sec. 23, 30 feet west by 20 feet north of center of crossroads; iron post stamped "1088".....	1, 087. 033
Dayton dam, north side of, in concrete masonry work, top of; third bolt from east end.....	1, 111. 143
T. 132 N., R. 43 W., at quarter corner north side of sec. 32, 60 feet northwest of residence of C. A. Littson, 150 feet southwest of schoolhouse at T road north; iron post stamped "1171".....	1, 169. 445
T. 131 N., R. 44 W., at quarter corner east side of sec. 1, 30 feet west by 30 feet south of center of intersection of T road south; iron post stamped "1126".....	1, 124. 610
T. 131 N., R. 43 W., in southwest corner of sec. 19, 35 feet north by 20 feet east of center of crossroads; iron post stamped "1114".....	1, 112. 736
T. 131 N., R. 43 W., in southwest corner of sec. 30, 240 feet southwest of farmhouse, in base of small box-elder tree; spike.....	1, 129. 55
T. 130 N., R. 43 W., in southwest corner of sec. 6, 25 feet east by 25 feet north of center of crossroads; iron post stamped "1124".....	1, 122. 501
T. 130 N., R. 43 W., in northwest corner of sec. 30, 20 feet west of center of intersection with T road east, on east side of Ash Lake; iron post stamped "1080".....	1, 078. 625
Wendell, in northwest corner of public-school lot, 100 feet northwest of school building; iron post stamped "1151".....	1, 149. 368
Wendell, 1.8 kilometers south of, 3.5 kilometers east of Hereford, 25 meters north of railroad, at right of way, west highway line, and southeast corner of meadow belonging to Arthur Smith; iron post (C. & G. S. b. m. B 2).....	1, 128. 712

From southeast corner of sec. 20, T. 132 N., R. 44 W., north along highways to southwest corner of sec. 10, T. 132 N., R. 44 W.

T. 132 N., R. 44 W., in southeast corner of sec. 20, 20 feet west by 25 feet north of center of crossroads, in southeast corner of school lot; iron post stamped "1061".....	1, 059. 886
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T. 132 N., R. 44 W., 30 feet south by 25 feet east of southwest corner of sec. 10; iron post stamped "1094"..... Feet.
1, 092. 569

From point 1.2 miles south of Wendell along highways to north quarter corner of sec. 32, T. 132 N., R. 43 W.

T. 130 N., R. 43 W., northeast corner of sec. 34, 25 feet south by 25 feet west of center of line of travel at crossroads; iron post stamped "1118"..... 1, 116. 724

T. 130 N., R. 43 W., northwest corner of sec. 14, 25 feet south by 25 feet east of center of line of travel at crossroads; iron post stamped "1148"..... 1, 146. 158

T. 131 N., R. 43 W., northeast corner of sec. 34, 30 feet south by 20 feet west of center of line of travel at crossroads; iron post stamped "1146"..... 1, 144. 756

T. 131 N., R. 43 W., northwest corner of sec. 14, 15 feet east by 30 feet south of center of line of travel at crossroads; iron post stamped "1192"..... 1, 190. 882

T. 132 N., R. 43 W., 0.2 mile north of southeast corner of sec. 35, 15 feet north of road, near fence line; iron post stamped "1256"..... 1, 254. 848

T. 132 N., R. 43 W., north quarter corner of sec. 32, 60 feet northwest of C. A. Littson's, 150 feet southwest of schoolhouse at T road north; iron post stamped "1171"..... 1, 169. 455

From point 2.1 miles south of Fergus Falls to point one-fourth mile south of northeast corner of sec. 27, T. 132 N., R. 43 W.

Fergus Falls, 3.8 miles southeast of, 100 feet east of slough, 50 feet east of road, northwest corner of pasture owned by C. M. Anderson; iron post stamped "1170 Minn"..... 1, 168. 376

Anoka and White Bear quadrangles.

ANOKA, HENNEPIN, AND RAMSEY COUNTIES.

The elevations in the following list are based on various bench marks of the Mississippi River Commission in this locality. The elevation of the bench mark in the west end of doorsill at south entrance to basement of courthouse at St. Paul, Minn., which is a copper bolt marked "U. S. P. B. M. 72," is taken as 779.779 feet above mean sea level.

The leveling was done in 1899 by D. C. Wray.

WHITE BEAR QUADRANGLE.

[Latitude, 45°-45° 15'; longitude, 93°-93° 15'.]

From St. Paul north along Rice Street, thence east along roads to White Bear, thence south to St. Paul.

T. 29 N., R. 22 W., northwest corner of sec. 6; iron post stamped "St. P. 924"..... Feet.
924. 602

White Bear, in northwest corner of Catholic Church yard; iron post stamped "932 St. P."..... 933. 286

From White Bear north along highway to center of T. 32 N., R. 22 W., thence southwest to Minneapolis.

Centerville, at southeast corner of cemetery; iron post stamped "909 St. P." 909. 826

T. 32 N., R. 22 W., sec. 28, at southeast corner of schoolhouse yard (district 9), east side of road; iron post stamped "909 St. P."..... 909. 722

T. 31 N., R. 23 W., crossroads, 0.25 mile north of southeast corner of sec. 26; iron post stamped "910 St. P."..... 910. 921

T. 30 N., R. 23 W., in southeast corner of sec. 17, 1.5 miles north of New Brighton, at junction of road east with north-south road; iron post stamped "913 St. P."	Feet. 913. 539
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From Findley east to and north along Central Avenue to T. 32 N., R. 23 W., sec. 20.

T. 32 N., R. 23 W., center of sec. 20, at forks of Central Avenue and Anoka roads; iron post stamped "905 St. P."	905. 501
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ANOKA QUADRANGLE.

[Latitude, 45°-45° 15'; longitude, 93° 15'-93° 30'.]

Bench mark east of Findley.

T. 30 N., R. 24 W., 0.2 mile west of center of sec. 14, east corner of school yard; iron post stamped "858 St. P."	858. 565
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From T. 32 N., R. 23 W., west and south to Powell.

T. 32 N., R. 24 W., near center of sec. 26; on west line of schoolhouse yard, 50 feet north of east-west road; iron post stamped "891 St. P."	891. 757
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T. 31 N., R. 24 W., quarter corner north side of sec. 16, at southwest corner of crossroads; iron post stamped "869 St. P."	869. 951
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From Anoka north 4 miles, thence southwest to river.

T. 32 N., R. 25 W., northwest corner of sec. 26, 50 feet east of crossroads; iron post stamped "892 St. P."	893. 061
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From Anoka west along highway to Dayton, thence south to Rockford Road, thence east to Robinsdale, thence north to Anoka.

T. 120 N., R. 22 W., southeast quarter of sec. 17, in southwest corner of town hall of Dayton township; iron post stamped "912 St. P."	912. 805
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T. 119 N., R. 22 W., near center of sec. 27, in southeast corner of school yard, northwest corner of crossroads; iron post stamped "942 St. P."	943. 272
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T. 118 N., R. 22 W., on north-south quarter line of sec. 14, at northeast corner of German Lutheran churchyard, 300 feet north of Rockford Road; iron post stamped "943 St. P."	943. 795
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Robinsdale, on south line of Village Hall; iron post stamped "879 St. P." ..	880. 027
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T. 119 N., R. 21 W., 0.25 mile east of southwest corner of sec. 21, in northwest corner of yard of Brooklyn town hall; iron post stamped "879 St. P." ..	879. 248
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T. 120 N., R. 21 W., quarter corner south side of sec. 30, northwest corner of school yard, east side of Champlain and Anoka roads; iron post stamped "883 St. P."	883. 850
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Minnetonka and Mayer quadrangles.

CARVER AND HENNEPIN COUNTIES.

The elevations in the following list are based on bench marks of the Mississippi River Commission through leveling on the Anoka quadrangle.

The leveling was done in 1905 by H. Bucher.

MINNETONKA QUADRANGLE.

[Latitude, 44° 45'-45°; longitude, 93° 30'-93° 45'.]

From German Lutheran Church in sec. 14, T. 118 N., R. 22 W., southwest to point about 1 mile east of town of Wayzata and return.

T. 118 N., R. 22 W., 0.2 mile north of southeast corner of sec. 30, at southwest corner of crossroads, between two mail-box posts; iron post stamped "996 Adj. 1903"	Feet. 995. 553
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From Wayzata west along railroad and highway to sec. 34, T. 118 N., R. 24 W., thence southwest to St. Bonifacius.

	Feet.
Ferndale station, Great Northern Ry., 50 feet east of station; top of rail..	983.9
Long Lake station, at crossing; top of rail.....	988.3
Long Lake station, on east side of wagon road, 20 feet north of track, 5 feet west of large telegraph pole; iron post stamped "989 Adj 1903".....	988.077
T. 118 N., R. 23 W., northwest corner of sec. 32, 0.2 mile from crossroads, on north side of Great Northern Ry., at northeast corner, 28 feet east of fence corner, 1 foot south of fence; iron post stamped "997 Adj 1903"..	996.089
T. 118 N., R. 24 W., 0.1 mile east of northwest corner of sec. 35, at northwest corner of lawn of F. O. Johnson, in large white boulder on south side of road; aluminum tablet stamped "1024 Adj 1903".....	1,023.174
T. 117 N., R. 24 W., 0.3 mile north of southwest corner of sec. 3, on north side of road, at northeast corner of crossroads, 10 feet west of large elm; iron post stamped "968 Adj 1903".....	967.707
T. 117 N., R. 24 W., northwest corner of sec. 17, at southwest corner of crossroads, 5 feet from fence corner; iron post stamped "967 Adj 1903"..	966.125
T. 117 N., R. 24 W., 0.3 mile north of southwest corner of sec. 32, 0.6 mile south of St. Bonifacius, on east side of road, at southwest corner of Thomas Kohlman's yard, primary traverse post No. 7; iron post stamped "960 Adj 1903".....	959.095

From St. Bonifacius east along highway and railroad to Excelsior, thence north to Wayzata.

T. 116 N., R. 24 W., northwest corner of sec. 3, at southeast corner of road intersection, 10 feet south of guidepost at corner; iron post stamped "1005 Adj 1903".....	1,004.168
T. 116 N., R. 24 W., 0.3 mile north by 0.1 mile west of southeast corner of sec. 1, at southeast corner of schoolhouse, on north side of road, at intersection; iron post stamped "1020 Adj 1903".....	1,019.055
Eureka station, 400 feet northeast of, in lower upright stone of stone culvert under fill, at west corner; aluminum tablet stamped "957 Adj 1903"...	956.157
Excelsior schoolhouse, in top row of masonry of west wall, 4 feet north of southwest corner of building; aluminum tablet stamped "973 Adj 1903"..	972.495
T. 117 N., R. 23 W., 0.1 mile north of southeast corner of sec. 24, in northeast corner of Deephaven schoolhouse grounds, south of north fence and 3 feet west of northeast corner; iron post stamped "984 Adj 1903".....	983.712
Northome, road crossing; top of rail.....	939.0
Breezy Point, road crossing; top of rail.....	953.4
T. 117 N., R. 22 W., 0.1 mile south of northeast corner of sec. 18, on west side of road, 22 feet north of track of Chicago, Milwaukee & St. Paul Ry., 22 feet east of cattle-guard fence, 9 feet northwest of crossing post; iron post stamped "964 Adj 1903".....	963.742

From Excelsior south along highway to Shakopee, thence west along railroad, thence north to St. Bonifacius.

T. 116 N., R. 23 W., 300 feet south of northeast corner of sec. 1, on west side of road, primary traverse point No. 3; iron post stamped "Prim. Trav. Sta. No. 3, 957 Adj 1903".....	956.908
Chanhassen, in masonry abutment wall around St. Rupert's Church, 17 feet south of end of wall at church step, 6 feet north of gateway to garden; aluminum tablet stamped "976 Adj 1903".....	975.293

T. 116 N., R. 23 W., 0.1 mile north by 0.1 mile east of west quarter corner of sec. 36, 15 feet north of Minneapolis & St. Louis R. R., 100 feet west of railroad bridge over wagon road, primary traverse No. 4; iron post stamped "815 Adj 1903".....	Feet. 814. 850
Shakopee, in masonry foundation of east wing of courthouse, 14 feet south of northeast corner of wing; aluminum tablet stamped "792 Adj 1903" ..	791. 411
Chaska, 40 feet west of station, 15 feet north of track of Minneapolis & St. Louis R. R., Prim. Trav. Sta. No. 5; iron post stamped "728 Adj 1903" ..	727. 981
T. 115 N., R. 23 W., SE. $\frac{1}{4}$ sec. 18, Carver station, on Chicago, Milwaukee & St. Paul R. R., on west side of public road, 20 feet south of main track, 4.5 feet south of crossing; iron post stamped "815 Adj 1903"	814. 635
T. 115 N., R. 24 W., 0.1 mile south of northeast corner of sec. 15, on east side of public road, 34 feet south of Chicago, Milwaukee & St. Paul R. R. track, 18 feet west of fence; iron post stamped "981 Adj 1903"	980. 535
T. 115 N., R. 24 W., southwest corner of sec. 9, at northeast corner of crossroads, 3 feet north of and 1.5 feet west of fence; iron post stamped "933 Adj 1903"	932. 578
T. 116 N., R. 24 W., 0.2 mile west of southeast corner of sec. 34, southeast corner of crossing at Augusta station, on Chicago, Milwaukee & St. Paul R. R., 1 foot northwest of fence and 11 feet southwest of fence corner; iron post stamped "982 Adj 1903"	981. 926
T. 116 N., R. 24 W., 0.1 mile north of south quarter corner of sec. 21, on east side of road, 34 feet south of private road west to house of F. J. Poppler, 1 foot west of fence and 14 feet north of 30-inch cottonwood tree; iron post stamped "1019 Adj 1903"	1, 018. 494

MAYER QUADRANGLE.

[Latitude, 44° 45'-45"; longitude, 93° 45'-94°.]

T. 116 N., R. 24 W., 0.1 mile west of north quarter corner of sec. 18, at southwest corner of grounds of Swedish Baptist Church, at northeast corner of road intersection, on line of fence, on east side of road; iron post stamped "1012 Adj 1903"	1, 011. 073
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Elk River and Rockford quadrangles.**HENNEPIN AND WRIGHT COUNTIES.**

The elevations in the following list are based on the precise leveling of the Mississippi River Commission through leveling on Minneapolis and Lake Minnetonka quadrangles; no connection was made at Dayton.

The leveling was done in 1907 by E. M. Bandli.

ROCKFORD QUADRANGLE.

[Latitude, 45°-45° 15'; longitude, 93° 30'-93° 45'.]

From point near Maple Plain northwest along highway and north to schoolhouse at northeast corner of sec. 15, T. 119 N., R. 24 W., thence east to sec. 25, T. 119 N., R. 23 W., thence south to sec. 30, T. 118 N., R. 23 W.

T. 118 N., R. 23 W., in northwest corner of sec. 32, 0.2 mile from crossroads, on north side of Great Northern Ry., 28 feet east of fence corner, 1 foot south of fence; iron post stamped "997 Adj 1903"	Feet. 996. 065
Maple Plain, T. 118 N., R. 24 W., near center of sec. 25, just west of station; railroad crossing, top of north rail	1, 012. 5

Armstrong, T. 118 N., R. 24 W., near west center of sec. 23, at road crossing; top of south rail of Great Northern R.R.	Feet. 985. 6
T. 118 N., R. 24 W., south center of sec. 4, 1 foot west of fence corner at southeast corner of crossroads; iron post stamped "1034"	1, 033. 527
T. 119 N., R. 24 W., east center of sec. 28, northwest corner of crossroads, 1 foot east of southeast corner of schoolhouse; iron post stamped "1035"	1, 034. 401
T. 119 N., R. 24 W., near northeast corner of sec. 15, southwest corner of crossroads, 1 foot from northeast corner of schoolhouse; iron post stamped "996"	995. 772
T. 119 N., R. 23 W., near north center of sec. 18, Buschville, 90 feet west of southwest corner of crossroads, at corner of lane fence; iron post stamped "1011"	1, 011. 271
Corcoran, at Town Hall, T. 119 N., R. 23 W., near east center of sec. 16, in southeast corner of crossroads, 1 foot north by 1 foot east of; iron post stamped "1027"	1, 028. 107
T. 119 N., R. 23 W., east center of sec. 25, southeast corner of T road, 1 foot from fence, 6.5 feet south of corner; iron post stamped "979"	978. 895
Hamel, T. 118 N., R. 23 W., near southeast corner of sec. 12; 50 feet north of Soo Line track and a few rods from station; iron post stamped "986"	985. 582
T. 118 N., R. 22 W., near east center of sec. 30, northwest corner of T road intersection; iron post stamped "Prim. Trav. Sta. No. 2, C. R. 998, 1904."	1, 001. 524
From sec. 15, T. 119 N., R. 24 W., northwest and north to sec. 33, T. 121 N., R. 24 W., thence east to schoolhouse in sec. 31, T. 121 N., R. 23 W.	
T. 120 N., R. 24 W., northeast corner of sec. 4, in southeast corner of road intersection, 2 feet north from southeast corner fence post; iron post stamped "996"	995. 463
T. 120 N., R. 24 W., north center of sec. 29, 10 feet east by 4 feet north of crossroads, near northeast corner fence post in northeast corner of T road intersection; iron post stamped "998"	996. 938
T. 120 N., R. 24 W., near west center of sec. 9, in northeast corner of T road intersection, 5 feet south of southeast corner of schoolhouse, 1.5 feet east of southeast corner of hall; iron post stamped "963"	962. 726
T. 121 N., R. 24 W., center of sec. 33, opposite T road intersection; iron post stamped "Prim. Trav. Sta. No. 10 974"	973. 771
T. 121 N., R. 24 W., near southeast corner of sec. 35, in northwest corner of road crossing, 8 feet north of northwest corner fence post and 2 feet east of fence, in Great Northern R.R. right of way; iron post stamped "961"	959. 924
T. 121 N., R. 23 W., NE. $\frac{1}{4}$ sec. 31, south side of schoolhouse, 3 feet east by 1 foot north of southeast corner of projecting entrance of hall; iron post stamped "950"	957. 830
From Dayton south along highway to sec. 25, T. 119 N., R. 23 W.	
Dayton, west of, T. 121 N., R. 23 W., east center of sec. 36, at northeast corner of bridge across Crow River, 6 feet west of lamp-post; aluminum tablet stamped "864"	863. 767
T. 120 N., R. 23 W., southwest corner of sec. 30, 3 feet north of telegraph pole, east of T road, south of Great Northern R. R.; iron post stamped "958"	958. 157
T. 119 N., R. 23 W., east center of sec. 12, 3 feet northwest of southwest corner fence post, in southwest corner of crossroads; iron post stamped "939"	938. 051

ELK RIVER QUADRANGLE.

[Latitude, $45^{\circ} 15' - 45^{\circ} 30'$; longitude, $93^{\circ} 30' - 93^{\circ} 45'$.]

From sec. 31, T. 121 N., R. 23 W., east to Dayton.

T. 121 N., R. 23 W., southwest corner of sec. 26, 2 feet west of northeast corner fence post, at T road intersection; iron post stamped "880".....	Feet. 879. 407
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Center City and St. Croix Dalles quadrangles.

CHISAGO COUNTY.

The elevations in the following list are based upon P. B. M. 29A of the precise leveling of the Engineer Corps, United States Army, at the village of Wyoming, the elevation of which is 891.495 feet above mean sea level. From this point a double-rodged line of primary levels was run to Taylors Falls, the remainder of the work being based thereon. The bench marks in Wisconsin in the St. Croix Dalles quadrangle are given in Bulletin 570.

The leveling was done in 1897 by S. P. Connor.

CENTER CITY QUADRANGLE.

[Latitude, $45^{\circ} 15' - 45^{\circ} 30'$; longitude, $92^{\circ} 45' - 93^{\circ}$.]

From Chisago City east along Northern Pacific Ry. to Center City.

Chisago City, in southeast corner of station platform; copper nail.....	Feet. 922. 29
Center City, in southwest corner of station platform; copper nail.....	907. 30

ST. CROIX DALLES QUADRANGLE.

[Latitude, $45^{\circ} 15' - 45^{\circ} 30'$; longitude, $92^{\circ} 30' - 92^{\circ} 45'$.]

From Center City east along Northern Pacific Ry. to Taylors Falls.

Shafer, in front of station; top of rail.....	941. 1
T. 34 N., R. 19 W., SW. $\frac{1}{4}$ sec. 32, 100 feet west of railroad station at Shafer; iron post stamped "T F 941".....	942. 338
Franconia, in front of station; top of rail.....	910. 2
Taylors Falls, opposite east door of station; top of platform.....	799. 37
Taylors Falls, in front of station; top of rail.....	795. 6
Taylors Falls, northwest corner of Hotel Cocheco, in front wall; bronze tablet stamped "T F 757".....	758. 090
Taylors Falls, brick schoolhouse, 100 feet north of; bronze tablet in trap rock stamped "T F 890".....	891. 405
Taylors Falls, 100 feet south of Taylors Falls Bridge tollhouse, in top of stone; bronze tablet stamped "T F 713".....	714. 330
Taylors Falls, at boat landing, in flat trap rock; bronze tablet stamped "T F 703".....	704. 187
Taylors Falls, southwest corner of street north of Inter-State Park office, in stone; bronze tablet stamped "T F 743".....	744. 105
T. 35 N., R. 19 W., E. $\frac{1}{4}$ sec. 34, in front of Daubney's house, iron post stamped "T F 773".....	774. 027

Wahpeton quadrangle.

WILKIN COUNTY.

The elevations in the following list were determined by primary leveling. The elevations of two bench marks of this list were determined by the Coast and Geodetic Survey in 1906 and the list corrected to accord with the 1912 adjustment. The correction to Bulletin 469 elevations in this quadrangle in North Dakota is 1.435 feet to be subtracted.

The leveling was done in 1902 by W. R. Saxton.

WAHPETON QUADRANGLE.

[Latitude, $46^{\circ}46'30''$; longitude, $96^{\circ}30'97''$.]

From Breckenridge northeast along highway and Great Northern Ry. grade to northeast corner sec. 31, T. 135 N., R. 46 W., thence west 7 miles, north 2 miles, and west to Enloe, N. Dak.

Breckenridge, west side of courthouse, in bottom step; bronze tablet stamped "966 W".....	Feet. 965.143
T. 133 N., R. 47 W., south side of sec. 35, at intersection of line between secs. 2 and 3; iron post stamped "967 W".....	966.777
T. 134 N., R. 47 W., northwest corner of sec. 6, on southeast corner of crossroads; iron post stamped "951 W" (on spur line).....	950.360
T. 135 N., R. 47 W., northwest corner of sec. 19, near a house on southeast corner of crossroads; iron post stamped "956 W".....	955.683

From Breckenridge south along section line 2 miles west of east side of R. 47 W. to south side of T. 131 N.

T. 131 N., R. 47 W., southeast corner of sec. 10, on northwest corner of crossroads; iron post stamped "969 W" (redetermined by Coast and Geodetic Survey).....	968.881
T. 130 N., R. 47 W., northeast corner of sec. 3, at northwest corner of crossroads; iron post stamped "971 W" (redetermined by Coast and Geodetic Survey).....	970.113

Aitkin, Brainerd, Cross Lake, Cuyuna, Deerwood, McGregor, Seavey, and Wealthwood quadrangles.

AITKIN AND CROW WING COUNTIES.

The elevations in the following list were determined by primary leveling and are based on United States Corps of Engineers bench marks corrected to agree with the Coast and Geodetic Survey 1912 adjustment of precise leveling.

The work was done in 1912 by J. M. Ray and E. C. Bibbee.

AITKIN QUADRANGLE.

[Latitude, $46^{\circ}30'46''45''$; longitude, $93^{\circ}30'93''45''$.]

From Aitkin east along Great Northern Ry. to point 4 miles east of Rosburg.

Aitkin, in cultivated field 0.5 meter (1.5 feet) west of fence, on west side of street leading to wagon bridge over Mississippi River, 11 meters (36 feet) south of fence corner on property of Hodgden and McDonald, and about 75 meters (246 feet) back from left bank of river; cap of iron pipe over M. R. C. b. m. 328.2.....	Feet. 1,201.232
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Aitkin, 16 feet south of northwest corner of C. G. Peterson Mercantile Co.'s store, 116 feet south of Northern Pacific Ry. station; chiseled square on curbstone.....	Feet. 1, 210. 66
Aitkin, 1 mile east of, 25 feet north of railroad, 12 feet west of property line at railroad crossing; spike in base of telegraph pole.....	1, 224. 06
Aitkin, 2 miles east of, 20 feet north of railroad, 60-foot west of private crossing, near telegraph pole at residence of L. Strum; highest point on granite rock.....	1, 225. 43
Aitkin, 3.1 miles east of, on west side of public road, 40 feet north of railroad, 6 feet southeast of property corner; iron post stamped "1235 Minn".	1, 234. 464
Aitkin, 4.1 miles east of, 25 feet north of railroad, 25 feet west of private road at railroad crossing; spike in base of telegraph pole.....	1, 225. 12
Aitkin, 5.1 miles east of, 1 mile west of Rossburg, opposite sign post marked "Rossburg Station 1 mi."; spike in base of telegraph pole.....	1, 230. 36
Rossburg, 100 feet east of station, 40 feet south of railroad, 12 feet west of road; iron post stamped "1240 Minn".....	1, 239. 932
Rossburg, 1.1 miles east of, 20 feet south of railroad and 10 feet east of east line of road at railroad crossing; spike in base of telegraph pole.....	1, 251. 83
North rail, directly over the tunnel crossing of the Minneapolis, St. Paul & Sault Ste. Marie Ry.....	1, 249. 1
Rossburg, 2 miles east of, 30 feet north of railroad, 25 feet west of private crossing, 0.5 mile north of Longfellow schoolhouse; spike in base of telegraph pole.....	1, 241. 12
Rossburg, 3.1 miles east of, 20 feet south of railroad, 80 feet west of road at railroad crossing; spike in base of telegraph pole.....	1, 239. 22

From point 4 miles north of Waldeck west to Esquagamah Lake.

Waldeck, 4.9 miles northwest of, south side of road, 240 feet east of bridge over east fork of Little Willow River; spike in base of fence post.....	1, 222. 93
Lake Waukenabo; surface of water September 13, 1912.....	1, 221. 1
Waldeck, 5.6 miles northeast of, 10 feet south of trail, 100 feet south of Waukenabo Lake, at place where trail turns west; copper nail in root of elm tree.....	1, 224. 18
Waldeck, 6.6 miles northwest of, 10 feet south of trail; nail head in root of pine tree (Primary traverse station).....	1, 287. 24
Waldeck, 7.4 miles northwest of, 25 feet east of forks of trail northwest and southwest around Lake Esquagamah, near northeast corner of sec. 17, T. 49 N., R. 26 W.; iron post stamped "1263 Minn".....	1, 268. 002
Waldeck, 8.3 miles northwest of, 20 feet northwest of trail southwest around Lake Esquagamah and trail to east end of same; bolthead in root of pine tree blazed on south side (Primary traverse mark).....	1, 261. 37
Lake Esquagamah; surface of water September 17, 1912.....	1, 232. 55
Lake Esquagamah, 555 feet northeast of, 25 feet south of trail; copper nail in root of pine tree.....	1, 238. 43
Lake Esquagamah, 0.6 mile northwest of, in front of J. L. Swanson's residence; copper nail in top of stump.....	1, 253. 75

From Esquagamah Lake south to point 7.5 miles north of Pineknoll.

Lake Esquagamah, 0.3 mile south of, 225 feet north of Frank Seth's residence, near northeast corner of sec. 24, T. 49 N., R. 27 W.; iron post stamped "Prim. Trav. Sta. No. 22, 1261 Minn".....	1, 260. 620
Lake Esquagamah, 1.2 miles south of, 330 feet north of southwest corner of sec. 24, T. 49 N., R. 27 W.; copper nail in root of birch tree.....	1, 241. 14

Lake Esquagamah, 2.1 miles south of, in forks of trail southwest-southeast; copper nail in top of stump.....	Feet. 1, 247. 48
Lake Esquagamah, 2.6 miles south of, 150 feet west of "Lower dam" in west fork of Willow River, 20 rods south of northwest corner of sec. 31, T. 49 N., R. 26 W.; iron post stamped "1235 Minn".....	1, 235. 202
Lake Esquagamah, 3.5 miles southwest of, 0.9 mile west of "Lower dam" in fork of Willow River, in small clearing; copper nail in root of pine stump.....	1, 259. 39
Pineknoll, 11.8 miles northeast of, north side of trail, in root on south side of blazed stump; bolthead	1, 277. 52
Pineknoll, 11.1 miles northeast of, 5 feet south of trail, 1,950 feet east of Smith's old lumber camp; copper nail in top of stump.....	1, 297. 69
Pineknoll, 10.4 miles northeast of, north side of trail, at forks of road leading to G. R. Rice's old residence, 1,730 feet west of Smith's old lumber camp; nail in top of stump 2 feet in diameter.....	1, 285. 57
Pineknoll, 9.1 miles northeast of, south side of trail, in root on north side of large pine stump, blazed; bolthead	1, 281. 49
Pineknoll, 7.7 miles north of, 100 feet north of where the Esquagamah trail crosses the east line of Ross Lake township, 20 feet east of line; bolthead in root of 3-foot pine stump.....	1, 289. 98

From Aitkin southwest 3.3 miles.

Aitkin, 1.2 miles southeast of, on northeast corner of porch to Philip Watson's gin store; nail head.....	1, 240. 47
Aitkin, 1.7 miles south of, on Kimberly road, south side of road, 12 feet north of fence; iron post stamped "1268 Minn".....	1, 268. 061
Aitkin, 2 miles south of, west side of road at junction of Clear Lake road and Wealthwood old trail; spike in base of telephone pole.....	1, 246. 40
Aitkin, 3.3 miles south of, on Aitkin-Wealthwood road, west side, 2 feet east of fence, near northeast corner of sec. 1, T. 46 N., R. 27 W.; iron post stamped "1259 Minn".....	1, 259. 065

From point 1.8 miles west of Valparaiso northwest to point 2.4 miles southeast of Aitkin.

Valparaiso, 2.7 miles west of, southeast corner of T road south, 1,000 feet south to Jim Horton's residence; iron post stamped "1264 Minn".....	1, 264. 119
Aitkin, 4.2 miles southeast of, on Clear Lake road, northwest corner of T road north; bolthead in top of stump	1, 243. 66
Aitkin, 2.8 miles southeast of, southwest corner of T road south; spike in base of fence post.....	1, 270. 80

From Aitkin west along Northern Pacific Ry. to sec. 28, T. 47 N., R. 27 W.

Aitkin, at southwest corner of L on south side of Aitkin County courthouse, in second course of brick above foundation, 8 inches east of corner and 4 feet above ground; horizontal furrow in copper bolt, lettered "U. S. \ominus p. b. m." (Miss. R. Comm. b. m. courthouse)	1, 215. 211
Aitkin, 1 mile west of, 0.2 mile south of northeast corner of sec. 27, T. 47 N., R. 27 W.; opposite "Station 1 mile" sign; copper nail in telegraph pole, painted "U. S. B. M. 1219.4".....	1, 219. 26
Aitkin, 2 miles southwest of, 0.2 mile north of southwest corner of sec. 27, T. 47 N., R. 27 W., 500 feet south of Tom Finnerty's house and public highway, south side of track, 18 telegraph poles east of public crossing; copper nail in telegraph pole, painted "U. S. B. M. 1215.8".....	1, 215. 68

From Aitkin north 3.6 miles.

Aitkin, in cultivated field, 0.5 meter west of fence on west side of street leading to wagon bridge over Mississippi River, 11 meters south of fence corner on property of Hodgedon & MacDonald, 75 meters back from left bank of river; cap of iron post (over Miss. R. Comm. b. m. 328.2).....	Feet. 1, 201. 232
Aitkin, 1.5 miles north of, near west quarter corner of sec. 12, T. 47 N., R. 27 W., 1 mile north of bridge, 0.5 mile north of T road west, on east side of road; copper nail in telephone pole, painted "U. S. B. M. 1202.1"	1, 201. 96
T. 47 N., R. 27 W., southwest corner of sec. 1, 3 miles north of Aitkin, 150 feet north by 40 feet east of crossroads, 125 feet southwest of frame house, 15 feet east of road; iron post stamped "1203"	1, 202. 768
T. 47 N., R. 27 W., near southwest corner of sec. 2, 2 miles east of Pineknoll, 1.1 miles east of Little Willow bridge, 25 feet south of road, in clump of tamarack; copper nail in 5-inch tamarack, painted "U. S. B. M. 1203.3" ..	1, 203. 25

From point 6.3 miles northwest of Kimberly southwest to Aitkin.

Kimberly, 7.2 miles northwest of, east end of Lake Wilkins where road leaves lake shore, 50 feet south of lake, 12 feet south of trail; spike in root of 16-inch birch tree.....	1, 219. 86
Kimberly, 8.2 miles northwest of, 14 feet north of trail opposite old clearing; spike in root of birch tree	1, 232. 34
Aitkin, 13.1 miles northeast of, near southeast corner of T road east, opposite Gun Lake schoolhouse, near center of sec. 20, T. 48 N., R. 25 W.; iron post stamped "1236 Minn"	1, 236. 015
Aitkin, 12.2 miles northeast of, west side of road, at corner of fence, 325 feet north of Oscar Higman's residence; copper nail in top of pine stump ..	1, 224. 57
Aitkin, 11.2 miles northeast of, 14 feet south of road, in front of old barn, 250 feet east of old house; spike in root of white-pine stump	1, 244. 85
Aitkin, 10.4 miles northeast of, south side of road, 700 feet east of township line, 1,740 feet west of center of sec. 31, T. 48 N., R. 25 W.; iron post stamped	1, 214. 886
Aitkin, 9.8 miles northwest of; chiseled square on south abutment of concrete bridge over Rice River ditch.....	1, 207. 50
Aitkin, 8.8 miles northwest of, 15 feet south of road, 0.7 mile east of Rice River schoolhouse; spike in root of 3-foot pine stump.....	1, 210. 34
Aitkin, 8 miles northeast of, northeast corner of Rice River school yard, near northeast corner of SW. $\frac{1}{4}$ sec. 34, T. 48 N., R. 26 W.; iron post stamped "1207 Minn"	1, 206. 648
Aitkin, 7.1 miles northeast of, 12 feet north of road at lane leading to N. P. Villeneave's residence; bolt head in root of oak stump.....	1, 204. 90
Aitkin, 6.3 miles northeast of, 1,500 feet east of Philip Carty's residence, in center of north end of small bridge; nail head.....	1, 203. 96
Aitkin, 5.8 miles northwest of, north side of road, 2 feet south of fence corner, on west line of Philip Carty's farm, 1,300 feet west of residence, 0.2 mile southwest to northeast corner of sec. 8, T. 47 N., R. 26 W.; iron post stamped "1206 Minn"	1, 205. 293
Aitkin, 5.3 miles northeast of, 2 feet east of southeast corner of Lone Pine school yard; bolt head in root of stump.....	1, 206. 64
Aitkin, 4.5 miles northeast of, at T road south, on northeast corner of bridge; nail head.....	1, 203. 17
Aitkin, 4.1 miles northeast of, east side of public road, near southwest corner of sec. 8, T. 47 N., R. 26 W.; iron post (Miss. R. Comm., 1898, b. m.), U. S. G. S. value.....	1, 203. 079

Aitkin, 2.8 miles northeast of, southeast corner of bridge over small creek; bolt in side of leaning maple tree.....	Feet. 1, 204. 23
Aitkin, 2 miles northeast of, north side of road, 40 rods south of northeast corner of NW. $\frac{1}{4}$ sec. 19, T. 47 N., R. 26 W.; iron post stamped "Miss. R. Comm., 1898, b. m." stamped "1208 Minn.," U. S. G. S. value	1, 207. 809
Aitkin, 1.3 miles northeast of, 300 feet east of Taplin's residence, east side of road; highest point on granite rock.....	1, 212. 91

From Waldeck northeast, thence southeast to Palisade.

Waldeck, 1 meter (3 feet) west of east fence along State road on line with east-west fence, 4 meters (13 feet) north of Waldeck's house and post office, 30 meters (98 feet) northwest of house, 50 meters (164 feet) from right bank of river; cap on pipe (over Miss. R. Comm. b. m., Waldeck, 1898).....	1, 210. 913
Waldeck, 1 mile north of, 15 feet east of road at trail east, near northwest corner of SW. $\frac{1}{4}$ sec. 35, T. 49 N., R. 26 W.; highest point on granite rock	1, 221. 06
Waldeck, 2.1 miles north of, 20 feet east of road at trail leading west; bolt-head in root of elm tree.....	1, 221. 42
Waldeck, 2.9 miles north of, northwest corner of T road east, 400 feet east of northwest corner of sec. 26, T. 49 N., R. 26 W., 700 feet south to J. T. Welch's residence; iron post stamped "1227 Minn"	1, 226. 383
Waldeck, 4.1 miles north of, 180 feet north of intersection of T road west, on west side of road, 15 feet east of fence, near northwest corner of sec. 25, T. 49 N., R. 26 W.; iron post stamped "Prim. Trav. Sta. No. 23, 1259 Minn"	1, 258. 806
Waldeck, 5.2 miles north of, 0.8 mile south of Waukenabo post office, 10 feet north of southeast corner of crossroads; chiseled square on large granite rock.....	1, 246. 87
Waldeck, 6 miles northwest of, north side of road, 400 feet southwest of Russell Ellis's residence, 120 rods west of northeast corner of sec. 14, T. 49 N., R. 26 W.; iron post stamped "1240 Minn"	1, 239. 664
Waldeck, 6.6 miles northeast of, 15 feet north of trail, opposite small corduroy bridge, in root of pine tree blazed on south side; copper nail.....	1, 256. 75
Waldeck, 7.8 miles northeast of, 4 feet north of trail, in root on south side of blazed tree; copper nail.....	1, 243. 61
Palisade, 3.9 miles north of, 125 feet south of bridge P 285 Q, east side of railroad, near right of way, near northeast corner of sec. 7, T. 49 N., R. 25 W.; iron post stamped "1245 Minn"	1, 244. 800
Palisade, 2.9 miles north of, 25 feet north of old railroad crossing, 40 feet north of bridge P 284 Q; spike in base of telegraph pole	1, 232. 30
Palisade, 2.2 miles north of, east end of culvert under railroad, opposite William Woodcock's residence, culvert marked "P 283 Q"; copper nail..	1, 226. 94
Palisade, 1.1 miles north of, east side of west girder at northeast corner of iron bridge over Willow River, near southeast corner of sec. 16, T. 49 N., R. 25 W.; bolt-head on angle iron.....	1, 225. 59

From point 2 miles east of Rossburg south 4.4 miles.

Rosburg, 2 miles east of, at T road south, 10 feet south of signpost marked "Dam Lake 4 mi., Kimberly 4 mi.," 500 feet east of schoolhouse Longfellow, southeast corner of T road south, near northwest corner of sec. 30, T. 47 N., R. 25 W.; bolt-head in pine stump.....	1, 254. 71
Rosburg, 3.1 miles southeast of, south side of road, 2 feet north of fence, in front of old house; chiseled square on large granite rock.....	1, 268. 32

Rosburg, 4.4 miles southeast of, south side of road, southwest corner of	Feet.
T trail west; nail in top of stump.....	1, 260. 89
Rosburg, 4.9 miles southeast of, north side of road, opposite trail leading to Charley Johnson's residence; iron post stamped "1261 Minn"	1, 260. 287
Rosburg, 5.9 miles southwest of, 5 feet south of public road, 50 feet west of T road south to Long Lake; bolt head in root of oak stump.....	1, 238. 38

BRAINERD QUADRANGLE.

[Latitude, 46° 15'-46° 30'; longitude, 94°-94° 15'.]

From sec. 21, T. 46 N., R. 29 W., south to sec. 16, T. 45 N., R. 29 W.

T. 46 N., R. 29 W., center of sec. 21, 0.5 mile west of Woods, 15 feet north by 150 feet east of T road south; iron post stamped "1270"	1, 270. 581
T. 46 N., R. 29 W., 125 feet north of southeast corner of sec. 20, 1.5 miles southwest of Woods, 800 feet west of A. Johnson's house, in southeast corner of wooden bridge; copper nail painted "U. S. B. M. 1258.4"	1, 258. 44
T. 46 N., R. 29 W., southeast corner of sec. 29, 2.5 miles southwest of Woods, 50 feet west of section corner stake, lone pine witness tree, on west side of road; copper nail in root of tree painted "U. S. B. M. 1253.8"	1, 253. 86
T. 46 N., R. 29 W., 600 feet north of south quarter corner of sec. 32, 3.7 miles southwest of Woods, 200 feet north of Northern Pacific Ry. crossing, 200 feet south by 20 feet east of T road south; iron post stamped "1260" ..	1, 259. 893
T. 45 N., R. 29 W., near south quarter corner of sec. 5, 5.2 miles northwest of Nokay Lake, 500 feet north of quarter corner, 40 feet east of road, on small knoll; copper nail in fence post, painted "U. S. B. M. 1265.9"	1, 265. 94
T. 45 N., R. 29 W., in SW. $\frac{1}{4}$ sec. 8, 4.1 miles northwest of Nokay Lake, 1,000 feet west of W. T. Dalton's house, 500 feet west of T road north, at T road south, 10 feet northeast of gate, on south side of road; copper nail in pine tree, painted "U. S. B. M. 1261.7"	1, 261. 73
T. 45 N., R. 29 W., 0.2 mile west of northeast corner of sec. 17, 3.2 miles northwest of Nokay Lake, 900 feet east of schoolhouse, 25 feet south of road, in clump of pines; copper nail in pine tree, painted "U. S. B. M. 1259.2" ..	1, 259. 29
T. 45 N., R. 29 W., northeast corner of sec. 16, 1.7 miles northwest of Nokay Lake, at section corner, in center of road; iron post stamped "Prim. Trav. Sta. No. 5, 1256, 1912"	1, 256. 241

From Brainerd north to Merrifield.

Brainerd, in southeast corner of sanitarium (Northern Pacific Ry.) grounds, on right bank of river, at west end of Northern Pacific Ry. bridge over Mississippi River, 2 meters from east fence, 5 meters from south fence around sanitarium grounds; copper bolt in stone surmounted by iron pipe with cast-iron cap, lettered "U. S. E. B. M." (U. S. Engineers' bench mark), cap.....	1, 212. 025
Brainerd, 1.5 miles north of, 1 mile north of sanitarium, 0.3 mile north of creek, 30 feet north of forks in road; in root of jack pine tree, painted "U. S. B. M. 1165.1"; copper nail.....	1, 165. 05
Brainerd, 2.5 miles north of, near northwest corner of sec. 33, T. 134 N., R. 28 W., 0.4 mile south of schoolhouse, 30 feet north of forks in road; copper nail in 4-inch oak tree, painted "U. S. B. M. 1195.9"	1, 195. 86
T. 134 N., R. 28 W., near northwest corner of sec. 28, 3.7 miles north of Brainerd, 700 feet northeast of farmhouse (property of R. R. Wise), 30 feet west of turn in road, near gate; iron post stamped "1213"	1, 213. 204

T. 134 N., R. 28 W., near northeast corner of sec. 28, 4.6 miles north of Brainerd, 1.5 miles west of Minnesota & International Ry. crossing, 150 feet east of T road north, 15 feet north of road; copper nail in telephone pole, painted "U. S. B. M. 1211.3"	Feet. 1, 211. 26
T. 134 N., R. 28 W., near north quarter corner of sec. 27, 4 miles north of Brainerd, 70 feet east of crossroads; copper nail in 3-inch jack-pine tree, painted "U. S. B. M. 1229.9"	1, 229. 83
T. 134 N., R. 28 W., near center of sec. 23, 5.2 miles north of Brainerd, 0.4 mile northeast of Minnesota & International Ry. crossing, 30 feet east by 20 feet north of fork in road; iron post stamped "1229"	1, 228. 565
T. 134 N., R. 28 W., near southwest corner of sec. 14, 3.3 miles south of Merrifield, 70 feet west of public highway, on right of way of Minnesota & International Ry., 60 feet south of milepost 5; copper nail in telegraph pole, painted "U. S. B. M. 1204.0"	1, 203. 93
T. 134 N., R. 28 W., near west quarter corner of sec. 11, 2.1 miles south of Merrifield, 30 feet south by 20 feet west of T road west; copper nail in pine stump, painted "U. S. B. M. 1225.8"	1, 225. 78
Merrifield, 0.8 mile south of, south quarter corner of sec. 35, T. 135 N., R. 28 W., 10 feet north of gate, 20 feet west of road; iron post stamped "1221"	1, 220. 817
Merrifield, on west edge of right of way of Minnesota & International Ry., at east end of Long Lake, 12.5 meters west of center of track, 73 meters south of store end of post-office building belonging to E. Miles, 175 meters north of south end of Merrifield siding, 0.2 mile north of milepost 8 from Brainerd, 6 meters east of 16-inch jack pine bearing t.b.m. and 6 meters southeast of 18-inch Norway pine, both blazed with triangles facing pipe; tile and iron pipe (Miss. R. Comm. b. m.), cap on pipe.....	1, 219. 597

From Merrifield east to Mississippi River and return.

Merrifield, 1.2 miles east of, near center of sec. 36, T. 135 N., R. 28 W., 0.3 mile southwest of point where road strikes lake, 3 feet north of road; copper nail in root of 10-inch Norway pine, marked "1217.9"	1, 217. 76
Merrifield, 2.2 miles northeast of, near southwest corner of sec. 30, T. 135 N., R. 27 W., 0.3 mile west of Pine River Road, 20 feet east of gate; copper nail in corner fence post, marked "1218.2"	1, 218. 10
Merrifield, 2.6 miles northeast of, near south quarter corner of sec. 30, T. 135 N., R. 27 W., 15 feet south by 15 feet west of T road west; iron post stamped "1221"	1, 220. 488
Merrifield, 3.5 miles northeast of, near southeast corner of sec. 29, T. 135 N., R. 27 W., 0.9 mile west of Pine River Road, 40 feet south of forks in road, 4 feet south of road; copper nail in 10-inch Norway pine, marked "1215.5"	1, 215. 37
T. 135 N., R. 27 W., near south quarter corner of sec. 32, 4.6 miles southeast of Merrifield, 500 feet east of Dingman's house, at forks of road, near two small lakes, 2 feet north of road; copper nail in 5-inch jack-pine tree, marked "1211.6"	1, 211. 50
T. 134 N., R. 27 W., near east quarter corner of sec. 4, 5.9 miles east of Merrifield, 0.2 mile west of Robbin's house, at edge of cultivated field, 10 feet north of road; copper nail in 5-inch oak tree, marked "1224.5" ...	1, 224. 48
Merrifield, 6.3 miles east of, point near Robbin's house and about 400 feet west of river.....	1, 216. 66

Merrifield, 3 miles east of, near southeast corner of sec. 31, T. 135 N., R. 27 W., 0.9 mile east of Pine River Road, at small forks in road; copper nail in 4-inch pine tree, marked "1220.8"	Feet. 1, 220. 78
Merrifield, 2 miles east of, near southwest corner of sec. 31, T. 135 N., R. 27 W., 2 feet south by 30 feet east of crossroads; copper nail in root of 10-inch white-pine tree, marked "1217.5"	1, 217. 48
From Brainerd south and east to sec. 22, T. 44 N., R. 29 W.	
Brainerd, on top of high bank, 600 meters below lower wagon bridge over Mississippi River, 300 meters back from left bank of river, at corner of fence near southwest corner of Third and Quinn streets, 5 meters north of south line of Quinn Street; tile and pipe (Miss. R. Comm. p. b. m. 313 2), cap on pipe	1, 219. 272
Brainerd, 1.1 miles south of, near south quarter corner of sec. 25, T. 45 N., R. 31 W., 400 feet south of "Station one mile" sign, at Minnesota & International Ry. crossing; copper nail in telegraph pole, marked "1216.1"	1, 216. 02
Brainerd, 1.9 miles south of, 0.2 mile north of southeast corner of sec. 31, T. 45 N., R. 30 W., 0.3 mile north of crossroads, 700 feet south of bridge, 20 feet east of road; copper nail in telephone pole, marked "1226.6"	1, 226. 52
Brainerd, 2.8 miles south of, 0.4 mile north of southwest corner of sec. 6, T. 44 N., R. 30 W., 0.6 mile south of crossroads, 85 feet northwest of John Bouck's house, 30 feet east of road, in northwest corner of yard; iron post stamped "1252"	1, 251. 626
Brainerd, 3.8 miles south of, 0.4 mile north of southeast corner of sec. 12, T. 44 N., R. 31 W., 0.4 mile north of crossroads and schoolhouse, 30 feet west of road; copper nail in telephone pole, marked "1222.1"	1, 222. 06
T. 44 N., R. 31 W., 0.2 mile south of north quarter corner of sec. 13, 4.8 miles south of Brainerd, 0.6 mile southwest of schoolhouse, 0.3 mile southwest of forks, 2 feet east of road; copper nail in 4-inch jack-pine tree, marked "1271.5"	1, 271. 43
T. 44 N., R. 31 W., 0.2 mile east of southwest corner of sec. 13, 3 feet south by 50 feet east of crossroads, 2 feet north of old fence; iron post stamped "1277"	1, 277. 131
T. 44 N., R. 31 W., southeast corner of sec. 13, 5.2 miles south of Brainerd, at crossroads, copper nail in telephone pole, marked "1258.4"	1, 258. 32
T. 44 N., R. 31 W., southeast corner of sec. 24, 6.2 miles south of Brainerd, at T road east; copper nail in telephone pole, painted "U.S.B.M. 1246.7" ..	1, 246. 61
T. 44 N., R. 30 W., southeast corner of sec. 19, 15 feet north of crossroads, 2 feet south of fence line; iron post stamped "1264"	1, 263. 450
T. 44 N., R. 30 W., northeast corner of sec. 29, at crossroads; copper nail in telephone pole, painted "1277.6"	1, 277. 48
T. 44 N., R. 30 W., southeast corner of sec. 29, 9.3 miles southeast of Brainerd, 20 feet north by 30 feet west of crossroads; copper nail in telephone pole, painted "1272.2"	1, 272. 10
T. 44 N., R. 30 W., northeast corner of sec. 33, 30 feet south by 30 feet west of crossroads; iron post stamped "Prim. Trav. Sta. No. 29, 1236, 1912" ..	1, 235. 586
T. 44 N., R. 30 W., 500 feet south of center of sec. 27, 600 feet south of T road east, on bridge over Mississippi River; copper nail in northwest corner, marked "1195.9"	1, 195. 77
Long Lake; surface of water October 2, 1912	1, 191. 3
T. 44 N., R. 30 W., near center of sec. 26, 200 feet east of old trail, 200 feet southeast of deserted log cabin, 900 feet east of John Fitzpatrick's house, 25 feet north of road; copper nail in telephone pole, marked "1229.3" ..	1, 229. 22

T. 44 N., R. 30 W., 1,000 feet southeast of northwest corner of sec. 25, 600 feet northwest of S. H. Arrhos's house, 600 feet west of turn in road, 45 feet north of road; copper nail in root of 20-inch Norway pine tree, marked "1256.5".....	Feet. 1, 256. 39
T. 44 N., R. 30 W., southeast corner of sec. 24, 0.5 mile west of crossroads, 30 feet northwest of 4-foot granite boulder in center of road, 10 feet north of road; iron post stamped "1295".....	1, 294. 600
T. 44 N., R. 29 W., near northeast corner of sec. 30, 0.5 mile east of crossroads, 500 feet west of gate, 6 feet north of road; copper nail in root of 14-inch oak witness tree, marked "1307. 6".....	1, 307. 44
T. 44 N., R. 29 W., near northeast corner of sec. 29, 1.5 miles west of schoolhouse, on new graded road, 35 feet south of old road, in northwest corner of wooden bridge; copper nail marked "1303.9".....	1, 303. 82
T. 44 N., R. 29 W., 0.2 mile west of northeast corner of sec. 28, 0.7 mile west of schoolhouse, 200 feet west of crossroads, 3 feet north of road; copper nail in wooden culvert, marked "1313. 8".....	1, 313. 71

From sec. 27, T. 44 N., R. 30 W., north to sec. 21, T. 46 N., R. 29 W.

T. 44 N., R. 30 W., north quarter corner of sec. 27, 4.7 miles southeast of Brainerd, 20 feet south by 20 feet west of T road south, 100 feet northeast of Carl Wendt's house; iron post stamped "1244".....	1, 243. 641
Long Lake; surface of water October 4, 1912.....	1, 191. 6
T. 44 N., R. 30 W., 300 feet south of northeast corner of sec. 22, 0.6 mile north of Long Lake, 300 feet south of T road west, on west side of road; copper nail in wooden culvert, marked "1255.4".....	1, 255. 28
T. 44 N., R. 30 W., northeast corner of sec. 15, 20 feet west of road at T road east; copper nail in telephone pole, marked "1283.7".....	1, 283. 53
T. 44 N., R. 30 W., 0.2 mile south of northeast corner of sec. 10, 120 feet north of forks in road, 30 feet west of road; copper nail in telephone pole, marked "1264.1".....	1, 263. 97
T. 44 N., R. 30 W., south quarter corner of sec. 2, 100 feet east by 25 feet north of forks in road, 0.5 mile west of crossroads, main forks; iron post stamped "1280".....	1, 279. 813
T. 44 N., R. 30 W., west quarter corner of sec. 1, 0.5 mile south of crossroads, 40 feet southeast of gate leading to O. Thelander's house, 15 feet east of road; copper nail in telephone pole, marked "1279.5".....	1, 279. 41
T. 45 N., R. 30 W., east quarter corner of sec. 35, 1 mile south of Oak Street road, 1,000 feet south of new frame house, 25 feet west of road, 3 feet northeast of fence corner; chiseled square on highest point of granite boulder, marked "1274.0".....	1, 273. 82
T. 45 N., R. 30 W., east quarter corner of sec. 26, 5 miles east of Brainerd, 25 feet south by 20 feet west of crossroads; iron post stamped "1255"....	1, 255. 031
T. 45 N., R. 30 W., east quarter corner of sec. 23, 30 feet west of T road east; copper nail in prop of fence post, marked "1254.5".....	1, 254. 33
T. 45 N., R. 30 W., south quarter corner of sec. 14, at T road north, in guide-board reading "Brainerd 6 miles, Deerwood 12 miles"; copper nail marked "1253.2".....	1, 253. 06
T. 45 N., R. 30 W., north quarter corner of sec. 14, 30 feet west of T road east, 800 feet west of schoolhouse; iron post stamped "1228".....	1, 227. 406
T. 45 N., R. 30 W., north quarter corner of sec. 11, at crossroads, in guide-board marked "Rabbit Lake and Brainerd"; copper nail marked "1221.8".....	1, 221. 65
Sand Creek; bridge over.....	1, 203. 3
Sand Creek; surface of water under bridge October 7, 1912.....	1, 197. 0

T. 45 N., R. 30 W., in NE. $\frac{1}{4}$ sec. 2, 0.2 mile northeast of Sand Creek bridge, 900 feet southwest of forks in road, 200 feet east of small culvert, 4 feet south of road; copper nail in root of 8-inch pine tree, marked "1212.8".	Feet. 1, 212. 61
T. 46 N., R. 30 W., near center of sec. 36, 5 miles southwest of Woods, 2.1 miles southwest of A. Edward's house, 30 feet south by 15 feet east of forks in road, 15 feet south of 14-inch blazed Norway pine; iron post stamped "1232".	1, 232. 267
T. 46 N., R. 29 W., near center of sec. 30, 4 miles southwest of Woods, 1.1 miles southwest of A. Edward's house, 100 feet south of summit, 100 feet south of old fence line, 6 feet east of road; copper nail in root of 7-inch Norway pine, marked "1255.3".	1, 255. 13
T. 46 N., R. 29 W., in NE. $\frac{1}{4}$ sec. 30, 3.2 miles southwest of Woods, 0.4 mile southwest of A. Edward's house, 4 feet south of road; copper nail in root of 8-inch Norway pine tree, marked "1218.3".	1, 218. 12
T. 46 N., R. 29 W., near southeast corner of sec. 19, 2.4 miles southwest of Woods, 0.4 mile northeast of A. Edward's house, 20 feet south by 20 feet west of forks in road; iron post stamped "1234".	1, 233. 909
T. 46 N., R. 29 W., 0.2 mile west of east quarter corner of sec. 20, 1.5 miles west of Woods, 0.3 mile west of crossroads, 30 feet north of road; copper nail in root of 10-inch pine tree, marked "1234.0".	1, 233. 89

CROSS LAKE QUADRANGLE.

[Latitude, 46° 30'-46° 45'; longitude, 94°-94° 15'.]

From sec. 29, T. 137 N., R. 26 W., south to sec. 18, T. 136 N., R. 26 W.

T. 137 N., R. 26 W., northwest corner of sec. 29, at crossroads near Fairfield Ball Park; copper nail in corner fence post, painted "1235.7".	1, 235. 70
T. 137 N., R. 26 W., southwest corner of sec. 29, 2.7 miles north of Little Pine River bridge, 100 feet southwest of schoolhouse (district 61), at crossroads; copper nail in root of 20-inch pine tree, painted "U. S. B. M. 1244.6".	1, 244. 56
T. 137 N., R. 26 W., west quarter corner of sec. 32, 2.2 miles north of Little Pine River bridge, 20 feet south of road at T road north; iron post stamped "Prim. Trav. Sta. No. 8, 1230, 1912".	1, 230. 451
T. 136 N., R. 27 W., in sec. 1, 0.9 mile northwest of Little Pine River bridge, 30 feet east by 40 feet north of forks in road; copper nail in 4-inch oak tree, painted "U. S. B. M. 1238.1".	1, 238. 02
T. 136 N., R. 26 W., 0.2 mile south of north quarter corner of sec. 7, 20 feet north of Little Pine River bridge, 2 feet west of road; copper nail in root of oak tree, painted "U. S. B. M. 1193.9".	1, 193. 84
Little Pine River; surface of water September 3, 1912.	1, 187. 1
T. 136 N., R. 26 W., near north quarter corner of sec. 18, 1.2 miles southeast of Little Pine River bridge, 40 feet south of schoolhouse (district number not given), 30 feet north of road at T road south, 2 feet south of fence; iron post stamped "1250".	1, 250. 297

DEERWOOD QUADRANGLE.

[Latitude, 46° 15'-46° 30'; longitude, 93° 45'-94°.]

From point near Cuyuna southwest to sec. 22, T. 46 N., R. 29 W.

Crosby, 0.8 mile northeast of, 130 feet southwest of switch to Ironton, near center of sec. 1, T. 46 N., R. 29 W.; copper nail in telegraph pole, painted "U. S. B. M. 1256.6".	1, 256. 62
Crosby, in front of station; top of rail.	1, 264. 6

	Feet.
Crosby, on south side at west end of window sill of First National Bank building, 2.9 feet above sidewalk; chiseled square.....	1, 264. 53
Ironton, southwest corner of sec. 11, T. 46 N., R. 29 W., 500 feet southwest of school building, 15 feet south of forks in road; iron post stamped "1233"	1, 232. 608
T. 46 N., R. 29 W., center of sec. 15, 1.4 miles southwest of Ironton, 200 feet north of section center, 25 feet west of road; copper nail in poplar tree, painted "U. S. B. M. 1240.4".....	1, 240. 46
T. 46 N., R. 29 W., center of sec. 22, 0.5 mile west of Woods, at T road north; copper nail in corner fence post, painted "U. S. B. M. 1284.1".....	1, 284. 16
From sec. 16, T. 45 N., R. 29 W., south to sec. 22, T. 44 N., R. 29 W., thence east and north to sec. 3, T. 46 N., R. 28 W.	
T. 45 N., R. 29 W., northeast corner of sec. 16, 1.7 miles northwest of Nokay Lake, at section corner, in center of road; iron post stamped "Prim. Trav. Sta. No. 5, 1256, 1912".....	1, 256. 241
T. 45 N., R. 29 W., northwest corner of sec. 14, 0.7 mile northwest of Nokay Lake, 0.4 mile west of schoolhouse, 45 feet south of road; copper nail in corner fence post, painted "U. S. B. M. 1272.7".....	1, 272. 73
T. 45 N., R. 29 W., 400 feet south of north quarter corner of sec. 14, 40 feet south of Dickenson's store, Nokay Lake; copper nail in red fence post, painted "U. S. B. M. 1235.9".....	1, 235. 98
Nokay Lake; surface of water July 23, 1912.....	1, 227. 3
T. 45 N., R. 29 W., 0.2 mile north of southeast corner of sec. 15, 1.1 miles southwest of Nokay Lake, 200 feet south of A. Tollefson's mail box, 25 feet west of road; copper nail in fence post, painted "U. S. B. M. 1239.5".....	1, 239. 60
T. 45 N., R. 29 W., 0.2 mile west of southeast corner of sec. 22, 2.4 miles south of Nokay Lake, 25 feet north by 25 feet west of Y road; iron post stamped "1236".....	1, 236. 642
T. 45 N., R. 29 W., 0.2 mile east of west quarter corner of sec. 27, 3.2 miles southwest of Nokay Lake, 25 feet north by 20 feet east of Y road; copper nail in old pine stump, painted "U. S. B. M. 1241.5".....	1, 241. 62
Grave Lake; surface of water July 24, 1912.....	1, 213. 6
T. 45 N., R. 29 W., near northwest corner of sec. 34, 1.4 miles northwest of Flak, northwest side of Grave Lake, northwest corner of wooden bridge; copper nail in wooden beam, painted "U. S. B. M. 1217.6".....	1, 217. 71
T. 45 N., R. 29 W., near southwest corner of sec. 34, 0.5 mile northwest of Flak, 100 feet southwest of J. Dye's house, 20 feet east of road; copper nail in telephone pole, painted "U. S. B. M. 1259.7".....	1, 259. 78
T. 44 N., R. 29 W., 0.2 mile south of north quarter corner of sec. 3, 0.2 mile southeast of Flak, 15 feet south by 10 feet east of T road south, 3 feet southeast of signboard "Plat Lake 15 miles"; iron post stamped "1284".....	1, 283. 869
T. 44 N., R. 29 W., 1,000 feet northeast of center of sec. 10, 1.2 miles southeast of Flak, 100 feet south of J. W. Fallon's mail box, in northeast corner of wooden bridge; copper nail painted "U. S. B. M. 1278.9".....	1, 278. 97
T. 44 N., R. 29 W., north quarter corner of sec. 15, 1.9 miles southwest of Flak, 25 feet east by 30 feet south of T road east; iron post stamped "1295".....	1, 295. 477
T. 44 N., R. 29 W., 300 feet south of north quarter corner of sec. 22, 3 miles southeast of Flak, at gate leading to Will Love's house, 25 feet west of road in northeast corner of private bridge; copper nail painted "U. S. B. M. 1298.1".....	1, 298. 17
T. 44 N., R. 29 W., south quarter corner of sec. 22, 4 miles southeast of Flak, 200 feet southeast of schoolhouse, on south side of road at T road north; iron post stamped "Prim. Trav. Sta. No. 4, 1325".....	1, 325. 726

T. 44 N., R. 29 W., 0.2 mile west of southeast corner of sec. 23, 2.7 miles southwest of Dykeman, 300 feet northwest of Anstine's deserted house, north side of road, 10 feet north of fence corner; copper nail in oak stump, painted "U. S. B. M. 1325.1"	Feet. 1,325.16
T. 44 N., R. 28 W., center of sec. 24, 1.6 miles southwest of Dykeman, at L road northeast, northeast corner of turn in road; chiseled square on granite boulder, painted "U. S. B. M. 1317.1"	1,317.23
T. 44 N., R. 28 W., center of sec. 19, 0.6 mile south of Dykeman, 30 feet south by 50 feet west of crossroads; iron post stamped "1325"	1,325.323
Dykeman, 0.4 mile north of, center of sec. 18, T. 44 N., R. 28 W., 10 feet west of road; copper nail in 2-foot pine stump, painted "U. S. B. M. 1322.2"	1,322.31
Dykeman, 1.4 miles northwest of, near southwest corner of sec. 7, T. 44 N., R. 28 W., at T road north, north side of swamp, south side of road; copper nail in telephone pole, painted "1311.1 U. S. B. M."	1,311.22
T. 44 N., R. 28 W., southwest corner of sec. 6, 2.4 miles northwest of Dykeman, 300 feet southwest of J. O. Huseby's house, 30 feet east of road; copper nail in telephone pole, painted "U. S. B. M. 1321.2"	1,321.34
T. 44 N., R. 29 W., near center of sec. 1, 3 miles northwest of Dykeman, at Y road, northwest corner of triangle; iron post stamped "1318"	1,318.482
T. 44 N., R. 28 W., about center of NE. $\frac{1}{4}$ sec. 6, 1.2 miles south of Esdon schoolhouse, 200 feet southeast of Berbe's house, at T road north; copper nail in telephone pole, painted "U. S. B. M. 1292.9"	1,292.98
T. 45 N., R. 28 W., 80 rods west of west quarter corner of sec. 32, 0.5 mile south of Esdon schoolhouse, 150 feet northwest of Dan Chord's house, 25 feet east of road; copper nail in fence post, painted "U. S. B. M. 1287.7" ..	1,287.80
T. 45 N., R. 28 W., north quarter corner of sec. 31, 0.2 mile west of Esdon schoolhouse, 30 feet north by 30 feet east of T road north; iron post stamped "1287"	1,287.217
Crooked Lake; surface of water July 27, 1912	1,263.3
T. 45 N., R. 28 W., 80 rods west of northeast corner of sec. 30, 1.3 miles north of Esdon schoolhouse, 15 feet east of road; copper nail in charred pine stump, painted "U. S. B. M. 1296.8"	1,296.88
T. 45 N., R. 28 W., near southeast corner of sec. 18, 2.5 miles north of Esdon schoolhouse, 80 feet southwest of A. Stafford's mail box, 20 feet west of road at T road west; copper nail in poplar tree, painted "U. S. B. M. 1305.9"	1,305.96
T. 45 N., R. 28 W., 0.2 mile southwest of northeast corner of sec. 17, 2.2 miles southwest of Bay Lake, 1 mile northeast of A. Stafford's mail box, 15 feet north of road, 6 feet southwest of oak tree 1 foot in diameter; iron post stamped "1301"	1,301.150
T. 45 N., R. 28 W., near center of sec. 9, 1 mile southwest of Bay Lake, 30 feet south by 15 feet east of T road east; copper nail in guideboard, painted "U. S. B. M. 1303.2"	1,303.27
Bay Lake; surface of water July 29, 1912	1,260.2
T. 45 N., R. 28 W., near east quarter corner of sec. 4, at Bay Lake, 200 feet southeast of E. W. Soule's house, 20 feet north of road at T road north; copper nail in telephone pole, painted "U. S. B. M. 1271.6"	1,271.74
T. 45 N., R. 28 W., northeast corner of sec. 4, 0.7 mile north of Bay Lake, 30 feet north of forks in road; copper nail in telephone pole, painted "U. S. B. M. 1304.3"	1,304.38
T. 46 N., R. 28 W., 50 feet north of southeast corner of sec. 28, 1.8 miles north of Bay Lake, 15 feet north of lone pine witness tree, 15 feet west of road, in mound of rocks; iron post stamped "1306"	1,306.520

T. 46 N., R. 28 W., near northeast corner of sec. 28, 3.2 miles south of Deerwood, 100 feet east of forks of road; copper nail in telephone pole, painted "U. S. B. M. 1276.6".....	Feet. 1, 276. 68
T. 46 N., R. 28 W., near center of sec. 21, 2.2 miles south of Deerwood, 1.2 miles south of Minneapolis, St. Paul & Sault Ste. Marie Ry. crossing, 350 feet north of C. F. Peterson's mail box, on east side of road; copper nail marked in telephone pole, painted "U. S. B. M. 1269.4".....	1, 269. 50
Deerwood, 1 mile south of, about the center of the NW. $\frac{1}{4}$ sec. 16, T. 46 N., R. 28 W., 75 feet southwest of Minneapolis, St. Paul & Sault Ste. Marie Ry. crossing, 50 feet west of road, near fence line; iron post stamped "1279" ..	1, 279. 431
Deerwood, 1 mile northeast of, 0.2 mile north of south quarter corner of sec. 9, T. 46 N., R. 28 W., 30 feet south by 25 feet east of public-road crossing; copper nail in telegraph pole, painted "U. S. B. M. 1282.5".....	1, 282. 62
Deerwood, 1.9 miles northeast of, 0.2 mile east of northeast corner of sec. 9, T. 46 N., R. 28 W., at public crossing, 40 feet north by 50 feet east of; copper nail in telegraph pole, painted "U. S. B. M. 1262.8".....	1, 262. 86

From Cedar Lake south to Mille Lac, thence west to sec. 6, T. 44 N., R. 28 W.

Cedar Lake; surface of water August 2, 1912.....	1, 198. 6
T. 47 N., R. 27 W., near south quarter corner of sec. 33, 4 miles southwest of Aitkin, 300 feet north of E. A. Gyde's cottage, 100 feet east of lake, 15 feet east of road, at Cedar Lake camping ground; copper nail in telephone pole 52, painted "U. S. B. M. 1207.8".....	1, 207. 69
T. 46 N., R. 27 W., near west quarter corner of sec. 4, 40 feet south of forks in road, 2.6 miles north of old Dorris post office, 50 feet west of wooden bridge; copper nail in white-oak stump, painted "U. S. B. M. 1213.2" ..	1, 213. 12
T. 46 N., R. 27 W., near center of sec. 8, 1.3 miles north of old Dorris, 0.5 mile south of schoolhouse, 300 feet southeast of John C. Rom's house, 20 feet south of gate, 15 feet west of road; iron post stamped "1269"	1, 269. 364
T. 46 N., R. 27 W., near center of sec. 17, 0.5 mile northeast of old Dorris, 100 feet northeast of small wooden culvert, in deep ravine, 20 feet east of road; copper nail in old pine stump, painted "U. S. B. M. 1257.4"	1, 257. 29
Old Dorris, 450 feet southeast of post office, near north quarter corner of sec. 20, T. 46 N., R. 27 W., 75 feet southwest of church, 25 feet east of road, at T road west; copper nail in fence post, painted "U. S. B. M. 1304.1"	1, 303. 96
Old Dorris, 1 mile southwest of, near north quarter corner of sec. 29, T. 46 N., R. 27 W., at T road east, 15 feet southwest of schoolhouse (district 35); copper nail in large pine stump, painted "U. S. B. M. 1306.3"	1, 306. 17
T. 46 N., R. 27 W., near center of southeast quarter of sec. 30, 2.2 miles southwest of old Dorris, 0.2 mile south of T road south and guideboard, 20 feet west of quarter corner stake, 5 feet west of road, at fence corner; iron post stamped "1291"	1, 291. 024
T. 46 N., R. 27 W., near center of sec. 31, 3.4 miles northwest of Bennettville, 1.4 miles north of Dan Olson's, 80 feet north of L road northwest, on east side of road; copper nail in pine stump, painted "U. S. B. M. 1299.7"	1, 299. 52
T. 45 N., R. 27 W., near southwest corner of sec. 31, 2.5 miles northwest of Bennettville, 0.5 mile northwest of Dan Olson's house, 250 feet east of forks in road, on east side of road, at gate; copper nail in gatepost, painted "U. S. B. M. 1282.9"	1, 282. 74
T. 45 N., R. 27 W., near southeast corner of sec. 6, 1.2 miles northwest of Bennettville, 1,000 feet southeast of P. Reither's house, 150 feet west of T road north, 15 feet north of road, 20 feet south of gate; copper nail in large stump, painted "U. S. B. M. 1274.9"	1, 276. 112

	Feet.
Farm Island Lake; surface of water August 6, 1912.....	1, 255. 1
Bennettville, 800 feet north of, at northeast corner of sec. 8, T. 45 N., R. 27 W., 100 feet south of Farm Island Lake, 40 feet northeast of turn in road; iron post stamped "Prim. Trav. Sta. No. 1, 1276, 1912".....	1, 274. 79
Bennettville, 0.8 mile south of, northwest corner of sec. 16, T. 45 N., R. 27 W., at T road east; copper nail in telephone pole, painted "U. S. B. M. 1281.6".....	1, 281. 50
T. 45 N., R. 27 W., 0.2 mile northeast of southwest corner of sec. 16, 1.8 miles southeast of Bennettville, 900 feet north of forks in road, 15 feet west of road; copper nail in telephone pole, painted "U. S. B. M. 1309.4".....	1, 309. 25
T. 45 N., R. 27 W., center of sec. 21, 1.5 miles north of Cutler, in wooden bridge on west side; copper nail painted "U. S. B. M. 1277.4".....	1, 277. 23
Cutler, 0.9 mile north of, 0.2 mile west of southeast corner of sec. 21, T. 45 N., R. 27 W., 100 feet southwest of church, at T road east, 25 feet west of road; iron post stamped "1270".....	1, 269. 360
Pine Lake; surface of water August 7, 1912.....	1, 261. 2
Cutler, 750 feet south of post office, near southeast corner of sec. 28, T. 45 N., R. 27 W., 15 feet east of road; copper nail in telephone pole, painted "U. S. B. M. 1268.7".....	1, 268. 55
T. 45 N., R. 27 W., near southwest corner of sec. 33, 1.3 miles east of Nichols, 100 feet southwest of S. Toll's house, at T road north; copper nail in telephone pole, painted "U. S. B. M. 1266.7".....	1, 266. 50
Nichols, 0.3 mile east of, 0.2 mile southeast of northwest corner of sec. 5, T. 44 N., R. 27 W., 100 feet southeast of Nichol's summer cottage, 80 feet north of Mille Lac, 30 feet north of road; iron post stamped "1260".....	1, 260. 124
Mille Lacs Lake; surface of water August 8, 1912.....	1, 249. 3
Nichols, 0.7 mile southwest of, 0.2 mile northeast of southwest corner of sec. 6, T. 44 N., R. 27 W., at T road west; copper nail in telephone pole, painted "U. S. B. M. 1257.7".....	1, 257. 51
T. 44 N., R. 28 W., 1,500 feet south of northeast corner of sec. 12, 1.5 miles north of Midland, 100 feet southeast of A. Barber's house, 100 feet west of road; iron post stamped "Prim. Trav. Sta. No. 3, 1273, 1912".....	1, 272. 459
Borden Creek; surface of water August 10, 1912.....	1, 249. 8
Midland, 1,200 feet northeast of, near center of sec. 13, T. 44 N., R. 28 W., 15 feet east of Y road, 30 feet west of Mille Lacs Lake; copper nail in small oak tree painted "U. S. B. M. 1259.5".....	1, 259. 31
T. 44 N., R. 28 W., northwest corner of sec. 13, 0.8 mile northwest of Midland, 0.4 mile south of Borden Creek bridge, 25 feet east of road; copper nail in telephone pole painted "U. S. B. M. 1260.8".....	1, 260. 64
T. 44 N., R. 28 W., 0.2 mile southwest of northeast corner of sec. 11, 2.6 miles southeast of Neutral, 75 feet northwest of schoolhouse, 150 feet north of forks in road, 20 feet east of road; iron post stamped "1264".....	1, 264. 048
Borden Lake; surface of water August 10, 1912.....	1, 255. 3
T. 44 N., R. 28 W., 0.2 mile southwest of northeast corner of sec. 10, 1.6 miles east of Neutral, 200 feet west of F. Brown's cottage, 60 feet west of Borden Lake, 20 feet north of road; copper nail in telephone pole, painted "U. S. B. M. 1266.3".....	1, 266. 08
Neutral, 0.6 mile east of, near west quarter corner of sec. 3, T. 44 N., R. 28 W. 100 feet northwest of forks in road, 15 feet south of road; copper nail in telephone pole painted "U. S. B. M. 1299.5".....	1, 299. 34
Neutral, 100 feet west of post office, 0.2 mile east of center of sec. 4, T. 44 N., R. 28 W., 35 feet north of road, 2 feet south of fence; iron post stamped "1280".....	1, 279. 963

Neutral, 1 mile west of, 0.5 mile northwest of east quarter corner of sec. 5,
 T. 44 N., R. 28 W., 500 feet east of S. Varner's house, 15 feet south of road; Feet.
 copper nail in telephone pole painted "U. S. B. M. 1286.0" 1, 285. 76

CUYUNA QUADRANGLE.

[Latitude, 46° 30'–46° 45'; longitude, 93° 45'–94°.]

From sec. 3, T. 136 N., R. 27 W., north to sec. 2, T. 49 N., R. 27 W.

T. 136 N., R. 27 W., near southwest corner of sec. 3, 0.8 mile east of Pineknoll, on bridge across Little Willow River, on south side; copper nail painted "U. S. B. M. 1200.8"	1, 200. 69
T. 136 N., R. 27 W., 0.2 mile north of southwest corner of sec. 4, 500 feet north of Pineknoll, 130 feet southwest of schoolhouse, 20 feet east of road, inside fence; iron post stamped "1206"	1, 205. 584
T. 136 N., R. 17 W., in sec. 5, 1.2 miles northwest of Pineknoll, on bridge over small creek, south side of road, in middle of span; copper nail painted "U. S. B. M. 1201.2"	1, 201. 11
T. 136 N., R. 25 W., south quarter corner of sec. 12, 2.4 miles northwest of Pineknoll, 20 feet north by 30 feet west of T road west; iron post stamped "1213"	1, 213. 231
T. 136 N., R. 25 W., south quarter corner of sec. 11, 3.4 miles northwest of Pineknoll, at crossroads; copper nail in south end of wooden culvert, painted "U. S. B. M. 1216.7"	1, 210. 63
T. 136 N., R. 25 W., 0.2 mile north of south quarter corner of sec. 2, 4.6 miles northwest of Pineknoll, at forks in Ross Lake road, 7 feet east of F. O. Draper's mail box; iron post stamped "1275"	1, 275. 414
T. 136 N., R. 25 W., near northwest corner of sec. 1, 0.8 mile north of Ross Lake and Little Pine road forks, on west side of road, 30 feet southwest of road forks; chiseled square on granite boulder, painted "U. S. B. M. 1280.4"	1, 280. 36
T. 137 N., R. 25 W., in sec. 36, 3.1 miles south of Keeler's schoolhouse, in deep ravine, southeast corner of wooden culvert; copper nail painted "U. S. B. M. 1238.0"	1, 237. 87
T. 137 N., R. 25 W., near east quarter corner of sec. 26, 2.3 miles south of Keeler's schoolhouse, 400 feet east of Stark Lake, northeast corner of hay meadow, 20 feet west of road; iron post stamped "1270"	1, 269. 782
T. 137 N., R. 25 W., near north quarter corner of sec. 26, 1.4 miles south of Keeler's schoolhouse, 0.4 mile south of wooden bridge, on west side of road; copper nail in root of 3-inch charred pine stump, painted "U. S. B. M. 1278.8"	1, 278. 74
T. 137 N., R. 25 W., 0.2 mile west of center of sec. 23, 0.7 mile south of Keeler's schoolhouse, 1,100 feet south of bridge, on west side of road; copper nail in 18-inch maple stump painted "U. S. B. M. 1279.3"	1, 279. 18
T. 137 N., R. 25 W., 0.2 mile east of northwest corner of sec. 23, 120 feet northwest of Keeler's schoolhouse, at T road south, 30 feet north of road; iron post stamped "1295"	1, 294. 927
Ross Lake; surface of water August 24, 1912	1, 238. 4
Keeler's schoolhouse, 1 mile west of, near north quarter corner of sec. 22, T. 137 N., R. 25 W., 0.5 mile west of Simpson's sawmill, south edge of road; copper nail in root of 5-inch tamarack painted "U. S. B. M. 1243.9"	1, 243. 85
Mud Brook schoolhouse, 1.1 miles southeast of, near north quarter corner of sec. 20, T. 137 N., R. 25 W., 20 feet north of road; copper nail in 8-inch dead basswood tree painted "U. S. B. M. 1237.4"	1, 237. 34
Mud Brook; surface of water at bridge August 24, 1912	1, 218. 0

Mud Brook schoolhouse, 150 feet southwest of, near west quarter corner of sec. 17, T. 137 N., R. 25 W., 250 feet northeast of P. Gustafson's house, 40 feet west of road; iron post stamped "1242"	Feet. 1, 242. 119
Mud Brook schoolhouse, 1.1 miles northwest of, near southwest corner of sec. 8, T. 137 N., R. 25 W., 250 feet northwest of M. Bell's house, at T road west, on east side of road; copper nail in north gatepost painted "U. S. B. M. 1256.2"	1, 256. 16
Mud Brook schoolhouse, 2 miles north of, near southwest corner of sec. 5, T. 137 N., R. 25 W., 350 feet north of small log culvert, 25 feet west of road; copper nail in root of pine tree painted "U. S. B. M. 1277.7"	1, 277. 67
Little Pine schoolhouse, 2.6 miles southwest of, near south quarter corner of sec. 32, T. 138 N., R. 25 W., 400 feet south of E. Hill's cabin, 12 feet west of mail box, 20 feet north of road; iron post stamped "1274"	1, 274. 360
Little Pine schoolhouse, 1.5 miles southwest of, center of NE. $\frac{1}{4}$ sec. 32, T. 138 N., R. 25 W., 0.2 mile north of Frank Carter's house, 35 feet northwest of L road southeast; chiseled square on large granite boulder painted "U. S. B. M. 1282.3"	1, 282. 20
Little Pine schoolhouse, 0.9 mile south of, 0.1 mile north of southwest corner of sec. 28, T. 138 N., R. 25 W., 700 feet northeast of Sinclair's house, 10 feet west of road; copper nail in corner fence post painted "U. S. B. M. 1275.2"	1, 275. 18
Little Pine schoolhouse, 100 feet north of, 35 feet south by 25 feet east of T road south, northwest corner of sec. 28, T. 138 N., R. 25 W., iron post stamped "Prim. Trav. Sta. No. 10, 1280, 1912"	1, 279. 752
Little Pine schoolhouse, 1.1 miles east of, 0.2 mile north of southwest corner of sec. 22, T. 138 N., R. 25 W., 100 feet north of Lows Lake, 15 feet north of road; chiseled square on granite boulder painted "U. S. B. M. 1274.6" ..	1, 274. 50
Lows Lake; surface of water August 27, 1912.....	1, 267. 7
Little Pine schoolhouse, 2.1 miles east of, southeast corner of sec. 22, T. 138 N., R. 25 W., 35 feet north by 25 feet west of crossroads; copper nail in notice post painted "U. S. B. M. 1285.6"	1, 285. 58
Little Pine schoolhouse, 3 miles east of, 350 feet west of northeast corner of sec. 26, T. 138 N., R. 25 W., 90 feet north of T. Kramer's house, 20 feet south of road, 3 feet south of fence; iron post stamped "1295"	1, 295. 326
Little Pine schoolhouse, 4.3 miles east of, 10 feet north of trail, 150 feet southwest of Charles Higgle's residence; copper nail in top of stump...	1, 305. 56
Little Pine schoolhouse, 4.7 miles east of, 30 feet east of Crow Wing-Aitkin county line, 400 feet north of northwest corner of sec. 9, T. 49 N., R. 27 W., 600 feet south of A. W. Kilgore's residence; copper nail in root of pine tree.....	1, 316. 80
Little Pine schoolhouse, 5.8 miles east of, in forks of trail and graded road (trail leads to S. Starry's residence); copper nail in top of stump.....	1, 328. 13
Esquagamah Lake, 2.5 miles northwest of, 80 rods north of Esquagamah schoolhouse, near northeast corner of sec. 10, T. 49 N., R. 27 W.; iron post stamped "1304 Minn"	1, 303. 452
Esquagamah Lake, 1.3 miles northwest of, south side of trail, 250 feet southeast to old Gordon residence, near center of sec. 2, T. 49 N., R. 27 W.; chiseled square on granite rock.....	1, 273. 18
From sec. 28, T. 138 N., R. 25 W., west and south to sec. 21, T. 137 N., R. 26 W.	
Little Pine schoolhouse, 1 mile west of, northwest corner of sec. 29, T. 138 N., R. 25 W., south end of wooden culvert, 3 feet south of road; copper nail painted "U. S. B. M. 1277.0"	1, 276. 92

Little Pine schoolhouse, 2.1 miles northwest of, near west quarter corner of sec. 19, T. 138 N., R. 25 W., 0.5 mile east of Little Pine River, 10 feet south of road; chiseled square on blue granite boulder painted "U. S. B. M. 1278.4"	Feet. 1, 278. 36
Emily, 2.3 miles east of, 0.2 mile northwest of southeast corner of sec. 23, T. 138 N., R. 26 W., 135 feet west of Van Sickle Creek, 25 feet south of road; iron post stamped "1263"	1, 263. 303
Emily, 1.7 miles east of, near northwest corner of sec. 26, T. 138 N., R. 26 W., 10 feet north by 30 feet west of forks in road; copper nail in 30-inch pine stump, painted "U. S. B. M. 1278.2"	1, 278. 12
Emily, 0.7 mile east of, near southeast corner of sec. 27, T. 138 N., R. 26 W., 50 feet east by 20 feet south of forks in road; copper nail in fence post, painted "U. S. B. M. 1298.0"	1, 297. 89
Emily, 850 feet southwest of post office, 0.2 mile south of north quarter corner of sec. 34, T. 138 N., R. 26 W., 115 feet east of public schoolhouse, 25 feet east of road; iron post stamped "1292"	1, 291. 969
Inlet to Lake Emily; surface of water August 27, 1912	1, 248. 0
Emily, 1.2 miles south of, near center of sec. 3, T. 137 N., R. 26 W., at forks in road, in guideboard marked "Emily 1 mile"; copper nail painted "U. S. B. M. 1253.8"	1, 253. 78
Emily, 2.2 miles south of, near northwest corner of sec. 10, T. 137 N., R. 26 W., 150 feet east of deserted log cabin, 35 feet west of gate, 15 feet east of road; copper nail in corner fence post, painted "U. S. B. M. 1263.4"	1, 263. 34
Emily, 3.4 miles southwest of, near west quarter corner of sec. 10, T. 137 N., R. 26 W., 75 feet southwest of forks in road, 10 feet south of main road; copper nail in 3-inch pine tree, painted "U. S. B. M. 1232.1"	1, 232. 02
Emily, 4 miles southwest of, near southwest corner of sec. 10, T. 137 N., R. 26 W., 0.4 mile south of corduroy road, 200 feet northwest of hay meadow and Little Pine River, in small clearing, 20 feet northwest of road; iron post stamped "1237"	1, 236. 958
T. 137 N., R. 26 W., near center of sec. 16, 1 mile northeast of guideboard marked "Emily 5 miles," 700 feet northeast of forks in road, 5 feet east of road; copper nail in 5-inch pine tree, painted "U. S. B. M. 1240.1" ..	1, 240. 01
Emily, 5.9 miles southwest of, near west quarter corner of sec. 21, T. 137 N., R. 26 W., 1 mile east of J. Bennett's house, at forks in road, 15 feet north of road, 3 feet north of guideboard marked "Emily 5 miles"; iron post stamped "1241"	1, 241. 263

From sec. 17, T. 136 N., R. 26 W., south to Cuyuna.

T. 136 N., R. 26 W., near north quarter corner of sec. 17, 0.9 mile east of schoolhouse, 30 feet north by 10 feet east of forks in road; copper nail in root of old pine snag, painted "U. S. B. M. 1261.0"	1, 260. 93
T. 136 N., R. 26 W., near center of sec. 16, 1.1 miles west of forks in main road, 1,500 feet north of wooden culvert, 5 feet north of road; chiseled square on granite boulder, painted "U. S. B. M. 1264.6"	1, 264. 62
T. 136 N., R. 26 W., near center of sec. 15, 15 feet west by 3 feet south of T road west; iron post stamped "1285"	1, 285. 453
T. 136 N., R. 26 W., near southwest corner of sec. 15, 60 feet north by 60 feet east of forks in road; copper nail in root of 5-inch poplar tree, painted "U. S. B. M. 1276.4"	1, 276. 34
Mississippi River bridge, 0.7 mile north of; point on another bridge	1, 214. 7

T. 136 N., R. 26 W., near southwest corner of sec. 22, 1,000 feet north of large red stain gravel cut, 5 feet west of road, at base of small oak tree; chiseled square on blue granite rock, painted "U. S. B. M. 1230.6".....	Feet. 1, 230. 57
T. 47 N., R. 29 W., in sec. 24, 1,600 feet south of Mississippi River bridge, 20 feet north by 20 feet west of forks in road; iron post stamped "1217".....	1, 216. 893
Cuyuna, 2 miles northwest of, in sec. 25, T. 47 N., R. 24 W., 1.3 miles south of Mississippi River bridge, 100 feet northwest of Rabbit Lake, 5 feet east of road; copper nail in 8-inch oak tree, painted "U. S. B. M. 1205.7".....	1, 205. 72
Rabbit Lake; surface of water September 5, 1912.....	1, 198. 0
Cuyuna, 1 mile northwest of, 0.6 mile north of Minneapolis, St. Paul & Sault Ste. Marie Ry. crossing, in sec. 25, T. 47 N., R. 29 W., 150 feet east of small lake, 5 feet west of road, 20 feet south of blazed 8-inch oak tree; copper nail in root of 4-inch poplar tree, painted "U. S. B. M. 1215.7".....	1, 215. 73

From sec. 21, T. 137 N., R. 26 W., east to sec. 17, T. 137 N., R. 25 W.

T. 137 N., R. 26 W., in sec. 22, 0.4 mile east of Little Pine River, 0.4 mile west of deserted house, 15 feet south of road; copper nail in root of 7-inch pine stump, painted "U. S. B. M. 1239.8".....	1, 239. 78
T. 137 N., R. 26 W., in sec. 14, 1.6 miles east of Little Pine River, 550 feet southwest of road forks and signboard marked "Emily 5 miles, Aitkin 20 miles," 80 feet south of deserted house, 60 feet south of road; copper nail in corner fence post, painted "U. S. B. M. 1229.9".....	1, 229. 82
Mud Brook; surface of water September 19, 1912.....	1, 205. 4
T. 137 N., R. 26 W., near north quarter corner of sec. 24, 1.2 miles west of Roger Lake, 2 feet south of road; copper nail in root of 12-inch oak tree; painted "U. S. B. M. 1273.1".....	1, 273. 01
T. 137 N., R. 26 W., near northeast corner of sec. 24, 0.3 mile northwest of Roger Lake schoolhouse, 30 feet north by 20 feet west of T road west, 500 feet west of Roger Lake, 300 feet southeast of deserted log cabin; iron post stamped "1251".....	1, 251. 28
T. 137 N., R. 25 W., in sec. 19, 0.7 mile east of Roger Lake schoolhouse, 0.6 mile west of forks in road, at turn in road, south edge of road; chiseled square on blue granite boulder, painted "U. S. B. M. 1254.2".....	1, 254. 17
Mud Brook schoolhouse, 1 mile south of, near southwest corner of sec. 20, T. 137 N., R. 25 W., 0.6 mile north of road forks, east side of road, on small knoll; chiseled triangle on small blue granite boulder, painted "U. S. B. M. 1270.0".....	1, 269. 97

From point 2.3 miles northwest of Pineknoll northeast 3.8 miles to northeast corner of sec. 16, T. 48 N., R. 27 W.

Pineknoll, 2.3 miles northwest of, 20 feet north by 30 feet west of T road west, south quarter corner of sec. 12, T. 36 N., R. 25 W.; iron post stamped "1213".....	1, 213. 231
Pineknoll, 3.5 miles north of, 12 feet south of trail where trail leaves southwest side of Terry Lake; bolthead in root of tree.....	1, 222. 04
Pineknoll, 4.6 miles northeast of, 4 feet west of trail; iron pin in root of stump "1213".....	1, 232. 21
Pineknoll, 5.4 miles northeast of, 3 feet west of trail, in south side of leaning maple tree blazed; nail.....	1, 249. 04
Pineknoll, 6.1 miles northeast of, 300 feet southeast of E. R. Burkey's residence, 120 rods south of northeast corner of sec. 16, T. 48 N., R. 27 W., 300 feet north of Blind Lake, on section line; iron post stamped "1238"....	1, 238. 083

From sec. 28, T. 47 N., R. 27 W., west along Northern Pacific Ry. and Minneapolis, St. Paul & Sault Ste. Marie Ry. to point near Cuyuna.

	Feet.
T. 47 N., R. 27 W., near southwest corner of sec. 28, 3 miles southwest of Aitkin, 30 feet north of T road north, 100 feet southeast of yellow school-house; iron post stamped "1229".....	1, 228. 409
T. 47 N., R. 27 W., near southwest corner of sec. 29, 1 mile east of Cedar Lake, 1,000 feet east of public crossing; copper nail in southwest corner of bridge, painted "U. S. B. M. 1217.1".....	1, 216. 99
T. 47 N., R. 27 W., 0.2 mile east of southwest corner of sec. 30, 750 feet northwest of Cedar Lake station, 35 feet south of road, in grove of poplars; Miss. R. Comm. triang. sta. Cedar Lake, stamped "1224".....	1, 223. 915
Cedar Lake, 0.9 mile west of, near center of sec. 36, T. 47 N., R. 28 W., 30 feet south by 20 feet east of public road crossing; copper nail in telegraph pole, painted "U. S. B. M. 1219.3".....	1, 219. 28
T. 47 N., R. 28 W., 0.2 mile north of southwest corner of sec. 36, 1.7 miles west of Cedar Lake, 35 feet south by 35 feet east of public road crossing on Northern Pacific Ry.; copper nail in telegraph pole, painted "U. S. B. M. 1221.6".....	1, 221. 54
T. 46 N., R. 28 W., 0.2 mile south of northeast corner of sec. 3, 1.5 miles south of Iron Hub, 400 feet southeast of T road south, 50 feet south of private railroad crossing; copper nail in telegraph pole, painted "U. S. B. M. 1245.6".....	1, 245. 57
T. 47 N., R. 28 W., 1,500 feet north of southeast corner of sec. 34, 150 feet north of east-west lane leading to Fred Imer's house; south of Iron Hub; copper nail in telephone pole, painted "U. S. B. M. 1243.9".....	1, 243. 87
Iron Hub, 0.1 mile south of, northwest corner of sec. 35, T. 47 N., R. 28 W., 40 feet south by 30 feet east of crossroads, 75 feet northwest of school-house; iron post stamped "1249".....	1, 248. 618
Iron Hub, 500 feet west of Minneapolis, St. Paul & Sault Ste. Marie station, 100 feet west of highway, 50 feet south of railroad; copper nail in telegraph pole, painted "U. S. B. M. 1237.2".....	1, 237. 21
Iron Hub, 1 mile west of, 0.1 mile north of southwest corner of sec. 27, T. 47 N., R. 28 W., 100 feet east by 30 feet north of public crossing; copper nail in telegraph pole, painted "U. S. B. M. 1233.5".....	1, 233. 47
Cuyuna, 1.6 miles east of, 0.2 mile north of southwest corner of sec. 28, T. 47 N., R. 28 W., two telegraph poles west of culvert A 296 R; copper nail in telegraph pole, painted "U. S. B. M. 1241.7".....	1, 241. 68
Cuyuna, 0.5 mile east of, near east quarter corner of sec. 31, T. 47 N., R. 28 W.; copper nail in telegraph pole, painted "U. S. B. M. 1233.2".....	1, 233. 16
Cuyuna, in front of station; top of north rail of Minneapolis, St. Paul & Sault Ste. Marie Ry.....	1, 251. 8
Cuyuna, 1,000 feet southwest of station, 150 feet southeast of section house, 20 feet north of road; iron post stamped "1272".....	1, 272. 328
Cuyuna, 1.2 miles southwest of, 125 feet northeast of "Station One Mile" sign, near east quarter corner of sec. 36, T. 47 N., R. 29 W.; copper nail in telegraph pole, painted "U. S. B. M. 1272.0".....	1, 272. 04

From northeast corner sec. 3, T. 47 N., R. 28 W., east 1 mile, thence north to Mississippi River.

T. 47 N., R. 28 W., southwest corner of sec. 25, 1 mile southeast of Iron Hub, 70 feet north of Big Four saloon, at crossroads; copper nail in telephone pole, painted "U. S. B. M. 1229.4".....	1, 229. 45
T. 47 N., R. 28 W., northeast corner of sec. 26, 2 miles northeast of Iron Hub, at T road west, west side of wooden culvert; copper nail painted "U. S. B. M. 1214.1".....	1, 214. 14

T. 47 N., R. 28 W., east quarter corner of sec. 23, 2.5 miles northeast of Iron Hub, 25 feet south by 25 feet west of crossroads; iron post stamped "1220".....	Feet. 1, 220. 164
T. 47 N., R. 28 W., east quarter corner of sec. 14, 3.5 miles northeast of Iron Hub, 0.4 mile south of crossroads, east side of road; copper nail in root of old poplar snag, painted "U. S. B. M. 1211.2".....	1, 211. 23
T. 47 N., R. 28 W., east quarter corner of sec. 11, 4.4 miles northeast of Iron Hub, 300 feet north of gate leading to H. Felleman's house, north side of road; copper nail in root of pine stump, painted "U. S. B. M. 1214.7".....	1, 214. 77
Dean Brook, 1.5 miles above, on south bank of river; on top of high bank, 8 meters from top, at east edge of cultivated field, 200 meters below house on north bank, in sec. 2, blazed 7-inch jack-pine tree, 278° distant 9 meters; (Miss. R. Comm. b. m. 324-2) iron pipe with cap stamped "1215".	1, 214. 879

McGREGOR QUADRANGLE.

[Latitude, 46° 30'-46° 45'; longitude, 93° 15'-93° 30'.]

From point 4 miles east of Rossburg east along Great Northern Ry. to Kimberly, thence northwest along highway 6.3 miles.

Rossburg, 4.2 miles east of, 700 feet south of railroad, at northeast corner of public road and trail; iron post stamped "1247 Minn".....	1, 246. 344
Kimberly, 1 mile west of, on south side of railroad, opposite signpost marked "Kimberly Station 1 mile"; spike in base of telegraph pole.....	1, 240. 82
Kimberly, 0.4 mile west of, on northeast corner of bridge 80 over Rice River; top of first drift bolt.....	1, 234. 86
Kimberly, 260 feet west of station, 15 feet east of public road, 65 feet north of railroad; iron post stamped "1244 Minn".....	1, 243. 144
Kimberly, 1 mile north of, 2 feet north of wheel track, 25 feet north of lane leading to Peter Toasting's residence; highest point on granite rock	1, 272. 61
Kimberly, 2.5 miles north of, 2 feet north of wheel track, 25 feet north of gate leading to John Sward's residence; spike in root of pine stump 3 feet in diameter.....	1, 232. 76
Kimberly, 3.4 miles north of, 400 feet north of W. M. Marsh's residence, on east side of road, in corner of field, near center of sec. 35, T. 48 N., R. 25 W.; iron post stamped "1247 Minn".....	1, 246. 333
Kimberly, 4.8 miles northwest of, on northwest corner of T road north, opposite residence of Charley Cumstock; highest point on large granite rock.....	1, 245. 46
Kimberly, 5.7 miles northwest of, 1,800 feet south of Swanson's residence, on west side of road; spike in top of pine stump.....	1, 225. 80
Kimberly, 6.3 miles northwest of, northwest corner of T road west; iron post stamped "Prim. Trav. Sta. No. 26".....	1, 220. 982

From Palisade to Strand.

Palisade, 150 feet east of station, 100 feet west of Palisade Hotel, on railroad right of way, near center of SE. $\frac{1}{4}$ sec. 22, T. 49 N., R. 25 W.; iron post stamped "1234 Minn".....	1, 233. 708
Palisade, 1.2 miles southwest of, north side of State road, 2,500 feet east of James White's residence, near west line of sec. 27, T. 49 N., R. 25 W.; spike in base of corner fence post.....	1, 215. 82

From point 6 miles southeast of Rossburg south to point 3 miles north of Clear Lake.

Rossburg, 6.1 miles southeast of, 90 feet north of Long Lake, east side of road, 2 feet west of fence, 350 feet east of residence; nailhead in root of pine stump.....	1, 226. 23
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	Feet.
Long Lake; surface of water October, 1912.....	1, 218. 4
Rossburg, 8.6 miles southeast of, in forks of road, 500 feet south of Long Lake schoolhouse; iron post stamped "1235 Minn".....	1, 234. 969
Clear Lake, 3.7 miles north of, east side of road, 2 feet west of fence, 400 feet south of residence; chiseled square on large granite rock.....	1, 240. 51

SEAVEY QUADRANGLE.

[Latitude, 46° 15'-46° 30'; longitude, 93° 15'-93° 30'.]

From Glen east and south to point near Malmo.

Glen, 1 mile east of, at southwest corner of T road east, opposite Glen Union Church, near northeast corner of sec. 4, T. 45 N., R. 25 W.; bolt-head in top of corner post.....	1, 311. 23
Glen, 1.8 miles southeast of, northeast corner of crossroads, 2 feet south of telephone pole, southwest corner of sec. 3, T. 45 N., R. 25 W.; nail head in stump.....	1, 302. 15
Malmo, 5.2 miles northeast of, 26 feet west of public road, 0.9 mile north of primary traverse station No. 18 mark; bolt-head in top of pine stump ...	1, 279. 19
Malmo, 4.2 miles northeast of, southeast corner of sec. 16, T. 45 N., R. 25 W.; iron post stamped "Prim. Trav. Sta. No. 18, 1279, Minn".....	1, 278. 865
Malmo, 4 miles northeast of, east side of road, opposite old house, 1,450 feet south of primary traverse station No. 18; iron post stamped "1300"....	1, 300. 380
Malmo, 3.2 miles northeast of, near southwest corner of sec. 22, T. 45 N., R. 25 W.; spike in telephone pole.....	1, 265. 74
Malmo, 1.2 miles east by 1 mile north of, east side of southwest corner of sec. 27, T. 45 N., R. 25 W.; nail head in center of small bridge.....	1, 268. 86
Malmo, 1.2 miles east of, southeast corner of crossroads, near northwest corner of sec. 3, T. 44 N., R. 25 W.; chiseled square on large granite rock in retaining wall.....	1, 265. 68

WEALTHWOOD QUADRANGLE.

[Latitude, 46° 15'-46° 30'; longitude, 93° 30'-93° 45'.]

From point 3.3 miles south of Aitkin south to Wealthwood.

Aitkin, 4.7 miles south of, 100 feet south of John Jacob's residence, west side of road; chiseled square on granite rock.....	1, 298. 00
Aitkin, 5.3 miles south of, on east side of Wealthwood road, 2 feet west of fence, 50 feet north of lane leading to John Ledstrom's residence; highest point on granite rock.....	1, 282. 69
Aitkin, 6.5 miles south of, on Wealthwood road, southwest corner of T road west, 60 feet west of Hanging Kettle Lake, 40 rods west of northeast corner of sec. 24, T. 46 N., R. 27 W.; iron post.....	1, 240. 410
Aitkin, 7.5 miles south of, on Wealthwood road, south side, 620 feet east to J. E. Peterson's residence; bolt-head in top of stump.....	1, 234. 32
Aitkin, 8.8 miles south of, south side of road, 2 feet north of fence opposite residence of Gus Malingren, at northeast corner of Alamo Park; bolt-head in root of pine stump.....	1, 281. 20
Aitkin, 9.8 miles south of, 750 feet east of Lone Lake, north side of road, at T road south, near southwest corner of sec. 21, T. 46 N., R. 26 W.; iron post stamped "1279 Minn".....	1, 278. 446
Wealthwood, 5 miles north of, west side of public road, in forks of trail southwest, 12 feet south of road, 300 feet northeast to old house; bolt-head in root of pine stump.....	1, 267. 97
Wealthwood, 3.8 miles north of, in forks of trail southeast, 13 feet east to public road; in root of pine stump; copper nail.....	1, 270. 38

Wealthwood, 2.4 miles north of, east side of Wealthwood road, 0.2 mile north by 0.5 mile west to northwest corner of sec. 8, T. 45 N., R. 26 W., 350 feet south to Z. C. Copley's residence; iron post.....	Feet. 1, 264. 177
Wealthwood, 1.7 miles north of, southwest corner of bridge over Mud River; bolthead.....	1, 251. 73
Wealthwood, 0.5 mile north of, east side of road; bolthead in top of oak stump, painted.....	1, 286. 72
Wealthwood, 600 feet north of post office, southwest corner of T road east, in school yard; iron post stamped "Prim. Trav. Sta. No. 17".....	1, 272. 691
Mille Lacs Lake; surface of water October 4, 1912.....	1, 249. 1

From sec. 21, T. 46 N., R. 26 W., southeast to Clear Lake.

Glory, 1 mile west by 1 mile north of, northeast corner of crossroads, 300 feet northwest to residence; bolthead in root of pine tree.....	1, 271. 68
Glory, 1 mile south by 0.5 mile east of, 620 feet east of Glory schoolhouse, in center and north side of bridge over Mud River; top of 1-inch iron rod.....	1, 246. 41
Glory, 1.5 miles south by 1 mile west of, at T road east, near northeast corner of sec. 26, T. 46 N., R. 26 W.; iron post stamped "1265 Minn".....	1, 265. 413
Clear Lake, 2.9 miles west of, 5 feet south of public road; nail in pine tree with blaze on north side, 1 foot above ground.....	1, 284. 50
Clear Lake, 2 miles northwest of, 15 feet north of public road, 700 feet north of August Johnson's residence, 350 feet west of small bridge; bolthead in root of pine tree.....	1, 292. 74
Clear Lake, 1.1 miles northeast of, 10 feet south of road, 1,100 feet east of northeast corner of sec. 30, T. 46 N., R. 25 W.; bolthead in root of stump.....	1, 299. 63

From point 2.6 miles southeast of Clear Lake south and west to Glen.

Clear Lake, 2.7 miles northeast of, 1.3 miles southwest of Long Lake, on west side of road, 5 feet south of fence, opposite small pond; chiseled square on large rock.....	1, 265. 70
Clear Lake, 1.6 miles north of, northwest corner of T road west, junction of Aitkin-Clear Lake road with Kimberly and Malmo roads, 40 rods south of northeast corner of sec. 20, T. 46 N., R. 25 W.; iron post stamped "1327 Minn".....	1, 326. 746
Clear Lake, 0.6 mile north of, on east side of road, opposite trail west; bolthead in top of gate post.....	1, 302. 82
Clear Lake, 700 feet north of Clear Lake schoolhouse, 75 feet west of Lake, 5 feet west of road at forks, 900 feet north of southwest corner of sec. 28, T. 46 N., R. 25 W.; bolthead in root of large pine tree.....	1, 299. 41
Glen, 50 feet east of post office, south side of road, 1 foot north of fence, 75 feet east by 20 feet south of northwest corner of sec. 4, T. 45 N., R. 25 W.; iron post stamped "1303".....	1, 303. 256

From point near Malmo west to Wealthwood.

Malmo, 0.2 mile east of, northeast corner of T road north, near southwest corner of sec. 33, T. 45 N., R. 25 W.; iron post.....	1, 268. 460
Malmo, 700 feet south of post office, 200 feet southwest of G. A. Malson's residence; bolthead in root of large oak tree.....	1, 255. 75
Mille Lacs Lake; surface of water October 15, 1912.....	1, 249. 0
Malmo, 0.9 mile northwest of, 100 feet north of road, 75 feet east of Kelmer Creek, on lake shore; nail in fence post.....	1, 251. 96
Malmo, 1.5 miles northwest of, 300 feet north of Mille Lacs Lake, 200 feet west of E. A. Bushey's residence, 100 feet north of southwest corner of sec. 29, T. 45 N., R. 25 W.; iron post.....	1, 258. 321

Malmö, 2.8 miles northeast of, 30 feet north of trail along lake, 100 feet north of lake; spike in base of telephone pole.....	Feet. 1, 255. 10
Malmö, 4.2 miles west of, 150 feet north of Mille Lacs Lake, 40 feet north of road; spike in base of telephone pole.....	1, 253. 46
Wealthwood, 2.6 miles east of, northeast corner of T road north, near line between secs. 22 and 23, 200 feet north of lake, in T. 45 N., R. 26 W.; iron post.....	1, 257. 877
Wealthwood, 1.6 miles east of, 10 feet south of road, 40 feet north of lake; bolthead in south end of old drift log in sand.....	1, 250. 84
Wealthwood, 0.6 mile east of, 4 feet south of road along lake, 25 feet south of forks of road, 200 feet southeast of W. L. Butt's residence; highest point on granite rock.....	1, 254. 42
From point 1 mile north of Clear Lake northwest to point 2 miles west of Valparaiso.	
Erick, 1.8 miles southeast of, 15 feet south of road, west end of Rabbit Lake; bolthead in root of pine tree.....	1, 278. 96
Erick, 0.8 mile east of, southeast corner of Rabbit Lake school yard; bolthead in root of pine tree.....	1, 297. 83
Erick, south side of public road, 2 feet north of fence, 300 feet south to post office; iron post stamped "1260 Minn".....	1, 259. 442
Erick, 1 mile west of, east side of road, at short turn; bolthead in top of pine stump.....	1, 254. 81
Erick, 1.7 miles west of, north side of road, 2 feet south of fence, 100 feet north of No. 12 Lake or Larson Lake, 250 feet west of John Larson's residence, 40 rods north by 15 rods west to northwest corner of sec. 12, T. 46 N., R. 25 W.; rock.....	1, 246. 44
Valparaiso, 300 feet west of post office, east side of road, 1 foot east of fence; iron post stamped "1250 Minn".....	1, 249. 545
Valparaiso, 0.6 mile west of, in forks of Y road; bolthead in top of stump.....	1, 250. 52
Valparaiso, 1.6 miles west of, north side of road, 4 feet south of fence opposite lane leading to Geo. Dean's residence; bolthead in top of oak stump.....	1, 250. 24
Valparaiso, 1.8 miles west of, south side of road, at right-angle turn; iron post stamped "Prim. Trav. Sta. No. 2, Minn., 1251".....	1, 250. 413

Duluth and Superior quadrangles.**ST. LOUIS COUNTY.**

The elevations in the following list were determined by primary leveling in 1914 by E. C. Bibbee, based on heights of bench marks of the Corps of Engineers, United States Army:

DULUTH QUADRANGLE.

[Latitude, 46° 45'-47°; longitude, 92°-92° 15'.]

Near Duluth.

Duluth, at eastern end of southern bent of posts, near north line of Railroad Street, on top surface of granite pedestal supporting an iron post of the Sixth Avenue viaduct over the railroad tracks; square of black paint 2 inches on a side (U. S. C. E. b. m. 23).....	Feet. 609. 618
Duluth, on Garfield Avenue, 350 feet south of Thompson Foundry Co., 65 feet south of south end of viaduct over railroad tracks, northeast side of street, on curb, 1 foot west of telephone pole 104; chiseled square...	606. 88
Duluth, south end of Garfield Avenue, on west side of street, on northeast corner of north pier of Omaha R. R. overhead crossing; chiseled square..	606. 03

Interstate bridge, at north end of, water surface of St. Louis Bay, Oct. 5, 1914.....	Feet. 603.08
Duluth, 400 feet east of, Mesabi Junction, on south side of Northern Pacific Ry., in top of signal-wire support; copper nail.....	617.20

SUPERIOR QUADRANGLE.

[Latitude, 46° 30' - 46° 45'; longitude, 92° - 92° 15'.]

From New Duluth northwest to Smithville, thence northeast to Duluth.

New Duluth, on north abutment at extreme west end of overhead railroad crossing of Northern Pacific and N. P. Ore. lines; chiseled square.....	655.19
New Duluth, at northwest corner of Grand and Commonwealth avenues, at southeast corner of schoolhouse yard; iron post stamped "675 Minn".....	675.300
New Duluth or Gary, on northeast corner of north concrete pier on west side of Commonwealth Avenue at overhead crossing of Duluth, Mesabi & Northern R. R.; chiseled square.....	676.74
Smithville, 0.96 mile southwest of, 100 feet south of point where old road crosses new concrete pike, 300 feet south of south line of sec. 27, 30 feet east of pike, in root of pine stump; copper nail.....	681.51
Smithville, 1,476 feet northwest of station; 43 feet eastward from railroad track, 66 feet west of public road leading from Duluth to Fond du Lac, 156 feet northeastward from railroad section house. Iron post projecting 6 inches above ground, 148 feet southward from bench mark, marked "St. P. & D. R. R.," is said to be at northeast corner of SE. $\frac{1}{4}$ NE. $\frac{1}{4}$ sec. 27, T. 49, R. 15; in vitrified clay slab in ground, surmounted by iron pipe; top of copper bolt (U. S. C. E. p. b. m. 2) (U. S. C. E. elevation 703.082).....	(not recovered)
Over p. b. m. 2, described above, on top of pipe; top of cap (U. S. C. E. p. b. m. 2A) (U. S. C. E. elevation 707.062).....	707.928
NOTE.—Bibbee tied to this b. m. in 1914, but closed 1 foot high. He reran part of line but failed to find error, then continued line to Duluth and closed 0.2 foot high on b. m. 23 of U. S. C. E.	
Smithville, 0.77 mile east of, 15 feet north of railroad at road crossing, on west end of box culvert; copper nail.....	676.58
Smithville, 1.66 miles east of, on Northern Pacific Ry., 255 feet east of milepost 145, on southeast corner of concrete base to signal 1451; chiseled square.....	635.40
West Duluth, 7 feet north of railroad, 320 feet east of milepost 146, 50 feet west of Raleigh Street, on southeast corner of concrete foundation to signal 1461; chiseled square.....	642.44
West Duluth, 410 feet east of Northern Pacific Ry. and Duluth, Winnipeg & Pacific R. R. overhead crossing, 10 feet north of Northern Pacific Ry., on top of most western concrete pier; bronze tablet, stamped "635 Minn".....	634.707
West Duluth, 115 feet east of milepost 148, 5 feet south of Northern Pacific Ry., directly opposite west end of Standard Oil Co.'s warehouse, 50 feet east of Second Street, on concrete pier; chiseled square.....	630.93
Duluth, on Northern Pacific Ry., 5 feet south of south rail, directly opposite Duluth Brewing & Malting Co., in east rail support, 7 feet east of milepost 149; copper nail.....	623.41

APPENDIX A.

ELEVATIONS ADJUSTED BY THE COAST AND GEODETIC SURVEY FROM PRECISE LEVELING.

Ada, Aitkin, Albany, Alma, Angus, Anoka, Argyle, Ashby, Axel, Backus, Barnesville, Barrett, Belle Prairie, Beltrami, Bemidji, Bena, Boyd, Brainerd, Campbell, Carmon Falls, Carlton, Cass Lake, Center City, Clearwater, Cohasset, Collegeville, Crookston, Cross Lake, Cuyuna, Deer Lake, Duluth, Echo, Elk River, Fargo, Felton, Fergus Falls, Graceville, Hallock, Hawley, Kennedy, La Crescent, Lake Carlos, Lake City, Lake Crystal, Lake Elmo, Lake Itasca, Lake Washington, La Prairie, Little Falls, McGregor, Madelia, Madison, Mahtowa, Maiden Rock, Mankato, Milan, Mildred, Minneapolis, Montevideo, Moose, Morgan, Morton, New Prague, New Ulm, Ortonville, Osakis, Pembina, Pine City, Pine River, Pokegama Lake, Portage Lake, Red Wing, Redwood Falls, Rush City, St. Cloud, St. Paul, St. Peter, Sandstone, Sauk Center, Sleepy Eye, Stillwater, Stoddard, Superior, Sylvan, Urness, Verdon, Wabasha, Wahpeton, Walker, Warren, Wendell, Wheaton, White Bear, White Rock, Willow River, and Winona quadrangles.

AITKIN, ANOKA, BELTRAMI, BENTON, BIG STONE, CARLTON, CASS, CHIPPEWA, CHISAGO, CLAY, CLEARWATER, CROW WING, DAKOTA, DOUGLAS, GOODHUE, GRANT, HENNEPIN, HUBBARD, KITTSON, MARSHALL, MORRISON, NICOLLET, NORMAN, PINE, POLK, RAMSEY, RENVILLE ST. LOUIS, SCOTT, SHERBURNE, SIBLEY, STEVENS, SWIFT, TRAVERSE, WABASHA, WASHINGTON, WILKIN, AND WINONA COUNTIES.

The following descriptions and elevations are taken from reports of the Coast and Geodetic Survey and from manuscript furnished by the Chief of Engineers, United States Army, and are published by permission of the Superintendent of the Coast and Geodetic Survey and of the Chief of Engineers. The bench marks were established by the Coast and Geodetic Survey and by the Corps of Engineers, United States Army, from precise leveling and were included in the 1912 adjustment by the Coast and Geodetic Survey. The elevations are likely to be changed only slightly by any future adjustment.

DULUTH QUADRANGLE.

[Latitude, 46° 45'–47°; longitude, 92°–92° 15'.]

At Duluth.

Duluth, east corner of Lake Avenue and Superior Street, 12 feet 1 inch south of corner of Miller's Block on Lake Avenue side; upper surface of water table (U. S. C. E. b. m. 1).....	Feet. 627. 168
Duluth, at north end of Graves Slip, about 2 feet from a snubbing post and 234 feet north of first angle in wharf, established in 1887, on top surface of cap, in square of black paint; top of tack (U. S. C. E. b. m. 19)...	607. 725
Duluth, at east end of southern bent of posts, near north line of Railroad Street, top surface of granite pedestal supporting an iron post of Sixth Avenue viaduct over railroad tracks; 2-inch square of black paint (U. S. C. E. b. m. 23).....	609. 618

SUPERIOR QUADRANGLE.[Latitude, $46^{\circ} 30' - 46^{\circ} 45'$; longitude, $92^{\circ} - 92^{\circ} 15'$.]**Near West Duluth.**

West Duluth, in office doorstep of Iron Bay Iron Works, 6 inches from north jamb and 2 inches from front of step; cross cut (Iron Bay Iron Works b. m.).....	Feet. 628. 958
Duluth Union Station, about 5 miles south of, 59 feet south from railroad bridge 48, 522 feet north from West End depot, 44 feet east from Northern Pacific Ry. track, in vitrified clay slab in ground, surmounted by iron pipe:	
Top of copper bolt (U. S. C. E. p. b. m. 1).....	635. 179
Top of cap on iron pipe (U. S. C. E. p. b. m. 1 A).....	639. 155
Smithville, 1,476 feet north from station, 43 feet east of the railway track, 66 feet west of public road leading from Duluth to Fond du Lac, 156 feet northeast from railroad section house (iron post projecting 6 inches above ground, 148 feet south from bench mark, on which are letters St. P. & D. R. R., is said to be northeast corner of SE. $\frac{1}{4}$ NE. $\frac{1}{4}$ sec. 27, T. 49, R. 15), in vitrified clay slab in ground, surmounted by iron pipe:	
Top of copper bolt (U. S. C. E. p. b. m. 2).....	703. 082
Top of cap on iron pipe (U. S. C. E. p. b. m. 2 A).....	707. 062

CARLTON QUADRANGLE.[Latitude, $46^{\circ} 30' - 46^{\circ} 45'$; longitude, $92^{\circ} 15' - 92^{\circ} 30'$.]**From Short Line Park west along Northern Pacific Ry. to Carlton.**

Short Line Park, 6,562 feet west of station, 52 feet north of railroad track, at east end of high embankment on railway, in southwest corner of field, surmounted by iron pipe, in vitrified clay slab in ground:	
Top of copper bolt (U. S. C. E. p. b. m. 3).....	956. 021
Top of cap on iron pipe (U. S. C. E. p. b. m. 3 A).....	960. 014
Thomson, 6,890 feet east of station, 49 feet south of railroad track, 298 feet west of cattle guard and 2.5 feet north of south right of way fence, surmounted by iron pipe, in vitrified clay slab in ground:	
Top of copper bolt (U. S. C. E. p. b. m. 4).....	1, 070. 687
Top of cap on iron pipe (U. S. C. E. p. b. m. 4 A).....	1, 074. 664
Carlton, Carlton County courthouse, first window north of tower on west side of building, on top of sill; cross cut marked "U. S. + B. M." (U. S. C. E. p. b. m. 5).....	1, 089. 860

MAHTOWA QUADRANGLE.[Latitude, $46^{\circ} 30' - 46^{\circ} 45'$; longitude, $92^{\circ} 30' - 92^{\circ} 45'$.]**From Carlton southwest along Northern Pacific Ry. to Barnum.**

Carlton, about 6 miles south from, 371 feet east from northwest corner of sec. 1, T. 47, R. 17, 190 feet north from O'Donnell's house, 1 foot south from south fence of Superior and St. Paul military road, on land of Michael O'Donnell, surmounted by iron pipe, in vitrified clay slab:	
Top of copper bolt (U. S. C. E. p. b. m. 6).....	1, 113. 560
Top of cap on iron pipe (U. S. C. E. p. b. m. 6 A).....	1, 117. 544
Blackhoof River, 500 feet west from bridge over, about 100 feet north from military road, 8.5 miles east from Barnum (two Norway pine trees blazed, stand respectively 79 feet north and 62 feet northeast from bench mark), surmounted by iron pipe, in vitrified clay slab in ground:	
Top of copper bolt (U. S. C. E. p. b. m. 7).....	1, 091. 146
Top of cap on iron pipe (U. S. C. E. p. b. m. 7 A).....	1, 095. 145

Barnum, 3.9 miles east of, 193 feet north from junction of military road with public road to Barnum, 59 feet northwest from military road, surmounted by iron pipe, in vitrified clay slab in ground:

	Feet.
Top of copper bolt (U. S. C. E. p. b. m. 8)	1, 165. 736
Top of cap on iron pipe (U. S. C. E. p. b. m. 8 A)	1, 169. 705

Barnum, 1 mile east of, in southeast corner of sec. 36, 17 feet north from corner of Tps. 46 and 47, Rs. 18 and 19, being northwest corner of T. 46, R. 18, in Carlton County; township corner is marked by an iron bolt driven about 3 feet in ground in public road, surmounted by iron pipe, in vitrified clay slab in ground:

Top of copper bolt (U. S. C. E. p. b. m. 9)	1, 181. 812
Top of cap on iron pipe (U. S. C. E. p. b. m. 9 A)	1, 185. 824

WILLOW RIVER QUADRANGLE.

[Latitude, 46° 15'–46° 30'; longitude, 92° 45'–93°.]

From Moose Lake south along Northern Pacific Ry. to Rutledge.

Moose Lake, 525 feet east from a warehouse under which is northwest corner of sec. 21, T. 46, R. 19, 282 feet east from railroad station, 145 feet east from track, 20 feet 8 inches from southeast corner of L. L. Sargeant's dwelling, surmounted by iron pipe, in vitrified clay slab in ground:

Top of copper bolt (U. S. C. E. p. b. m. 10)	1, 059. 958
Top of cap on iron pipe (U. S. C. E. p. b. m. 10 A)	1, 063. 948

Sturgeon Lake, 321 feet south from south side of railroad station, 34 feet east of track, 209 feet southwest from Cunningham's barn, on a steep hillside which slopes southeast to bed of a former lake, surmounted by iron pipe, in vitrified clay slab in ground:

Top of copper bolt (U. S. C. E. p. b. m. 11)	1, 067. 855
Top of cap on iron pipe (U. S. C. E. p. b. m. 11 A)	1, 071. 868

Willow River village, on land of H. S. Akin, 3.3 feet west of southwest corner of sec. 2, T. 44, R. 20, 23 feet from each of two white-pine witness trees to section corner above named, 108 feet northeast from Akin's house, surmounted by iron pipe, in vitrified clay slab in ground:

Top of copper bolt (U. S. C. E. p. b. m. 12)	1, 027. 409
Top of cap on iron pipe (U. S. C. E. p. b. m. 12 A)	1, 031. 396

SANDSTONE QUADRANGLE.

[Latitude, 46°–46° 15'; longitude, 92° 45'–93°.]

From Kettle River station south along Northern Pacific Ry. to Hinckley.

Kettle River station, on land of Hugh Conway, 262 feet west of a point on railroad track, 390 feet south of railroad station, 32 feet west of fence and 147 feet west from northwest corner of schoolhouse, surmounted by iron pipe, in vitrified clay slab:

Top of copper bolt (U. S. C. E. p. b. m. 13)	1, 030. 556
Top of cap on iron pipe (U. S. C. E. p. b. m. 13 A)	1, 034. 542

Miller station, 1.060 feet south of railroad section house, 45 feet east of railroad track, 60 feet southeast from east end of a wooden culvert under track, surmounted by iron pipe, in vitrified clay slab in ground:

Top of copper bolt (U. S. C. E. p. b. m. 14)	1, 129. 742
Top of cap on iron pipe (U. S. C. E. p. b. m. 14 A)	1, 133. 718

Sandstone Junction, 150 feet northwest from northwest corner of railroad station, 121 feet west of track, surmounted by iron pipe, in vitrified clay slab in ground:

Top of copper bolt (U. S. C. E. p. b. m. 15)	1, 119. 197
Top of cap on iron pipe (U. S. C. E. p. b. m. 15 A)	1, 123. 196

Hinckley, on top of granite bridge seat at northeast corner of trussed span of railroad over Grindstone River, 6 inches from south face and 6 inches from east face of stone and 10 inches from southeast corner of bed plate under inclined end post of bridge; cross cut marked "U. S. + B. M." (U. S. C. E. p. b. m. 16).....	Feet. 1, 029. 427
Hinckley, in northeast angle formed by crossing of Northern Pacific and Great Northern railroads, 123 feet northeast from center of crossing, 48 feet northwest from center of Great Northern Ry., 65 feet east from center of Northern Pacific Ry., surmounted by iron pipe, in vitrified clay slab in ground:	
Top of copper bolt (U. S. C. E. p. b. m. 17).....	1, 030. 372
Top of cap on iron pipe (U. S. C. E. p. b. m. 17 A).....	1, 034. 374

PINE CITY QUADRANGLE.

[Latitude, 45° 45'-46°; longitude, 92° 45'-93°.]

From Hinckley south along Northern Pacific Ry. to Rock Creek.

Mission Creek, 2,600 feet south of railroad station, 4.5 feet west of right-of-way fence, 46 feet east of track (there is an excavation in the railroad bed at this point about 3 feet deep), surmounted by iron pipe, in vitrified clay slab in ground:	
Top of copper bolt (U. S. C. E. p. b. m. 18).....	986. 448
Top of cap on iron pipe (U. S. C. E. p. b. m. 18 A).....	990. 455
Browns Hill, 71 feet west from north head block of railroad siding, surmounted by iron pipe, in vitrified clay slab in ground:	
Top of copper bolt (U. S. C. E. p. b. m. 19).....	973. 489
Top of cap on iron pipe (U. S. C. E. p. b. m. 19 A).....	977. 489
Pine City, in top of east end of wall supporting track stringers at north end of trussed span of railroad over Snake River, 21 inches east of east track stringer and 26 inches west of west side of inclined end post at northeast corner of span; cross cut marked "U. S. + B. M.".....	948. 738
Pine City, in south side of Robinson Park, 4 feet north of park fence, 59 feet west of southeast corner of park, 141 feet east of southwest corner of park, 151 feet west of railroad track, surmounted by iron pipe, in vitrified clay slab in ground:	
Top of copper bolt (U. S. C. E. p. b. m. 21).....	946. 166
Top of cap on iron pipe (U. S. C. E. p. b. m. 21 A).....	950. 172
Rock Creek station, on land of E. Edgerton, 54 feet east of railroad track, 53 feet southeast from southeast corner of railroad bridge 18, and 243 feet south from railroad station, near edge of small bluff, 265 feet west from Edgerton's dwelling, surmounted by iron pipe, in vitrified clay slab in ground:	
Top of copper bolt (U. S. C. E. p. b. m. 22).....	934. 280
Top of cap on iron pipe (U. S. C. E. p. b. m. 22 A).....	938. 282

RUSH CITY QUADRANGLE.

[Latitude, 45° 30'-45° 45'; longitude, 92° 45'-93°.]

From Rock Creek south along Northern Pacific Ry. to North Branch.

Rush City, in Presbyterian churchyard, 4 feet north of north wall of church and 65 feet from northwest corner of churchyard, surmounted by iron pipe, in vitrified clay slab in ground:	
Top of copper bolt (U. S. C. E. p. b. m. 23).....	915. 772
Top of cap on iron pipe (U. S. C. E. p. b. m. 23 A).....	919. 762

Rush City, north of water tank, in top of stone foundation of railroad, on northeast corner of north pier of third bent of framework from east side of track, about 4 inches from corner of stone; cross cut marked "U. S. + B. M."	Feet. 919. 296
Harris village, on north end of small knoll, 53 feet east of railroad track, 55 feet west of east fence of public road, 849 feet south from railroad station, 206 feet east from S. J. Stark's dwelling house, surmounted by iron pipe, in vitrified clay slab in ground:	
Top of copper bolt (U. S. C. E. p.b.m. 25)	897. 741
Top of cap on iron pipe (U. S. C. E. p.b.m. 25 A)	901. 718
North Branch, on top of stone foundation of water tank, on northwest corner of second pier from north end of second bent of framework from railroad track; cross cut marked "U. S. + B. M."	894. 309
North Branch, 711 feet south of south line of Third Street, 45 feet east of track, about 3 feet from right-of-way fence, surmounted by iron pipe, in vitrified clay slab in ground:	
Top of copper bolt (U. S. C. E. p.b.m. 27)	892. 731
Top of cap on iron pipe (U. S. C. E. p.b.m. 27 A)	896. 727

CENTER CITY QUADRANGLE.

[Latitude, 45° 15'-45° 30'; longitude, 92° 45'-93°.]

From North Branch south along Northern Pacific Ry. to Forest Lake.

Stacy village, on land of J. B. Dyarman, 179 feet west of railroad track, 164 feet northwest from station, 13 feet north of north side of Dyarman's dwelling, surmounted by iron pipe, in vitrified clay slab in ground:	
Top of copper bolt (U. S. C. E. p.b.m. 28)	891. 104
Top of cap on iron pipe (U. S. C. E. p.b.m. 28 A)	895. 090
Wyoming village, on R. M. Fullerton's land, 70 feet east of southeast corner of sec. 18, T. 33 N., R. 21 W., 139 feet east of railroad track, 2 feet north of north line of Fourth Street, 1,100 feet north of railroad station, surmounted by iron pipe, in vitrified clay slab in ground:	
Top of copper bolt (U. S. C. E. p.b.m. 29)	887. 501
Top of cap on iron pipe (U. S. C. E. p.b.m. 29 A)	891. 495
Forest Lake village, in top of foundation stone of railroad water tank, on north pier of second bent of framework from track; cross cut marked "U. S. + B. M." (U. S. C. E. p.b.m. 30)	915. 090
Forest Lake, on railroad reservation, 366 feet northwest from point on track on a line with north side of station, 225 feet west from track, surmounted by iron pipe, in vitrified clay slab in ground:	
Top of copper bolt (U. S. C. E. p.b.m. 31)	909. 910
Top of cap on iron pipe (U. S. C. E. p.b.m. 31 A)	913. 925
Forest Lake village, in northeast corner of lot 1, block 31, 102.5 feet west of railroad track, about 545 feet southwest from station, surmounted by iron pipe, in vitrified clay slab in ground:	
Top of copper bolt (U. S. C. E. p.b.m. 32)	909. 746
Top of cap on iron pipe (U. S. C. E. p.b.m. 32 A)	913. 735

STILLWATER QUADRANGLE.

[Latitude, 45°-45° 15'; longitude, 92° 45'-93°.]

From Forest Lake south along Northern Pacific Ry. to White Bear.

Centerville, on Mrs. Frances Kitchliis's land, 121 feet east of railroad track, 7 feet north of an oak tree, 25 feet south from northwest corner of Mrs. Kitchliis's lot and 187 feet north from her store and dwelling, surmounted by iron pipe, in vitrified clay slab in ground:	
Top of copper bolt (U. S. C. E. p. b. m. 33)	931. 790
Top of cap on iron pipe (U. S. C. E. p. b. m. 33 A)	935. 786

Bald Eagle Junction, 410 feet north of station, 75 feet east of railroad track, 3 feet west of fence, 449 feet north from the crossing of Northern Pacific and Minneapolis, St. Paul & Sault Ste. Marie railroads, surmounted by iron pipe, in vitrified clay slab in ground:

	Feet.
Top of copper bolt (U. S. C. E. p. b. m. 34)	928. 197
Top of cap on iron pipe (U. S. C. E. p. b. m. 34 A)	932. 177

WHITE BEAR QUADRANGLE.

[Latitude, 45°-45° 15'; longitude, 93°-93° 15'.]

From White Bear south along Northern Pacific Ry. to Gladstone.

White Bear, 42 feet from southwest corner of pump house, 160 feet from north end of White Bear station, on top of southeast corner of foundation stone at south end of east bent under north water tank of railroad; cross cut marked "U. S. + B. M." (U. S. C. E. p. b. m. 35)	938. 568
White Bear village, on lot 12, block 53, 37 feet east of west line of Railroad Avenue, 8 feet south of south wall of White Bear Hotel, surmounted by iron pipe, in vitrified clay slab in ground:	
Top of copper bolt (U. S. C. E. p. b. m. 36)	935. 346
Top of cap on iron pipe (U. S. C. E. p. b. m. 36 A)	939. 342
White Bear, in east side of Railroad Park, 121 feet south of south line of Fourth Street, 207 feet from northeast corner of station, 85 feet from northwest corner of brick building occupied by Union Meat Market, surmounted by iron pipe, in vitrified clay slab in ground:	
Top of copper bolt (U. S. C. E. p. b. m. 37)	935. 156
Top of cap on iron pipe (U. S. C. E. p. b. m. 37 A)	939. 145
White Bear station, 1.2 miles south of, 2 feet west of right of way fence, 46 feet east of east track of railroad, 302 feet north from head block of Minneapolis branch of railroad, 315 feet north from switchman's house, surmounted by iron pipe, in vitrified clay slab in ground:	
Top of copper bolt (U. S. C. E. p. b. m. 38)	925. 664
Top of cap on iron pipe (U. S. C. E. p. b. m. 38 A)	929. 663
White Bear, on top of foundation stone of first bent east of railroad tracks at the second highway over bridge south of, 13 feet 3 inches north of south end of mudsill foundation, bridge is 1.5 miles north of the Gladstone depot; cross cut (U. S. C. E. t. b. m. 185)	903. 200
Gladstone, 550 feet north of station, 153 feet west from southwest corner of Buford plow factory, 33 feet west of west track of railroad, in northwest angle formed by crossing of Northern Pacific and Wisconsin Central railroads, 71 feet from crossing, surmounted by iron pipe, in vitrified clay slab in ground:	
Top of copper bolt (U. S. C. E. p. b. m. 39)	896. 136
Top of cap on iron pipe (U. S. C. E. p. b. m. 39 A)	900. 130
Gladstone village, in northeast corner of lot 11, block 2, about 50 feet from northeast corner of Gladstone House, 193 feet west from St. Paul & Duluth Ry., surmounted by iron pipe, in vitrified clay slab in ground:	
Top of copper bolt (U. S. C. E. p. b. m. 40)	894. 742
Top of cap on iron pipe (U. S. C. E. p. b. m. 40 A)	898. 712

ST. PAUL QUADRANGLE.

[Latitude, 44° 45'-45°; longitude, 93°-93° 15'.]

From St. Paul to Minneapolis.

St. Paul, 0.25 mile east of Ridgewood station, on north end of east abutment of Chicago, Milwaukee & St. Paul Ry. bridge over Pleasant Avenue, in top stone, about 4 inches from northwest corner; square cut (U. S. C. E. t. b. m. 23)	815. 185
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St. Paul, 50 meters east of Ridgewood station on Chicago, Milwaukee & St. Paul Ry. Short Line between St. Paul and Minneapolis, on north end of east abutment of bridge over Victoria Street, 8 inches from northwest corner of stone, in top of stone; highest point in square cut, marked "U. □ S." (U. S. C. E. t. b. m. 22).....	Feet. 827. 846
St. Paul, on south side of Short Line, between St. Paul and Minneapolis, 250 meters east of Snelling Avenue, 16 rail lengths east of center of Macalester station, 11 meters south of center of south track, 3.5 meters east of 10 inch cottonwood tree; tile and pipe: Bolt in tile (p. b. m. Macalester)	932. 577
Top of cap.....	936. 544
St. Paul, on west abutment of Chicago, Milwaukee & St. Paul Ry. bridge over Prior Avenue, about 30 meters east of center of Marian Park station, about 10 inches from south and east edges of stone at southeast corner of south end of abutment, marked "U. □ S." (U. S. C. E. t. b. m. 18)....	908. 561
St. Paul, in west end of, about 70 meters east of Desnoyer Park station, on Pelham Street bridge over Chicago, Milwaukee & St. Paul Ry. tracks, on southwest corner of stone pedestal under west column on north side of tracks; square cut marked "U. □ S.".....	869. 070
Minneapolis, at northwest corner of University Avenue and Fifteenth Avenue SE., on north side of entrance to State University grounds, in northeast corner of top of large square granite stone; square cut (U. S. C. E. t. b. m. 13).....	840. 130
Minneapolis, on north side of Pleasant Street, 1 meter north of granitoid walk, 34 meters west of intersection of Pleasant Street and street running along in front of University buildings, in Minnesota State University campus, 15 meters south of Mechanic Arts Building, stone post about 6 inches above ground, in center; copper bolt (U. S. C. E. p. b. m. University Campus).....	842. 432
Minneapolis, at Minnesota State University, on north side of south entrance to Pillsbury Hall, 18 inches above ground and 2 meters from junction of tower and wall of main building, in north side of tower, bronze plate marked "U. S. C. and G. S.," in center of plate; horizontal line (p. b. m. Pillsbury Hall).....	847. 859
Minneapolis, at southwest corner of University and Tenth avenues, 3 inches back of curb line on west side of University Avenue, on top of stone cover of catch basin; square cut marked "U. S. □" (U. S. C. E. t. b. m. 12).....	828. 102
Minneapolis, on left bank of Mississippi River, about 150 meters below end of Great Northern Ry. bridge over Mississippi River below St. Anthony Falls, 0.5 meter west of west right of way fence of Great Northern Ry., 5 meters north of corner of fence; tile and pipe (U. S. C. E. p. b. m. 265 2), bolt in tile.	794. 001

At St. Paul.

St. Paul, on top of northern corner of pedestal block supporting southern post of fourth bent of iron piers west of the Northern Pacific Ry. track, where it passes under Third Street viaduct; cross cut (U. S. C. E. t. b. m. 193).....	711. 255
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From St. Paul southeast to Newport.

St. Paul, on southeast corner of Washington and Eagle streets, on granite curbing, directly over center of inlet grating; highest part of square cut (U. S. C. E. t. b. m. 1).....	716. 209
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St. Paul, on southeast corner of Washington and Eagle streets, 9.2 feet from south side of Washington Street, 1.0 foot above old city storehouse which stands on east side of Eagle Street:	
Top of $\frac{3}{4}$ -inch copper bolt leaded vertically in center of regulation tile 18 inches square and 4 inches thick, set 2 feet 8 inches below surface of ground (U. S. C. E. p. b. m. 65).....	Feet. 713. 978
Top of cap on 4-inch iron pipe 4 feet long set directly over and concentric with p. b. m. 65, and standing 16 inches above ground (U. S. C. E. p. b. m. 66).....	717. 981
St. Paul, on left bank of Mississippi River, on shore pier of Wabasha Street bridge, on northwest corner of upper pier, 6 inches from bridge seat stone; top of copper bolt leaded vertically, marked "U. S. P. B. M." (U. S. C. E. p. b. m. 67).....	708. 138
St. Paul, on left bank of Mississippi River, on lower wing wall of Chicago, St. Paul & Kansas City Ry. bridge, 4.76 feet above the lower end of bridge seat course and 2.75 feet back from its front edge; top of copper bolt leaded vertically, marked "U. S. P. B. M." (U. S. C. E. p. b. m. 68).....	702. 748
St. Paul, on left bank of Mississippi River, on lower bench of retaining wall of embankment of Chicago, St. Paul & Kansas City Ry. bridge; cut in top of stone, highest point of ring, marked "U. S. C. E." (old U. S. b. m. A).....	706. 737
St. Paul, about 100 feet west of Jackson Street, on north side of railroad tracks opposite Diamond Joe freight depot, at east end of retaining wall and 4 inches back from its face:	
Top of copper bolt leaded in regulation tile (U. S. C. E. p. b. m. 70)....	704. 227
Top of cap on iron pipe, about 14 inches above ground, over P. B. M. 70 (U. S. C. E. p. b. m. 71).....	708. 230
St. Paul, city courthouse, Fifth and Wabasha streets, on west end of doorsill of south entrance to basement, 6 inches from either wall; top of copper bolt leaded vertically, marked "U. S. P. B. M." (U. S. C. E. p. b. m. 72).....	779. 779
St. Paul, on north abutment, east side, lowest step of wing wall of Chicago, St. Paul & Kansas City Ry. bridge, about 2 inches from its face, about 2 inches from second step, said to have been marked by a scratch; highest point in square cut in stone (old U. S. b. m. 2 $\frac{1}{2}$).....	694. 736
St. Paul, in east end, on southeast side of wall, which is on southeast side of Schmidt & Constanx's brewery, about 120 feet north from railroad tracks and 30 feet from the sandrock bluff:	
Copper bolt in tile set 3 feet below ground (U. S. C. E. p. b. m. 73)....	699. 680
Top of cap on iron pipe standing about 12 inches above ground, over P. B. M. 73 (U. S. C. E. p. b. m. 74).....	703. 683
Dayton Bluff, 1.174 feet below depot, 1.890 feet below water tank, 1.5 feet west of west fence of Chicago, Milwaukee & St. Paul Ry., at south end of gate, at runway leading to railroad embankment:	
Top of copper bolt in tile (U. S. C. E. p. b. m. 75).....	697. 886
Top of cap on iron pipe standing about a foot above the surface, over p. b. m. 75 (U. S. C. E. p. b. m. 76).....	701. 878
Highwood, about 720 feet below station, midway between tracks, on a stone monument 7 inches square, in small square cut on top surface; highest point (U. S. C. E. t. b. m. 8).....	707. 535
Highwood station, about 3,010 feet below, between Chicago, Burlington & Quincy R. R. and Chicago, Milwaukee & St. Paul Ry. tracks, on east end of stone culvert under the latter track, on coping stone; highest point in square (U. S. C. E. t. b. m. 9).....	697. 676

Highwood station, about 1.5 miles below, opposite foot of Pig Eye Lake, several hundred feet below railroad cut, at west foot of embankment, by p. b. m. 77, on a very large, conspicuous granite boulder; highest point in square (U. S. C. E. t. b. m. 10).....	Feet. 711. 133
Highwood, 1.5 miles below, opposite foot of Pig Eye Lake, at west fence of Chicago, Milwaukee & St. Paul Ry. right of way on its east side, about 60 feet below large granite boulder carrying t. b. m. 10: Copper bolt in tile (U. S. C. E. p. b. m. 77).....	705. 888
Top of cap on iron pipe standing 14 inches above ground, over p. b. m. 77 (U. S. C. E. p. b. m. 78).....	709. 884
Red Rock, 1.350 feet above station, 140 feet south of a large boulder lying at west foot of bank overgrown with vines, 9 feet east of west right of way fence, 35 feet northeast from a 1-foot blazed oak tree, on embedded boulder; highest point in square cut (U. S. C. E. t. b. m. 11).....	725. 881

LAKE ELMO QUADRANGLE.

[Latitude, 44° 45'–45°; longitude, 92° 45'–93°.]

From Newport southeast to Hastings.

Newport, on southeast corner of a lot belonging to and at the residence of H. A. Jones, station agent of Chicago, Milwaukee & St. Paul Ry., on top of heavy iron rod driven into the ground marking his corner; on northeast edge of rod (U. S. C. E. t. b. m. 12).....	743. 591
Newport, on northeast corner of lot belonging to and at the residence of H. A. Jones, station agent of Chicago, Milwaukee & St. Paul Ry., set exactly on corner as per original gas pipe removed: Copper bolt in tile (U. S. C. E. p. b. m. 79).....	739. 749
Top of cap on iron pipe standing about 4 inches above surface of ground, over p. b. m. 79 (U. S. C. E. p. b. m. 80).....	743. 749
Newport landing, 80 feet above upper warehouse, in top of ledge two-thirds of way up river bank; top of large ringbolt with ring (old U. S. b. m. 12, also called old p. b. m. 3).....	692. 811
St. Paul Park, at southwest corner of Broadway and Third Street, on Syndicate Block, on east end of doorstep; top of copper bolt leaded vertically, marked "U. S. P. B. M." (U. S. C. E. p. b. m. 81).....	745. 297
St. Paul Park and Pullman, on street between named Tenth Avenue, at its south line and 15 feet west of right of way of Chicago, Burlington & Quincy R. R.; top of iron gas pipe (U. S. C. E. t. b. m. 14).....	752. 387
St. Paul Park and Pullman, between, on north side of Tenth Avenue, and 1.5 feet east of west right of way limit of Chicago, Burlington & Quincy R. R.: Top of copper bolt in tile (U. S. C. E. p. b. m. 83).....	750. 340
Top of cap on iron pipe standing 1 foot above ground, over p. b. m. 83 (U. S. C. E. p. b. m. 84).....	754. 332
Pullman station, 1½ miles below, 1,870 feet south of Tibbits Crossing, in upper part of long rock cut, on west side of Chicago, Burlington & Quincy R. R. track, about 2 feet above the ties, on a very hard and prominent point of ledge; highest point in square, marked "U. S. B. M." (U. S. C. E. t. b. m. 17).....	745. 471
Nininger Slough, opposite head of, 1.5 feet north of south line of Chicago, Burlington & Quincy R. R. right of way fence, about 30 feet from a blazed oak tree standing in field, facing the p. b. m.: Top of copper bolt in tile (U. S. C. E. p. b. m. 85).....	693. 700
Top of cap on iron pipe standing 14 inches above ground, over p. b. m. 85 (U. S. C. E. p. b. m. 86).....	697. 715

Island 18, behind, 1,140 meters above upper culvert at foot of Nininger Slough, several feet north of Chicago, Burlington & Quincy R. R. track, 9 feet below a small wooden box culvert under track, on an embedded sandstone; highest point in square cut (U. S. C. E. t. b. m. 22)..	Feet. 692. 961
Nininger Slough, directly opposite foot of, on west end of culvert under Chicago, Milwaukee & St. Paul Ry. track, on coping stone, 5.7 feet south of center of culvert; top of copper bolt leaded vertically (U. S. C. E. p. b. m. 87).....	691. 252
Nininger Slough, about 700 feet below mouth of, between railroad tracks, at Franklin Coulee culvert, on upper end of coping stone; highest point in square (old U. S. b. m. 23, also called old p. b. m. 4).....	694. 166
Hastings, on left bank, about 1.5 miles above, at prominent point of bluff, 0.7 mile above crossing of Chicago, Burlington & Quincy and Stillwater branch of Chicago, Milwaukee & St. Paul railroads, midway between tracks, on large sand rock; highest point in square cut, marked "U. S. B. M." The same letters, but very large, are cut in face of sand bluff just back of b. m. (U. S. C. E. t. b. m. 23).....	693. 726
Hastings, opposite, on line of Chicago, Burlington & Quincy R. R., 108.5 feet east from center of track and 169.5 feet south from its crossing with Stillwater branch of Chicago, Milwaukee & St. Paul Ry., just west of wire fence and north of gate through it, leading to house of Thomas McDermott:	
Top of copper bolt in tile (U. S. C. E. p. b. m. 88).....	691. 435
Top of cap on iron pipe standing 1 foot above ground, over p. b. m. 88 (U. S. C. E. p. b. m. 89).....	695. 445
Hastings, opposite, on line of Chicago, Milwaukee & St. Paul Ry., 935 feet up the track from draw pier of Hastings Bridge, at bridge 270, over slough, on east end of north abutment, at south part of curve of coping stone; highest point in square, marked "U. S." (U. S. C. E. p. b. m. 96).....	690. 878
Hastings, on draw pier of Chicago, Milwaukee & St. Paul Ry. bridge, on upstream side, 6 inches south of gangway leading from draw pier to upper breakwater crib; top of masonry (U. S. C. E. p. b. m. 97).....	694. 549
Point Douglas, 723 meters above upper end of Chicago, Burlington & Quincy R. R. trestle at, on east side of track, at base of rock cut, about 80 feet above center of E. H. Whittaker's house, 178 feet above upper end of railroad bridge, which is midway between houses of G. H. Campbell and E. H. Whittaker:	
Square cut on ledge (U. S. C. E. t. b. m. 26).....	708. 515
In face of rock cut, center of copper bolt leaded horizontally directly over t. b. m. 26, marked "U. S. P. B. M." (U. S. C. E. p. b. m. 90).....	712. 043

RED WING QUADRANGLE.

[Latitude, 44° 30'-44° 45'; longitude, 92° 30'-92° 45'.]

Near Red Wing.

Red Wing, on southwest corner of Plum and Levee streets, in northeast corner of La Grange mill, in east face of foundation wall, 2.3 feet south from north face and 2.1 feet above sidewalk; center mark in copper bolt leaded horizontally, marked "U. S. P. B. M." (U. S. C. E. p. b. m. 112).....	687. 807
Red Wing, about 1,300 feet below Chicago, Milwaukee & St. Paul Ry. depot, at base and upper end of Barn Bluff, on river side of lower abutment of small railroad bridge, on first step below the top, 6 inches from first step; top of copper bolt leaded vertically, marked "U. S. P. B. M." (U. S. C. E. p. b. m. 113).....	677. 355

Barn Bluff, 0.75 mile below small railroad bridge at upper end of, at foot of Barn Bluff, about 45 feet east from northeast corner of Pioneer Lime Works, on top stone of wall retaining the wagon road; highest point in square, marked "U. \square S." (U. S. C. E. t. b. m. 57).....	Feet. 687. 794
Red Wing, 1.75 miles below, between two road crossings, about 328 feet above the slaughterhouse, 6.5 feet north from center of track, opposite a crossing signal board, 810 feet above p. b. m. 215, on an embedded rock; highest point in a square (U. S. C. E. t. b. m. 58).....	707. 633
Red Wing, nearly 2 miles below, at a wagon-road crossing, 5 feet below its east fence and 20 feet north from center of track, 0.25 mile above slaughterhouse: Copper bolt in tile (U. S. C. E. p. b. m. 114).....	697. 046
Top of cap on iron pipe, standing a foot above ground, over p. b. m. 114 (U. S. C. E. p. b. m. 115).....	701. 032

MAIDEN ROCK QUADRANGLE.

[Latitude, 44° 30'–44° 45'; longitude, 92° 15'–92° 30'.]

Near Wacouta.

Red Wing, on right bank about 2 $\frac{3}{8}$ miles below, opposite head of Island No. 26, in front of Minnesota Reform School building, on a large triangular sandstone, about 10 feet southwest of a blazed elm tree and 20 feet from shore at a medium stage; marked "U. \square S." (U. S. C. E. t. b. m. 59) ...	672. 157
Red Wing, on right bank about 3 miles below, 492 feet below the foot of Island No. 26, 39 feet from low-water shore at foot of bluffs, 2 feet above a very large and conspicuous white rock, on a large embedded bowlder; highest point in square, marked "U. S. \square " (U. S. C. E. t. b. m. 60)....	672. 250
Red Wing, about 3 $\frac{3}{8}$ miles below, $\frac{5}{8}$ mile above the head of Island No. 28, just above a little tow-head and 180 feet above a large lone elm tree near shore at a medium low stage, on a very large piece of rock; highest point in square, marked "U. S. \square " (U. S. C. E. t. b. m. 61).....	671. 268
Wacouta, 1.75 miles above, 1,722 feet above the head of South Channel, at east foot of round point of bluff on lower side of creek, above fishermen's shanties above old B. M. 32, 15 feet west from a 6-inch blazed ash tree marked "U.S.," 31 feet north from another blazed ash tree, and 20 feet east from a blazed oak tree: Copper bolt in tile (U. S. C. E. p. b. m. 116).....	676. 252
Top of cap on iron pipe standing a foot above surface of ground, over p. b. m. 116 (U. S. C. E. 117)	680. 242
Wacouta, below Ida Creek, at point of steep sand bluff, close to south side of wire fence, 17.5 feet above large elm tree in which is located t. b. m. 62: Copper bolt in tile (U. S. C. E. p. b. m. 118).....	676. 131
Top of cap on iron pipe standing about 1 foot above surface of ground, over p. b. m. 118 (U. S. C. E. p. b. m. 119)	680. 130

LAKE CITY QUADRANGLE.

[Latitude, 44° 15'–44° 30'; longitude, 92° 15'–92° 30'.]

From Wacouta southeast to Lake City.

Lake Side, about 3.75 miles above, on Lake Pepin, on the wide, flat, wooded sand point, on the first point below the United States light, about in center of the point east and west, 230 feet from end of point at a medium low stage, 262 feet W. 10° N. from east shore and 193 feet southeast from northwest shore line, trees blazed: Copper bolt in tile (U. S. C. E. p. b. m. 120).....	674. 382
Top of cap on iron pipe standing about 1 foot above ground, over p. b. m. 120 (U. S. C. E. p. b. m. 121)	678. 384

Lake Side, 3.75 miles above, about 3,280 feet below the wide, flat, wooded sand point, on right bank of Lake Pepin, 295 feet below exceedingly large rock, under a 6-inch ash tree blazed, on embedded bowlder about middle of beach; highest point in square, marked "U. \square S." (U. S. C. E. t. b. m. 66).....	Feet. 672. 177
Lake Side, about 2.75 miles above, 1.5 miles below the wide, flat, sand point, at south end of long stretch of straight shore, on right bank of Lake Pepin, 25 feet below two exceedingly large rocks in middle of the way, 20 feet from a linn tree blazed, on embedded bowlder; highest point in square, marked "U. \square S." (U. S. C. E. t. b. m. 67).....	671. 419
Lake Side, 1.5 miles above, 3,600 feet above Point no Point, on right bank of Lake Pepin, in middle of the way, 28 feet from foot of bluff, 49 feet east from a blazed elm (top of tree broken off), on east end of embedded bowlder; highest point in square, marked "U. \square S." (U. S. C. E. t. b. m. 69).....	670. 179
Point no Point, Lake Pepin, being the last point in view from Lake Side looking up the lake, 60 feet below a very large round prominent bowlder standing out in lake, 28 feet from foot of bluff, easily seen, on a large flat rock well embedded, with its upper face inclining about 25° with northeast horizon; square marked "U. \square S." (U. S. C. E. t. b. m. 70)...	668. 942
Lake Side, on Lake Pepin, at Lake Side hotel, 50 feet south from driven well on point, 7 feet east of path leading to well, 13 feet east from the oak tree bearing t. b. m. 72, in tile about 3 feet underground:	
Copper bolt (U. S. C. E. p. b. m. 122).....	674. 819
Top of cap on iron pipe standing about 1 foot above ground, over p. b. m. 122 (U. S. C. E. p. b. m. 123).....	678. 807
Florence, on Lake Pepin, at southeast corner of A. M. C. Johnson's door-yard, at northwest corner of intersecting roads, about 197 feet back from river bank, on base stone of iron fence, 2.1 feet north from corner; highest point in square marked "U. \square S." (U. S. C. E. t. b. m. 76).....	685. 337
Florence, on Lake Pepin, on the northwest corner of the same roads as t. b. m. 76, 134 feet north from the corner which is the southeast corner of A. M. C. Johnson's yard, on west side of wagon road, 6 inches back of face line produced of iron fence:	
Copper bolt in tile about 3 feet below surface (U. S. C. E. p. b. m. 124).....	679. 546
Top of cap on iron pipe standing about a foot above ground, set over p. b. m. 124 (U. S. C. E. p. b. m. 125).....	683. 545
Florence, 3,363 feet below, on Lake Pepin, on the beach, 60 feet from foot of high bank, on a large, prominent, black granite bowlder, easy to find; highest point in square, marked "U. S." (U. S. C. E. t. b. m. 77).....	672. 466
Central Point, in village on Lake Pepin, on east boundary line of Front Street, 66 feet from fence on west side of Front Street, 152 feet north from northwest corner of Main and Front streets, 92 feet from southeast corner of sawmill office, 240 feet southeast from property corner of George H. Grannis and F. A. Coon, 95 feet from southwest corner of sawmill:	
Copper bolt in tile (U. S. C. E. p. b. m. 126).....	675. 547
Top of cap on iron pipe standing about 8 inches above surface of ground, set over p. b. m. 126 (U. S. C. E. p. b. m. 127).....	679. 533

Lake City, on Lake Pepin, on west side of Front Street, between Lyon Avenue and Center Street, on T. W. Palmer's shoe store, in north end of window seat; top of copper bolt leaded vertically, marked "U. S. P. B. M." (U. S. C. E. p. b. m. 128).....	Feet. 689. 615
Lake City, on Lake Pepin, on southeast corner of Front and Center streets, on Merchants' Bank building, in east end of stone doorstep; copper bolt leaded vertically marked "U. S. P. B. M." (U. S. C. E. p. b. m. 129).....	689. 707
Lake City, on Diamond Jo Elevator, 10.5 feet west of southeast corner, on foundation stone, at west end of stone pier; southeast quarter of old cross (old U. S. b. m.).....	675. 097

WABASHA QUADRANGLE.

[Latitude, 44° 15'–44° 30'; longitude, 92°–92° 30'.]

From Lake City southeast along Mississippi River to Wabasha.

Lake City, 2 miles below, on Lake Pepin, 0.5 mile above first high bluff, 105 feet below bridge 156, on Chicago, Milwaukee & St. Paul Ry. right of way, at east fence, 115 feet from top of lake bank, at upper end of cut: Copper bolt in tile (U. S. C. E. p. b. m. 130).....	692. 036
Top of cap on iron pipe standing about a foot above ground, set over p. b. m. 130, (U. S. C. E. p. b. m. 131).....	696. 042
Lake City, 3 miles below Center Street, on Lake Pepin, 9 feet toward bluff from center of Chicago, Milwaukee & St. Paul Ry., 3,000 feet below bridge 154, opposite blazed telegraph pole, on rock embedded in side of bank and projecting 1 foot above surface; highest point in square (U. S. C. E. t. b. m. 84).....	684. 316
Keplers Coulee, on Lake Pepin, 1.5 miles above Kings Coulee station, at upper side of point of land north of railroad, covered with very large rocks, at upper end of very large bowlder supporting railroad embankment, 15 feet from center of track, 25 feet from lake; highest point in square, marked "U. S. T. B. M." (U. S. C. E. t. b. m. 86).....	679. 878
Keplers Coulee, on Lake Pepin, 1.5 miles above Kings Coulee station, on north sloping face of the exceedingly large bowlder on which t. b. m. 86 is cut; top of a copper bolt leaded vertically, marked "U. S. P. B. M." (U. S. C. E. p. b. m. 132).....	680. 763
Kings Coulee, on Lake Pepin, on Chicago, Milwaukee & St. Paul Ry. bridge 146, on north end of west abutment, on front edge of second top stone from north end; highest point in square, marked "U. S." (U. S. C. E. t. b. m. 87).....	680. 471
On Lake Pepin, 150 feet below section house, 49 feet south from center of track, 82 feet below center of bridge 146, on right of way at south fence, 7 feet east of east gatepost of gate across road leading through to Smith's land: Copper bolt in tile (U. S. C. E. p. b. m. 133).....	682. 807
Top of cap on iron pipe standing a foot above ground, set over p. b. m. 133 (U. S. C. E. p. b. m. 134).....	686. 819
Dutchmans Coulee, on Lake Pepin, 1 mile below Kings Coulee station, 853 feet below bridge 142, at upper end of small cut, 15 feet toward lake from center of track, on large, round, embedded bowlder supporting embankment; highest point in square, marked "U. □ S." (U. S. C. E. t. b. m. 88).....	679. 143
Kings Coulee, 1½ miles below, on Lake Pepin, 275 feet above bridge 140, on lake side of track, at lower end of cut, 200 feet above Copelands Coulee bridge, just above Theodore Halm's house, on embedded bowlder; highest point in square marked "U. □ S." (U. S. C. E. t. b. m. 89).....	683. 837

Reeds landing, 1.5 miles above, on Lake Pepin, at Eli Roscoe's Coulee, on south side of track, on base stone of east retaining wall in bed of creek; highest point in square, marked "U. □ S." (U. S. C. E. t. b. m. 90)....	Feet. 681.331
Reeds landing, 1.5 miles above, on Lake Pepin, at Eli Roscoe's Coulee, in point of hill between wagon road and railroad opposite John Sandburn's house, 31 feet south from center of track, 16 feet east from east bank of creek where t. b. m. 90 is located, 20 feet north from north side of road bridge:	
Copper bolt in tile 3 feet under ground. (U. S. C. E. p. b. m. 135).....	685.130
Top of cap on iron pipe standing 1 foot above ground, set over p. b. m. 135 (U. S. C. E. p. b. m. 136).....	689.129
Roscoe's Coulee, 0.75 mile below, at foot of Lake Pepin, on prominent point of south shore, at north side of north railroad ditch, 810 feet above bridge 134, 9 feet from center of track, on large embedded rock; highest point in square, marked "U. □ S." (U. S. C. E. t. b. m. 91).....	683.998
Reeds landing, 246 feet below Knapp, Stout & Co's. warehouse, on south side of Water Street, in north door of S. Trautmann's store, in south end of stone doorstep; copper bolt leaded vertically, marked "U. S. P. B. M." (U. S. C. E. p. b. m. 137).....	686.032
Reeds landing, 0.6 mile below Chicago, Milwaukee & St. Paul Ry. station, 45 feet below intersection of said railroad with tangent produced of Chicago, Milwaukee & St. Paul Ry. pontoon bridge over Mississippi River, 10 feet north from center of track, on an embedded rock; highest point in square (U. S. C. E. t. b. m. 93).....	683.421
Reeds landing, just above pontoon bridge across the Mississippi, at northwest corner of Arthur Dunn's residence which is on south side of street facing the river; bottom of corner strip. (old U. S. b. m. A.).....	690.061
Reeds landing, 58 feet east from intersection of south fence of Water Street with tangent produced of pontoon bridge, in northeast corner of Arthur Dunn's lot, 8 feet south from front fence and 1.6 feet west of east fence:	
Copper bolt in tile 3 feet under ground (U. S. C. E. p. b. m. 138).....	685.179
Top of cap on iron pipe over p. b. m. 138 (U. S. C. E. p. b. m. 139)...	689.165
Wabasha, northwest corner of Pembroke and Main streets, on The People's Bank building, near north post of door of corner entrance, directly under brick line on south side of the south window, in water table; copper bolt leaded vertically, marked "U. S. P. B. M." (U. S. C. E. p. b. m. 140).	690.550
Wabasha, at elevator, between tracks on north face of retaining wall, 3 feet above corner of wall, on west side of runway under track to elevator; on front part of top surface of corner of stone (U. S. b. m. 62½).....	677.394
Wabasha, southeast corner of Main and Bailey streets, on north front of old Commercial Hotel, on upstream end of stone doorsill between two doors, 3.5 inches out from brick wall (old U. S. b. m. E.).....	690.428
Wabasha, in lower part of, in Campbell's Addition, in northwest corner of Mrs. E. J. Dugan's lot, just above t. b. m. 96, 1.2 feet from west fence and 1.6 feet south from street fence:	
Copper bolt in tile 3 feet under ground (U. S. C. E. p. b. m. 141).....	678.372
Top of cap on iron pipe over p. b. m. 141 (U. S. C. E. p. b. m. 142)....	682.341
Teepeeota Point, in northeast corner of David Pugh's yard, 1.5 feet from east fence and 22 feet south from corner of fence, 102 feet from northeast corner of house, 89 feet from river:	
Copper bolt in tile (U. S. C. E. p. b. m. 143).....	673.014
Top of cap on iron pipe over p. b. m. 143 (U. S. C. E. p. b. m. 144)..	676.997

Alma, 1.25 miles above, on right bank, at lower line of dike closing chute behind Island No. 36, about 20 feet east of t. b. m. 102, 60 feet back from river bank, midway between elm tree and elm stub, both blazed toward the p. b. m.:

Top of copper bolt set 3 feet below surface of ground, in tile (U. S. C. E. p. b. m. 145).....	Feet. 663. 824
Top of cap on iron pipe over p. b. m. 145 (U. S. C. E. p. b. m. 146) ..	667. 817

WINONA QUADRANGLE.

[Latitude, 44°-44° 15'; longitude, 91° 30'-91° 45'.]

From Winona southeast to Homer.

Winona, on left bank of river, in abutment of Chicago & North Western Ry. bridge, at upper side of downstream bedplate of northeast post, on line with five rivets; highest point in square (old U. S. b. m. XVII).....	658. 821
Winona, on north end of Chicago & North Western Ry. bridge, on west end of first pier south of abutment, 4 feet from north face and 2 feet from end of pier; top of copper bolt leaded vertically, marked "U. S. P. B. M." (U. S. C. E. p. b. m. 166)	658. 020
Winona, on north-wing wall of land abutment of Chicago & North Western Ry. bridge, on seventh stone step from top, 5 inches back from its north face and 7 inches from west face of sixth step; top of copper bolt leaded vertically, marked "U. S. P. B. M." (U. S. C. E. p. b. m. 167).....	661. 800
Winona, new gage at, on Chicago & North Western Ry. bridge, on pier at south end of drawbridge, at lower part of its river face, dressed in the masonry to feet and tenths.....	640. 123
Winona, on down-river side of Winona waterworks engine house, on river end of stone sill of door toward river; highest point in circle (old U. S. b. m. b).....	659. 224
Winona, at entrance to waterworks standpipe, on west end of bottom step; marked by a light cross (Winona city b. m.)	658. 158
Winona, on east face of water tower, on bottom surface of a deep notch cut in base stone about 2 feet above ground, on river side of old line; highest point in square (old U. S. b. m.).....	658. 912
Winona, in courthouse, on north front of west window sill, about 1 foot above ground; top of copper bolt leaded vertically, marked "U. S. P. B. M." (U. S. C. E. p. b. m. 168).....	666. 344
Winona, of gage record, on southwest corner of East Front and Franklin streets, opposite L. C. Porter's mill, at front door of brick office, on downstream end of step; highest point in square (old U. S. b. m. B).....	657. 715
Winona, on the southwest corner of East Second and Liberty streets, on upstream end of west window sill, 19.7 feet west from east corner of building; high point in rear part of square (old U. S. b. m. on Liberty and Second streets).....	661. 095
Winona, 492 feet above bridge of Winona & Southwestern and Chicago, Burlington & Quincy railroads across the Mississippi, on north side of approach, just in rear of Mr. Keys's house, on brick barn, on upstream end of stone sill of window facing river; high point in rear part of old square (old U. S. b. m. on Keys's barn).....	667. 732
Winona, lower, on bridge of Winona & Southwestern and Chicago, Burlington & Quincy railroads, on upstream end of first pier from abutment, on southwest corner of coping stone; top of copper bolt leaded vertically, marked "U. S. P. B. M." (U. S. C. E. p. b. m. 169).....	663. 886

Minneopa, below Winona, on southwest side of Chicago, Milwaukee & St. Paul Ry. track, 82 feet below lower end of bridge over Pine Creek which is the first creek below Winona, in E. A. Goodfellow's front yard, about 45 feet below t. b. m. 129, 1.5 feet southwest from front fence:

Copper bolt in tile 3 feet under ground (U. S. C. E. p. b. m. 170)..... 650. 301

Top of cap on iron pipe over p. b. m. 170 (U. S. C. E. p. b. m. 171).... 654. 290

Lower Winona, 2.6 miles below Winona & Southwestern Ry. bridge across the Mississippi, 3,182 feet above Homer and 1,804 feet below milepost 117 of Chicago, Milwaukee & St. Paul Ry. track, 10 feet northeast from center, at mouth of wooden box drain, on large rock; highest point in square, marked "U. □ S." (U. S. C. E. t. b. m. 130)..... 655. 986

Homer, 2,920 feet below station, 1,686 feet below bridge 42, 10 feet southwest from center of track, 367 feet below p. b. m. 172 and 173, on rock; highest point in square, marked "U. □ S." (U. S. C. E. t. b. m. 131).... 660. 461

Homer, 2,552 feet below station, on bluff side of Chicago, Milwaukee & St. Paul Ry. track, 1 foot east from fence, in front of William Besner's brick house; on hill, opposite lone hickory tree standing on bluff side of wagon road:

Copper bolt in tile 3 feet below surface of ground (U. S. C. E. p. b. m. 172)..... 658. 020

Top of cap on iron pipe over p. b. m. 172 (U. S. C. E. p. b. m. 173).... 662. 013

LA CRESCENT QUADRANGLE.

[Latitude, 43° 45'-44°; longitude, 91° 15'-91° 30'.]

From Homer southeast to point near La Crosse.

Island No. 75, opposite foot of, on line of Chicago, Milwaukee & St. Paul Ry. track, 2,371 feet above milepost 120, 15 feet north from center of track, on embedded rock; highest point in square, marked "U. □ S." (U. S. C. E. t. b. m. 132)..... 658. 136

Island No. 76, opposite closing dike of, 594 feet below bridge 36, on line of Chicago, Milwaukee & St. Paul Ry. track, 15 feet north from center, on embedded rock; highest point in square, marked "U. □ S." (U. S. C. E. t. b. m. 133)..... 660. 487

Homer, 2.75 miles below, opposite end of closing dike behind Island No. 76, 656 feet below bridge 36, on Chicago, Milwaukee & St. Paul Ry. right of way, at fence on bluff side, 984 feet below milepost 120, 75 feet more or less below t. b. m. 133, about 15 feet above grade of track:

Copper bolt in tile 3 feet under ground (U. S. C. E. p. b. m. 174)..... 668. 923

Top of cap on iron pipe over p. b. m. 174 (U. S. C. E. p. b. m. 175).... 672. 925

Lamoille, 4,593 feet above, opposite foot of Island No. 77, 1,952 feet below center of bridge 32 of Chicago, Milwaukee & St. Paul Ry. track, 1,666 feet above milepost 122 from St. Paul, at upper end of cut, 8 feet northeast from center of track, on embedded boulder; highest point in square, marked "U. □ S." (U. S. C. E. t. b. m. 135)..... 656. 387

Lamoille, 154 feet above Chicago, Milwaukee & St. Paul Ry. station, at foot of bluff, 50 feet southwest from center of track, 35 feet above upper end of bridge, 69 feet below frame house:

Top of copper bolt in tile (U. S. C. E. p. b. m. 176)..... 654. 218

Top of cap on iron pipe over p. b. m. 176 (U. S. C. E. p. b. m. 177).... 658. 204

Richmond, about 1 mile above, at E. Leach's crossing, just above upper roadside fence, 15 feet east of center of track, on embedded boulder; highest point in square, marked "U. □ S." (U. S. C. E. t. b. m. 142).... 670. 045

Richmond, 1,900 feet below bridge 16, 615 feet above the upper end of siding, 101 feet above upper end of Jacob Danenhower's house, 105 feet below lower end of barn, 47 feet west of center of Chicago, Milwaukee & St. Paul Ry. track:

Top of copper bolt in tile set 3 feet below surface of ground (U. S. C. E. p. b. m. 178).....	Feet. 655. 560
Top of cap on iron pipe over p. b. m. 178 (U. S. C. E. p. b. m. 179).....	659. 559
Richmond, in front of Queens Bluff, 639 feet above milepost 127, about at center of siding, 12 feet east of track center, on ledge of rock in small cut; highest point in square, marked "U. □ S." (U. S. C. E. t. b. m. 144)...	655. 799
Dakota, 2.25 miles above, just above Island No. 90, 656 feet above Henry Winters's house, on line of Chicago, Milwaukee & St. Paul Ry., 12 feet west of center of track; highest point in square, marked "U. □ S." (U. S. C. E. t. b. m. 146)	671. 229
Richmond, 1.5 miles below, 787 feet below line of dike above head of Island No. 90, 285 feet above house of Henry Winters, directly opposite farm crossing, 39 feet from center of track toward river, 39 feet back from top of river bank:	
Copper bolt in tile 3 feet underground (U. S. C. E. p. b. m. 180).....	662. 955
Top of cap on iron pipe set over p. b. m. 180 (U. S. C. E. p. b. m. 181)...	666. 964
Dakota, 656 feet above Chicago, Milwaukee & St. Paul Ry. station, 430 feet below milepost 131, on west side of wagon road, 262 feet west from center of track, on line with stone fence in front of Amos Shay's residence and 13 feet above its upper end, 69 feet from a lone blazed cottonwood tree standing on east side of wagon road:	
Copper bolt in tile 3 feet underground engraved "U. S. P. B. M." (U. S. C. E. p. b. m. 182).....	662. 803
Top of cap on iron pipe set over p. b. m. 182 (U. S. C. E. p. b. m. 183)....	666. 803
Dakota, 269 feet below Chicago, Milwaukee & St. Paul Ry. station, 9.5 feet west from center of track, on water-tank foundation, at lower side, front pier, on southeast corner of base stone; highest point in circle (old U. S. b. m. 131).....	652. 764
Dresbach, in upper end of, on east end of stone culvert, under high fill, 200 feet from river, on southeast corner of coping stone, on sandstone; highest point in circle (old U. S. b. m. 130½, also called old p. b. m. 18)...	648. 246
Dresbach, northwest corner of Second and G streets, on front of R. Remp's brick store, in the south end of stone doorstep; top of copper bolt leaded vertically, marked "U. S. P. B. M." (U. S. C. E. p. b. m. 184)	689. 641
Dresbach, about 3,609 feet below, about 2,792 feet below milepost 133 on line of Chicago, Milwaukee & St. Paul Ry., 12 feet east from center of track, on embedded boulder; highest point in square, marked "U. □ S." (U. S. C. E. t. b. m. 151).....	659. 874
Dresbach, about 3,609 feet below, on opposite side of track from t. b. m. 151, 425 feet below Henry Becker's house, and 280 feet above his limekiln, 62.7 feet below head block at upper end of siding, at west fence, 48.7 feet west from center of track:	
Copper bolt in tile 3 feet underground (U. S. C. E. p. b. m. 185).....	656. 307
Top of cap on iron pipe set over p. b. m. 185 (U. S. C. E. p. b. m. 186)...	660. 317
Dresbach Slough, at mouth of, 1,079 feet above milepost 135, on bank of Chicago, Milwaukee & St. Paul Ry., 12 feet west from center of track, on rock marked "U. □ S."; highest point in square (U. S. C. E. t. b. m. 153).....	663. 326

River Junction, 1.75 miles above, on line of Chicago, Milwaukee & St. Paul Ry., about 100 feet above Ferndale Cottage, 65 feet below the very large and conspicuous bowlder on west side of west ditch, 196 feet above milepost 136, on embedded bowlder; highest point in square, marked "U. □ S." (U. S. C. E. t. b. m. 154).....	Feet. 660.313
La Crescent, above, about 1,320 feet above station at River Junction, 915 feet above head block at lower end of siding, 400 feet below J. A. Selzer's stone house, 95 feet above Mr. Edwards's house, on bluff side of Chicago, Milwaukee & St. Paul Ry. track, 66 feet from center, 48 feet from side track:	
Copper bolt in tile 3 feet underground (U. S. C. E. p. b. m. 187).....	652.780
Top of cap on iron pipe set over p. b. m. 187 (U. S. C. E. p. b. m. 188)..	656.800
La Crescent, above, 590 feet above River Junction station, 50 feet west from center of Chicago, Milwaukee & St. Paul Ry. track, on a land monument which is a square stone set in ground and standing 2 feet above surface, marked on top with a diagonal line and a figure 3; highest point in upper part of figure 3 (U. S. C. E. t. b. m. 155).....	643.965
La Crosse, Wis., above, on right bank of the Mississippi, on west pier of Chicago, Milwaukee & St. Paul Ry. bridge, on upstream point or nose of capstone, in south part of old circle; highest point in small square (U. S. C. E. old U. S. b. m. 139, also called old p. b. m. 19).....	651.517
La Crosse, Wis., on west pier of Chicago, Milwaukee & St. Paul Ry. bridge above, on same pier as old b. m. 139, lower side of track, on downstream end of capstone; copper bolt leaded vertically, marked "U. S. P. B. M." (U. S. C. E. p. b. m. 189).....	653.181

MINNEAPOLIS QUADRANGLE.

[Latitude, 44° 45'-45°; longitude, 93° 15'-93° 30'.]

At Savage.

Savage, at entrance to City Hall, in northeast corner of doorsill; chiseled cross (U. S. C. E. b. m.)	722.63
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ANOKA QUADRANGLE.

[Latitude, 45°-45° 15'; longitude, 93° 15'-93° 30'.]

From Minneapolis northwest to Itasca station.

Minneapolis, bridge on University Avenue over Great Northern Ry. tracks on Second Avenue, on south abutment, in top of west end, in center of abutment, 6 inches from west end; square cut marked "U. S. P. B. M." (U. S. C. E. p. b. m. Great Northern).....	847.659
Minneapolis, on east side of Marshall Street, between Twelfth and Thirteenth avenues, office of Minneapolis Brewing Co., in north end of lowest step of main entrance, step is 1 inch above sidewalk; square cut marked "U. S. P. B. M." (U. S. C. E. p. b. m. Brewery).....	816.100
Minneapolis, at end of Seventeenth Avenue, Northern Pacific Ry. bridge over Mississippi River, on top of north end of east abutment, 8 inches from north edge and 5 inches from west edge of top stone, 2.3 meters above bridge seat; square cut (U. S. C. E. t. b. m. 11).....	827.472
Minneapolis, on west side of Marshall Street, between Twentieth and Twenty-first avenues, 17 meters from iron gate on Marshall Street, at southeast corner of main building of Gluck's brewery, 4.3 feet above ground, leaded vertically into top of water table; copper bolt marked "U. S. P. B. M." (U. S. C. E. p. b. m. Gluck).....	831.120

Minneapolis, on left bank of Mississippi River, 0.25 meter north of fence on north line of Twenty-seventh Avenue, 5 meters east of fence corner and 72 meters west of west line of Marshall Street; tile and pipe (U. S. C. E. p. b. m. 266-2):	
Copper bolt in tile.....	Feet. 829. 962
Minneapolis, on northeast corner of Marshall Street and Forty-second Avenue, property of Minneapolis Brewing Co., at main entrance to Louis Opshal's hotel and saloon, in southwest corner of stone doorstep; square cut marked "U. □ S." (U. S. C. E. t. b. m. 3).....	832. 968
Minneapolis, 0.75 mile above upper limits of, 0.25 mile above center line of sec. 27, on left bank of Mississippi River, about 75 meters back from river bank, 500 meters above angle in road, 200 meters below another angle in road, at junction of fences, 0.5 meter west of fence on west side of wagon road, 0.5 meter south of fence running west from road, tile and pipe (U. S. C. E. p. b. m. 267-2):	
Copper bolt in tile.....	831. 412
Fridley, about 0.5 mile above post office, 3.25 miles above city limits of Minneapolis, 100 meters back from left bank of river, on property of McMullen, 0.5 mile above Rice Creek, 0.5 meter south of an east-west fence along south side of cultivated strip, at corner of timber. Blazed trees: 10-inch oak, 349° distant 2.6 meters; 6-inch oak, 267° distant 4.6 meters; tile and pipe (U. S. C. E. p. b. m. 268-2):	
Copper bolt in tile.....	847. 016
Anoka, 6.5 miles below, 4.5 miles above Fridley mill, on left bank of Mississippi River, on public road between Minneapolis and Anoka, on brick schoolhouse, at front entrance, near triangulation Dunn, on north end of lower step; square cut (U. S. C. E. t. b. m. 27).....	887. 410
Minneapolis, about 9 miles above upper limits of, 250 meters west of river road on left bank of river, SW. $\frac{1}{4}$ SE. $\frac{1}{4}$ sec. 26, T. 31, R. 24, on property of John Dunn, 120 meters above Dunn's (brick) schoolhouse, in timber opposite first angle in road. Blazed trees: 12-inch oak, 298° distant 7.4 meters; 10-inch oak, 353° distant 3.4 meters; 12-inch oak, 67° distant 3.8 meters; 8-inch oak, 143° distant 3.4 meters; tile and pipe (U. S. C. E. p. b. m. triangulation Dunn):	
Bolt in tile.....	876. 934
Top of cap.....	880. 917
Anoka, 5 miles below, on Northern Pacific Ry. bridge over Coon Creek, on top of west end of north abutment of bridge, in granite stone; square cut (U. S. C. E. t. b. m. 29).....	855. 214
Dunn Island, 200 meters above, 0.75 mile above mouth of Coon Creek, at edge of timber, 100 meters back from river bank, on slope near foot of bench, 40 meters north of east-west wagon road; on property of John Dunn. Blazed trees: 20-inch oak, 79° distant 4.2 meters; 15-inch oak, 152° distant 7.0 meters; 15-inch oak, 199° distant 7.9 meters; tile and pipe (U. S. C. E. p. b. m. 269-2):	
Bolt in tile.....	835. 034
Top of cap.....	838. 988
Anoka, 3.5 miles below, on left bank of river, on line between secs. 16 and 21, T. 31 N., R. 24 W., on line between property of George Smith and Lewis Greenwald, 2 meters north of south road fence, directly south of residence of S. J. Powell, 0.5 mile below district school No. 2, on south side of river road. Blazed trees: 10-inch scrub oak, 101° distant 12.5	

meters; 24-inch scrub oak, 352° 25' distant 12.3 meters; tile and pipe (U. S. C. E. p. b. m. triangulation Powell):	
Bolt in tile.....	Feet. 867. 157
Top of cap.....	871. 144
Anoka, 2.75 miles below wagon bridge over Mississippi River, 1 meter south of east-west fence on line between secs. 17 and 20, T. 31 N., R. 24 W., about 150 meters west of corner of secs. 16, 17, 20, and 21, on property of Charles L. Gibbs, on top of left bank of river; blazed 8-inch oak tree, 301° distant 3.5 meters; tile and pipe (U. S. C. E. p. b. m. 270-2):	
Bolt in tile.....	Feet. 856. 088
Top of cap.....	860. 051
Anoka, on wagon bridge over Mississippi River, 2 feet from extreme upper point of pier, leaded vertically into top of upper end of first pier from left-bank end of bridge, on pier between abutment and draw pier; top of copper bolt, marked "U. S. P. B. M." (U. S. C. E. p. b. m. Anoka).....	849. 158
Anoka, on left bank of river, 600 meters above wagon bridge over Mississippi River, in Rice Street, 0.25 meter north of fence on south line of street, about 75 meters east of end of Rice Street, on river bank; blazed 10-inch oak tree 270° distant 42 meters; tile and pipe (U. S. C. E. p. b. m. 271-2):	
Bolt in tile.....	841. 999
Top of cap.....	845. 980
Anoka, 3 miles above, on public road 800 meters back from left bank of river, opposite foot of Clouquet Island, in corner of fence, 1 meter west of fence on west side of road, on property of A. J. Smith and 14 meters south of a point opposite south end of Smith's house; blazed 18-inch elm tree 312° distant 6.8 meters; tile and pipe (U. S. C. E. p. b. m. 272-2):	
Bolt in tile.....	857. 020
Top of cap.....	860. 983
Itasca station, about 0.5 mile below, on right of way of Great Northern Ry., about 500 meters below schoolhouse, 200 meters above foot of Goodwins Island, 150 meters above lower end of railway curve, 75 meters above a milepost marked S. 107-St. Paul 33, 0.5 meter south of north right of way fence; tile and pipe (U. S. C. E. p. b. m. 273-2):	
Bolt in tile.....	879. 877
Top of cap.....	883. 847

ELK RIVER QUADRANGLE.

[Latitude, 45° 15'-45° 30'; longitude, 93° 30'-93° 45'.]

From Itasca northwest along Mississippi River to Monticello.

Elk River, 3 miles below, 500 meters below lower end of Island No. 200, about 300 meters back from left bank of river, at edge of timber and cultivation, 1 meter toward river from wire fence on property of A. L. Stimson, sec. 14, T. 32 N., R. 26 W., about 215 meters below Stimson's house; tile and pipe. Blazed trees: 10-inch oak, 323° distant 9 meters; 4-inch oak, 61° distant 8.6 meters; 4-inch oak, 109° distant 6 meters (U. S. C. E. p. b. m. 274-2):	
Bolt in tile.....	885. 638
Top of cap.....	889. 595
Elk River, at lower end of town, 150 meters below ferry landing, on left bank of river, 0.5 meter toward river from west right of way fence of Great Northern and Northern Pacific railroads, 0.5 meter west from junction of fences, nearly in line with center of north-south street; tile and pipe (U. S. C. E. p. b. m. 275-2):	
Bolt in tile.....	891. 252
Top of cap.....	895. 205

Elk River, on top of downstream cylinder of middle pier of wagon bridge over, just above milldam, 1 foot from downstream edge of cylinder, on top of iron cap; square cut marked "U. \square S." (U. S. C. E. p. b. m. Elk River).....	Feet. 873. 240
Otsego, opposite, in north-south public road, 0.5 meter west of wire fence along east line of road, about 150 meters back from left bank of river, 57 meters north of bend in road to ferry; tile and pipe. Blazed trees: 5-inch oak, 85° distant 16.2 meters; 15-inch oak, 27° 50' distant 27.2 meters; 5-inch oak, 1° distant 15.4 meters (U. S. C. E. p. b. m. 276-2):	
Bolt in tile.....	897. 514
Top of cap.....	901. 468
Monticello, 6 miles below, 100 meters above head of Demicks Island, 75 meters from river bank, 1 meter east of wire fence along an old wagon road running nearly north. Blazed trees: 18-inch oak, 62° distant 10.2 meters; 18-inch oak, 269° distant 2 meters, on left bank of river; tile and pipe (U. S. C. E. p. b. m. 277-2):	
Bolt in tile.....	891. 166
Top of cap.....	895. 116
Monticello, 3 miles below, about 300 meters east of J. C. Johnson's house, 100 meters west of junction of fences in sec. 32, T. 33 N., R. 27 W., about 600 meters back from left bank of river, 0.5 meter south of fence on north line of road, in public road; tile and pipe (U. S. C. E. p. b. m. 278-2):	
Bolt in tile.....	925. 848
Top of cap.....	929. 755

BECKER QUADRANGLE.

[Latitude, 45° 15'–45° 30'; longitude, 93° 45'–94°.]

From Monticello northwest along Mississippi River to Bear Island.

Monticello, about 1 mile below a point opposite lower limits of, 1 meter south of fence on north line of road, in east-west public road, on north side of river; adjoining property belongs to Mr. McAllester; tile and pipe (U. S. C. E. p. b. m. triangulation East Base, Monticello base line):	
Bolt in tile.....	931. 097
Top of cap.....	935. 080
Monticello, opposite lower end of, in east-west public road, on north side of river, about 200 meters below turn in road at river bank, 1 meter south of fence on north side of road; adjoining property belongs to Mr. Taft; tile and pipe (U. S. C. E. p. b. m. triangulation West Base, Monticello base line):	
Bolt in tile.....	930. 717
Top of cap.....	934. 677
Monticello, opposite upper end of picnic grounds at lower end of, 0.5 meter north of fence on south side of road, about 100 meters west of W. M. Taft's house, about 100 meters back from left bank of river, 25 meters west of angle in fence, in east-west public road; tile and pipe (U. S. C. E. p. b. m. 279-2):	
Bolt in tile.....	933. 197
Top of cap.....	937. 151
Monticello, on wagon bridge over Mississippi River, downstream cylinder of shore pier on left bank, on top of stone cap; square cut marked "U. \square S.".....	912. 793

Monticello, about 2 miles above, one-half mile below lower end of Lanes Island (also known as Thompsons Island), about 300 meters back from left bank of river, one-half meter west of north-south fence, about 80 meters upstream from large square 2-story house, in line with center of north-south road and 39 meters south from junction of fences at road, road makes nearly a right angle at this point; tile and pipe (U. S. C. E. p. b. m. 280-2):

	Feet.
Bolt in tile.....	949.428
Top of cap.....	953.391

Monticello, 5 miles above, about 400 meters above head of Island No. 163, about 600 meters back from left bank of river, in corner of fence on west side of north-south wagon road, on property of Henry Castle, 300 meters back from edge of timber; tile and pipe (U. S. C. E. p. b. m. 281-2):

Bolt in tile.....	947.885
Top of cap.....	951.862

Bear Island (No. 161), at foot of, 300 meters back from left bank of river, one-half meter north of fence on south side of road through John Dyson's land and 70 meters downstream from his house, on public road; tile and pipe (U. S. C. E. p. b. m. 282-2):

Bolt in tile.....	965.199
Top of cap.....	969.152

Bear Island, about $2\frac{1}{2}$ miles above, $1\frac{1}{2}$ miles back from left bank of river, 42 meters down river from junction of roads, 33 meters down river from angle in fence, one-half meter north of wire fence, about 250 meters down river from J. P. Anderson's house, in public road; tile and pipe (U. S. C. E. p. b. m. 283-1):

Bolt in tile.....	969.959
Top of cap.....	973.922

CLEARWATER QUADRANGLE.

[Latitude, $45^{\circ} 15' - 45^{\circ} 30'$; longitude, $94^{\circ} - 94^{\circ} 15'$.]

Bench marks near Clearwater.

Clearwater, 3 miles below, about 0.75 mile back from left bank of river, on south side of road, 1 meter west of fence corner on north-south section line between property of Barney Powers and property of B. H. Lee, about 200 meters below house; in public road; tile and pipe (U. S. C. E. p. b. m. 284-1):

Bolt in tile.....	979.746
Top of cap.....	983.719

Clearwater, opposite, about 200 meters back from left bank of river, 200 meters above wagon road to ferry, on property of W. J. Kirk, $1\frac{1}{2}$ meters west of fence running northerly, 32 meters south of fence corner; tile and pipe. Blazed trees: 18-inch oak, 224° distant 7 meters; 15-inch oak, 249° distant 7.7 meters (U. S. C. E. p. b. m. 285-2):

Bolt in tile.....	954.561
Top of cap.....	958.525

Clearwater, 3 miles above, about 200 meters back from left bank of river, at head of Island No. 151, on high ridge, in jack oaks, about 100 meters upstream from edge of timber and cultivated field, 16 meters downstream from east-west wire fence, on south side of very large ravine; tile and pipe. Blazed trees: 4-inch oak, 19° distant 4.6 meters; 12-inch oak, 78° distant 12.9 meters; 15-inch oak, $319^{\circ} 40'$ distant 20.1 meters (U. S. C. E. p. b. m. 286-2):

Bolt in tile.....	999.923
Top of cap.....	1,003.879

St. Augusta Church spire, on public road nearly due east of, one-half meter east of junction of fences on south side of road adjoining property of Mrs. Carrie Bowen and about 150 meters north of her house; tile and pipe (U. S. C. E. p. b. m. 287-1):

	Feet.
Bolt in tile.....	1, 009. 253
Top of cap.....	1, 013. 207

ST. CLOUD QUADRANGLE.

[Latitude, 45° 30'–45° 45'; longitude, 94°–94° 15'.]

From point near St. Cloud north along Mississippi River to Rice.

St. Cloud, about 2½ miles below Normal School building, 200 meters back from left bank of river at head of Island No. 139, on property of S. A. Gray, at corner of cultivated field and timber, on high ground, one-half meter south of east-west fence, 27¼ meters east of junction of fences; tile and pipe. Blazed trees: 7-inch oak, 86° distant 8.6 meters; 9-inch oak, 146° distant 9.2 meters; 9-inch oak, 249° distant 6.5 meters (U. S. C. E. p. b. m. 288½):

Bolt in tile.....	1, 025. 221
Top of cap.....	1, 029. 231

East St. Cloud, about 500 meters below upper wagon bridge, between Fourth and Fifth streets, on property of Mr. Wilson, 5 meters back from top of left bank of river, 15 meters south of a ravine, in scrub-oak timber; tile and pipe. Blazed trees: 18-inch oak, 94° distant 3.2 meters; 24-inch oak, 242° distant 13.6 meters, 4-inch oak, 333° distant 3.8 meters (U. S. C. E. p. b. m. 289½):

Bolt in tile.....	1, 011. 494
Top of cap.....	1, 015. 462

St. Cloud, on Great Northern Ry. bridge over Mississippi River, 27 inches back from face and 24 inches from lower corner of abutment, about 26 inches below top of rail, leaded vertically into top of lower end of abutment at left-shore end of bridge; copper bolt (U. S. C. E. p. b. m. St. Cloud).....

1, 032. 189

St. Cloud, near, about 40 meters above a point opposite mouth of Sauk River, 2 inches north of hole in boulder where copper bolt was leaded by United States Army Engineers from St. Paul office, on top of left bank of Mississippi River, on granite boulder; highest point (U. S. C. E. t. b. m. 110).....

1, 003. 955

NOTE.—The copper bolt has been dug out, but t. b. m. 110 is practically at the same elevation.

Sauk Rapids, 1 mile above, 100 meters below foot of Clarks Island, directly opposite small towhead in northwest corner of small cultivated field, at junction of fences, 15 meters back from left bank of river, about 100 meters above a signboard on railroad which reads "Sauk Rapids One Mile," blazed 5-inch oak, 160° distant 11 meters; tile and pipe (U. S. C. E. p. b. m. 290½):

Bolt in tile.....	1, 001. 198
Top of cap.....	1, 005. 162

Sauk Rapids, about 200 meters below, 350 meters above mile-post 77, on Northern Pacific Ry. on east end of upper one of two drainpipes of opening under railroad; on bell of large cast-iron drainpipe directly over mark cut thus □; highest point (U. S. C. E. t. b. m. 112).....

1, 006. 317

Sauk Rapids, about 4 miles above town of, 150 meters back from left bank of river at foot of Wautab Rapids, in corner of fence on west side of public road, on property of J. K. Miller. East-west fence is Miller's south line and is center line through secs. 3 and 4. Blazed trees: 10-inch oak, 335° distant 9.1 meters; 9-inch oak, 21° distant 4.9 meters; 9-inch oak, 71° distant 1.5 meters; tile and pipe (U. S. C. E. p. b. m. 291½):	
Bolt in tile.....	Feet. 1, 025. 372
Top of cap.....	1, 029. 345
Little Rock, about 600 meters below large granite knob known as, on which is triangulation Wautab, about 600 meters back from left bank of river, on high ground back of cultivated field, 125 meters south of junction of fences, one-half meter west of fence on west side of road, on public road. Blazed trees: 6-inch oak, 278° distant 4.5 meters; 6-inch oak, 308° distant 4 meters; tile and pipe (U. S. C. E. p. b. m. 292½):	
Bolt in tile.....	1, 023. 364
Top of cap.....	1, 027. 328
Rice, 4 miles below, about one-half mile above Brockaway Schoolhouse No. 7, on property of J. H. Anderson and about 350 meters above his house, in open grassy spot, 73 meters below an east-west fence which runs to water's edge, 10 meters back from left bank of river. Blazed trees: 15-inch oak, 197° distant 9 meters; 20-inch oak, 287° 30' distant 13.5 meters; 18-inch oak, 26° distant 4.9 meters; tile and pipe (U. S. C. E. p. b. m. 293½):	
Bolt in tile.....	1, 030. 435
Top of cap.....	1, 034. 407
Rices station, 2 miles south of, 300 feet west of Northern Pacific Ry., about 10 meters south of section line, in open prairie; tile and pipe (U. S. C. E. p. b. m. triangulation Back Base, Rice base line):	
Bolt in tile.....	1, 055. 421
Top of cap.....	1, 059. 400
Rice, about 2 miles below, in public road, about one-half mile above ferry and 8 meters below section line, on left bank of river; tile and pipe (U. S. C. E. p. b. m. triangulation River Base, Rice base line):	
Bolt in tile.....	1, 051. 826
Top of cap.....	1, 055. 805
Rice, 1½ miles below, on high terrace about 200 meters back from left bank of river, 18 meters below junction of fences, one-half meter toward river from fence on north side of road adjoining property of Minneapolis Loan & Trust Co., 190 meters downstream from where road makes an angle and runs north to Rice; log house stands near angle in road, in public road; tile and pipe (U. S. C. E. p. b. m. 294½):	
Bolt in tile.....	1, 053. 823
Top of cap.....	1, 057. 799
From St. Cloud west along Great Northern Ry. to point 3.5 miles west of St. Cloud.	
St. Cloud, in 1904 the pipe was dug up, to reach the mark, and replaced with changed elevation (U. S. C. E. p. b. m. 288½):	
Top of cap.....	1, 025. 221
Top of cap.....	1, 029. 231
East St. Cloud, in 1904 access to the underground mark was had through the pipe and the cap replaced as before (U. S. C. E. p. b. m. 289½):	
Top of cap.....	1, 011. 494
Top of cap.....	1, 015. 462
St. Cloud, in 1904 the face of the bolt was badly injured, but the setting was undisturbed (p. b. m. St. Cloud).	

East St. Cloud, on northeast corner of Fifteenth Street and Seventh Avenue, 125 meters from river, 100 meters above lower wagon bridge; highest point of hydrant (C. & G. S. b. m. Hydrant 1).....	Feet. 1, 037. 144
St. Cloud, on northeast corner of Fifth Avenue and Third Street, west of river; highest point of hydrant (C. & G. S. b. m. Hydrant 2).....	1, 036. 416
St. Cloud, on northeast corner of Fifth Avenue and Fourth Street South, west of river; highest point of hydrant (C. & G. S. b. m. Hydrant 3).....	1, 036. 136
St. Cloud, on northeast corner of Sixth Avenue and Second Street South, west of river; highest point of hydrant (C. & G. S. b. m. Hydrant 4).....	1, 038. 991
St. Cloud, at corner of Fifth Avenue and Great Northern Ry., 1 block west of river, in brick wall of Carter Building, on side facing Fifth Avenue, two bricks south of northeast corner and two bricks above stone foundation, 1.3 meters above sidewalk; red metal disk (C. & G. S. b. m. A).....	1, 037. 971
St. Cloud, about 1 mile west of river, in granite wall of Great Northern Ry. passenger station, 0.3 meter north of southeast corner, 30 meters south of main track, 1 meter above platform; $\frac{3}{8}$ inch copper bolt (C. & G. S. b. m. B).....	1, 048. 679
St. Cloud, 4.2 kilometers west of, on Fergus Falls division of Great Northern Ry., at first grade crossing east of Sauk River, 15 meters north of railway track, at right-of-way fence, 1 meter east of a road north-south; 3-inch red metal cap (C. & G. S. b. m. C).....	1, 047. 794
St. Cloud, 4.8 kilometers west of, on Fergus Falls division of Great Northern Ry., on right or east bank of Sauk River, 13 meters from river and 2 meters above it, 55 meters south of railroad track and 2 meters below it, on highest point of a mass of red granite; $\frac{3}{8}$ -inch copper bolt (C. & G. S. b. m. D).....	1, 043. 095

LITTLE FALLS QUADRANGLE.

[Latitude, 45° 45'-46°; longitude, 94° 15'-94° 30'.]

From Rice north along Mississippi River to Little Falls.

Rice, about 600 meters above Russels Ferry, which is due west of, 400 meters back from left bank of river, in public road, one-half meter east of fence on west side of road, 100 feet above house of George P. McGee, who owns the property on east side of road, property on west side of road belongs to Robert Russel; tile and pipe (U. S. C. E. p. b. m. 295-2):	
Bolt in tile.....	1, 052. 439
Top of cap.....	1, 056. 408
Platt River, about 1½ miles above mouth of, opposite head of Islands Nos. 88 and 89, on property of J. H. Higgins and 230 meters downstream from his house, one-half meter south of east-west fence at edge of timber and cultivated field, 50 meters back from left bank of river. Blazed trees: 18-inch oak, 60° distant 10.6 meters; 18-inch oak, 102° distant 6.4 meters; 15-inch oak, 263° distant 5.6 meters; tile and pipe (U. S. C. E. p. b. m. 296-2):	
Bolt in tile.....	1, 044. 450
Top of cap.....	1, 048. 413
North Prairie, opposite, on top of high ridge in oak timber, 16 meters south of public road which runs from Royaltan to North Prairie ferry, about 100 meters back from corner of fence, 300 meters back from left bank of river. Blazed trees: 15-inch oak stub, 129° distant 9.3 meters; 15-inch oak stub, 228° distant 13.4 meters; tile and pipe (U. S. C. E. p. b. m. 297-2):	
Bolt in tile.....	1, 064. 975
Top of cap.....	1, 068. 955

Royalton bridge, wagon bridge over Mississippi River known as, about 1½ miles above, on top of high terrace, about 400 meters back from left bank of river, on property of Peter McDougall and about 275 meters above his house, one-half meter west of a wire fence at edge of timber and cultivated field, opposite head of Island No. 77, blazed 20-inch oak tree, 79° 25' distant 21 meters; tile and pipe (U. S. C. E. p. b. m. 298-2):		Feet.
Bolt in tile.....	1,086.946	
Top of cap.....	1,090.923	
Royalton bridge, 4½ miles above, 450 meters below Cashs Island, 250 meters below Island No. 73, opposite lower end of cultivated field, about 20 meters below a bunch of white birch trees which stand at water's edge (only birches in this vicinity), in timber, 11 meters back from left bank of river; tile and pipe. Blazed trees: 18-inch oak, 20° distant 24.9 meters; 8-inch oak, 83° distant 9.3 meters; 12-inch oak, 274° distant 6.3 meters (U. S. C. E. p. b. m. 299-2):		
Bolt in tile.....	1,091.635	
Top of cap.....	1,095.572	
Little Falls, 4 miles below, at head of Island No. 64, on property of George Kruger and 30 meters below his house, 30 meters toward river from public road, on left bank of river; tile and pipe. Blazed trees: 18-inch oak, 76° distant 9 meters; 15-inch oak, 130° distant 9 meters (U. S. C. E. p. b. m. 300-2):		
Bolt in tile.....	1,102.511	
Top of cap.....	1,106.455	
Little Falls, about 0.75 mile below, at head of Island No. 59, on property of P. W. Hayes, on his south line, at junction of fences, about 200 meters west of public road, in pasture, 400 meters back from left bank of river; tile and pipe. Blazed trees: 18-inch oak, 266° distant 18.4 meters; 10-inch oak, 294° distant 15.4 meters; 12-inch oak, 125° distant 23.8 meters (U. S. C. E. p. b. m. 301-2):		
Bolt in tile.....	1,111.881	
Top of cap.....	1,115.851	
Little Falls, on Hotel Buckman, at southeast corner of First Street and First Avenue South, 6 inches above sidewalk and 34 inches south of northwest corner of hotel, in top of lower step at First Street entrance to hotel; square cut marked "U. □ S." (U. S. C. E. t. b. m. 152).....		1,113.308
Little Falls, about 1 mile above railroad bridge over Mississippi River, in open place in timber opposite entrance to fair grounds, 200 meters below foot of large island, a wagon road is cut down to river in front of bench mark, 5 meters back from top of left bank of river; tile and pipe. Blazed trees: 5-inch oak, 89° distant 7.9 meters; 8-inch oak, 248° distant 21.6 meters; 8-inch oak, 294° distant 22.5 meters (U. S. C. E. p. b. m. 302-2):		
Bolt in tile.....	1,117.931	
Top of cap.....	1,121.855	

BELLE PRAIRIE QUADRANGLE.

[Latitude, 46°-46° 15'; longitude, 94° 15'-94° 30'.]

From Little Falls north along Mississippi River to Island No. 22.

Belle Prairie church, 4½ miles above Little Falls, 300 meters back from left bank of river, in public road, 0.75 meter west of fence on east side of road, 17 meters north of junction of fences, 44 meters north from line of north wall of Belle Prairie church, blazed 18-inch oak tree, 259° distant 1.9 meters; tile and pipe (U. S. C. E. p. b. m. 303-2):	
Bolt in tile.....	1,127.692
Top of cap.....	1,131.668

Belle Prairie church, 3 miles above, about 500 meters back from left bank of river, opposite foot of Island No. 45, one-half meter east of fence on west side of road, 2 meters south of fence corner, 15 meters south of Leon Bellefenil's house, in public road, blazed 20-inch oak tree, 306° distant 24 meters; tile and pipe (U. S. C. E. p. b. m. 304-2):	
Bolt in tile.....	Feet. 1, 135. 297
Top of cap.....	1, 139. 266
Fort Ripley, 4½ miles below ferry at, one-half mile below foot of Island No. 38, opposite point on river where timber commences, on property of D. Brauchaud and about 600 meters below his house, one-half meter east of north-south fence, 8 meters south of junction of fences, 100 meters above upper one of two lone pine trees which stand in cultivated field, 300 meters back from left bank of river, blazed 10-inch oak tree, 304° distant 4.4 meters; tile and pipe (U. S. C. E. p. b. m. 305-2):	
Bolt in tile.....	1, 142. 019
Top of cap.....	1, 146. 001
Fort Ripley ferry, 1½ miles below, opposite foot of Island No. 24, 500 meters below J. F. Kimball's house, adjoining property belongs to W. A. Clark, 0.75 meter from fence on west side of road, 125 meters south of junction of fences, 500 meters back from left bank of river, in north-south wagon road, blazed 7-inch oak tree, 229° distant 3 meters; tile and pipe (U. S. C. E. p. b. m. 306-2):	
Bolt in tile.....	1, 150. 319
Top of cap.....	1, 154. 312
Fort Ripley station, about 1 mile above, about 150 meters above railroad bridge over Nocosippi River, one-half meter west of fence on east side of track, 8 meters south of line of south wall of house on opposite side of track, on right of way of Northern Pacific Ry., blazed 8-inch oak tree, 281° distant 5.2 meters; southeast corner of house, 74° 26' distant 54.2 meters; tile and pipe (U. S. C. E. p. b. m. 307-2):	
Bolt in tile.....	1, 160. 116
Top of cap.....	1, 164. 102
Old Fort Ripley, 3 miles above, one-half meter east of an old fence on top of left bank of river, opposite a lone 30-inch elm snag which stands on top of right bank, 200 meters above a large bunch of small pine trees standing near river, directly back of an 18-inch Norway pine tree which stands on slope of river bank and is the only one in the vicinity; tile and pipe. Blazed trees: 18-inch Norway pine, 110° distant 6.2 meters; 10-inch jack pine, 38° distant 7.5 meters (U. S. C. E. p. b. m. 308-2):	
Bolt in tile.....	1, 159. 502
Top of cap.....	1, 163. 472
Island No. 22, about 200 meters above, on property of George Smith and 170 meters downstream from his house, in pasture, one-half meter west of north-south fence, 50 meters north of fence corner, 300 meters back from left bank of river, lone blazed 8-inch oak tree, 214° distant 11.6 meters; tile and pipe (U. S. C. E. p. b. m. 309-2):	
Bolt in tile.....	1, 183. 124
Top of cap.....	1, 187. 097

SYLVAN QUADRANGLE.

[Latitude, 46° 15'-46° 30'; longitude, 94° 15'-94° 30'.]

Near old Crow Wing ferry.

Old Crow Wing ferry, on left bank of river near, about opposite upper mouth of Crow Wing River, on property of Charles Bailey, 15 meters north from corner of timber, 75 meters back from crest of high ridge. Mr. Bailey's house stands S. 20° E. (magnetic bearing) about 250 meters. Blazed trees: 10-inch oak, 182° distant 13.1 meters; 8-inch oak, 342° distant 6.3 meters; tile and pipe (U. S. C. E. p. b. m. 310-2):

	Feet.
Bolt in tile.....	1, 186. 461
Top of cap.....	1, 190. 434

Old Crow Wing ferry, 3 miles above, on top of high ridge, 20 meters back from water's edge on left bank of river, 500 meters below a cultivated field on right bank, low ground along river on both sides of bench mark, an 18-inch Norway pine tree stands on slope of bank 5 meters downstream and a dead snag stands 30 meters upstream on slope of bank; tile and pipe. Blazed trees: 15-inch white pine, 6° distant 6 meters; 18-inch Norway pine, 124° distant 11.2 meters (U. S. C. E. p. b. m. 311-2):

Bolt in tile.....	1, 176. 585
Top of cap.....	1, 180. 555

BRainerd QUADRANGLE.

[Latitude, 46° 15'-46° 30'; longitude, 94°-94° 15'.]

From Brainerd north along Mississippi River to mouth of Rabbit River.

Brainerd, 3½ miles below railroad bridge, 100 meters below mouth of Buffalo Creek, 50 meters above head of island, on left bank of river, on top of ridge, 30 meters back from water's edge, about 50 meters above a mound; tile and pipe. Blazed trees: 8-inch jack pine, 291° distant 4.8 meters; 10-inch jack pine, 344° distant 3.9 meters; 8-inch jack pine, 85° distant 5.9 meters. (U. S. C. E. p. b. m. 312-2):

Bolt in tile.....	1, 191. 419
Top of cap.....	1, 195. 382

Brainerd, 2¼ miles below, about 2 meters east of Northern Pacific Ry. track; one-fourth mile above milepost 3, just below road crossing, on large granite boulder; highest point (U. S. C. E. t. b. m. 195).....

1, 237. 504

Brainerd, 1.5 miles below, on Northern Pacific Ry. right of way, one-half mile below milepost 1, at south end of railroad cut, large granite boulder 5 meters east of track, 6 inches north of hole in top of boulder, on highest point; square cut (U. S. C. E. t. b. m. 196).....

1, 221. 343

Brainerd, on top of high bank, about 600 meters below lower wagon bridge over Mississippi River, 300 meters back from left bank of river, at corner of fence near southwest corner of Third and Quince streets, 5 meters north of south line of Quince Street, 40 meters north of George Sargent's house and 1 meter northwest of northeast corner of his lot; tile and pipe (U. S. C. E. p. b. m. 313-2):

Bolt in tile.....	1, 215. 303
Top of cap.....	1, 219. 272

Brainerd, in southeast corner of sanitarium (Northern Pacific Ry. Hospital) grounds, on right bank of river, at west end of Northern Pacific Ry. bridge over Mississippi River, 2 meters from east fence and 5 meters from south fence around sanitarium grounds; established under the direction of United States Army Engineers' office at St. Paul, Minn.,

in stone 16-inches square and 6 inches thick, sunk 4 feet in ground and surmounted by an iron pipe 4 inches in diameter and 4 feet long, with cast-iron cap at surface of ground marked with letters "U. S. E. B. M." (U. S. C. E. p. b. m. "Sanitarium"):

Feet.

Bolt in stone..... 1, 207. 947

Top of cap..... 1, 212. 025

Brainerd, 20 meters from edge of high ground, on prolongation of north-south street (Mill Street) leading from sawmill in northeast, supposed to be in alley of a newly surveyed addition, about 20 feet east of line of ditch running south across meadow lands, on south side of jack-pine grove; tile and pipe. Blazed trees: 8-inch jack pine, 188° distant 11.2 meters; 6-inch jack-pine, 261° distant 15.1 meters, U. S. C. E. p. b. m. triangulation South Base (Brainerd base line):

Bolt in tile..... 1, 212. 127

Top of cap..... 1, 216. 103

Brainerd, in center of Mill Street in northeast, about 150 meters from left bank of river, 11 meters nearly south of switch block on Minnesota & International Ry., 40 meters northeast of road crossing, opposite east-west roadway through Brainerd Lumber Co.'s yard; tile and pipe (U. S. C. E. p. b. m. triangulation North Base, Brainerd base line):

Bolt in tile..... 1, 203. 269

Top of cap..... 1, 207. 251

Brainerd, in northeast, 25 meters back from left bank of river, in front of X I W sawmill, 25 meters toward river from railroad track and about 250 meters below end of railroad bridge; tile and pipe. Blazed tree: Norway pine, 166° 15' distant 20.5 meters; triangulation North Base, 17° 33' distant 163.8 meters (U. S. C. E. p. b. m. 314-2):

Bolt in tile..... 1, 204. 919

Top of cap..... 1, 208. 882

Brainerd, 3 miles above sawmill in northeast, on ridge about 44 feet above water surface, one-half mile above point where river narrows up, 200 meters above a high wooded point (150 feet high), directly back of low point of land, 100 meters above a bay on right bank, 75 meters back from water's edge, on left bank of river; tile and pipe. Blazed trees: Jack pine, 181° distant 12.7 meters; jack pine, 317° distant 5.4 meters; jack pine, 23° distant 10.6 meters. (U. S. C. E. p. b. m. 315-2):

Bolt in tile..... 1, 215. 073

Top of cap..... 1, 219. 052

Rabbit River, 600 meters above mouth of, about 100 meters above Island No. 4, on left bank, about 65 meters back from top of bank, surrounded by three large white-pine trees, about 40 meters upstream from highest point of ridge; tile and pipe. Blazed trees: 36-inch white pine, 240° distant 10.3 meters; 24-inch white pine, 331° distant 2.9 meters; 36-inch white pine, 49° distant 13.5 meters (U. S. C. E. p. b. m. 317-2):

Bolt in tile..... 1, 208. 246

Top of cap..... 1, 212. 202

From Brainerd north to Hubert along Minnesota & International Ry.

Brainerd, 15 meters north of triangulation North Base, in root of 10-inch jack-pine tree; nail (U. S. C. E. t. b. m. 201)..... 1, 205. 572

Leaks, about 400 meters south of signboard, 35 meters south of road crossing, about 11 meters east of center of railroad track, in west root of 12-inch pine stump; 20-penny wire nail (U. S. C. E. p. b. m. 3)..... 1, 219. 111

Leaks, about 2 miles from, 250 meters south of milepost 6, 7.5 meters east of center of railway track, in top of 11-inch stump; 20-penny wire nail (U. S. C. E. t. b. m. 5).....	Feet. 1, 221. 448
Merrifield, about 1½ miles from, about 680 meters north of milepost 6, opposite whistling post, 7 meters east of center of railway track, in root of burnt stump; nail (U. S. C. E. t. b. m. 6).....	1, 221. 346
Merrifield station and post office, on west edge of right of way of railroad, at east end of Long Lake, 12½ meters west of center of track, 78 meters south of store end of post-office building belonging to Ernest Miles, 175 meters north of south end of Merrifield siding, one-fourth mile north of milepost 8 from Brainerd, a 16-inch jack-pine tree bearing t. b. m. 8 stands 6 meters west, an 18-inch Norway pine stands 6 meters northwest, both blazed with triangle facing the pipe; tile and pipe (U. S. C. E. p. b. m. Merrifield):	
Copper bolt.....	1, 215. 617
Iron pipe over tile.....	1, 219. 597
Merrifield, about 1½ miles from, about 900 meters north of milepost 9, 18 meters east of center of track, in north root of 12-inch jack-pine tree; 10-penny wire nail (U. S. C. E. t. b. m. 10).....	1, 218. 623
Hubert, about 2 miles southeast from, opposite third telegraph pole north of milepost 11, 20 meters west of center of track, in root of 16-inch jack-pine tree; wire nail (U. S. C. E. t. b. m. 13).....	1, 219. 847
Hubert, about 1 mile southeast from, 85 meters west of milepost 12, 14 meters north of center of track, in root of 13-inch jack-pine tree; wire nail. Tree blazed with triangle over nail (U. S. C. E. t. b. m. 14).....	1, 220. 473
Hubert, 16 meters west of center of track, 17 meters south of section house, in root of small oak tree; wire nail (U. S. C. E. t. b. m. 16).....	1, 204. 506

CROSS LAKE QUADRANGLE.

[Latitude, 46° 30'-46° 45'; longitude, 94°-94° 15'.]

Bench marks in southeast part of quadrangle near Mississippi River.

Rabbit River, 3½ miles above mouth of, on top of high ridge, on left bank of river, 100 meters back from water's edge, 75 meters above point where ridge leaves river, one-half mile below Half Moon Marsh, in sec. 1, T. 47 N., R. 30 W. of fourth principal meridian, near a Norway pine tree on top of ridge; tile and pipe. Blazed trees: Norway pine, 91° distant 16.3 meters; 20-inch white pine, 186° distant 37 meters (U. S. C. E. p. b. m. 318-2):	
Bolt in tile.....	1, 239. 128
Top of cap.....	1, 243. 088
Old Indian Mission, 500 meters above Dr. Camp's house, in timber, 75 meters below mouth of slough, on ridge bank, 30 meters back from left bank of river; tile and pipe. Blazed trees: 15-inch basswood, 257° distant 1.5 meters; 12-inch ash, 348° distant 5.5 meters; 18-inch ash, 75° distant 8.6 meters (U. S. C. E. p. b. m. 319-2):	
Bolt in tile.....	1, 178. 348
Top of cap.....	1, 182. 314
Pine River, 1½ miles below mouth of, 1 mile above Foster's house, on north slope of ridge, 5 meters back from bank of river, 25 meters upstream from highest point of ridge, in sec. 17, about 0.25-mile north of south line, on left bank of river; tile and pipe. Blazed trees: 6-inch Norway pine, 185° distant 9.6 meters; 10-inch white pine, 268° distant 9.6 meters; 6-inch Norway pine, 237° distant 3.2 meters (U. S. C. E. p. b. m. 320-2):	
Bolt in tile.....	1, 195. 096
Top of cap.....	1, 199. 066

CUYUNA QUADRANGLE.

[Latitude, 46° 30'–46° 45'; longitude, 93° 45'–94°.]

In south part of quadrangle near Mississippi River.

Pine River, 2½ miles above mouth of, 1 mile below Island Lake, 35 meters back from top of bank, 75 meters below high ridge, 2 meters west of wagon road, in sec. 15, on left bank of river; tile and pipe. Blazed trees: 8-inch ash, 195° distant 15.3 meters; 24-inch oak, 236° distant 34.2 meters; 24-inch oak, 336° distant 15 meters (U. S. C. E. p. b. m. 321–2):	Feet.
Bolt in tile.....	1, 188. 216
Top of cap.....	1, 192. 163
Towhead Rapids, about three-fourths of a mile below, in sec. 24, about 0.25 mile west of township line, on first bench back from river, opposite a point where high sand bank strikes river, near two 24-inch white-pine trees standing northeast, 54 meters back from left bank of river; tile and pipe. Blazed trees: 24-inch white pine, 302° distant 6.3 meters; 18-inch white pine, 59° distant 15.7 meters; 12-inch white pine, 148° distant 15.2 meters (U. S. C. E. p. b. m. 322–2):	
Bolt in tile.....	1, 194. 076
Top of cap.....	1, 198. 048
Island No. 1, about 25 meters above head of, on left bank of river, 5 meters back from top of high bank, 15 meters from water's edge, 15 meters downstream from small ravine; tile and pipe. Blazed trees: 15-inch white pine, 62° 20' distant 21 meters; 6-inch white pine, 179° distant 10.6 meters (U. S. C. E. p. b. m. 323–2):	
Bolt in tile.....	1, 205. 552
Top of cap.....	1, 209. 525
Dean Brook, 1½ miles above, on left bank of river, in sec. 2, on top of high bank 8 meters back from top, at east edge of cultivated field, 200 meters below house on right bank; tile and pipe. Blazed trees: 7-inch jack pine, 278° distant 9 meters; 10-inch jack pine, 217° distant 1.6 meters (U. S. C. E. p. b. m. 324–2):	
Bolt in tile.....	1, 210. 910
Top of cap.....	1, 214. 879
Hay Creek, 250 meters above mouth of, on left bank of river, on high ground 75 meters back from river, on property of John Doteler, near line fence between land of John Doteler and Frank Doteler, 339° 7' distant 65.1 meters to northwest corner of Frank Doteler's house; tile and pipe (U. S. C. E. p. b. m. 325–2):	
Bolt in tile.....	1, 204. 886
Top of cap.....	1, 208. 856
Cedar Brook, about 600 meters above mouth of, in cultivated field, just inside fence on south side of public road, 35 meters below junction of fences, 50 meters back from left bank of river, on property of D. McGillis estate, 100 meters above house and on same side of road; tile and pipe (U. S. C. E. p. b. m. 326–2):	
Bolt in tile.....	1, 196. 995
Top of cap.....	1, 200. 969

AITKIN QUADRANGLE.

[Latitude, 46° 30'–46° 45'; longitude, 93° 30'–93° 45'.]

Bench marks near Aitkin.

Aitkin, 3 miles below, on property of Conrad Schwab and about 50 meters southeast of his house, 75 meters back from left bank of river, 3 meters east of small ditch, 3 meters west of fence, in sec. 15; tile and pipe.

Blazed trees: 36-inch basswood, 39°, distant 23.1 meters; 8-inch basswood, 105°, distant 3.5 meters; 15-inch ash, 173°, distant 5.3 meters. (U. S. C. E. p. b. m. 327-2):

	Feet.
Bolt in tile.....	1, 197. 449
Top of cap.....	1, 201. 409
Aitkin, above foundation at southwest corner of L on south side of Aitkin County courthouse, 8 inches east of corner and 4 feet above ground, courthouse built in 1888, in copper bolt leaded into second course of brick; horizontal furrow, marked "U. S. P. B. M." (U. S. C. E. p. b. m. courthouse).....	1, 215. 211
Aitkin, in cultivated field, on west side of street leading to wagon bridge over Mississippi River, 0.5 meter west of fence, 11 meters south of fence corner on property of Hodgeden and McDonald, about 75 meters back from left bank of river; tile and pipe (U. S. C. E. p. b. m. 328-2):	
Bolt in tile.....	1, 197. 258
Top of cap.....	1, 201. 232
Aitkin, about 1,500 meters above wagon bridge over Mississippi River, about 20 meters back from left bank of river, at extreme lower end of point of timber, on line with east-west road, 650 meters west of angle in road at township line, 0.25 mile south of line between secs. 12 and 24; tile and pipe (U. S. C. E. p. b. m. triangulation Lower Base, Aitkin base line):	
Bolt in tile.....	1, 197. 463
Top of cap.....	1, 201. 450

From Aitkin northeast along Mississippi River to point near Waldeck.

Aitkin, cut-off about 5 miles above, on right bank on north side of Rice River cut-off, 11 meters north of cut-off, center of narrow strip of bank, 22-inch basswood tree north 5 feet blazed with a triangle; tile and pipe marked "1898" (U. S. C. E. p. b. m. cut-off):	
Bolt in tile.....	1, 200. 361
Top of cap.....	1, 204. 356
Aitkin, about 4½ miles above, opposite gate in front of house, 10 meters north of gate to river and southwest of corner of house owned by Gasper Vallencourt, in center of road, established by St. Paul office; flat stone and iron pipe (U. S. C. E. p. b. m. 202), top of cap.....	1, 203. 817
Aitkin, about 7 miles above, p. b. m. is 125 meters from right bank of river and 120 meters west of Biggar's house, 10 meters south of junction of private road at northwest corner of Biggar Brothers' field, midway between two elm trees blazed with a triangle, 1 meter from fence, on east side of State road; tile and pipe marked, "1898" (U. S. C. E. p. b. m. Biggar):	
Bolt in tile.....	1, 201. 257
Top of cap.....	1, 205. 241
Waldeck, near, 10 miles above Aitkin, 28 meters from right bank of river, 20 meters below gully on east side of road, 16 meters north of northwest corner of Sutton's house, 6 meters east of center of road, 1 meter west of fence along east side of State road; tile and pipe marked "1898" (U. S. C. E. p. b. m. Sutton):	
Bolt in tile.....	1, 204. 031
Top of cap.....	1, 208. 031

Waldeck, near, about 11 miles above Aitkin, 39 meters west of Dan Smith's house (a small white frame), 9 meters east of east fence along State road near where road turns west, near middle of first bend below Waldeck post office, 3 meters from right bank of river; flat stone and iron pipe; b. m. was established by St. Paul office (U. S. C. E. b. m. 209):	
Bolt in tile.....	Feet. 1, 205. 925
Top of cap.....	1, 209. 880
Waldeck, 12 miles above Aitkin, 52 meters from right bank of river, 1 meter west of east fence along State road, on line with east-west fence 4 meters north of Waldeck's house and post office, 30 meters northwest of house; tile and pipe marked "1898" (U. S. C. E. p. b. m. Waldeck):	
Bolt in tile.....	1, 206. 937
Top of cap.....	1, 210. 912
Waldeck, near, 21 meters from right bank of river, 66 meters northeast of Mrs. Bertha Fowlds's house, 8 meters southwest of State road, 0.5 meter east of fence in front of Mrs. Fowlds's house, near angle in fence at junction of fences, 15.2 miles above Aitkin; tile and pipe marked "1898" (U. S. C. E. p. b. m. Fowlds):	
Bolt in tile.....	1, 208. 042
Top of cap.....	1, 212. 032
Waldeck, near, about 17.5 miles above Aitkin, 1 meter from fence, 3 meters from center of State road, 4 meters above angle in fence at end of lane running east from point in front of Strand's house, 14 meters from right bank of river, 380 meters below James White's house, 700 meters east of Nelson Strand's house, 30-inch elm tree SW. 27.7 meters blazed with a triangle; tile and pipe marked "1898" (U. S. C. E. p. b. m. Strand):	
Bolt in tile.....	1, 209. 998
Top of cap.....	1, 213. 962

McGREGOR QUADRANGLE.

[Latitude, 46° 30'–46° 45'; longitude, 93° 15'–93° 30'.]

Near Portage.

Portage, near, about 20 miles above Aitkin, 125 meters below three log houses on right bank; Carlson Hendricks and Toby Carlson live on opposite side of river; on east side of State road, 49 meters from right bank, on high sand point at lower edge of balsam thicket; tile and pipe, marked 1898 (U. S. C. E. p. b. m. Carlson):	
Bolt in tile.....	1, 224. 864
Top of cap.....	1, 228. 840
Portage, near, about 23 miles above Aitkin, 290 meters north of Fred Anderson's house, 40 meters above schoolhouse No. 21, 14 meters north of State road, lower edge of small poplar trees, 400 meters from right bank of river; tile and pipe, marked 1898 (U. S. C. E. p. b. m. School):	
Bolt in tile.....	1, 222. 093
Top of cap.....	1, 226. 068

VERDON QUADRANGLE.

[Latitude, 46° 45'–47°; longitude, 93° 15'–93° 30'.]

From Portage north along Mississippi River to point near Mississippi.

Portage, near, 7 meters from right bank of river and 5 meters from State road, at log landing belonging to Pat Sanders, 1 mile above Pat Sanders's house, and 26.5 miles above Aitkin; 24-inch elm tree east 15 feet, 10-inch elm south 7 feet; both blazed with a triangle facing p. b. m.; tile and pipe, marked 1898 (U. S. C. E. p. b. m. Pat):	
Bolt in tile.....	1, 216. 713
Top of cap.....	1, 220. 693

Libby, near, 8 meters from right bank of river, opposite mouth of Sandy River, 6-inch Balm of Gilead tree 2 meters southeast, 15-inch basswood 2.8 meters south, 10-inch basswood 2.4 meters northwest, 18-inch basswood 2 meters north, 8-inch box elder 4.5 meters northeast, all blazed with a triangle facing p. b. m.; tile and pipe, marked 1898 (U. S. C. E. p. b. m. Sandy):	
Bolt in tile.....	Feet. 1, 218. 703
Top of cap.....	1, 222. 667
Libby, near, 5 meters east of State road, on top of right bank of creek draining swamp, 20 meters below center of bridge across creek, 60 meters above junction of State and Doray's roads, 120 meters from right bank of what is known as Big Lagoon; 8-inch spruce tree 3 meters northeast, blazed with a triangle, about 30.3 miles above Aitkin; a triangulation station tile and pipe, marked 1898 (U. S. C. E. p. b. m. Big Lagoon):	
Bolt in tile.....	1, 223. 808
Top of cap.....	1, 227. 807
Libby, near, 33.8 miles above Aitkin, high country on opposite side of river, 0.8 mile below what is known as high bank on river, 60 meters above mouth of creek, 179.9 meters from State road, 30 meters from right bank of river, on top of knoll covered with bowlders; tile and pipe, marked 1898 (U. S. C. E. p. b. m. Midway):	
Bolt in tile.....	1, 239. 842
Top of cap.....	1, 243. 847
Libby, near, 36.3 miles above Aitkin, on property of E. B. Wells, 10 meters from right bank of river, 1 meter north and 1 meter east of northeast corner of Mr. Well's house, which is Verdon post office, 1½ meters southeast of 20-inch pine stump 3 feet high, near corner of house; tile and pipe, marked 1898 (U. S. C. E. p. b. m. Wells):	
Bolt in tile.....	1, 234. 057
Top of cap.....	1, 238. 029
Mississippi, near, 39 miles above Aitkin, 3 meters from right bank of river, in edge of meadow, 196 meters above Frank Stone's abandoned house, which is 30 meters above mouth of creek, 125 meters east of State road, 20-inch white-oak tree south 21 meters, blazed with a triangle, old house of Frank Stone torn down and new one erected 30 meters west since p. b. m. was set; tile and pipe, marked 1898 (U. S. C. E. p. b. m. Stone):	
Bolt in tile.....	1, 236. 227
Top of cap.....	1, 240. 208
Mississippi, near, 2 meters from top of right bank of lagoon, 4 meters east of fence line around John Le Moon's house, 15 meters above Le Moon's house; State road is between fence and p. b. m.; tile and pipe, marked 1898 (U. S. C. E. p. b. m. Le Moon):	
Bolt in tile.....	1, 243. 060
Top of cap.....	1, 247. 039
Mississippi, near, about 45 miles above Aitkin, between State road and right bank of river, 12 meters from former and 20 meters from latter, 402 meters below John Tiessen's house, 100 meters below a cedar-pole bridge across ravine. Charred stumps blazed, north 22 feet, east 6.8 feet, southeast 8.5 feet, west 11.5 feet; a triangulation station tile and pipe, marked 1898 (U. S. C. E. p. b. m. Tiessen):	
Bolt in tile.....	1, 248. 750
Top of cap.....	1, 252. 737

LA PRAIRIE QUADRANGLE.

[Latitude, 47°-47° 15'; longitude, 93° 15'-93° 30'.]

From point near Mississippi north along Mississippi River to Blackberry.

Mississippi, near, 47.5 miles above Aitkin, 4 meters from top of bank of old lagoon, in vicinity of Aitkin-Itasca county line, 5-inch oak tree northeast 25 feet, 9-inch oak north 42 feet, 12-inch oak north 60 feet, all blazed with triangles facing p. b. m.; tile and pipe, marked 1898 (U. S. C. E. p. b. m. Vicinity):	Feet.
Bolt in tile.....	1, 254. 861
Top of cap.....	1, 258. 835
Mississippi, near, about 50 miles above Aitkin, 1½ miles below Split Hand Creek, 5 meters from right bank of river, on high bank 24 meters from State road; white-pine stumps, 40 inches in diameter east 18 feet, 30 inches in diameter north 18 feet, 24 inches in diameter west 15 feet, all blazed with triangles facing p. b. m.; a triangulation station tile and pipe, marked 1898 (U. S. C. E. p. b. m. Shep):	
Bolt in tile.....	1, 254. 709
Top of cap.....	1, 258. 684
Verna, near, about 52 miles above Aitkin, about 1,090 meters above Split Hand Creek, 800 meters above John Erwin's house, 6 meters from top of high bank, 105 meters above right bank of river where high bank ends, 40 meters from road; triangulation station tile and pipe (U. S. C. E. p. b. m. Split Hand):	
Bolt in tile.....	1, 263. 507
Top of cap.....	1, 267. 502
Blackberry, near, about 54 miles above Aitkin, 28 meters east from road crossing State road and road from Little Cowhorn Lake and Cowhorn Lagoon and Hamilton's ranch, 4 meters from crossroad; triangulation station tile and pipe (U. S. C. E. p. b. m. Hamilton):	
Bolt in tile.....	1, 266. 478
Top of cap.....	1, 270. 466
Blackberry, near, about 57 miles above Aitkin, on knoll 45 meters from State road northeast, near cluster of five white-pine trees, 0.5 mile above junction of State and Pokegama Lake roads, 375 meters above Edward Heinke's house, 13 meters north of corner of fence, 30-inch pine tree west 21 feet, 30-inch white pine south 35 feet, blazed with a triangle facing p. b. m. (U. S. C. E. p. b. m. Five Pines):	
Bolt in tile.....	1, 280. 564
Top of cap.....	1, 284. 545
Blackberry, near, on knoll 150 meters from right bank of river 0.75 mile east of hill that Porcupine triangulation station is on, about same distance south of Phil Zwick's house, about opposite b. m. Blackberry; a triangulation station tile and pipe, marked 1898 (U. S. C. E. p. b. m. Strawberry):	
Bolt in tile.....	1, 296. 550
Top of cap.....	1, 300. 535
Blackberry, near, 14-foot station over mark which is on high ridge 1 mile from right bank of river, a large pond lies at foot of hill on upper side and another on lower side, two tall dead snags 60 meters southwest; tile and pipe marked 1898 (U. S. C. E. Porcupine triang. sta.).	

Blackberry, near, near east end of high bridge, about 400 meters from right bank of river, 0.5 mile above b. m. Blackberry, which is on left bank, 400 meters northwest of Phil Zwick's house; tile and pipe marked 1898 (U. S. C. E. Zwick triang. sta.).

Blackberry, about 80 meters west of schoolhouse, about 70 meters west of road crossing, 71 meters east of milepost 105, 10.5 meters north of center of track of Great Northern Ry., a blazed white-pine tree stands 1 meter north of north right of way fence and about 11 meters east of pipe; tile and pipe (U. S. C. E. b. m. Blackberry):

	Feet.
Bolt in tile.....	1, 299. 042
Top of cap.....	1, 303. 015

From La Prairie southeast along Great Northern Ry. and Mississippi River to Jacobson.

La Prairie, near, about halfway between mileposts 109 and 108, at first curve east of Prairie River, 10.5 meters north of center of track; tile and pipe (U. S. C. E. p. b. m. triang. La Prairie):

Top of cap.....	1, 283. 097
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La Prairie, near, 176 meters east of milepost 107, 7 meters south of center of track, in large knot on north west side of large pine stump; wire nail (U. S. C. E. t. b. m. 226)..... 1, 295. 637

Blackberry, 10.5 meters north of center of track, 74 meters east of milepost 105, 2.5 meters east of b. m. Blackberry, in bench cut on west root of large burnt white-pine stump; 20-penny wire nail (U. S. C. E. t. b. m. 229) 1, 302. 455

Blackberry, about 80 meters west of schoolhouse, about 70 meters west of road crossing, 71 meters east of milepost 105, 10.5 meters north of center of track; tile and pipe. Blazed white-pine tree stands 1 meter north of north right of way fence about 11 meters east of pipe (U. S. C. E. b. m. Blackberry):

Bolt in tile.....	1, 299. 042
Top of cap.....	1, 303. 015

Blackberry, facing schoolhouse, about 123 meters east of milepost 105, 2 meters east of southeast corner of fence inclosing a grave, 18 meters west of a road crossing railway, about 3 meters south of south right of way fence of Eastern Ry. of Minnesota, in bench cut on northeast foot of a 24-inch white-pine tree; 20-penny wire nail. Tree has a triangle on it over the nail (U. S. C. E. t. b. m. 230) 1, 301. 756

PORTAGE QUADRANGLE.

[Latitude, 47° 15'-47° 30'; longitude, 94° 15'-94° 30'.]

From Lomond east along Great Northern Ry. to Schley.

Cuba, 100 meters east of west end of siding, 5 meters north of center of track of Great Northern Ry., in south root of 36-inch burnt stump; wire nail (U. S. C. E. t. b. m. 170)..... 1, 345. 290

Cuba, 2 miles from, 158 meters west of milepost 158, at foot of embankment on south side of track, in top of 3-foot white-pine stump; wire nail (U. S. C. E. t. b. m. 172)..... 1, 339. 751

Schley, 4½ miles from, about 380 meters east of milepost 156, at west end of borrow pit, 5 meters north of center of railroad track, in top of 2-foot pine stump; wire nail (U. S. C. E. t. b. m. 174) 1, 310. 994

Schley, about 1½ miles from, about 500 meters east of milepost 155, at foot of embankment, 6 meters south of center of track, in root of 16-inch pine stump; wire nail (U. S. C. E. t. b. m. 175) 1, 319. 951

Schley, 55 meters west of signboard reading "Station 1 mile" (meaning 1 mile east to Schley), 436 meters west of milepost 154, 5 meters south of center of track, in north part of top of 30-inch Norway pine stump; wire nail (U. S. C. E. t. b. m. 176)	Feet. 1, 329. 397
Schley, one-third mile from, 736 meters east of milepost 154, 5 meters north of center of track, in southwest root of poplar stump; wire nail (U. S. C. E. t. b. m. 177).....	1, 324. 229
Schley, about 2 miles from, 632 meters west of milepost 151, at east end of a fill, 3 meters north of center of track, in small stump; wire nail (U. S. C. E. t. b. m. 179).....	1, 317. 907

BENA QUADRANGLE.

[Latitude, 47° 15'–47° 30'; longitude, 94°–94° 15'.]

From point 3.5 miles west of Bena east along Great Northern Ry. to point near Nushka.

Bena, 3½ miles west from, 556 meters west of milepost 149, 5 meters south of center of track, in root of 26-inch pine stump; wire nail (U. S. C. E. t. b. m. 181).....	1, 316. 159
Bena, about 1½ miles from, 59 meters west of milepost 147, 3 meters north of center of track, in top of 8-inch birch stump; wire nail (U. S. C. E. t. b. m. 183).....	1, 312. 766
Bena, about 1 mile from, 168 meters east of milepost 147, 10 meters south of center of track; tile and pipe; two large Norway pines south of pipe are blazed facing pipe (U. S. C. E. p. b. m. triang. Bigosh):	
Bolt in tile.....	1, 317. 652
Top of cap.....	1, 321. 637
Bena, 620 meters west of railway station, 287 meters west of milepost 146, 10 meters south of center of track; tile and pipe (U. S. C. E. p. b. m. triang. Bena):	
Bolt in tile.....	1, 316. 336
Top of cap.....	1, 320. 312
Bena, opposite pump house for water tank and about 75 meters west of station, 21 meters south of main track and 8 meters south of south siding, in bench cut on north side of 28-inch Norway pine stump; small nail (R. R. b. m.=b. m. 117 H. Used by St. Paul United States Engineers office in 1900).....	1, 309. 063
Bena, on bank of second cut east of, 205 meters east of milepost 144, 10 meters south of center of railroad track; tile and pipe (U. S. C. E. p. b. m. triangulation Norway Grove):	
Bolt in tile.....	1, 320. 867
Top of cap.....	1, 324. 830
Bena, about 3 miles east from, 540 meters east of milepost 143, 12 meters north of center of railroad track, in root of 22-inch pine stump; wire nail (U. S. C. E. t. b. m. 188)	1, 319. 312
Bena, 3 miles east from, about 3 meters north of t. b. m. 188, on south side of large Norway pine; bench (R. R. b. m.).....	1, 318. 632
Nushka, near, at east end of a fill, 574 meters west of milepost 141, 15 meters north of center of track, in south root of 18-inch Norway pine tree; wire nail (U. S. C. E. t. b. m. 189)	1, 309. 390
Nushka, 1 meter east of east headblock of switch to siding, 2 meters north of center of track, in top of 12-inch cedar stump; wire nail (U. S. C. E. t. b. m. 191)	1, 309. 725
Nushka, near, 34 meters east of milepost 138, 12 meters north of center of track, in southeast root of 24-inch charred pine stump; wire nail (U. S. C. E. t. b. m. 192)	1, 321. 054

Nushka, near, 135 meters east of milepost 137, 10 meters south of center of track; tile and pipe (U. S. C. E. p. b. m. triang. Divide.):

	Feet.
Bolt in tile.....	1, 319. 548
Top of cap.....	1, 323. 501

DEER RIVER QUADRANGLE.

[Latitude, 47° 15'-47° 30'; longitude, 93° 48'-94°.]

From point near Nushka east along Great Northern Ry. to Deer River.

Nushka, near, 620 meters west of west end of trestle over Mississippi River, 523 meters east of milepost 135, 10.5 meters south of center of track, on top of ridge; tile and pipe (U. S. C. E. b. m. Mississipp.):

Bolt in tile.....	1, 304. 427
Top of cap.....	1, 308. 389

Ball Club, near, 58.5 meters north of center of railroad track, about 400 meters east of drawbridge over Mississippi River, on high left bank of river; stone and pipe (Established by St. Paul U. S. Army Engineers' office, 1900. U. S. C. E. b. m. 304):

Bolt in tile.....	1, 292. 629
Top of cap.....	1, 296. 553

Ball Club, about 0.5 mile west of section house, 34 meters west of milepost 133, 10.5 meters south of center of railway track; tile and pipe (U. S. C. E. b. m. Tomahawk):

Bolt in tile.....	1, 301. 845
Top of cap.....	1, 305. 794

Ball Club, at first curve east of, about one-fourth mile east of east end of Ball Club siding, in northeast corner of small cultivated patch of ground, 40 meters south of center of track, about 64 meters east of milepost 132; tile and pipe (U. S. C. E. b. m. Wigwam):

Bolt in tile.....	1, 287. 960
Top of cap.....	1, 291. 943

Ball Club, near, about 365 meters east of milepost 132, on north side of railway track, in stump; nail (t. b. m. 15 C. Established by St. Paul U. S. Army Engineers' office, 1899).....

1, 283. 849

Starke spur, 46 meters west of headblock of switch, on north bank of ditch on north side of railroad track; tile and pipe (U. S. C. E. p. b. m. triang. Starke):

Bolt in tile.....	1, 284. 575
Top of cap.....	1, 288. 553

Starke spur, 19 meters east of head block of switch, 5 meters south of center of railroad track, in top of large Norway pine stump standing on north edge of borrow pit; nail (t. b. m. 200=T. P. 368 C. Used by St. Paul U. S. Army Engineers' office in 1899).....

1, 290. 765

Starke, near, 167 meters west of milepost 129, 3.5 meters north of center of railroad track; nail (Used by St. Paul U. S. Army Engineers' office in 1899. U. S. C. E. t. b. m. 202=T. P. 354 C.).....

1, 301. 487

Deer River, near, 3 meters east of milepost 128, 7 meters south of center of track, in 24-inch Norway pine stump; wire nail (U. S. C. E. t. b. m. 203).....

1, 301. 897

Deer River, 1 mile west of, on old railroad grade on north side of track, at first curve west of milepost 126, in line with the north rail of tangent east of curve, 244 meters west of beginning of curve; tile and pipe (U. S. C. E. p. b. m. triang. Old Road):

Bolt in tile.....	1, 292. 183
Top of cap.....	1, 296. 149

Deer River, water tank of Great Northern Ry., on top of southwest corner of south one of two west stone piers; small square cut (Used by St. Paul U. S. Army Engineers' office in 1899. U. S. C. E. t. b. m. 206).....	Feet. 1, 292. 104
Deer River, 100 meters east of crossing of Great Northern Ry. and Minneapolis & Rainy River Ry., on south right of way line of Great Northern Ry.; tile and pipe (U. S. C. E. p. b. m. triang. Deer River):	
Bolt in tile.....	1, 296. 795
Top of cap.....	1, 300. 798
Deer River, about 0.5 mile south of crossing of Minneapolis & Rainy River Ry. and Eastern Ry., 17 meters south of south end of frame building used as roundhouse, 1 meter west of right-of-way fence, 8.5 meters west of center of track of Minneapolis & Rainy River Ry.; tile and pipe (U. S. C. E. b. m. roundhouse):	
Bolt in tile.....	1, 289. 345
Top of cap.....	1, 293. 279
Deer River, about 0.5 mile east of station, about 0.25 mile west of railroad bridge over Deer River, on point of high ground, 60 meters south of center of track; stone and pipe (U. S. C. E. b. m. 192):	
Bolt in tile.....	1, 283. 449
Top of cap.....	1, 287. 380
Deer River, about 0.75 mile east of station, nailed to a pile on south side of railroad bridge over Deer River; staff gage (U. S. Engineer Gage) ...	1, 280. 506
Deer River, near, about 200 meters west of milepost 124, opposite west end of spur, at south right-of-way line, in top of 10-inch tamarack stump; wire nail (U. S. C. E. t. b. m. 208)	1, 281. 697

COHASSET QUADRANGLE.

[Latitude, 47° 15'-47° 30'; longitude, 93° 30'-93° 45'.]

From Deer River southeast along Great Northern Ry. to point near Cohasset.

Hull, near, about 320 meters west of milepost 122, at south side of track, in top of 12-inch cedar stump; wire nail (U. S. C. E. t. b. m. 210).....	1, 285. 758
Hull, near, 456 meters west of milepost 120, at northwest corner of inclosure around abandoned house near top of grade, 23 meters east of corner of fence, 3 meters south of center of track, on bowlder; highest point (U. S. C. E. t. b. m. 212).....	1, 313. 715
Hull siding, 175 meters east of east headblock of switch, 6 meters south of center of track, in top of 6-inch poplar stump; wire nail (U. S. C. E. t. b. m. 213).....	1, 281. 697
Cohasset, 16 meters north of center of track, 10 meters east of Cohasset sign-board, in south root of 14-inch pine tree, the middle one of three white-pine trees in front of Cook & McHenry's saloon; wire nail (U. S. C. E. t. b. m. 215).....	1, 281. 520
Cohasset, in central part of town, about 80 meters east of station platform, 7 meters east and about 23 meters south of the southeast corner of Cook's Hotel, 12 meters north of center of track, 3 meters west of garden fence; stone and pipe (U. S. C. E. b. m. 166):	
Bolt in stone.....	1, 277. 681
Top of cap.....	1, 281. 602
Cohasset, near, 46 meters east of road crossing, 12.2 meters west of intersection of tangents of north rails of railroad, and practically on line with tangent through north rail east of curve, nearly opposite Pokegama Dam, on north side of track; tile and pipe (U. S. C. E. b. m. Dam):	
Bolt in tile	1, 288. 150
Top of cap.....	1, 292. 123

POKEGAMA LAKE QUADRANGLE.

[Latitude, 47°-47° 15'; longitude, 93° 30'-93° 45'.]

From Cohasset southeast along Great Northern Ry. to Grand Rapids.

Pokegama Lake, near, about 25 meters below Pokegama Falls, about 20 meters below office of keeper of Pokegama Dam, at top of left bank of Mississippi River, on highest point of granite boulder; point of arrow; stone has letters "U. S. B. M." cut on it near arrow, and b. m. was established in 1874 (U. S. C. E. old U. S. b. m.)	Feet. 1, 279. 561
Pokegama Lake, near, 14 meters northeast of office of keeper of Pokegama Dam, 45 meters back of top of left bank of Mississippi River, at Pokegama Falls, leaded vertically into highest point on largest granite boulder, among other boulders, in midst of old buildings used as quarters in building Pokegama Dam; top of copper bolt, letters U. S. P. B. M. are cut in granite around bolt (U. S. C. E. p. b. m. Pokegama Falls)	1, 286. 307
Pokegama Lake, near, about 20 meters from bank of river, 1 meter south of east-west fence along north side of grass field, about 25 meters upstream from west approach to Pokegama Dam, on right bank of Mississippi River; stone and pipe (U. S. C. E. b. m. 167):	
Bolt in tile	1, 278. 511
Top of cap	1, 282. 445
Grand Rapids, at first curve west of, 102 meters south of center of track, at intersection of south rail of tangent east with north rail of tangent west of this curve (U. S. C. E. p. b. m. triang. Grand Rapids):	
Bolt in tile	1, 276. 277
Top of cap	1, 280. 250
Grand Rapids, 545 meters west of station, 142 meters east of milepost 112, 24 meters north of track, in south root of 14-inch white-pine tree; wire nail (U. S. C. E. t. b. m. 220)	1, 287. 888
Grand Rapids, at east entrance to Itasca County courthouse, leaded vertically in top of south balustrade of stone steps, 14 inches from face of wall and in center of balustrade; top of copper bolt, letters U. S. P. B. M. are cut around the bolt (U. S. C. E. p. b. m. Balustrade)	1, 289. 243
Grand Rapids, on north line of cemetery, on south side of race track at fair ground; about 150 meters east of exhibit building, nearly opposite b. m. Grand Rapids, one-fourth mile south of right bank of Mississippi River; tile and pipe (p. b. m. triang. Race Track):	
Bolt in tile	1, 276. 284
Top of cap	1, 280. 254
Grand Rapids, about 580 meters east of depot, 350 meters west of milepost 111, at north right of way line, in southeast corner of garden; tile and pipe (U. S. C. E. b. m. Grand Rapids):	
Bolt in tile	1, 280. 916
Top of cap	1, 284. 889
Grand Rapids, near railroad bridge over Prairie River, leaded vertically into southeast corner of capstone in north end of west abutment, 2.5 meters north of gage line of north rail of track, 0.2 meter from north and east edges of stone; top of copper bolt (U. S. C. E. p. b. m. Prairie River)	1, 283. 029

PINE RIVER QUADRANGLE.

[Latitude, 46° 30'–46° 45'; longitude, 94° 15'–94° 30'.]

From Hubert northwest along Minnesota & International Ry. to Mildred.

Hubert, about 2 miles northwest from, on north side of farm-road crossing, 127 meters north of milepost 15, 5 meters west of center of track, in stump; wire nail (U. S. C. E. t. b. m. 18).....	Feet. 1, 225. 483
Pequot, about 5 miles from, 1,000 meters south of milepost 17, about 150 meters north of road crossing, 20 meters west of center of track, in top of 2-foot pine stump; wire nail (U. S. C. E. t. b. m. 20).....	1, 203. 514
Pequot, about 4 miles south of, 385 meters north of milepost 17, at south end of cut, 15 meters east of center of track, in root of burnt pine stump; wire nail (U. S. C. E. t. b. m. 21).....	1, 221. 106
Pequot, about 2½ miles south of, about 750 meters north of milepost 18, distant one-third length of fill from its south end, 35 meters east of center of track, in southwest root of 15-inch pine tree; wire nail (U. S. C. E. t. b. m. 22).....	1, 241. 609
Pequot, about 1½ miles south of, 378 meters south of milepost 20, 16 meters west of center of railroad track, in west root of a double jack-pine tree; wire nail (U. S. C. E. t. b. m. 23).....	1, 275. 830
Pequot, 37 meters east of center of railroad track, 20 meters south of old station, at rear of A. L. Cole's store and post office, in southwest root of double Norway pine; wire nail (U. S. C. E. t. b. m. 24).....	1, 282. 162
Pequot, in village, in northeast corner of yard of Alfred Lawrence, on south side of street leading west from A. L. Cole's store and post office, 57 meters west of center of track; tile and pipe (U. S. C. E. p. b. m. Pequot):	
Bolt in tile.....	1, 277. 527
Top of cap.....	1, 281. 497
Pequot, about 2 miles north of, 274 meters north of milepost 23, at south end of long fill and north end of long cut, 4 meters west of center of railway track, in north root of stump; wire nail (U. S. C. E. t. b. m. 26).....	1, 272. 914
Jenkins, 9 meters north of center of water tank, 11 meters west of center of track of Minnesota & International Ry., in burnt pine stump; wire nail (U. S. C. E. t. b. m. 28).....	1, 267. 275
Pine River, about 4 miles south of, opposite sixth telegraph pole north of milepost 26, 40 meters west of center of railroad track, in root of poplar tree; wire nail (U. S. C. E. t. b. m. 30).....	1, 275. 057
Pine River, about 3¼ miles south of, opposite milepost 27, 20 meters west of center of track, in east root of lone 12-inch poplar tree; wire nail (U. S. C. E. t. b. m. 31).....	1, 273. 200
Pine River, about 2¼ miles south of, 318 meters south of south end of railroad trestle over Pine River, 35 meters south of road crossing, opposite milepost 28, 17 meters west of center of track, in east root of 14-inch jack-pine (tree blazed with triangle over nail); wire nail (U. S. C. E. t. b. m. 32).....	1, 280. 224
Pine River, about a mile south of, halfway between mileposts 29 and 30, 640 meters south of trestle over Norway Brook, 5 meters west of center of track, in stump; wire nail (U. S. C. E. t. b. m. 33).....	1, 288. 232
Pine River, in village, near wagon road, 16 meters east of center of track, 2.5 meters north of station, 180 meters south of section house, in west root of 14-inch jack-pine tree; wire nail (U. S. C. E. t. b. m. 35).....	1, 297. 619
Pine River, in village, 15 meters west of center of track, 1 foot east of right of way fence, 26 meters south of south end of section house; tile and pipe (U. S. C. E. p. b. m. Pine River).....	1, 294. 591

Leaded into a vitrified tile, 18 by 18 by 4 inches, buried 3 to 3½ feet below surface of ground, on surface of tile, surrounding bolt, is the inscription "Mississippi River Commission, 1898, U. S. P. B. M."; ⅜-inch copper bolt.....	Feet. 1, 298.544
Pine River, about 1 mile north of, opposite seventh telegraph pole north of milepost 32, 17 meters west of center of track, in new stump of 3-inch jack pine; wire nail (U. S. C. E. t. b. m. 37).....	1, 310.496
Mildred, about 700 meters south of, 8 meters north of milepost 34, 4½ meters east of center of track, in east root of stump; wire nail (U. S. C. E. t. b. m. 39).....	1, 341.851

MILDRED QUADRANGLE.

[Latitude, 46° 45'-47°; longitude, 94° 15'-94° 30'.]

Near Mildred.

Mildred, about 1½ miles north of, 83 meters north of milepost 36, on west side of track, at base of fill, in root of burnt stump; wire nail (U. S. C. E. t. b. m. 41).....	1, 333.432
Backus, about 0.75 mile south of, 6 meters east of milepost 38, 15 meters east of center of track, in northwest root of 10-inch jack pine (tree has triangle over nail); wire nail (U. S. C. E. t. b. m. 43).....	1, 348.639

BACKUS QUADRANGLE.

[Latitude, 46° 45'-47°; longitude, 94° 30'-94° 45'.]

From Backus north along Minnesota & International Ry. to point north of Hackensack.

Backus, in village, on land of Pine Tree Lumber Co., at brow of hill sloping east, 26 meters east of center of track of Minnesota & International Ry., 41 meters south of wagon road leading west across track, 37 meters north of north end of station, 61 meters north of water tank, a 14-inch and a 10-inch pine tree blazed with triangle facing pipe stand on slope of hill 15½ meters northeast and 22 meters east, respectively, from pipe; tile and pipe (U. S. C. E. p. b. m. Backus):	
Bolt in tile.....	1, 335.492
Top of cap.....	1, 339.462
Island Lake, about 1 mile south of, 340 meters north of milepost 41, opposite Koop's sawmill at "Spur of 42," 13 meters east of center of track, in west root of pine stump; wire nail (U. S. C. E. t. b. m. 46).....	1, 344.715
Island Lake, about 1 mile north of, 2 meters east of eighth telegraph pole north of milepost 43, in west root of pine stump; wire nail (U. S. C. E. t. b. m. 48).....	1, 327.563
Island Lake, about 1½ miles north of, at edge of timber, opposite milepost, 44, 17 meters west of center of railroad track, in root of burnt stump; wire nail (U. S. C. E. t. b. m. 49).....	1, 335.706
Hackensack, about 2½ miles south of, 155 meters north of milepost 45, at north edge of swamp, at south end of small cut, 3 meters west of center of track, in top of stump; wire nail (U. S. C. E. t. b. m. 50).....	1, 350.840
Hackensack, 1½ miles south of, at north end of tangent, at south end of small cut on curve, 5 meters west of center of track, in top of stump; wire nail (U. S. C. E. t. b. m. 52).....	1, 386.287
Hackensack, in village, about 10 meters east of main track of railroad, 10 meters north of and in line with front of section house, 90 meters south of station; tile and pipe (U. S. C. E. p. b. m. Hackensack):	
Bolt in tile.....	1, 386.188
Top of cap.....	1, 390.174

Hackensack, in village, 5 meters north of telegraph pole, 2 meters west of side track, 9 meters east of main track of railroad, 53½ meters south of center of station, in top of embedded granite boulder; center of square hole (U. S. C. E. t. b. m. 53).....	Feet. 1, 387. 346
Hackensack, about 1 mile north of, 690 meters south of milepost 49, 3 meters east of center of track, in top of burnt stump; wire nail (U. S. C. E. t. b. m. 54).....	1, 414. 003
Hackensack, about 2½ miles north of, 1¼ telegraph poles north of milepost 50, 7 meters west of center of railroad track, in top of birch stump; wire nail (U. S. C. E. t. b. m. 55).....	1, 422. 254
Hackensack, about 3½ miles north of, 1½ telegraph poles south of milepost 51, 20 meters west of center of track, in east root of 8-inch white-pine tree; wire nail (U. S. C. E. t. b. m. 56).....	1, 399. 000

WALKER QUADRANGLE.

[Latitude, 47°-47° 15'; longitude, 94° 30'-94° 45'.]

From Lothrop north along Minnesota & International Ry. to Walker, thence along Great Northern Ry. to Wilkinson.

Lothrop, at south end of siding, 7 meters east of center of railroad track, north side of wagon road at road crossing, in top of 2-foot pine stump; wire nail (U. S. C. E. t. b. m. 57).....	1, 395. 427
Hunters, one-half mile south of south end of siding, 15 meters east of and opposite water tower known as Hunters water tower, 12 meters east of center of track, on hillside opposite northeast corner of Portage Lake; tile and pipe (U. S. C. E. p. b. m. Portage Lake):	
Bolt in tile.....	1, 389. 147
Top of cap.....	1, 393. 130
Hunters, on east side of side track, 70 meters north of headblock at south end of switch, in root of large pine stump; nail (U. S. C. E. t. b. m. 60).....	1, 387. 432
Hunters, about 1½ miles north of, 237 meters north of milepost 56, 3 meters west of center of track, on bank of lake at end of cut and beginning of fill, in top of 20-inch stump; wire nail (U. S. C. E. t. b. m. 62).....	1, 341. 119
Walker, near, on west side of track, in cap of first bent at south end of trestle of Leech Lake Bridge; wire nail (U. S. C. E. t. b. m. 63).....	1, 313. 351
Walker, about 3 miles south of, 375 meters south of milepost 58, 3 meters east of center of track, at south end of first cut north of trestle over arm of Leech Lake known as Leech Lake Bridge, on highest point of granite boulder; blue keel mark (U. S. C. E. t. b. m. 64).....	1, 304. 118
Walker, about 1¼ miles south of, at north end of cut and 282 meters south of milepost 59, 3 meters east of center of track, on granite boulder; highest point (U. S. C. E. t. b. m. 65).....	1, 308. 836
Walker, in town of, on top bank of south shore of Leech Lake, on land of Capt. Ely Wright on north side of Cleveland Boulevard and east side of Third Street, two-thirds meter north of north line of and three-fourths meter east of northeast corner of porch of Mr. Wright's cottage; tile and pipe (U. S. C. E. p. b. m. Walker):	
Bolt in tile.....	1, 320. 637
Top of cap.....	1, 324. 594
Walker, in town of, on northwest corner of Minnesota Avenue and Fifth Street, at southeast corner of store building known as Cole Block, on northeast corner of bedplate under iron column; center of small square cut (U. S. C. E. p. b. m. Cole).....	1, 318. 836

Walker, in south part of town, on knoll on east side of Fifth Street, leaded vertically into top of southwest corner of sandstone cap on northwest pier forming west wing foundation of water tank, "U. S. P. B. M." cut in stone around bolt; top of copper bolt (U. S. C. E. p. b. m. Water Tank).	Feet. 1, 357.343
Walker, about 0.75 mile west of station, at west end of short cut and east end of long fill where Minnesota & International Ry. becomes parallel to Great Northern Ry., 5 meters north of center of track, on embedded granite boulder, about flush with ground; point in small square cut, with "U. S." cut under square (U. S. C. E. t. b. m. 69).....	1, 325.463
Walker, near, 244 meters north of crossing of Minnesota & International and Great Northern railroads, 3 meters west of center of track of Great Northern Ry., in east root of 30-inch white-oak stump; wire nail (U. S. C. E. t. b. m. 71).....	1, 308.915
Walker, near, 135 meters south of south end of railroad cut, 780 meters north of center of drawbridge 59 over Kabekona Narrows, about 16 meters west of center of track of Great Northern Ry., at north edge of bottom along Kabekona Narrows, in northeast root of 3½-foot white-pine tree having a hollow burnt on south side; wire nail (U. S. C. E. t. b. m. 72)...	1, 304.748
Walker, near, 770 meters north of center of drawbridge 59 over Kabekona Narrows, 12 meters east of center of track of Great Northern Ry., on root of 13-inch black-oak tree; bench cut (R. R. b. m.).....	1, 301.655
Leech Lake, about 1 mile south of, 15 meters north of signboard reading "Drawbridge one mile," 2½ meters east of center of track of Great Northern Ry., in middle of top of 2-foot Norway pine stump; 20-penny wire nail (U. S. C. E. t. b. m. 73).....	1, 329.459
Leech Lake, on Great Northern Ry., 24 meters west of center of track, 15 meters west of west side of and directly opposite center of water tank, 4 meters east of edge of timber, 806 meters south of milepost 124, at siding; tile and pipe (U. S. C. E. p. b. m. Leech Lake):	
Bolt in tile.....	1, 331.874
Top of cap.....	1, 335.827
Leech Lake, about 2 miles north of, 618 meters north of milepost 125, 3½ meters west of center of track, in top of 14-inch poplar stump; wire nail (U. S. C. E. t. b. m. 77).....	1, 313.973
Wilkinson, about 3 miles south of, about 200 meters north of milepost 127, 8 meters east of center of track of Great Northern Ry., in root of burnt stump; wire nail (U. S. C. E. t. b. m. 78).....	1, 309.554
Wilkinson, about 2 miles south of, 822 meters north of milepost 128, 5 meters east of center of track, cut on highest point of boulder projecting about 3 inches out of ground among three higher boulders; top of knob (U. S. C. E. t. b. m. 79).....	1, 302.278
Wilkinson, near, 444 meters south of milepost 130, at north end of borrow pit; 15 meters west of center of track of Great Northern Ry., in 8-inch spruce stump; wire nail (U. S. C. E. t. b. m. 80).....	1, 304.092
Wilkinson, 7 meters north of northern one of two hand-car houses, 5 meters west of center of track of Great Northern Ry., in 8-inch stump; wire nail (U. S. C. E. t. b. m. 81).....	1, 315.388

CASS LAKE QUADRANGLE.

[Latitude, 47° 15'–47° 30'; longitude, 94° 30'–94° 45'.]

From Wilkinson north along Great Northern Ry. to Farris.

Wilkinson, about 1½ miles north of, at east end of Steamboat Lake, 201 meters south of south end of drawspan of drawbridge 61 over Steamboat River, 19 meters east of center of railroad track, 3 meters east of edge of bank of borrow pit, about 18 meters from two Indian graves, on high ground near old Indian hut; tile and pipe (U. S. C. E. t. b. m. Steamboat Lake):	Feet.
Bolt in tile.....	1, 305.050
Top of cap.....	1, 309.010
Wilkinson, about 3 miles north of, a little north of milepost 133, at north edge of swamp, at edge of right of way, 15 meters east of center of track, in west root of 16-inch elm tree; wire nail (U. S. C. E. t. b. m. 85).....	1, 312.599
Wilkinson, about 4 miles north of, 150 meters north of milepost 134, 4 meters from track, in west edge of top of 2-foot pine stump; 20-penny wire nail (U. S. C. E. t. b. m. 86).....	1, 335.633
Cass Lake, about 5 miles south of, 415 meters north of milepost 135, 2½ meters east of center of track, in sawed bench on large pine stump; wire nail (U. S. C. E. t. b. m. 87).....	1, 337.645
Cass Lake, about 3½ miles south of, 612 meters south of milepost 137, 5½ meters east of center of track, in top of 4-foot white-pine stump; wire nail (U. S. C. E. t. b. m. 89).....	1, 341.024
Cass Lake, about 2 miles south of, 374 meters south of milepost 138, 160 meters south of road crossing, 6 meters east of center of track, in top of 12-inch pine stump; wire nail (U. S. C. E. t. b. m. 90).....	1, 331.126
Cass Lake, in Y at junction of Park Rapids division of Great Northern Ry. and main line, in south fork of Y on line of south line tangent produced, 113 meters north of headblock of switch at south point of Y, 12.6 meters west of center of track of east leg and 23.4 meters east of track of west leg of Y; tile and pipe (U. S. C. E. p. b. m. Wye):	
Bolt in tile.....	1, 330.801
Top of cap.....	1, 334.787
Cass Lake, about 2 miles west of station, 10 meters west of west end of bridge 231, 14 meters south of center of track of Great Northern Ry., in top of 30-inch pine stump; wire nail (U. S. C. E. t. b. m. 93).....	1, 319.334
Farris, near, 48 meters east of milepost 102, 9 meters west of signpost marked "W/X" (whistle for road crossing), 9 meters south of center of track, in top of 10-inch jack-pine stump; wire nail (U. S. C. E. t. b. m. 94).....	1, 343.878
Farris, near, 298 meters west of milepost 101, 5 meters south of center of track, on bank of cut, in small pine stump; wire nail (U. S. C. E. t. b. m. 97).....	1, 354.450
Farris, near, 170 meters west of milepost 100, 62 meters east of point where water's edge of lake is nearest railroad, 19 meters south of water's edge of Midge Lake, 22 meters north of center of track, in scattered jack-pine trees on slope of south bank of Midge Lake; tile and pipe; two blazed jack pines stand east 3.1 meters and 4.7 meters, respectively, two others stand westerly 3.3 meters and 4.8 meters, respectively; telegraph pole stands 11 meters south (U. S. C. E. p. b. m. Midge Lake):	
Bolt in tile.....	1, 327.179
Top of cap.....	1, 331.146
Farris, near, 196 meters west of milepost 99, 4½ meters north of center of track, in top of 13-inch stump; wire nail (U. S. C. E. t. b. m. 101).....	1, 327.219

From Cass Lake east along Great Northern Ry. to Lomond.

Cass Lake, at extreme west end of Great Northern Ry. roundhouse, leaded vertically into sill of double door to boiler room, 3 $\frac{3}{4}$ inches from west edge of sill and 4 $\frac{1}{2}$ inches from north end of sill; top of copper bolt (U. S. C. E. p. b. m. Roundhouse).....	Feet. 1,324.590
Cass Lake, in southeast part of town, about 500 meters south of railroad, 200 meters west of lumber yard of Scanlan & Gibson Lumber Co., on north side of Pike Bay, on top of high bank at east end of ridge; stone and pipe (U. S. C. E. b. m. 347):	
Bolt in stone.....	1,328.337
Top of cap.....	1,332.274
Cass Lake, 1 $\frac{1}{2}$ miles from, on south slope of high piece of hill left between railroad cut and Pike Bay, 440 meters west of milepost 162, 9 meters south of center of track, on slope of north bank of Pike Bay; stone and pipe (U. S. C. E. b. m. 342):	
Bolt in stone.....	1,314.587
Top of cap.....	1,318.514
Lomond, near, 133 meters west of milepost 161, 5 meters north of track, in 16-inch jack-pine stump; wire nail (U. S. C. E. t. b. m. 169).....	1,322.258
Lomond, 15 meters east of logging spur which leaves main line of railroad, just below loading works at end of spur track, trees in vicinity blazed facing pipe, on high bank at southeast corner of Cass Lake; tile and pipe (U. S. C. E. p. b. m. Lomond Spur):	
Bolt in stone.....	1,309.003
Top of cap.....	1,312.977
Lomond, on low bank of Cass Lake, 10 meters back of water's edge, about 100 meters east of loading works at end of spur; stone and pipe (U. S. C. E. b. m. 337): Top of cap.....	1,305.582

BEMIDJI QUADRANGLE.

[Latitude, 47° 15'-47° 30'; longitude, 94° 30'-94° 45'.]

From Farris northwest along Great Northern Ry. to Bemidji, thence west along Mississippi River to p. b. m. Collette.

Rosby, about 2 miles east of, 212 meters northwest of milepost 98, 38 meters west of road crossing, at edge of small patch of plowed ground, 38 meters west of road crossing, directly opposite a log farmhouse, 11 meters north of center of track, in top of 30-inch Norway pine stump; wire nail (U. S. C. E. t. b. m. 102).....	1,331.556
Rosby, about 0.75 mile east of, 75 meters west of culvert 223, 8 meters north of center of track, in east root of 30-inch Norway pine stump; wire nail (U. S. C. E. t. b. m. 103).....	1,338.420
South Bemidji, near, 10 meters west of milepost 95, 6 meters north of center of track, in top of 12-inch tamarack stump; wire nail (U. S. C. E. t. b. m. 105).....	1,348.718
South Bemidji, near, 97 meters west of milepost 93, 4 meters west of road crossing, 5 meters south of center of track, in west root of 10-inch jack-pine stump; wire nail (U. S. C. E. t. b. m. 107).....	1,358.744
South Bemidji, near, a little west of milepost 92, 48 meters east of road crossing, 1 foot north of north right of way fence, in top of 12-inch pine stump; wire nail (U. S. C. E. t. b. m. 108).....	1,360.214
Bemidji, one-half mile east of, on north line of Great Northern Ry., one-third mile east of point where Mississippi River empties into Lake Bemidji, on north side of and 75 meters east of west end of deep cut, at west end of small garden; knoll through which railroad passes and on which point stands is covered on slope with brush and timber; it is about	

50 meters south of Minnesota & International Ry. and about 200 meters south of south end of Lake Bemidji, in SE. $\frac{1}{4}$ NE. $\frac{1}{4}$ sec. 16, T. 146 N., R. 33 W.; tile and pipe (U. S. C. E. p. b. m. triang. Bemidji):

Feet.

Bolt in tile..... 1, 362. 320

Top of cap..... 1, 366. 299

Bemidji, 8 meters east of east end of station of Great Northern Ry., 10 meters north of north side of station, in north root of 15-inch pine stump; wire nail (U. S. C. E. t. b. m. 111)..... 1, 348. 898

Bemidji, on west side of Irving Avenue, 1 foot north of north right of way fence of Great Northern Ry., 37 meters north of center of wagon bridge over railroad cut, 83 meters south of center of Second Street, in south-east corner of yard of E. J. Willets; tile and pipe (U. S. C. E. p. b. m. Willets):

Bolt in tile..... 1, 357. 743

Top of cap..... 1, 361. 717

Bemidji, on west side of Irving Avenue, between Second and Third streets, leaded vertically into west end of two south stone abutments of city water tank, in southeast corner, about 3 inches from either edge, between U. and S. cut on stone; top of copper bolt (U. S. C. E. p. b. m. Bemidji tank)..... 1, 361. 172

Bemidji, 1.6 miles west of station, 73 meters west of head block of switch where logging spur leaves main line of Great Northern Ry., 11 meters south of spur track, at farm road crossing, in top of 10-inch pine stump; wire nail (U. S. C. E. t. b. m. 114)..... 1, 365. 778

Bemidji, near, 150 meters south of northwest corner of sec. 24, T. 146 N., R. 34 W., 13 meters east of center of road leading south over Dorman's bridge across Mississippi River, on top of left bank of Mississippi River; tile and pipe (U. S. C. E. p. b. m. Dorman). Blazed trees stand as follows: One north 9 meters, one east 5 meters, two south $8\frac{1}{2}$ meters, and one bearing t. b. m. 119 10 meters southwest:

Bolt in tile..... 1, 374. 722

Top of cap..... 1, 378. 695

Bemidji, near, 12 meters west of logging road that leads north from Collette's logging camp, which stands on shore of Twin or Loon Lake 1 mile south of this point, 320 meters west of point opposite new log house standing on north or left bank of the river; 8-inch oak tree bearing t. b. m. 125, stands 1.8 meters east, double birch tree stands 3 meters north, and a 10-inch elm stands 6 meters north, on right bank of Mississippi River, 11 meters from water's edge; tile and pipe (U. S. C. E. p. b. m. Collette):

Bolt in tile..... 1, 361. 906

Top of cap..... 1, 365. 889

MOOSE QUADRANGLE.

[Latitude, $47^{\circ} 15' - 47^{\circ} 30'$; longitude, $95^{\circ} - 95^{\circ} 15'$.]

From permanent bench Triangulation Station County Line southwest along Mississippi River to Lake Itasca.

Maltby, $2\frac{1}{2}$ miles northwest of, 8 meters south of north line of Hubbard County, corner of secs. 31, 32, 5, and 6 stands east 46 meters, 22-inch Norway pine tree stands east-northeast 61 meters, 500 meters northwest of Albert Nelson's house, $1\frac{1}{2}$ miles southeast of Mississippi River, 10 miles southwest of Bemidji, on ridge covered with low brush and scattered pine snags; tile and pipe (U. S. C. E. p. b. m. triang. County Line):

Bolt in tile..... 1, 467. 665

Top of cap..... 1, 471. 654

Hennepin River, near mouth, 5 meters from top edge of bank, in clump of jack-pine trees (four of them blazed), 65 meters north of where river first touches base of high bank, one-half mile below mouth of Hennepin River (river runs north along this bank), on high right bank of Mississippi River; tile and pipe (U. S. C. E. p. b. m. Hennepin):

	Feet.
Bolt in tile.....	1, 382. 465
Top of cap.....	1, 386. 441

"The Rapids," near, about 30 meters south of ford where Moose road crosses river, 60 meters north of dam in river, said to be 3 miles north of the mouth of La Salle River (river runs north here), on top of a knoll on first bank on right bank of Mississippi River; tile and pipe (U. S. C. E. p. b. m. Rapids):

Bolt in tile.....	1, 396. 448
Top of cap.....	1, 400. 420

La Salle River, immediately east of mouth of, on top and near west point of ridge on right bank of Mississippi River; tile and pipe, 40 meters southeast to settler's log cabin in ravine, 13 meters northeast to blazed 8-inch jack pine (U. S. C. E. p. b. m. La Salle):

Bolt in tile.....	1, 413. 747
Top of cap.....	1, 417. 724

Prospect Hill, on top of, about 20 meters east of bank where it slopes down abruptly west into valley of the Mississippi, about 120 meters west of north-south road over hill known as Itasca road about 0.25 mile north-west of junction of Itasca road with road from Smith's camp; tile and pipe (U. S. C. E. p. b. m. triang. Prospect Hill):

Bolt in tile.....	1, 679. 839
Top of cap.....	1, 683. 835

Lake Itasca, near, 5 meters northeast of road leading to Mississippi River from Otto Sherratt's house, 400 meters northwest of junction of roads, which junction is 175 meters northwest of Sherratt's house, pipe is 180 meters east of Mississippi River at its nearest point and 280 meters east-southeast from bridge over the river, in SE. $\frac{1}{2}$ NW. $\frac{1}{4}$ sec. 22, T. 14 N., R. 36 W., four blazed jack-pine trees stand 15 meters northwest, 20 meters north, 13 meters northeast, and 65 meters east-northeast, respectively, from pipe, on slope of narrow ridge; tile and pipe (U. S. C. E. p. b. m. Sherratt):

Bolt in tile.....	1, 487. 093
Top of cap.....	1, 491. 093

LAKE ITASCA QUADRANGLE.

[Latitude, 47°-47° 15'; longitude, 95°-95° 15'.]

Near Lake Itasca.

Lake Itasca, on top of east bank of, 0.5 meter west of fence corner and in line with fence marking north boundary of Itasca State Park, about 120° distant 105 meters, from house occupied by Mr. Rust, large white-pine tree at water's edge 10 meters southwest of pipe is blazed facing pipe; tile and pipe (U. S. C. E. p. b. m. Park Line):

Bolt in tile.....	1, 480. 617
Top of cap.....	1, 484. 593

Lake Itasca, near, about 50 meters east of center of west line of sec. 1, T. 143 N., R. 36 W., about 600 meters northeast of Itasca State Park commissioner's house, on low knoll in dense growth of poplar and aspen trees, knoll is on edge of ridge which slopes rapidly southeast toward

Floating Bog Creek and is about 50 meters west of deep ravine, a lone Norway pine stands on south slope of knoll 26 meters from pipe; tile and pipe (U. S. C. E. p. b. m. triang. Itasca):

Feet.

Bolt in tile..... 1, 530. 915

Top of cap..... 1, 534. 905

Lake Itasca, 51 meters east of east bank of, 16 meters west of angle in road, on north side of road leading to barn, 64.5 meters south of park commissioner's house in Itasca State Park; tile and pipe (U. S. C. E. p. b. m. Park House):

Bolt in tile..... 1, 488. 340

Top of cap..... 1, 492. 317

COLLEGEVILLE QUADRANGLE.

[Latitude, 45° 30'-45° 45'; longitude, 94° 15'-94° 30'.]

From St. Joseph west along Great Northern Ry. to Avon.

St. Joseph, 300 meters west of, on Great Northern Ry., 18 meters south of track, in northeast corner of wood lot belonging to Mrs. Loso, 1 meter from fences, 2 meters above track. Blazed trees: 6 inch oak, SSW., 9.1 meters; 7-inch oak, west by south 7.3 meters; 8-inch oak, south, 5.2 meters; in stone post 4 feet long; $\frac{1}{4}$ -inch copper bolt (lettered by mistake U. S. S. W.) (C. & G. S. b. m. E)..... 1, 089. 925

Collegeville, on frame building belonging to St. John's University and used as express and ticket office, 30 meters south of railroad track, 17 meters west of road to university, in east (granite) foundation wall, 3 meters from northeast corner and 0.5 meter above ground; $\frac{3}{8}$ -inch copper bolt (C. & G. S. b. m. F)..... 1, 095. 562

Collegeville, 55 meters east of house belonging to Henry Broker, 80 meters northeast of building used as express and ticket office; 37 meters east of road to St. John's University, 20 meters north of railroad track, at right of way fence; $\frac{1}{2}$ -inch copper bolt (C. & G. S. b. m. G)..... 1, 094. 680

Avon, 3.3 kilometers east of, on eastern edge of Kepper Lake, on east side of culvert 17 (red sandstone), on upper face of second stone from top, 4.1 meters north of center of railroad track, 0.9 meter below top of rail; bottom of hole (C. & G. S. b. m. H)..... 1, 130. 779

Avon, foundation (red sandstone) of Great Northern Ry. water tank, 65 meters east of Fourth Street and 3 meters north of main track, on top stone of west pier nearest the track, on southwest corner of stone, about 0.7 meter above ballast; bottom of hole..... 1, 131. 747

NOTE.—There is a similar cut in the southeast corner of the stone, not lettered, which is not the bench mark.

Avon, northeast corner of Fourth Street and Pembina Avenue, on Great Northern Ry. property, 7 meters east of center of Fourth Street, 10 meters north of center of Pembina Avenue, 18 meters north of Avon. Hotel, 42 meters south of main track; $\frac{1}{2}$ -inch copper bolt..... 1, 129. 669

ALBANY QUADRANGLE.

[Latitude, 45° 30'-45° 45'; longitude, 94° 30'-94° 45'.]

From Albany west along Great Northern Ry. to Freeport.

Albany, 1.4 kilometers east of, at crossroads, at corner of wood lot belonging to Joseph Lehner, at grade crossing, 23 meters north of track, 0.5 meter outside right of way fence, 22 meters west of center of road parallel to track, 0.5 meter outside wood lot fence; 3-inch red-metal cap (C. & G. S. b. m. K)..... 1, 183. 406

Albany, northwest corner of Fourth and Railroad streets, in Kraker Building, 64 meters north of main railroad track, in the dressed upper surface of granite foundation wall, under north side of show window facing on Fourth Street, 4.4 meters north of front edge of sidewalk on Railroad Street, 1.9 meters west of front edge of sidewalk on Fourth Street, and 8 centimeters above sidewalk, 6 centimeters south of granite pillar, 7 centimeters from outer edge of foundation, and 3.2 meters north of front corner of building; $\frac{3}{8}$ -inch copper bolt (C. & G. S. b. m. L)	Feet. 1, 206. 277
Albany, at corner of Fourth and Railroad streets, in front of Kraker Building; highest point of hydrant (hydrant 5)	1, 207. 846
Freeport, in school building (of yellow brick) on Micklisch Avenue, 200 meters east of station, in upper surface of granite sill at front door, 30 centimeters above foundation wall, 4.5 centimeters from east side of the doorway, 3.5 centimeters from front edge of sill; $\frac{3}{8}$ -inch copper bolt (C. & G. S. b. m. M).....	1, 239. 906
Freeport, on Micklisch Avenue, 50 meters west of station, in foundation of town water tank (a tower of steel, about 40 meters high), in the northwest part of upper surface of northwest pier, in red sandstone, 30 centimeters above ground and facing the street; red metal disk (C. & G. S. b. m. N).....	1, 243. 528
Freeport, on northwest corner of Micklisch Avenue and Main Street, in front of Central Hotel; 40 meters north of the main railroad track; highest point of hydrant (hydrant 6)	1, 245. 884

SAUK CENTER QUADRANGLE.

[Latitude, 45° 30'-45° 45'; longitude, 94° 45'-95°.]

From Freeport northwest along Great Northern Ry. to Sauk Center.

Melrose, 2.9 kilometers east of, 400 meters west of Sauk River, 2 meters north of center of track, 1 meter below top of rail, 1.3 meters above ground, in sandstone culvert, 0.09 meter west of east edge of west abutment; bottom of hole (C. & G. S. b. m. O).....	1, 181. 494
Melrose, on Second Street South, between Fifth and Sixth avenues East, 200 meters east of station, 100 meters east of cathedral, opposite yellow-brick house, at right-of-way fence, 23 meters south of railroad, 20 meters north of traveled street, in stone post; top of $\frac{1}{2}$ -inch copper bolt (C. & G. S. b. m. P)	1, 210. 884
Melrose, at northeast corner of St. Bonifacius Cathedral, on the southwest corner of Second Street South and Fifth Avenue East, at foot and northeast corner of stairs leading to north entrance, smooth, rounded, conical top of granite post, being most northern of six similar posts, about 1 meter in height, standing in a north-south line and forming part of masonry steps; top of post (C. & G. S. b. m. City 1).....	1, 213. 655
Melrose, at corner of Main Street and Fifth Avenue East, northeast corner of Bank of Melrose building; top of granite sill (C. & G. S. b. m. City 2) ..	1, 213. 718
Melrose, on southeast corner of Riverside Avenue and Third Avenue West, 70 meters north of railroad, at northwest corner of Dederich subdivision, adjoining land of H. Dederich, on street lines, the north-south quarter-section line through sec. 34, T. 125, R. 33, runs through center of street west of bench mark, in stone post; top of $\frac{1}{2}$ -inch copper bolt (C. & G. S. b. m. Q)	1, 207. 104
Melrose, front door of city hall, center of stone sill (City 3).....	1, 214. 141
Melrose, at Third Avenue, at north-south quarter-section line through sec. 34, T. 126, R. 33; top of rail (City 4).....	1, 212. 773

Melrose, 3.7 kilometers west of, on railroad bridge over Sauk River, 55 meters west of highway, near large steel highway bridge, 3.3 meters south of center of track, 0.4 meter below top of rail, 0.2 meter east of west edge of east abutment (red sandstone), 2.7 meters from the ground, in horizontal surface; bottom of hole (C. & G. S. b. m. R).....	Feet. 1, 212. 124
Sauk Center, 3.5 kilometers east of, at grade crossing, 22 meters north of track, 10 meters east of traveled road, at the corner of the highway line, the right-of-way fence, and scrub-oak land belonging to Nels Anderson and Albert Hatch; 3-inch red-metal cap (C. & G. S. b. m. S)	1, 253. 180
Sauk Center, in east end of station (yellow brick), 4.5 meters north of southeast corner, 10 meters north of center of main track, in face of red sandstone window sill, 0.12 meter south of north end and 0.075 meter from upper and lower edges of sill, 1.3 meters above level of rail; $\frac{3}{4}$ -inch copper bolt (C. & G. S. b. m. T).....	1, 258. 147
Sauk Center, on south side of Railroad Avenue, 75 meters south of main track, opposite point 100 meters west of station, in northeast corner of lot of Joseph Parker, 20 meters east of his house, 2 meters south of 8-inch box-elder tree, in stone post; top of $\frac{1}{2}$ -inch copper bolt (C. & G. S. b. m. U). ..	1, 258. 931
Sauk Center, at corner of Fifth and Maple streets; highest point of hydrant (hydrant 7)	1, 255. 899
Sauk Center, at corner of Fifth and Elm streets; highest point of hydrant (hydrant 8)	1, 252. 104
Sauk Center, at corner of Sixth and Getty streets; highest point of hydrant (hydrant 9)	1, 250. 122

OSAKIS QUADRANGLE.

[Latitude, 45° 45'–46°; longitude, 95°–95° 15'.]

From Sauk Center northwest along Great Northern Ry. to point near Nelson.

West Union, 4.2 kilometers east of, at grade crossing 300 meters west of Sauk River; 22 meters south of track, in northwest corner of pasture belonging to Charles Calkins, at corner of right-of-way fence and highway fence, 12 meters east of traveled road, in stone post; top of $\frac{1}{2}$ -inch copper bolt (C. & G. S. b. m. V).....	1, 284. 649
West Union, 54 meters south of track, 50 meters west of station, at northeast corner of pasture belonging to Ed. Craig, 20 meters west of Main Street, 10 meters north of frame store, in stone post; top of $\frac{1}{2}$ -inch copper bolt (C. & G. S. b. m. W).....	1, 332. 629
West Union, in most eastern of three brick piers in grain elevator of Lee & Gingery, 14 meters south of railroad track, 5 meters west of east end of building, 1.17 meters from the ground and 0.32 meter west of east side of pier, on a copper bolt leaded into north face of pier; center of diagonal cross (C. & G. S. b. m. X).....	1, 340. 207
West Union, 0.6 kilometer west of, 35 meters north of track, 70 meters west of grade crossing, at the right-of-way fence which is highway line for east-west road, in post set in hard clay; 3-inch red-metal cap (C. & G. S. b. m. Y). ..	1, 338. 889
Osakis, 3.4 kilometers east of, at grade crossing, 20 meters west of track of Great Northern Ry., 8 meters south of traveled road at corner of right-of-way fence, highway line, and land of K. Bjerkus; 3-inch red-metal cap (C. & G. S. b. m. Z).....	1, 359. 213
Osakis, 3 miles south of, in sec. 7, T. 127, R. 35, in east (granite) wall of barn of C. A. Marthaler, 1.8 meters south of doorway, 2 meters north of south end of wall, 1.1 meters above ground; $\frac{3}{4}$ -inch copper bolt (C. & G. S. b. m. A ₁)	1, 391. 919

Osakis, 3 miles south of town, near center of sec. 7, T. 127, R. 35, on land owned by C. A. Marthaler, nearly 0.5 mile east of his house, on hill on north side of wheat field, near nail in terra-cotta pipe; square hole (Osakis triang. sta.).....	Feet. 1, 404. 288
Osakis, 50 meters east of station, 3 meters south of track, under Great Northern Ry. water tank, on east pier (sandstone) of two next to track, 0.05 meter southwest of northeast corner of pier, at level of the ground; bottom of hole.....	1, 344. 266
Osakis, 120 meters west of station, 70 meters south of track, southeast corner of Main and Second streets, in top surface of granite sill at northwest corner of Metcalf's saloon, 2.3 meters from west edge of walk, 0.28 meter south of brick corner post, 0.1 meter east of front edge of the sill, 0.08 meter above the level of sidewalk; $\frac{3}{8}$ -inch copper bolt (C. & G. S. b. m. C ₁).....	1, 351. 076
Osakis, on northwest corner of Second Street and Great Northern Ry., in brickwork of south wall of mill of Osakis Milling Co., 4.55 meters west of east end of building, 0.3 meter west of street line which runs through the mill, 3.8 meters east of main doorway, 1 meter above ground; red metal disk (C. & G. S. b. m. D ₁).....	1, 346. 224
Osakis, 2.4 kilometers west of, 3 meters north of Great Northern Ry. track, on east pier (sandstone) supporting overhead highway bridge, 6 meters below highway, 0.6 meter below level of rail, 0.07 meter southwest of northeast corner of pier, at level of ground; bottom of hole in horizontal surface (C. & G. S. b. m. E ₁).....	1, 388. 436
Nelson, 1.8 kilometers east of, 22 meters south of Great Northern Ry. track, at grade crossing, at highway line adjoining land owned by A. D. Hanson, 3 meters north of right of way fence and 10 meters east of traveled road, 1 meter above level of rail; 3-inch red-metal cap (C. & G. S. b. m. F ₁)..	1, 350. 424

LAKE CARLOS QUADRANGLE.

[Latitude, 45° 45'-46°; longitude, 95° 15'-95° 30'.]

From Nelson west along Great Northern Ry. to Garfield.

Nelson, 60 meters east of station, 24 meters north of track, 9 meters east of center of Nelson Street, at intersection of street line, right of way fence, and southwest corner of land of S. J. Miller, 50 meters southwest of his house, in stone post; top of $\frac{1}{2}$ -inch copper bolt (C. & G. S. b. m. G ₁)....	1, 367. 819
Alexandria, 1.8 kilometers east of, at grade crossing, 20 meters south of track, at intersection of west highway line, railway fence, and northeast corner of land of Great Northern Ry. leased by Capt. Schaefer and used as a pasture, on iron post set in hard clay; 3-inch red-metal cap (C. & G. S. b. m. H ₁).....	1, 414. 702
Alexandria, about 1 $\frac{1}{4}$ miles east of, in NE. $\frac{1}{4}$ SE. $\frac{1}{4}$ sec. 20, T. 127 N., R. 37 W., on land owned by A. J. Thompson, on wooded land on a ridge, 133 paces south of his house, about 1,600 feet south of Sixth Street extended, 30 meters west of north-south road, near nail in terra-cotta pipe; square hole (Alexandria triang. sta.).....	1, 479. 229
Alexandria triangulation station, about 36 meters northeast of, at highway line, 8 meters west of north-south traveled road, in top of terra-cotta pipe filled and surrounded with concrete; top of nail (Alexandria reference mark).....	1, 477. 599

Alexandria, 60 meters west of station, 70 meters east of G Street, in east pier (nearest track) under water tank, 2.7 meters south of rail, 0.35 meter above ground, 0.05 meter southwest of northeast corner of pier; bottom of hole (C. & G. S. b. m. I ₁).....	Feet. 1,390.713
Alexandria, 1 meter west of west line of G Street, 35 meters north of Third Avenue, 2 meters inside of northeast corner of lot of E. G. Erickson, owner of the Alexandria Boat Works, 165 meters south of track, in stone post set in fine gravel; top of $\frac{1}{2}$ -inch copper bolt (C. & G. S. b. m. J ₁)....	1,392.373
Alexandria, in top surface of sandstone sill in front of store of F. E. & Geo. Raiter, on east side of G Street, 24 meters north of north line of Sixth Avenue, 2.3 meters north of south side of building which abuts a yellow brick block, 3 meters south of center of doorway, 0.08 meter from outer edge of sill, 0.07 meter above level of sidewalk; red-metal disk (K ₁).....	1,403.961
Alexandria, in school grounds, 20 meters west of F Street, 38 meters south of Seventh Street, 29 meters east of east side of school building, between the letters U. S. on top of marble post projecting 4 inches above ground, marked by cross and letters "U. S. C. & G. S."; shallow square (the surface is fast being chipped away by school children) (Alexandria magnetic station).....	1,405.850
Alexandria, about 30 meters west of E Street, 0.18 meter west of southeast corner of foundation wall (red sandstone), on south side of county courthouse, 1.13 meters above ground, 0.8 meter below brickwork, in second course from top; $\frac{3}{4}$ -inch copper bolt (L ₁).....	1,415.207
Alexandria, in sandstone foundation of county courthouse, 0.38 meter below and 1.7 meters east of b. m. L ₁ ; a deep scratch (C. & G. S. b. m. City)....	1,413.964
NOTE.—The elevation on the city datum was given as 53.28 feet, in this datum, which is about 25 years old. The level of Lake Agnes, north of the city, was taken as zero and the several adjoining and connected lakes are at approximately the same level.	
Garfield, 4.5 kilometers east of, 24 meters north of track, at grade crossing, at intersection of east highway line, right of way fence, and southwest corner of land of Peter Johnson, 8 meters east of traveled road, 3.2 meters above level of rail on iron post set in fine gravel and sand; 3-inch red-metal cap (C. & G. S. b. m. M ₁).....	1,388.374

URNESSE QUADRANGLE.

[Latitude, 45° 45'–46°; longitude, 95° 30'–95° 45'.]

From Garfield northwest along Great Northern Ry. to Evansville.

Garfield, 24 meters south of track, 28 meters west of station, 12 meters west of Main Street prolonged, in northeast corner of lot of Fred Bartel, 15 meters north of his house, in stone post set in hard clay; top of $\frac{1}{2}$ -inch copper bolt (C. & G. S. b. m. N ₁).....	1,422.353
Brandon, 4.7 kilometers east of, on west pier of overhead highway bridge, 0.2 meter southeast of northwest corner of pier, 2.2 meters south of rail, at level of ground, 0.4 meter below rail and 8 meters below highway, in horizontal surface; bottom of hole (C. & G. S. b. m. O ₁).....	1,411.893
Brandon, 3 kilometers east of, 3 meters north of main track, 700 meters east of grade crossing, 400 meters west of embankment through a small lake on highest point of flinty granite boulder about 1 meter square and 1.5 meters high; bottom of hole in horizontal surface (C. & G. S. b. m. P ₁)..	1,411.241
Brandon, 2.5 kilometers east of, 20 meters north of track, at grade crossing, at intersection of west highway line, right of way fence, and southeast corner of land of Gunder Kylo, 1.2 meters above level of rail, on iron post set in hard clay; 3-inch red-metal cap (C. & G. S. b. m. Q ₁).....	1,417.385

Brandon, 10 meters east of station, 17 meters south of track, at intersection of east line of main street, right of way fence, and northwest corner of lot of Brandon Flouring Mills, 80 meters west of mill, at level of rail, in stone post set in clay; top of $\frac{1}{2}$ -inch copper bolt (C. & G. S. b. m. R ₁).....	Feet. 1, 387. 019
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AXEL QUADRANGLE.

[Latitude, 46°-46° 15'; longitude, 95° 30'-95° 45'.]

Near Evansville.

Evansville, in section of town called Johnson's First Addition, 130 meters southwest of station, in northeast corner of public school grounds, at south line of Second Avenue, 35 meters west of Railroad Street, in stone post; top of $\frac{1}{2}$ -inch copper bolt (C. & G. S. b.m. S ₁).....	1, 359. 154
Evansville, 100 meters south of station, 15 meters east of east line of Railroad Street, in north wall (yellow brick) of town hall, 1.5 meters east of northwest corner, 1.8 meters above ground; red-metal disk (C. & G. S. b.m. T ₁).....	1, 359. 020
Erdahl (Cork P. O.), on land of T. Tobiason, of Ashby, at east line of main street, 58 meters south of track, at a point 70 meters west of station, 7 meters east of line of travel, 17 meters northeast of frame store of A. J. Oxelgren, 24 meters south of grain elevator, on iron post; 3-inch red-metal cap (C. & G. S. b. m. U ₁).....	1, 265. 371
Evansville, about 2 miles northwest of, 5 telegraph poles west of milepost 161, 1 meter north of Great Northern Ry. right-of-way fence, on side of rocky hill, on iron post; 3-inch red-metal cap (C. & G. S. b.m. M ₃).....	1, 368. 281
Melby, about 100 meters west of station platform, 35 meters west of road crossing, on public highway, 8 meters south of Great Northern Ry. track, on iron post; 3-inch red-metal cap (C. & G. S. b. m. N ₃).....	1, 277. 150

BARRETT QUADRANGLE.

[Latitude, 45° 45'-46°; longitude, 95° 45'-96°.]

Near Elbow Lake.

Thorsborg, Sanford Township, in NW. $\frac{1}{4}$ sec. 13, 110 meters north and 60 meters west of railroad station, at southwest corner of pasture belonging to Henry Lajord, at northeast corner of crossroads, 10 meters east and 5 meters north of line of travel, on iron post; 3-inch red-metal cap (C. & G. S. b. m. V ₁).....	1, 203. 584
Elbow Lake, 4 kilometers east of station on Great Northern Ry., 1.8 kilometers east of crossing of Minneapolis, St. Paul & Sault Ste. Marie Ry., 150 meters west of bridge over a slough, 300 meters east of northwest corner of cultivated field belonging to Harold Thorsen, of Elbow Lake, at right of way fence, 20 meters south of track, leaded into center of top surface of block of red Kasota sandstone 0.5 meter square and 0.7 meter long, set flush with ground; copper bolt marked "U. S. B. M." (C. & G. S. b. m. W ₁).....	1, 221. 720
Elbow Lake, in north end of south doorsill (sandstone) of First National Bank building, 1.8 meters north of south side of building, 0.1 meter from east or front edge of sill, 0.08 meter south of brickwork, 0.4 meter above sidewalk, 0.5 meter north of center of doorway; red-metal disk (C. & G. S. b. m. X ₁).....	1, 212. 508
Elbow Lake at southeast corner of Bank of Elbow Lake building, on back or west edge of cornerstone (sandstone) under stone porch pillar 13 millimeters square, in broad sloping bevel, 0.06 meter north of southwest corner of stone, 0.7 meter west of west line of main street, 0.4 meter above sidewalk; bottom of a horizontal niche (C. & G. S. b. m. Y ₁).....	1, 212. 104

Elbow Lake, 1.3 kilometers south of, 3.2 kilometers east of station Elbow Lake on Great Northern Ry., 22 meters southwest of crossing of Great Northern and Minneapolis, St. Paul & Sault Ste. Marie Rys., 20 meters south of track of former, 14 meters west of that of latter, 2 meters south of corner of right of way fences; in northeast corner of pasture belonging to John Warwick; 3-inch red-metal cap (C. & G. S. b. m. Z ₁)	Feet. 1, 202. 052
Elbow Lake, 2 miles east and 1½ miles north of town, 10 meters west of north-south traveled road, 3.5 kilometers north of Great Northern Ry., on grassy land on a hill, on east side of sec. 3, T. 129, R. 42, on land owned by Niels Olson, who lives ¾ mile north on northeast corner of section, west of station point, in terra-cotta pipe; square hole (C. & G. S. b. m. Elbow triang. sta.)	1, 278. 432
Elbow Lake, 3 kilometers west of town, 45 meters south of station on Great Northern Ry., in northeast corner of meadow belonging to Charles Dahl, at highway line, 15 meters south of traveled road where it turns north to cross the track; bottom of hole (C. & G. S. b. m. A ₂)	1, 190. 942

WENDELL QUADRANGLE.

[Latitude, 46°-46° 15'; longitude, 96°-96° 15'.]

Near Hereford.

Hereford, 3.5 kilometers east of, 1.8 kilometers south of town of Wendell, 25 meters north of Great Northern Ry. track, at junction of right of way fence, west highway line, and southeast corner of meadow belonging to Arthur Smith, on iron post; 3-inch red-metal cap (C. & G. S. b. m. B ₂) ..	1, 128. 712
Hereford, 4 kilometers west of, 15 meters south of Great Northern Ry. track, 780 meters west of grade crossing, at junction of right of way line, west side of private roadway crossing track, and northwest corner of cultivated field belonging to John Watry; 3-inch red-metal cap (C. & G. S. b. m. C ₂) .	1, 028. 695

CAMPBELL QUADRANGLE.

[Latitude, 46°-46° 15'; longitude, 96° 15'-96° 30'.]

From Tintah west along Great Northern Ry. to Childs.

Tintah, 65 meters south and 75 meters east of railroad station, 70 meters southeast of frame church building, 75 meters south of Hotel Tintah, at east line of alley, at northwest corner of lot of Peter Putnam, in stone post; top of ½-inch copper bolt (C. & G. S. b. m. D ₂)	996. 501
Tintah, 125 meters north and 40 meters east of station, in south wall of engine house of Imperial Elevator Co., 2 meters west of southeast corner of building, 2.7 meters east of doorway, 1.2 meters above ground, in yellow brick; ¾-inch copper bolt (C. & G. S. b. m. E ₂)	1, 000. 575
Tintah, 3.2 kilometers north of, 18 meters east of track, 0.5 kilometer south of crossing of Soo Line, at east highway line and northwest corner of pasture belonging to John Wilkie, in stone post; top of ½-inch copper bolt (C. & G. S. b. m. F ₂)	990. 776
Yarmouth, 0.8 kilometer west of, 4.5 kilometers south of town of Campbell, 38 meters south of track, at south highway line and northwest corner of lot belonging to N. W. Ware, 12 meters south of line of travel, 8 meters west of private road, 22 meters northwest of house of Mr. Ware, in row of willow trees, 80 meters east of running stream, in stone post; top of ½-inch copper bolt (C. & G. S. b. m. G ₂)	985. 319
Tenney, 2.8 kilometers north of town, 25 meters north of track, at grade crossing, at junction of west highway line, right of way line, and southeast corner of field belonging to F. W. Hungerford, 7 meters west of line of travel; 3-inch red-metal cap (C. & G. S. b. m. H ₂)	981. 173

WHAHPETON QUADRANGLE.

[Latitude, 46°-46° 30'; longitude, 96° 30'-97°.]

Near Childs.

Childs, 1.7 kilometers east of Bois de Sioux River, which is the State line between Minnesota and North Dakota, 90 meters south of Great Northern Ry. track, 10 meters east of line of travel, at east highway line, 3 meters north of southwest corner of lot belonging to D. D. Waite, in stone post; top of $\frac{1}{2}$ -inch copper bolt (C. & G. S. b. m. I ₂)	Feet. 974. 683
Fairmount, N. Dak., near, in Minnesota, a U. S. Geological Survey bench mark described thus: "T. 130 N., R. 47 W., sec. 3, northeast corner of; iron post stamped '971.'" The post was found as described, at northwest corner of crossroads (C. & G. S. b. m. 971 W.)	970. 113
Fairmount, N. Dak., near, in Minnesota, a U. S. Geological Survey bench mark, described thus: "T. 131 N., R. 47 N., sec. 10, southeast corner of, northwest corner of crossroads; iron post stamped '969'" (969 W.)...	968. 876
Childs, 2.5 miles north of, almost at quarter corner on west side of sec. 1, T. 130 N., R. 47 W., on land at west edge of wheat field rented by M. E. Foss living 0.75 mile. east-southeast, in terra-cotta pipe, near nail; square hole (Foss triang. sta.)	973. 774
Childs, near, at southeast corner of NE. $\frac{1}{4}$ sec. 2, on land owned by Ed. Joy, 20 meters west of Foss triangulation station, on opposite side of highway, in terra-cotta pipe, near nail; square hole (Foss reference mark)	974. 096
Childs, 8.5 kilometers north and 1.6 kilometers west of, at northeast corner of sec. 27, T. 131 N., R. 47 W., at southwest corner of crossroads, 2 meters south of south highway line, on west highway line; square concrete post (C. & G. S. b. m. J ₂)	969. 643

WHITE ROCK QUADRANGLE.

[Latitude, 45° 45'-46°; longitude, 96° 30'-96° 45'.]

From White Rock south along Chicago, Milwaukee & St. Paul Ry. to Wheaton.

White Rock, S. Dak., 1.5 kilometers south of, in Minnesota, on south side of sec. 10, T. 128 N., R. 47 W., near southeast corner of section, 19 meters east of railroad track, at right of way fence, north highway line, southwest corner of pasture, 1.1 meters above level of rails; 3-inch red-metal cap on iron post (C. & G. S. b. m. K ₂)	990. 110
White Rock, S. Dak., 2.6 kilometers south of, in Minnesota, near center of SE. $\frac{1}{4}$ sec. 15, T. 128 N., R. 47 W., 14 meters east of track, 1.2 meters below level of rail, 1.2 kilometers south of grade crossing, in granite boulder 0.9 meter square and 0.5 meter deep, in horizontal surface; square hole (C. & G. S. b. m. L ₂)	1, 007. 459
Wheaton, 9 kilometers north of, near center of south side of SW. $\frac{1}{4}$ sec. 23, T. 128 N., R. 47 W., 20 meters east of railroad track, 14 meters north of traveled road, at junction of right of way fence, highway line, and southwest corner of cultivated field; square concrete post (C. & G. S. b. m. M ₂). 1, 035. 805	

WHEATON QUADRANGLE.

[Latitude, 45° 45'-46°; longitude, 96° 15'-96° 30'.]

Near Wheaton.

Wheaton, at northwest corner of Erickson, Hellekson & Co.'s hardware store, at corner of Broadway and Minnesota Street, in bevel of top edge of east face of corner stone, 0.04 meter south of front face of stone, 0.4 meter above sidewalk, 0.5 meter east of west side of building; bottom of hole in horizontal cut (C. & G. S. b. m. N ₂)	1, 019. 876
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Wheaton, at extreme southeast corner of Bank of Wheaton, on north side of Broadway, 1 block east from Minnesota Street, on top of lower granite step, 0.02 meter northwest of southeast corner, 0.15 meter above sidewalk; square in outline (City).....	Feet. 1, 019. 561
Wheaton, northeast corner of Broadway and Minnesota Street, on sandstone doorsill of store owned by Mr. Christianson, at east end of sill, 0.15 meter from front edge, 0.4 meter above sidewalk; red metal disk (C. & G. S. b. m. O ₂)	1, 020. 178
Wheaton, 5 kilometers south of, in west side of SW. $\frac{1}{4}$ sec. 33, T. 127 N., R. 46 W., 25 meters west of Chicago, Milwaukee & St. Paul Ry. track, at grade crossing, 9 meters southeast of line of travel, at junction of right of way fence, highway line, and northwest corner of waste lot, 4 meters north of large stone heap; red-metal disk (C. & G. S. b. m. P ₂) ..	1, 023. 850

GRACEVILLE QUADRANGLE.

[Latitude, 45° 30'–45° 45'; longitude, 96° 15'–96° 30'.]

From Dumont south along Chicago, Milwaukee & St. Paul Ry. to point 5 miles south of Graceville.

Dumont, 1.6 kilometers north of, 15 meters east of the track of Chicago, Milwaukee & St. Paul Ry., 9 meters north of traveled road; at highway line, right-of-way fence, and southwest corner of land of Mr. Haas, near the southeast corner of sec. 10, T. 126 N., R. 47 W.; 3-inch red-metal cap on iron post (C. & G. S. b. m. Q ₂)	1, 040. 090
Dumont, on Main Street, 66 meters east of Chicago, Milwaukee & St. Paul Ry. track and 20 meters north of the station, in west wall of yellow brick store belonging to K. Kwurm, 0.55 meter north of southwest corner, 1.3 meters above ground; red metal disk (C. & G. S. b. m. R ₂)....	1, 046. 209
Dumont, 24 meters east of track, 15 meters south of station, 1.8 meters east of adjacent rail in side track, on upper surface of foundation (sandstone) at northwest corner of National Elevator Co.'s grain elevator, 0.2 meter above ground, 6 centimeters east of west edge and 10 centimeters south of north edge of stone; bottom of hole in horizontal surface (C. & G. S. b. m. S ₂).....	1, 041. 019
Dumont, 4.8 kilometers south of, 17 meters west of track, 9 meters south and 8 meters east of line of travel, at intersection of highway line and right-of-way fence, near northeast corner of sec. 3, T. 125 N., R. 46 W., adjoining land of John Donahue; 3-inch red-metal cap (C. & G. S. b. m. T ₂).....	1, 051. 343
Collis, 11 meters east of track, on granite foundation of grain elevator of Miller Elevator Co., 0.31 meter north of extreme southwest corner and 0.03 meter east of west edge of stone, 0.18 meter above ground, 0.15 meter north of southwest corner of framing and 0.10 meter below it, "U. S. B. M." cut on adjacent wood with chisel; bottom of hole in horizontal surface (C. & G. S. b. m. U ₂).....	1, 065. 135
Collis, 2 kilometers south of, near northwest corner of sec. 23, T. 125 N., R. 46 W., 14 meters east of railroad track, 8 meters south of line of travel, at intersection of highway line and right-of-way fence, on block of granite 0.4 meter by 0.6 meter by 0.7 meter set flush with ground, 0.15 meter east of west side of stone and 0.08 meter south of north side; smooth bottom of round cut (C. & G. S. b. m. V ₂).....	1, 070. 162

Graceville, 5.2 kilometers north of, near northeast corner of sec. 27, T. 125 N., R. 46 W., 12 meters west of track, 9 meters south and 8 meters east of lines of travel, at intersection of highway lines and right-of-way fence; on block of granite 0.5 meter in size; smooth bottom of round cut (C. & G. S. b. m. W ₂)	Feet. 1, 079. 637
Graceville, 3.6 kilometers north of, near northeast corner of sec. 34, T. 125 N., R. 46 W., 15 meters west of track, 10 meters south of line of travel, at right of way fence and intersecting highway line, adjoining land of William Rice; 3-inch red-metal cap (C. & G. S. b. m. X ₂)	1, 100. 349
Graceville, 12 meters west of center of Second Street, midway between St. Peter and St. Paul streets, near center of east side of lot 10, in northeast corner of public-school grounds, 0.9 meter south of north fence and 0.5 meter west of east fence, in stone post; top of $\frac{1}{2}$ -inch copper bolt (C. & G. S. b. m. Y ₂)	1, 110. 444
Graceville, at southeast corner of Fourth Street and Studdart Avenue, on top surface of sandstone water table of Brennan Brothers' store, 2.4 meters west of center of doorway, 0.6 meter east of west wall, 9 centimeters south of front edge of stone, 0.4 meter above sidewalk; cross in outline (City)	1, 111. 543
Graceville, at entrance near southeast corner of Graceville House, belonging to A. E. Heymann, on northeast corner of Third Street and Studdart Avenue, in center of sandstone doorsill, 0.2 meter north of front edge of sill, 0.1 meter above sidewalk and 1.7 meters west of southeast corner of building; red-metal disk (C. & G. S. b. m. Z ₂)	1, 111. 415
Graceville, 120 meters south of station, 20 meters west of track, on grain elevator of Monarch Elevator Co., 0.4 meter south of extreme northeast corner of building, on stone 7 centimeters above ground, 6 centimeters west of east edge of stone, "U. S. B. M." chiseled in adjoining wood; bottom of hole in horizontal surface (C. & G. S. b. m. A ₃)	1, 107. 763
Graceville, 1.6 kilometers south of, near southeast corner of sec. 9, T. 124 N., R. 46 W., 8 meters east of railroad track, at grade crossing, 10 meters north of line of travel, 11 meters west of right-of-way fence, at highway line, 0.2 meter below level of rail; top of $\frac{1}{2}$ -inch copper bolt in stone post (C. & G. S. b. m. B ₃)	1, 110. 671
Graceville, 6.2 kilometers south of, in SW. $\frac{1}{4}$ sec. 28, T. 124 N., R. 46 W., 15 meters east of track, at right-of-way fence, 325 meters west of house of F. R. Rothwell and 9 meters north of private road leading to it; 3-inch red-metal cap (C. & G. S. b. m. C ₃)	1, 142. 160

ORTONVILLE QUADRANGLE.

[Latitude, 45° 15'-45° 30'; longitude, 96° 15'-96° 30'.]

From point 5 miles south of Graceville south along Chicago, Milwaukee & St. Paul Ry.
to Ortonville.

Graceville, 8 kilometers south of, in NW. $\frac{1}{4}$ sec. 4, T. 123 N., R. 46 W., 14 meters east of railroad track, at grade crossing, 6 meters west and 13 meters south of lines of travel, adjoining land of L. E. Daly and 345 meters south of his house; square concrete post (C. & G. S. b. m. D ₃)	1, 156. 930
Clinton, 3 kilometers north of, in SW. $\frac{1}{4}$ sec. 4, T. 123 N., R. 46 W., 18 meters west of track, at grade crossing, 11 meters north of line of travel, at junction of highway line, right-of-way fence and southeast corner of field of Joseph Rothwell; 3-inch red-metal cap on iron post (C. & G. S. b. m. E ₃)	1, 184. 112

Clinton, on south side of main street, 50 meters east of main railroad track, under city water tank, in bevel of upper and west edge of north pier of west pair, 9 centimeters south of north edge and 2 centimeters east of west edge of stone, 25 centimeters above ground; bottom of hole in horizontal cut (C. & G. S. b. m. F ₃).....	Feet. 1, 161. 507
Clinton, on north side of main street, 80 meters east of main railroad track, in front sandstone doorsill of Erickson Building, 9 centimeters north of front edge of sill, 0.75 meter east of center of doorway, 0.15 meter above sidewalk; red metal disk (C. & G. S. b. m. G ₃).....	1, 161. 848
Clinton, 2 kilometers south of, in SE. $\frac{1}{4}$ sec. 21, T. 123 N., R. 46 W., 17 meters east of track, at grade crossing, 8 meters north of line of travel, at intersection of highway line, right of way fence, and southwest corner of cultivated field belonging to M. Vigness; 3-inch red-metal cap on iron post (C. & G. S. b. m. H ₃).....	1, 146. 339
Ortonville, 7.5 kilometers north of, in SE. $\frac{1}{4}$ sec. 16, T. 122 N., R. 46 W., 17 meters west of track, at grade crossing, 7 meters north of line of travel, at intersection of highway line, right of way fence, and southeast corner of cultivated field belonging to Claus Carlson; 3-inch red-metal cap on post (C. & G. S. b. m. I ₃).....	1, 153. 793
Ortonville, 4 kilometers north of, near the center of the north side of sec. 33, T. 122 N., R. 46 W., 7.4 meters west of track, 240 meters south of grade crossing, on highest point of granite boulder 1.3 meters by 1.8 meters by 0.5 meter; smooth bottom of round cut (C. & G. S. b. m. J ₃).....	1, 109. 585
Ortonville, 2.6 kilometers north of courthouse, at northwest corner of NE. $\frac{1}{4}$ sec. 4, T. 121 N., R. 46 W., 20 meters east of track, at grade crossing, at crossroads, 8 meters east and 6 meters south of lines of travel; 3-inch red-metal cap (C. & G. S. b. m. K ₃).....	1, 103. 072
Ortonville, on granite terrace wall of county courthouse, 64 meters south of main entrance, in top of southwest corner, 1.1 meters east of front edge of wall, 0.06 meter north of south edge, 1.55 meters above ground; smooth bottom of round cut (C. & G. S. b. m. L ₃).....	1, 021. 655
Ortonville, established by Corps of Engineers, U. S. Army, in their survey of Bigstone Lake and described thus: "A boat spike in a horizontal blaze in the roof of an oak tree 55 feet southwest of the southwest corner-stone of block 1." (U. S. C. E. 1).....	978. 413
Ortonville, established by Corps of Engineers, U. S. Army, and described thus: "The center of the top of a square granite cut stone set at the northwest corner of block 1, the stone is on the lake beach at the foot of the bank." A copper bolt was cemented in a drill hole in center of post and used as bench mark in 1904. (U. S. C. E. 2).....	968. 433
Ortonville, established by Corps of Engineers, U. S. Army, and described thus: "The monument is on the fence line along the north side of Madison Avenue, about 200 feet east from the railway tracks and about 140 feet southwest from the center of the intersection of Madison Avenue and Front or First Street, it is the extreme high-water lake level." In 1904 it was marked in the same manner as U. S. C. E. 2. (U. S. C. E. 3)...	970. 949

From Ortonville along Minnesota River to point near Odessa.

Ortonville, 140 feet southwest of intersection of Madison Avenue and Front or First Street, on fence line on north side of Madison Avenue; copper plug in granite monument.....	972. 97
Ortonville, 40 feet northwest by 180 feet southwest of northwest end of station, on down-river side of road, 2 feet from fence; brass plug in concrete and iron pipe (U. S. C. E. b. m. 528):	
Brass plug.....	980. 66
Cap on pipe.....	984. 49

Big Stone City, S. Dak., at foot of bluff near intersection of first road below Big Stone Lake (Ortonville-Big Stone City road) with north-south road on quarter-section line; brass plug in concrete and iron pipe (U. S. C. E. b. m. 516):	
Brass plug.....	Feet. 976.39
Cap on pipe.....	980.20
Ortonville, 5 miles southeast of, on knoll east of road between secs. 26 and 27, 2 feet from fence, 330 feet north-northeast from center of highway bridge over Minnesota River; brass plug in concrete and iron pipe (U. S. C. E. b. m. 520):	
Brass plug.....	966.57
Cap on pipe.....	970.41
Odessa, 0.5 mile southwest of, 350 feet south by 100 feet west from center of bridge over Minnesota River, 3 feet north of fence; brass plug in concrete and iron pipe (U. S. C. E. b. m. 524):	
Brass plug.....	959.83
Cap on pipe.....	963.62
Odessa, bridge southwest of, in left bank downstream pier, on head of outside bolt (U. S. C. E. b. m.):	
	959.09

MADISON QUADRANGLE.

[Latitude, 45°-45° 15'; longitude, 96°-96° 15'.]

From point near Odessa along Minnesota River to point near Appleton.

Odessa, 3.5 miles southeast of, on line between Tps. 120 and 121, 1,200 feet east of bridge over Minnesota River, 18 feet southwest from granite monument on corner of secs. 34 and 35, T. 121 N., R. 45 W.; brass plug in concrete and iron pipe (U. S. C. E. b. m. 549):	
Brass plug.....	950.67
Cap on pipe.....	954.54
Marsh Lake, 3.5 miles southwest of Correll, center of sec. 17, T. 120 N., R. 44 W., top of left bank downstream pier of bridge over Minnesota River, on bolt (U. S. C. E. b. m. 11):	
	944.46
T. 120 N., R. 44 W., about 700 feet north of southeast corner of sec. 18, 84 feet north-northeast from J. P. Sorenson's farmhouse on section line between secs. 17 and 18; brass plug in concrete and iron pipe (U. S. C. E. b. m. 535):	
Brass plug.....	947.10
Cap on pipe.....	950.95
Correll, in northeast corner of school yard, 100 feet northeast of northeast corner of building, 5 feet south of fence line along north side of school yard; brass plug in concrete and iron pipe (U. S. C. E. b. m. 536):	
Brass plug.....	979.41
Cap on pipe.....	983.26
Appleton, 2.8 miles southwest of, center of sec. 20, T. 120 N., R. 43 W., spike in northwest corner of bridge over Pomme de Terre River (U. S. C. E. b. m. 13):	
	959.64
Appleton, 2.8 miles southwest of, 550 feet southwest of west end of highway bridge over Pomme de Terre River, 120 feet south of road, 3 feet inside fence line; brass plug in concrete and iron pipe (U. S. C. E. b. m. 552):	
Brass plug.....	952.56
Cap on pipe.....	956.37

Appleton, 4.5 miles southwest of, elevation of tie in Great Northern Ry. bridge over Minnesota River.....	Feet. 948.07
Appleton, 3.5 miles southwest of, left bank downstream corner of steel highway bridge over Minnesota River, on bolt in base plate (U. S. C. E. b. m. 15).....	940.96
T. 120 N., R. 43 W., sec. 34, 100 feet southeast of southeast corner of W. V. Lathrope farmhouse; brass plug in concrete and iron pipe (U. S. C. E. b. m. 562):	
Brass plug.....	949.83
Cap on pipe.....	953.69

MILAN QUADRANGLE.

[Latitude, 45°-45° 15'; longitude, 95° 45'-96°.]

From point near Appleton along Minnesota River to point near Watson.

Milan, 3.5 miles southwest of, on range line between Rs. 42 and 43, about 1,500 feet north of southwest corner of sec. 19, T. 119 N., R. 42 W., on left bank downstream corner of highway bridge across neck of Lac Qui Parle, on anchor bolt through Z bar roller guard (U. S. C. E. b. m. 16)..	940.23
Lac Qui Parle, 400 feet east from northeast end of highway bridge across neck of, 6 feet from fence line to south, south side of road; brass plug in concrete and iron pipe (U. S. C. E. b. m. 545):	
Brass plug.....	945.12
Cap on pipe.....	948.90
Watson Sag ditch, 1,375 feet north-northeast from small concrete bridge over, 100 feet northeast of turn in road, 600 feet east of west boundary of sec. 3, near foot of bluff; brass plug in concrete and iron pipe (U. S. C. E. b. m. 543):	
Brass plug.....	950.60
Cap on pipe.....	954.51
T. 118 N., R. 42 W., near quarter line of sec. 13, 150 feet east-northeast of center of first highway bridge over Minnesota River below Lac Qui Parle, 30 feet north of center of road; brass plug in concrete and iron pipe (U. S. C. E. b. m. 530):	
Brass plug.....	937.02
Cap on pipe.....	940.81
Watson, near, on left bank downstream pier of first highway bridge below Lac Qui Parle, on north bolt head of cover plate (U. S. C. E. b. m. 18)..	943.10

BOYD QUADRANGLE.

[Latitude, 44° 45'-45°; longitude, 95° 45'-96°.]

From point near Watson along Minnesota River to point near Montevideo.

Watson, 1.8 miles southwest of, on line between secs. 29 and 32, T. 118 N., R. 41 W., on left bank downstream corner of wooden highway bridge over Minnesota River, on threads of outer lower tension rod (U. S. C. E. b. m. 19).....	934.46
Watson, 1.8 miles southwest of, 645 feet west-southwest (azimuth about 75°) from southwest end of above-described bridge over Minnesota River, 200 feet south of road; brass plug in concrete and iron pipe (U. S. C. E. b. m. 554):	
Brass plug.....	960.49
Cap on pipe.....	964.33
Watson Creamery, 40 feet southwest of southwest corner of; brass plug in concrete and iron pipe (U. S. C. E. b. m. 553):	
Brass plug.....	1,012.01
Cap on pipe.....	1,015.84

Montevideo, 5 miles above, in pasture, 3 feet southeast of fence on south-east side of road, 25 feet from center of road, in NW. $\frac{1}{4}$ sec. 9, T. 117 N., R. 41 W., 300 feet northeast of east end of steel highway bridge over Minnesota River; brass plug in concrete and iron pipe (U. S. C. E. b. m. 541):

Brass plug.....	Feet. 928.97
Cap on pipe.....	932.75

Montevideo, 5 miles above, left bank downstream pier of steel highway bridge above described, on southeast bolt head in cover plate (U. S. C. E. b. m. 21).....

931.31

MONTEVIDEO QUADRANGLE.

[Latitude, 44° 45'-45°; longitude, 95° 30'-95° 45'.]

From point near Montevideo along Minnesota River to Minnesota Falls.

Montevideo, at mill dam in; on bolt head in cover plate on upstream right-bank pier of highway bridge over Chippewa River (U. S. C. E. b. m. 23)...	934.79
Montevideo, on corner of North First Street and Sherman Avenue; cross on hydrant flange at water trough (U. S. C. E. b. m. 23).....	955.84
Montevideo, 1.2 miles south-southwest of, 20 feet west of center of road, 1.5 feet west of fence line, 420 feet south of highway bridge over Minnesota River; brass plug in concrete and iron pipe (U. S. C. E. b. m. 555):	
Brass plug.....	933.11
Cap on pipe.....	936.97
Chippewa River, below mouth of, left bank downstream chord Lo U of first bridge over Minnesota River, on upper rivet of middle row in cover plate (U. S. C. E. b. m. 25).....	929.97
Myers, 400 feet east of east end of highway bridge over Minnesota River, 20 feet north of road, opposite Mrs. B. Nelson's residence; brass plug in concrete and iron pipe (U. S. C. E. b. m. 565):	
Brass plug.....	926.07
Cap on pipe.....	929.89
Myers, in front-yard line of Lauris Larson's home; spike in root of 16-inch box-elder tree (U. S. C. E. b. m. 27).....	925.92
Granite Falls, 1 mile northwest of, upstream side of right abutment of Great Northern Ry. bridge over Minnesota River, on north rivet of base plate (U. S. C. E. b. m. 28).....	920.35
Granite Falls, 3.5 miles northwest of, 100 feet west of east boundary fence line of John J. Mooney's farm, 300 feet south of river at bend, on right bank of Minnesota River in sec. 19, T. 116 N., R. 39 W., 60 feet north of river road; brass plug in concrete and iron pipe (U. S. C. E. b. m. 559):	
Brass plug.....	917.22
Cap on pipe.....	921.04
Granite Falls, 50 feet east of left bank of river, 66 feet northeast of east end of footbridge over Minnesota River; brass plug in concrete and iron pipe (U. S. C. E. b. m. 540):	
Brass plug.....	892.59
Cap on pipe.....	896.41
Minnesota Falls, 16 feet northeast of east end of head gate at dam; brass plug in concrete and iron pipe (U. S. C. E. b. m. 525):	
Brass plug.....	886.41
Cap on pipe.....	890.32

ECHO QUADRANGLE.

[Latitude, 44° 30'–44° 45'; longitude, 95° 15'–95° 30'.]

From Minnesota Falls along Minnesota River to point between Sacred Heart and Renville.

Granite Falls, 4.5 miles southeast of, 900 feet west of H. W. Brasch's house, near road fence at Camp No. 10; head of spike in root of 20-inch elm tree (U. S. C. E. b. m. 29).....	Feet. 878. 54
Hawk Creek, 1,500 feet north of mouth of, 1,000 feet north of Minnesota River, 150 feet northwest of northwest corner of red barn, 200 feet southwest of southwest corner of gray farmhouse, 20 feet south of road entering farmyard; brass plug in concrete and iron pipe (U. S. C. E. b. m. 607):	
Brass plug.....	885. 16
Cap on pipe.....	889. 04
T. 114 N., R. 37 W., in NE. $\frac{1}{4}$ sec. 7, 360 feet south of center of highway bridge over Minnesota River south of Sacred Heart, 40 feet west of center of road, 6 feet from granite outcrop; brass plug in concrete and iron pipe (U. S. C. E. b. m. 561):	
Brass plug.....	865. 86
Cap on pipe.....	869. 75
T. 114 N., R. 37 W., in NE. $\frac{1}{4}$ sec. 7, left bank downstream pier of above-described highway bridge on top of anchor bolt (U. S. C. E. b. m. 30)...	870. 59
T. 114 N., R. 37 W., in NW. $\frac{1}{4}$ sec. 22, 8 feet inside of fence on northeast side of road, 150 feet north-northeast from left end of bridge over Minnesota River; brass plug in concrete and iron pipe (U. S. C. E. b. m. 558):	
Brass plug.....	858. 96
Cap on pipe.....	862. 76
T. 114 N., R. 37 W., in NW. $\frac{1}{4}$ sec. 22, left bank downstream pier of above-described highway bridge, top of anchor bolt (U. S. C. E. b. m. 31).....	964. 60

REDWOOD FALLS QUADRANGLE.

[Latitude, 44° 30'–44° 45'; longitude, 95°–95° 15'.]

From point between Sacred Heart and Renville along Minnesota River to point near Beaver Creek.

T. 114 N., R. 36 W., in NE. $\frac{1}{4}$ sec. 30, 210 feet north-northwest by road from bridge over Minnesota River north of Delhi, 15 feet west of road; brass plug in concrete and iron pipe (U. S. C. E. b. m. 571):	
Brass plug.....	848. 15
Cap on pipe.....	852. 07
T. 114 N., R. 36 W., in NE. $\frac{1}{4}$ sec. 30, right bank downstream corner of bridge above described, on top of hexagonal nut at end of outer tension rod of Lo Li (U. S. C. E. b. m. 32).....	853. 09
T. 113 N., R. 36 W., on east boundary of sec. 4, on left bank downstream pier of bridge over Minnesota River, on top of extreme left-hand downstream rivet in base plate of bridge shoe (U. S. C. E. b. m. 33).....	849. 32
T. 113 N., R. 36 W., in NW. $\frac{1}{4}$ sec. 3, 60 feet southwest of Ed. Gaffney's farmhouse, on road along base of bluff north side of valley; brass plug in concrete and iron pipe (U. S. C. E. b. m. 546):	
Brass plug.....	889. 94
Cap on pipe.....	893. 78
T. 113 N., R. 36 W., in sec. 12, 200 yards west of Frank Smith's farmhouse, on road at foot of bluff on north side of valley, 3 feet inside fence, north side of road; brass plug in concrete and iron pipe (U. S. C. E. b. m. 593):	
Brass plug.....	873. 95
Cap on pipe.....	877. 78

North Redwood, 510 feet northwest of highway bridge over Redwood River, 40 feet west of road, near granite outcrop; brass plug in concrete and iron pipe (U. S. C. E. b. m. 547):	Feet.
Brass plug.....	852.06
Cap on pipe.....	855.89
North Redwood, 0.5 mile north of, left bank upstream abutment of bridge over Minnesota River, on top of inner anchor bolt (U. S. C. E. b. m. 34) ..	845.09
Beaver Creek valley, right side of, 300 feet southwest of square house near old railroad embankment; nail in root of 2-forked 12-inch box-elder tree.	844.26

MORTON QUADRANGLE.

[Latitude, 44° 30'-44° 45'; longitude, 94° 45'-95°.]

From point near Beaver Creek along Minnesota River to point near Franklin.

Morton, near, 300 feet southeast of southeast corner of Morton High School building; brass plug in concrete and iron pipe (U. S. C. E. b. m. 583):	
Brass plug.....	855.01
Cap on pipe.....	858.92
Morton, left bank downstream bridge seat of Minneapolis & St. Louis R. R. bridge over Minnesota River, on top of inner anchor bolt.....	838.78
Morton, at station; base of rail.....	842.38
T. 113 N., R. 34 W., in SW. $\frac{1}{4}$ sec. 33, 550 feet northwest of highway bridge over Birch Cooley Creek, north side of road, 10 feet inside of fence line; brass plug in concrete and iron pipe (U. S. C. E. b. m. 594):	
Brass plug.....	840.17
Cap on pipe.....	844.05
Franklin, 1 mile south-southeast of, on easterly side of road, 3 feet inside of fence, 300 feet northeast of center of highway bridge over Minnesota River; brass plug in concrete and iron pipe (U. S. C. E. b. m. 599):	
Brass plug.....	831.91
Cap on pipe.....	835.76
Franklin, 1 mile south-southeast of, left bank downstream bridge seat of bridge over Minnesota River, on top of anchor bolt (U. S. C. E. b. m. 36).	826.61

MORGAN QUADRANGLE.

[Latitude, 44° 15'-44° 30'; longitude, 94° 45'-95°.]

From point near Franklin along Minnesota River to point 6.5 miles southeast of Franklin.

T. 112 N., R. 33 W., 100 feet west of line between secs. 20 and 21, at fork in road, on south side of road, at foot of bluffs; brass plug in concrete and iron pipe (U. S. C. E. b. m. 602):	
Brass plug.....	855.11
Cap on pipe.....	858.98
T. 112 N., R. 33 W., in NE. $\frac{1}{4}$ sec. 34, 120 feet southeast of Solomon Peterson's farmhouse, on north side of road at foot of bluff; brass plug in concrete and iron pipe (U. S. C. E. b. m. 548):	
Brass plug.....	848.50
Cap on pipe.....	852.39

SLEEPY EYE QUADRANGLE.

[Latitude, 44° 15'-44° 30'; longitude, 94° 30'-94° 45'.]

From point 6.5 miles southeast of Franklin along Minnesota River to West Newton.

T. 111 N., R. 32 W., 1,600 feet north of southeast corner of sec. 6, at fork of roads, near signboard "Franklin 11 mi. New Ulm 16 mi. Sleepy Eye 13 mi. Fairfax 7 mi."; brass plug in concrete and iron pipe (U. S. C. E. b. m. 526):	Feet.
Brass plug.....	827. 56
Cap on pipe.....	831. 39
Fort Ridgely, 1.25 miles south-southeast of, in SE. $\frac{1}{4}$ sec. 7, T. 111 N., R. 32 W., on upstream end center pier of bridge over Minnesota River, on top of anchor bolt of bridge seat (U. S. C. E. b. m. 37).....	817. 13
T. 111 N., R. 32 W., 12 feet east by 30 feet south of quarter corner between secs. 15 and 16, on east side of road; brass plug in concrete and iron pipe (U. S. C. E. b. m. 620):	
Brass plug.....	819. 00
Cap on pipe.....	822. 81
T. 111 N., R. 32 W., in NW. $\frac{1}{4}$ sec. 22, left bank downstream bridge seat of bridge over Minnesota River, known locally as "Hendemann Bridge," on top of outer anchor bolt (U. S. C. E. b. m. 38).....	811. 93
T. 111 N., R. 31 W., SW. $\frac{1}{4}$ sec. 29, 150 feet southeast of William Palmer's farmhouse, on north side of road; brass plug in concrete and iron pipe (U. S. C. E. b. m. 542):	
Brass plug.....	815. 80
Cap on pipe.....	819. 63

NEW ULM QUADRANGLE.

[Latitude, 44° 15'-44° 30'; longitude, 94° 15'-94° 30'.]

From West Newton along Minnesota River to point near Courtland.

T. 110 N., R. 31 W., in SW. $\frac{1}{4}$ sec. 1, 165 feet north by 12 feet east of center of bridge over Minnesota River; brass plug in concrete and iron pipe (U. S. C. E. b. m. 617):	
Brass plug.....	807. 82
Cap on pipe.....	811. 64
T. 110 N., R. 31 W., in SW. $\frac{1}{4}$ sec. 1, upstream left bank bridge seat of bridge over Minnesota River above described, on anchor bolt, in line with truss (U. S. C. E. b. m. 39).....	803. 50
New Ulm, southwest corner of North Front and First North streets, near Eagle Roller Mills; brass plug in concrete and iron pipe (U. S. C. E. b. m. 585):	
Brass plug.....	818. 59
Cap on pipe.....	822. 45
New Ulm, 1 mile below station, in SE. $\frac{1}{4}$ sec. 28, T. 110 N., R. 30 W., right bank downstream bridge seat of highway bridge over Minnesota River, on anchor bolt, in line with truss (U. S. C. E. b. m. 40).....	798. 31
New Ulm, 1.5 miles southeast of, in SW. $\frac{1}{4}$ sec. 27, T. 110 N., R. 30 W., in southeast corner of road crossing at foot of bluff; brass plug in concrete and iron pipe (U. S. C. E. b. m. 601):	
Brass plug.....	838. 64
Cap on pipe.....	842. 56

Courtland, 400 yards south of main road to, 550 feet west of northeast corner of sec. 2, T. 109 N., R. 30 W.; brass plug in concrete and iron pipe (U. S. C. E. b. m. 534):	Feet.
Brass plug.....	928. 98
Courtland, 2,000 feet south-southwest of, 20 feet east of road, at top of bluff; brass plug in concrete and iron pipe (U. S. C. E. b. m. 616):	
Brass plug.....	916. 11

MADEIRA QUADRANGLE.

[Latitude, 44°-44° 15'; longitude, 94° 15'-94° 30'.]

From point near Courtland along Minnesota River to T. 109 N., R. 29 W., SE. $\frac{1}{4}$ sec. 24.	
Courtland, 1 mile south of, in SW. $\frac{1}{4}$ sec. 8, T. 109 N., R. 29 W., left bank downstream bridge seat of highway bridge over Minnesota River, on outer anchor bolt (U. S. C. E. b. m. 41).....	793. 80
T. 109 N., R. 29 W., 450 feet south of quarter corner sec. 15, on slope of bluff, 20 feet west of telephone line running to farmhouse near river on east line of sec. 15; brass plug in concrete and iron pipe (U. S. C. E. b. m. 556):	
Brass plug.....	912. 35
T. 109 N., R. 29 W., SE. $\frac{1}{4}$ sec. 24, 10 feet northeast of road at foot of bluff; brass plug in concrete and iron pipe (U. S. C. E. b. m. 538):	
Brass plug.....	840. 73

LAKE CRYSTAL QUADRANGLE.

[Latitude, 44°-44° 15'; longitude, 94°-94° 15'.]

From SE. $\frac{1}{4}$ sec. 24, T. 109 N., R. 29 W., along Minnesota River to point near Mankato.	
Judson, 100 feet northwest of north end of highway bridge over Minnesota River; brass plug in concrete and iron pipe (U. S. C. E. b. m. 584):	
Brass plug.....	793. 38
Judson, highway bridge over Minnesota River, left bank downstream pier; rivet in cover (U. S. C. E. b. m. 42).....	787. 70
T. 108 N., R. 27 W., 600 feet southwest of center of sec. 7, 300 feet south of Chicago & North Western Ry. track; brass plug and iron pipe (U. S. C. E. b. m. 529):	
Brass plug.....	812. 33
Cap on pipe.....	816. 23
Trestle 1625; on bolt in northwest corner of.....	792. 91
Trestle 1607; on bolt in northwest corner of.....	786. 24

MANKATO QUADRANGLE.

[Latitude, 44°-44° 15'; longitude, 93° 45'-94°.]

From point near Mankato along Minnesota River to North Mankato.

Mankato, in western part of; on left bank downstream anchor bolt of highway bridge over Blue Earth River (U. S. C. E. b. m. 43).....	786. 63
Mankato, southeast corner of Front and Main streets, on Front Street side of stone foundation of J. J. Shaubut's building, 2.5 feet from corner; copper plug (U. S. C. E. b. m. 1874 B. M.).....	781. 49
Mankato, on northeast corner of water table of post office; chiseled cross (U. S. C. E. b. m. 44).....	793. 85
Mankato, at foot of Sibley Mound, on northeast end at turn in road running around mound; brass plug in concrete and iron pipe (U. S. C. E. b. m. 618):	
Brass plug.....	774. 10
Cap on pipe.....	777. 94

North Mankato, on north side of road along left bank of river, 1 mile west of highway bridge over Minnesota River, between Mankato and North Mankato, 600 feet west of stone quarries; brass plug in concrete and iron pipe (U. S. C. E. b. m. 578):

Brass plug.....	Feet. 792. 17
Cap on pipe.....	796. 05

ST. PETER QUADRANGLE.

[Latitude, 44° 15'–44° 30'; longitude, 93° 45'–94°.]

From North Mankato along Minnesota River to Le Sueur.

Kasota, on semicircular stone step at east entrance to women's waiting room of Chicago, St. Paul, Minneapolis & Omaha Ry. station; chiseled cross (U. S. C. E. b. m.).....	810. 47
St. Peter, in north end of capstone to west abutment of St. Peter bridge; copper bolt (U. S. C. E. b. m. "1874").....	762. 87
Ottawa, in doorsill of two-story square front store, corner of Grand and Liberty streets, opposite post office and near "town well"; copper bolt.	799. 88
Le Sueur, in foundation of standpipe, on bolt.....	762. 35

LAKE WASHINGTON QUADRANGLE.

[Latitude, 44° 30'–44° 45'; longitude, 93° 45'–94°.]

At Henderson.

Henderson, north abutment of Chicago, St. Paul, Minneapolis & Omaha Ry. bridge 290, on northwest corner of top stone; chiseled cross.....	741. 48
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NEW PRAGUE QUADRANGLE.

[Latitude, 44° 30'–44° 45'; longitude, 93° 30'–93° 45'.]

From Henderson along Minnesota River to Shakopee.

Carver, in west pier of drawbridge over Minnesota River, midway between the rails, 3.35 feet from the dressed edge of pier, 0.85 feet west of center roller; copper bolt (U. S. C. E. b. m. 1874).....	722. 35
Shakopee, on southwest corner of concrete step at south entrance to men's waiting room of Chicago, St. Paul, Minneapolis & Omaha Ry. station (U. S. C. E. b. m.).....	758. 44
Shakopee, on doorsill of city hall, 2.1 feet from northwest corner of building, marked by cross chiseled in foundation (U. S. C. E. b. m.).....	749. 90

ASHBY QUADRANGLE.

[Latitude, 46°–46° 15'; longitude, 95° 45'–96°.]

From Melby northwest along Great Northern Ry. to Parkdale.

Melby, about 1.6 miles northwest of, 4½ telegraph poles northwest of road crossing, on stone arch bridge 68, which is over a stream connecting Lake Christiana and Pelican Lake, in coping north of track; bottom of hole (C. & G. S. b. m. O ₃).....	1, 222. 500
Ashby, at southwest corner of Melby Street and street one block south of Main Street, in northeast corner of property owned by John Madland, 3 meters from property line, in stone post; top of ½-inch copper bolt (C. & G. S. b. m. P ₃).....	1, 294. 292
Ashby, at southeast corner of Main and Larsen streets, in northwest corner and on north face of yellow brick building owned by J. H. Bemis, 1 meter above sidewalk; red-metal disk (C. & G. S. b. m. Q ₃).....	1, 298. 252

Ashby, 1.5 miles northwest of, 17 telegraph poles west of milepost 169, $\frac{3}{8}$ meter northeast of railroad right-of-way fence, on property line of F. Caldwell's and L. O. Bratvold's farms, on iron post; 3-inch red-metal cap (C. & G. S. b. m. R ₃).....	Feet. 1, 259. 404
Dalton, about 475 meters north of track, in northwest corner of public-school grounds, $\frac{3}{8}$ meter from property line, in stone post; top of $\frac{1}{2}$ -inch copper bolt (C. & G. S. b. m. S ₃).....	1, 381. 015
Dalton, about 175 feet south of building occupied by Bank of Dalton, on prominent little knoll in vacant lot owned by M. T. McMahon who lives in Fergus Falls and owns the Dalton Lumber Co., in terra-cotta pipe; square hole (Dalton astronomic station).....	1, 376. 716
Dalton, 50 meters east and 50 meters north of Great Northern Ry. station, on property leased by Minneapolis & Northern Elevator Co., 1 meter north of northwest corner of engine house, on iron post; 3-inch red-metal cap (C. & G. S. b. m. T ₃).....	1, 365. 210
Dalton, 1 mile west of, on knoll in pasture in NE. $\frac{1}{4}$ SE. $\frac{1}{4}$, sec. 10, T. 131 N., R. 42 W., about 90 meters south of northeast corner of quarter section of land owned by Ivir Vik, who lives about $\frac{3}{8}$ mile west of south and across a small lake from station, 2.42 meters west of fence at east side of this section; in terra-cotta pipe; square hole (Dalton triang. sta.).....	1, 387. 425
Dalton, about 2.2 miles northwest of, 0.5 mile west of milepost 178, on north right of way, on northeast corner of coping of stone-arch bridge, 3 meters below level of rails; red-metal disk (C. & G. S. b. m. U ₃).....	1, 242. 123

FERGUS FALLS QUADRANGLE.

[Latitude, 46° 15'-46° 30'; longitude, 96°-96° 15'.]

From Parkdale northwest along Great Northern Ry. to Rothsay.

Parkdale, 15 $\frac{1}{2}$ telegraph poles west of milepost 181, on public road, $\frac{3}{8}$ meter south of right of way fence, in stone post; top of $\frac{1}{2}$ -inch copper bolt (C. & G. S. b. m. V ₃).....	1, 232. 101
Fergus Falls, about 2.3 miles southeast of, 3 telegraph poles east of milepost 184, on south coping of stone-arch culvert which is over a small stream flowing into lake, in center of top surface; $\frac{3}{8}$ -inch copper bolt (C. & G. S. b. m. W ₃).....	1, 204. 443
Fergus Falls, south of tracks, on southeast foundation of railway water tank, in southeast corner of stone; bottom of hole (C. & G. S. b. m. X ₃).....	1, 194. 270
Fergus Falls, at the southeast corner of Lincoln Avenue and Mill Street, on doorstep of northern entrance of Pickett Block, in middle of building, 10 centimeters from north edge and 15 centimeters from east edge of step; surface within an outlined square (C. & G. S. b. m. Y ₃).....	1, 194. 575
Fergus Falls, at the southeast corner of Bismarck Avenue and Court Street; highest point of check valve of fire plug (C. & G. S. b. m. City).....	1, 189. 273
Fergus Falls, on the brick building of Fergus Falls National Bank, on Court Street side, about 12 meters from Lincoln Avenue, in water table; red-metal disk (C. & G. S. b. m. Z ₃).....	1, 191. 510
Fergus Falls, about 3.25 miles west of, opposite third telegraph pole west of milepost 190, at west end of a cut and 0.5 meter inside of the north right-of-way fence; red-metal cap on iron post (C. & G. S. b. m. A ₄).....	1, 201. 903
Fergus Falls, about 4 miles west of, 6 telegraph poles east of milepost 191, in south side of west abutment of bridge over Otter Tail River, in south-east corner of horizontal surface of beveled capstone; copper bolt (C. & G. S. b. m. B ₄).....	1, 180. 887

Carlisle, $4\frac{1}{2}$ telegraph poles west of station, in northwest corner of road crossing, at corner of fence; red-metal cap on iron post (C. & G. S. b. m. C ₄).	Feet. 1, 223. 935
Carlisle, about 3 miles west of, $2\frac{1}{2}$ telegraph poles west of milepost 198, in the center of north coping of stone-arch cattle passage 84, about 5 centimeters from north fence; bottom of square hole, lettered "U. S." (C. & G. S. b. m. D ₄).	1, 224. 217
Rothsay, about $4\frac{1}{2}$ miles southeast of, on east side of public road, in corner of fence, on land of Peter Wilson and due west of his house, about 500 meters southeast of Indian triang. sta., which is on a prominent bald knoll known as Indian Mound in SE. $\frac{1}{4}$ NE. $\frac{1}{4}$ sec. 4, T. 134, R. 44; red-metal cap on iron post (C. & G. S. b. m. E ₄).	1, 383. 078

ROTHSAY QUADRANGLE.[Latitude, $46^{\circ} 15' - 46^{\circ} 30'$; longitude, $96^{\circ} 15' - 96^{\circ} 30'$.]**Near Rothsay.**

Rothsay, about 100 meters south of railroad station, on east side of track, in southeast corner of southeast foundation stone of Great Northern Ry. water tank; surface within an outlined square (C. & G. S. b. m. F ₄).	1, 194. 128
Rothsay, at northwest corner of Second and Main streets, in sill of south entrance to yellow-brick building owned by Independent Order of Odd Fellows lodge and used as a bank, at west end of sill; bottom of hole (C. & G. S. b. m. G ₄).	1, 200. 195
Rothsay, about 200 meters east of Great Northern Ry. tracks, on public-school building erected in 1903, in concrete water table at south side of entrance, about 0.2 meter above ground; red-metal disk (C. & G. S. b. m. H ₄).	1, 209. 210
Rothsay, about 3 miles northwest of, 7 telegraph poles south of milepost 207, in northeast corner formed by intersection of public highway and railroad right of way; on property of John Nymoen; red-metal cap on pipe (C. & G. S. b. m. I ₄).	1, 128. 023

BARNESVILLE QUADRANGLE.[Latitude, $46^{\circ} 30' - 46^{\circ} 45'$; longitude, $96^{\circ} 15' - 96^{\circ} 30'$.]**From Lawndale northwest along Great Northern Ry. to Downer.**

Lawndale, 25 meters north of signboard, 50 meters east of main track, on east side of public road as mapped, but on west side of road now in use; about 1.5 meters from telephone pole where line changes direction, in stone post; top of $\frac{1}{2}$ -inch copper bolt (C. & G. S. b. m. J ₄).	1, 068. 646
Lawndale, about $1\frac{1}{2}$ miles north of, at road crossing, 5 telegraph poles south of milepost 212, 11 meters west of track; 3-inch red-metal cap on iron post (C. & G. S. b. m. K ₄).	1, 042. 223
Barnesville, about 2 miles south of, 7 meters north of second telegraph pole south of milepost 215, 10 meters west of center of tracks, in center of top surface of large granite boulder on right of way, almost level with ground; bottom of hole (C. & G. S. b. m. L ₄).	1, 033. 236
Barnesville, about one-third mile south of station, at crossing; about 50 meters east of tracks on east side at corner of public road, in corner of fence, in stone post; top of $\frac{1}{2}$ -inch copper bolt (C. & G. S. b. m. M ₄).	1, 024. 656
Barnesville, on Madison Avenue, at west entrance of public-school building, at north end of the horizontal surface of the top step; bottom of hole (C. & G. S. b. m. N ₄).	1, 034. 043

Barnesville, on the side of Front Street, between Second and Third streets, 1 meter north of central entrance to large red-brick building known as the Oliver Block, in sandstone sill; red-metal disk (C. & G. S. b. m. O ₄).	Feet. 1,024.505
Barnesville, about 2 miles north of, 1 mile north of junction, 2 telegraph poles north of milepost 3, opposite wooden culvert 3, in range with telegraph poles; 3-inch red-metal cap on iron post (C. & G. S. b. m. P ₄).....	987.944
Barnesville, about 4½ miles northwest of, 5 telegraph poles east of milepost 4 on line running to Fargo, N. Dak., in range with telephone poles on north side of track; 3-inch red-metal cap on iron post (C. & G. S. b. m. Q ₄)	951.953

HAWLEY QUADRANGLE.

[Latitude, 46° 45'-47°; longitude, 96° 15'-96° 30'.]

At Downer.

Downer, 175 meters south of station, on an elevator of Hennepin Elevator Co., on north side, 2 meters east of northwest corner of building, on horizontal surface of foundation; ¾-inch copper bolt (C. & G. S. b. m. R ₄)	965.677
Downer, 175 meters north of station, at northwest corner of grade crossing, on railroad right of way, in range with telegraph poles, and 8 meters north of one; bottom of hole in top of concrete post (C. & G. S. b. m. S ₄).....	967.527
Downer, about 1½ miles north of, 14 telegraph poles north of milepost 10, at northeast corner of grade crossing, in corner of a pasture fence, on iron post in soft clay; 3-inch red-metal cap (C. & G. S. b. m. T ₄).....	953.896

FARGO QUADRANGLE.

[Latitude, 46° 30'-47°; longitude, 96° 30'-97°.]

From Crawford north along Great Northern Ry. to Averill.

Crawford, about 1 mile north of, 16 telegraph poles south of milepost 15, at northwest corner of grade crossing, in range with telegraph poles, and 2 meters north of one; 3-inch red-metal cap on iron post (C. & G. S. b. m. U ₄).	930.005
Glyndon, about 1 mile south of, 11 telegraph poles south of milepost 18; at southwest corner of grade crossing, 4 meters south of a telegraph pole and in range with the poles; bottom of hole (C. & G. S. b. m. V ₄).....	923.889
Glyndon, on Northern Pacific Ry. right of way, 11 telegraph poles west of the railroad crossing, on west abutment of steel girder bridge, on north side, in center of beveled concrete surface; ¾-inch copper bolt (C. & G. S. b. m. W ₄).....	922.993
Averill, 1½ miles south of, on railroad right of way, 16 telegraph poles south of milepost 24, opposite whistling post marked W/X, in range with telegraph poles, on iron post set in soft clay; 3-inch red-metal cap (C. & G. S. b. m. X ₄)	916.196
Averill, 6 rails north of north switch, 3 meters north of first telegraph pole north of grade crossing, 13 meters west of railroad track, in range with telegraph poles; bottom of hole in top of concrete post (C. & G. S. b. m. Y ₄).	916.635

FELTON QUADRANGLE.

[Latitude, 47°-47° 15'; longitude, 96° 30'-96° 45'.]

From Averill north along Great Northern Ry. to Wheatville.

Felton, about 3 miles south of, 3 meters north of milepost 30, in range with telegraph poles; bottom of hole in top of concrete post (C. & G. S. b. m. Z ₄).....	916.390
Felton, 2 telegraph poles south of milepost 33, 35 meters west of station, 5 meters south of south line of station, in corner of fence on property of J. J. Hynes; bottom of hole in top of concrete post (C. & G. S. b. m. A ₅).	912.048

Felton, 1 telegraph pole north of milepost 33, at southwest corner of elevator owned by Jenkins Elevator Co., on horizontal surface of foundation stone, 3 inches from south edge and 4 inches from west edge; $\frac{3}{8}$ -inch copper bolt (C. & G. S. b. m. B ₅).....	Feet. 911. 662
Borup, 3 miles south of, 3 telegraph poles north of milepost 37, in corner of fence at northeast corner of grade crossing, 25 meters east of center of track, on land belonging to A. E. Fox, on iron post set in clay; 3-inch red-metal cap (C. & G. S. b. m. C ₅)	908. 972
Borup, 2 $\frac{1}{2}$ telegraph poles north of station, 20 meters east of tracks, in center of west wall of yellow-brick engine house of Cargill Elevator Co. 6 courses of brick below window sill, set in cement; $\frac{3}{8}$ -inch copper bolt (C. & G. S. b. m. D ₅).....	908. 200
Borup, about 400 meters east of railway tracks, in northeast corner of public-school grounds; 7 meters from east edge of property and 3 meters from north edge, about 420 meters south of Borup triangulation station; copper bolt in top of concrete post (C. & G. S. b. m. E ₅)	908. 932
Wheatville, 2 $\frac{1}{2}$ telegraph poles north of milepost 43, at southeast corner of grade crossing, in corner of fence on land of Bore Hoven; top of copper bolt in top of concrete post (C. & G. S. b. m. F ₅).....	903. 778

ADA QUADRANGLE.

[Latitude, 47° 15'-47° 30'; longitude, 96° 30'-96° 45'.]

From Ada north along Great Northern Ry. to Lockhart.

Ada, at northeast corner of county courthouse, on north side of building, 1 foot above ground; red-metal disk (C. & G. S. b. m. G ₅)	907. 560
Ada, about 15 meters east of northeast corner of Park and Garfield avenues, in parking, on southernmost of two meridian marks, a stone post about 5 inches square having a metallic disk marked "U. S. Geological Survey Meridian Mark" set in top face; center of disk (U. S. G. S. meridian mark).....	904. 686
Ada, at northeast corner of Washington and Atlantic avenues, in red-brick building called the Kellar, Sprague and Lofgren Block, in horizontal surface of first step, 6 inches from north edge; surface within an outlined square (C. & G. S. b. m. H ₅).....	906. 372
Ada, on east side of Pacific Avenue, 60 meters north of Shields Avenue, on city water tank, on northeast corner of steel foot of northeast support to tank, 2 feet above ground, on horizontal surface of steel plate; square cut in outline (C. & G. S. b. m. I ₅).....	904. 752
Hadler, 4 telegraph poles south of signboard, 3 meters south of milepost 53, in range with telegraph poles, 12 meters west of track; top of copper bolt (C. & G. S. b. m. J ₅).....	900. 401
Hadler, 1.2 miles east and $\frac{1}{2}$ mile north of, in Pleasant View township, near northeast corner of SW. $\frac{1}{4}$ sec. 15, in corner of pasture fence, about 5 meters south of quarter-section road, about 500 meters southwest of Wicklow triangulation station, on iron post set in sandy clay; 3-inch red-metal cap (C. & G. S. b. m. K ₅).....	905. 444
Lockhart, 3 telegraph poles north of milepost 58, at southeast corner of grade crossing, 50 meters east of main Great Northern Ry. track, in corner of fence, on the Lockhart farm; 3-inch red metal cap on iron post (C. & G. S. b. m. L ₅)	892. 449

BELTRAMI QUADRANGLE.

[Latitude, 47° 30'-47° 45'; longitude, 96° 30'-96° 45'.]

From Beltrami north along Great Northern Ry. to Crookston.

Beltrami, 50 meters north of station, on west side of track, at southwest corner of railroad water tank, in southwest corner of horizontal surface of stone; bottom of hole (C. & G. S. b. m. M ₅)	Feet. 903. 564
Beltrami, about 200 meters north of station, on building of Imperial Elevator Co., in rough granite foundation stone of elevator, on north side, 1 meter from west side and 0.3 meter above ground, in vertical surface; $\frac{3}{8}$ -inch copper bolt (C. & G. S. b. m. N ₅)	904. 230
Beltrami, 1 mile north of, 4 telegraph poles north of milepost 66, 20 meters south of grade crossing, east of tracks, 2 meters north of a telegraph pole and in range with telegraph poles; 3-inch red-metal cap on iron post (C. & G. S. b. m. O ₅)	900. 644
Russia, 30 meters north of signboard, 55 meters east of track, at northwest corner of road crossing, on Russia farm; top of copper bolt (C. & G. S. b. m. P ₅)	893. 380
Russia, 1 mile north of, 7 telegraph poles north of milepost 72, 30 meters east of track, on right of way, in a fence corner; 3-inch red-metal cap on iron post (C. & G. S. b. m. Q ₅)	889. 513
Kittson, 110 meters north of signboard, west of track, in range with telegraph poles; top of copper bolt (C. & G. S. b. m. R ₅)	883. 745
Kittson, 1 $\frac{1}{4}$ miles north of, 8 telegraph poles south of milepost 77, at northwest corner of grade crossing, in a corner of fence; 3-inch red-metal cap on iron post (C. & G. S. b. m. S ₅)	880. 074
Kittson, 2 $\frac{1}{4}$ miles north of, about 200 meters west of Andover triangulation station, at northwest corner of grade crossing and 5 meters north of highway limit; 3-inch red-metal cap on iron post (C. & G. S. b. m. T ₅) ..	879. 217

CROOKSTON QUADRANGLE.

[Latitude, 47° 45'-48°; longitude, 96° 30'-96° 45'.]

From Crookston north along Great Northern Ry. to Euclid.

Crookston, on east side of south abutment of steel railroad bridge over Red Lake River, in northeast corner of horizontal surface of coping stone; $\frac{3}{8}$ -inch copper bolt (C. & G. S. b. m. U ₅)	869. 168
Crookston, at side entrance of store at northwest corner of Main and Roberts streets, 35 meters west of east line of building, at west end of horizontal surface of top step; bottom of hole (C. & G. S. b. m. V ₅)	873. 483
Crookston, on the northwest corner of Second and Main streets, at entrance to Merchants' National Bank building, on north side of top of first step; a square in outline (C. & G. S. b. m. City)	867. 731
Crookston, on north side of county courthouse, 2 feet from east side, 3 feet above ground, in second course of stone; red-metal disk (C. & G. S. b. m. W ₅)	891. 045
Crookston, about 3 miles north of, 65 meters south of Northern Pacific Ry. crossing, on west side of Great Northern Ry. tracks, in range with telegraph poles, on iron post set in clay; 3-inch red-metal cap (C. & G. S. b. m. X ₅)	891. 350
Shirley, 120 meters south of signboard, in range with telegraph poles, set in clay; top of copper bolt (C. & G. S. b. m. Y ₅)	902. 839

Shirley, 1 mile north of, directly opposite signboard "Shirley 1 mile," 13 telegraph poles north of milepost 6, 12 meters south of telegraph pole with section numbers 53 and 52, on right of way, in range with telegraph poles, on iron post set in clay; 3-inch red-metal cap (C. & G. S. b. m. Z ₆)	Feet. 903. 073
Euclid, about 0.5 mile south of, 5½ telegraph poles north of milepost 12, on east side of track, at southeast corner of surveyed highway crossing, in range with telephone poles; top of copper bolt in top of concrete post (C. & G. S. b. m. A ₆).....	898. 450
Euclid, 200 meters west of station, in southeast corner of public-school ground, 5 feet from south property line and 1 foot from east property line, on iron post set in clay; 3-inch red-metal cap (C. & G. S. b. m. B ₆)	891. 111
Euclid, about 2 miles north of, 10 telegraph poles south of milepost 15, 17 paces west of track, in northeast corner of cemetery fence, on iron post set in clay; 3-inch red-metal cap (C. & G. S. b. m. C ₆).....	887. 328

ANGUS QUADRANGLE.

[Latitude, 48°-48° 15'; longitude, 96° 30'-96° 45'.]

Near Angus.

Angus, near, about 200 meters southwest of Sherack triangulation station, in northeast corner of NE. ¼ sec. 1, Keystone township, 25 paces west of road crossing, 1 foot south of pasture fence, on iron post set in cement; 3-inch red-metal cap (C. & G. S. b. m. D ₆)	859. 723
Angus, 400 meters south of station, 200 meters west of track, in southeast corner of public-school grounds, set in clay; top of copper bolt (C. & G. S. b. m. E ₆).....	871. 573
Angus, about 2½ miles north of, 5 meters south of milepost 23, in range with telegraph poles, on iron post set in clay; 3-inch red-metal cap (C. & G. S. b. m. F ₆).....	869. 083

WARREN QUADRANGLE.

[Latitude, 48°-48° 15'; longitude, 96° 45'-97°.]

Near Warren.

Warren, 0.25 mile south of station, 3½ telegraph poles south of milepost 29, on east side of tracks, in corner of right of way fence, set in clay; top of copper bolt (C. & G. S. b. m. G ₆).....	853. 903
Warren, 300 meters southeast of station, at west entrance of county court- house, at north end of horizontal surface of second step; bottom of hole (C. & G. S. b. m. H ₆).....	857. 124
Warren, at south entrance to Warren State Bank, on northwest corner of Johnson Avenue and Main Street, at west end of horizontal surface of stone step; red-metal disk (C. & G. S. b. m. I ₆)	856. 576
Warren, 400 meters north of station, on city water tank, on northeast cor- ner of steel foot of structure, 1 foot above ground; a square cut in outline (C. & G. S. b. m. J ₆).....	857. 426
Warren, 2½ miles north of, 7½ telegraph poles south of milepost 32, on right of way west of track, in a corner of right of way and cattle-guard fence, on iron post set in cement; 3-inch red-metal cap (C. & G. S. b. m. K ₆).....	853. 233

ARGYLE QUADRANGLE.

[Latitude, 48° 15'-48° 30'; longitude, 96° 45'-97°.]

From point 2 miles south of Argyle north along Great Northern Ry. to Stephen.

Argyle, about 2 miles south of, 10½ telegraph poles north of milepost 37, at northwest corner of grade crossing, in a corner of right-of-way and cattle-guard fences, on iron post set in clay; 3-inch red-metal cap (C. & G. S. b. m. L ₆).....	Feet. 847. 105
Argyle, 500 meters west of depot, in northwest corner of public-school grounds, set in clay; top of copper bolt (C. & G. S. b. m. M ₆).....	845. 743
Argyle, at east entrance of yellow-brick building occupied by Farmers and Merchants' Bank, on southwest corner of Third Street and Pacific Avenue on north end of horizontal surface of third stone step; a square in outline, lettered "U. S." (C. & G. S. b. m. N ₆).....	850. 127
Argyle, near, in Tamarac township, in sec. 35, T. 157, R. 48, about 420 meters north of Argyle triangulation station, on west side of road leading to a farmhouse, in corner of fence, on property of Mr. Josc, on iron post set in clay; 3-inch red-metal cap (C. & G. S. b. m. O ₆).....	852. 518
Stephen, 1 mile south of, 3 telegraph poles north of milepost 46, at northwest corner of grade crossing, 2 meters north of a telegraph pole and in range with the poles, on iron post set in clay; 3-inch red-metal cap (C. & G. S. b. m. P ₆).....	837. 049
Stephen, on northwest corner of Pacific Avenue and Fifth Street, at east entrance to red-brick building owned by the Bank of Stephen, at north end of top of the second step; red-metal disk (C. & G. S. b. m. Q ₆).....	830. 927
Stephen, 600 meters west of station, on east side of public-school building, 2 feet from south side, in eighth course of brick above water table; ¾-inch copper bolt (C. & G. S. b. m. R ₆).....	831. 212
Stephen, 225 meters east of station, at northeast corner of road crossing, in a corner of fence, set in clay; top of copper bolt (C. & G. S. b. m. S ₆).....	828. 928
Stephen, near, in northwest corner of NE. ¼ sec. 4, T. 157, R. 48, 37 meters southwest of Stephen west base, 11 meters south of road, 5 meters east of drainage ditch, on iron post set in clay; 3-inch red-metal cap (C. & G. S. b. m. T ₆).....	830. 795
Stephen, about 0.5 mile north and 0.75 mile east of, in Sinnot township, in southwest corner of SE. ¼ sec. 33, T. 158, R. 48, on cultivated land of J. Gillespie of Stephen, 31 meters east of half-section line and 15 meters north of center of east-west section road, on top of granite block, about 3 inches south of copper bolt marking the station; an outlined square cut (C. & G. S. b. m. Stephen, west base)	830. 428

APPENDIX B.

ELEVATIONS OF STONE-LINE BENCH MARKS ESTABLISHED BY THE MISSISSIPPI RIVER COMMISSION.

PRIMARY LEVELING.

Aitkin, Alma, Anoka, Becker, Belle Prairie, Brainerd, Cannon Falls, Clearwater, Cross Lake, Cuyuna, Elk River, Freeburg, Galesville, La Crescent, Lake City, Lake Elmo, Little Falls, Maiden Rock, Minneapolis, Minnetka, Red Wing, St. Cloud, St. Paul, Stoddard, Sylvan, Wabasha, and Winona quadrangles.

AITKIN, ANOKA, BENTON, CROW WING, DAKOTA, GOODHUE, HENNEPIN, HOUSTON, MORRISON, RAMSEY, SHERBURNE, STEARNS, WABASHA, WASHINGTON, WINONA, AND WRIGHT COUNTIES.

The following descriptions and elevations of bench marks from Iowa-Minnesota State line, along Mississippi River to Aitkin are taken from Part 7, Report of Chief of Engineers, United States Army, 1900, and from Report of the Mississippi River Commission, 1905, with elevations corrected to 1912 adjustment of precise leveling.

The tile and pipe marks referred to in the following table consist of: A subsurface mark, which is a vitrified clay slab, 18 by 18 by 4 inches buried about 3½ feet underground, with a copper bolt leaded into the center; and a 4-inch iron pipe, 4 feet long, extending above the surface of the ground and having a brass cap bearing the inscription "Mississippi River Commission," etc. Around the center of both tile and cap are inscriptions designating the character of the mark, thus: Triangulation station, "U. Δ S."; precise bench mark, "P. B. M. U. ⊙ S."; ordinary bench mark "B. M. U. □ S."

Bench marks are placed in pairs on lines, called "stone lines," crossing the river at intervals of about 3 miles.

STODDARD QUADRANGLE.

[Latitude, 43° 30'–43° 45'; longitude, 91°–91° 15'.]

Along Mississippi River.

Iowa-Minnesota State line, about 1½ miles north of, on Chicago, Milwaukee & St. Paul Ry. bridge 590 K, on northwest corner of west end of south abutment, 2.8 feet below and 7.7 feet west from center of track; square cut (U. S. C. E. t. b. m. 32 R. B.).....	Feet. 634. 92
Island No. 128, 150 meters above head of, 25 meters from top of bank, about midway between first and second wing dams above Island No. 128; tile and pipe. Bearing trees: 30-inch elm, 110° 25' distant 6.0 meters; 15-inch elm, 205° 00' distant 4.5 meters; 12-inch ash, 358° 00' distant 10.0 meters (U. S. C. E. b. m. 210-3):	
Bolt in tile.....	624. 06
Cap on pipe.....	628. 03

Genoa, opposite, 15 meters from shore, 0.5 meter south of an east-west wire fence, 100 meters below lower log house of two, 100 meters below mouth of small slough, 24-inch double cottonwood tree $329^{\circ} 24'$ distant 38.9 meters; tile and iron pipe (U. S. C. E. b. m. 211-3):

Bolt in tile.....	Feet. 625. 37
Cap on pipe.....	629. 35

Genoa, opposite, between two lakes, about opposite center of first lake back of 211-3, at upper end of small patch of willows, 100 meters east of east bank of large lake, from 211-3 to 211-4, $106^{\circ} 55' 30''$ distant 741.7 meters (U. S. C. E. b. m. 211-4):

Bolt in tile.....	620. 42
Cap on pipe.....	624. 39

FREEBURG QUADRANGLE.

[Latitude, $43^{\circ} 30' - 43^{\circ} 45'$; longitude, $91^{\circ} 15' - 91^{\circ} 30'$.]

Along Mississippi River.

Island No. 128, 150 meters above head of, on ridge back of small slough, planted in timber; tile and iron pipe. Bearing points: B. m. 210-3, $84^{\circ} 02'$ distant 760.6 meters; 15-inch elm tree (double) 350° (mag.) distant 2.2 meters; 24-inch elm 252° (mag.) distant 12.0 meters; 18-inch elm $192^{\circ} 30'$ (mag.) distant 3.8 meters (U. S. C. E. b. m. 210-4):

Bolt in tile.....	623. 32
Cap on pipe.....	627. 28

Reno Junction, about 1 mile below, on downstream stone abutment of railroad bridge 614 K, on upstream side and river end, 2.3 feet below track and 8.3 feet east of center; square cut (U. S. C. E. t. b. m. 33, R. B.).

635. 93

Reno Junction, on Chicago, Milwaukee & St. Paul Ry., opposite station; base of rail.....

638. 2

Reno Junction, about one mile above, on line of railroad at junction of Raft channel and Minnesota slough, on downstream side and river end of upstream stone abutment of bridge 626 K, 2 feet below track and 8 feet toward river from center, directly west from head of island; square cut (U. S. C. E. t. b. m. 34, R. B.).....

636. 53

Genoa, about 4 miles above, at foot of bluffs, 0.5 meter east of west fence of wagon road, 25 meters west of center of track of Chicago, Milwaukee & St. Paul Ry., 90 meters above bridge 630 K, about 25 meters below a 1½-story frame house, about 150 meters below Fairy Rock; tile and iron pipe:

Bolt in tile.....	645. 94
Cap on pipe.....	649. 87

Island No. 120, on right bank at head of Raft channel, 0.5 meter east of west fence along wagon road, on west side of Chicago, Milwaukee & St. Paul Ry., 30 meters below bridge 658 K, 6 meters above milepost 12-149, and opposite second telegraph pole below yellow frame house at road-side; tile and iron pipe:

Bolt in tile.....	645. 24
Cap on pipe.....	649. 21

Brownsville, in wall of Diamond Jo stone warehouse, about 3 feet above ground and near figures 91 cut in wall, on top of face of rock; cross (U. S. C. E. t. b. m. 1 R. B.).....

635. 14

Brownsville, on downstream end of upper abutment of bridge 674 K, 8.5 feet toward river from center of track, 4 feet below top of rails, 0.5 foot above ground; top corner within square (U. S. C. E. t. b. m. 2 R. B.)..

638. 53

Swift Slough, 100 meters above head of, about midway between first dam above and first dam below Swift Slough, 10 meters from top of right bank; tile and iron pipe. Bearing trees: 24-inch elm, 165° 25' distant 3.3 meters; 36-inch elm, 226° 55' distant 7.5 meters; 20-inch elm, 321° 06' distant 3.5 meters (U. S. C. E. 214-3):	Feet.
Bolt in tile.....	629. 18
Cap on pipe.....	633. 13
Brownsville, Minn., 2 miles above, on west bank of large slough, 15 meters above road crossing, 125 meters below culvert 682, 10 meters east of east right of way fence of Chicago, Milwaukee & St. Paul Ry.; tile and iron pipe. Bearing points: 214-3, 271° 06' distant 694.2 meters; 18-inch cottonwood tree, 240° (mag.) distant 4.5 meters; 18-inch birch tree 312° (mag.) distant 14.2 meters (U. S. C. E. b. m. 214-4):	
Bolt in tile.....	632. 16
Cap on pipe.....	636. 10

LA CRESCENT QUADRANGLE.

[Latitude, 43° 45'-44°; longitude, 91° 15'-91° 30'.]

Along Mississippi River.

Root River, 25 meters below mouth of, on right bank, 30 meters back from shore; tile and iron pipe. Bearing trees: 18-inch maple, 313° 46' distant 17.5 meters; 18-inch elm, 52° 45' distant 15.0 meters (U. S. C. E. b. m. 215-3):	
Bolt in tile.....	631. 17
Cap on pipe.....	635. 23
Root River, at edge of heavy timber on east bank of lake, about opposite upper end of lake, 150 meters below upper end of opening. Bearing points: 215-3, 267° 49' distant 848.3 meters; 24-inch cottonwood tree, 71° (mag.) distant 4.2 meters; 36-inch elm, 225° (mag.) distant 26.0 meters; 15-inch maple, 338° (mag.) distant 3.6 meters; tile and iron pipe:	
Bolt in tile.....	629. 37
Cap on pipe.....	633. 43
La Crescent, base of rail.....	650. 7
Grant Island, opposite foot of, on right bank, 10 meters back from shore, on west side of wagon road. Bearing trees: 36-inch elm, 51° 50' distant 11.1 meters; 36-inch elm, 95° 42' distant 13.5 meters; tile and iron pipe (U. S. C. E. b. m. 216-3):	
Bolt in tile.....	636. 76
Cap on pipe.....	640. 74
Grant Island, in small bunch of willows, on edge of large open spot which extends back to bluffs. Bearing points: 216-3, 262° 00' distant 563.2 meters; 10-inch willow tree, 160° (mag.) distant 6.6 meters; 10-inch willow, 270° (mag.) distant 2.0 meters; tile and iron pipe (U. S. C. E. b. m. 216-4):	
Bolt in tile.....	628. 97
Cap on pipe.....	632. 92
River Junction, at foot of bluff, 0.5 meter east of fence at side of wagon road, directly opposite north end of River Junction station; tile and pipe (U. S. C. E. b. m. 217-3):	
Bolt in tile.....	664. 21
Cap on pipe.....	668. 17
Dresbach Island, opposite foot of, at side of wagon road, 0.5 meter west of west right-of-way fence of Chicago, Milwaukee & St. Paul Ry., 90 meters above wagon road leading up large ravine, 125 meters above small wagon	

bridge opposite rock culvert under railroad, 30 meters above edge of timber on side of bluff; tile and iron pipe (U. S. C. E. b. m. 218-3):	Feet.
Bolt in tile.....	689.52
Cap on pipe.....	693.47
Dresbach Slough, at mouth of, 1,080 feet above milepost 135 on line of railroad, 12 feet west from center of track, on rock; highest point in square, marked "U. \square S." (U. S. C. E. t. b. m. 153).....	663.33
Dakota, at Chicago, Milwaukee & St. Paul Ry. station; base of rail.....	654.18
Dakota, 2½ miles above, just above Island No. 90, 660 feet above Henry Winters's house, on line of railroad, 12 feet west of center of track; highest point in square, marked "U. \square S." (U. S. C. E. t. b. m. 146).....	671.23
Queens Bluff, about 600 meters below, 113 meters below milepost 128-12, 40 meters below a blacksmith shop at foot of bluff, 0.5 meter from fence in front of cultivated field, on bluff side of railroad; tile and iron pipe (U. S. C. E. b. m. 220-3):	
Bolt in tile.....	676.11
Cap on pipe.....	680.11
Richmond, about 1 mile above, at E. Leach's crossing, just above upper roadside fence, 15 feet east of center of track, on embedded boulder; highest point in square, marked "U. \square S." (U. S. C. E. t. b. m. 142)...	670.05
Richmond; base of rail.....	655.28

GALESVILLE QUADRANGLE.

[Latitude, 44°-44° 15'; longitude, 91° 15'-91° 30'.]

Along Mississippi River.

La moille, 4,600 feet above, opposite foot of Island No. 77, 1,950 feet below center of bridge 32, 1,666 feet above milepost 122, at upper end of cut, 8 feet northeast from center of track, on embedded boulder; highest point in square, marked "U. \square S." (U. S. C. E. t. b. m. 135).....	656.39
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WINONA QUADRANGLE.

[Latitude, 44°-44° 15'; longitude, 91° 30'-91° 45'.]

Along Mississippi River.

Winona, six miles below bridge, 400 meters above foot of Blacksmith Slough, on ground about 10 feet higher than railroad track, back of diamond board, about 190 meters above lower end of first curve above Blacksmith Slough, 1 meter from fence, on right of way; tile and pipe (U. S. C. E. b. m. 223-3):	
Bolt in tile.....	667.12
Cap on pipe.....	671.08
Homer; base of rail.....	659.0
Homer, 1½ miles above, on right bank, on property of E. A. Goodfellow, in corner of fence at intersection of Mr. Goodfellow's west line and north fence along wagon road, about 250 meters back from river and same distance to a point opposite upper end of a large railroad trestle; tile and iron pipe (U. S. C. E. b. m. 224-3):	
Bolt in tile.....	660.22
Cap on pipe.....	664.19
Winona, along river front, on 31st capstone up river from stone steps on Center Street, 29th capstone below Main Street, 0.65 meter above lower end of stone, 0.30 meter back from outer face of wall, in top of stone wall; copper bolt leaded vertically (U. S. C. E. b. m. 225-3), marked "U. S. O B. M.".....	665.13

Winona, at Mark and Lafayette streets, about 50 meters southeast of Chicago, Milwaukee & St. Paul Ry. station, near southwest corner of railway water tank, in top of east stone pier, pier is one of two which stand farthest south; copper bolt leaded vertically marked "U. S. O B. M." (U. S. C. E. b. m. 235-4).....	Feet. 657. 48
Wild Landing, 3 miles above wagon bridge at Winona, on left bank, outside right of way of Chicago, Burlington & Quincy R. R. at Wild Landing, 2 meters from west fence and opposite a point 30 meters above north wall of Mr. Wild's stone house; tile and iron pipe (U. S. C. E. b. m. 226-2):	
Bolt in tile.....	660. 05
Cap on pipe.....	664. 01
Wild Landing, 3 miles above wagon bridge at Winona, back of Island No. 66, 15 meters back from bank of slough, in grass on high ground, about 250 meters below dam at head of Island No. 66, 382.7 meters back of 226-3. Blazed trees: 10-inch elm, 280° (mag.) distant 22.5 meters; 18-inch cottonwood, 265° (mag.) distant 43.0 meters; tile and iron pipe (U. S. C. E. b. m. 226-4):	
Bolt in tile.....	647. 83
Cap on pipe.....	651. 82
Minnesota City, Chicago, Milwaukee & St. Paul Ry.; base of rail.....	675.0

MINNEISKA QUADRANGLE.

[Latitude, 44°-44° 15'; longitude, 91° 45'-92°.]

Along Mississippi River.

Chimney Rock, about 400 meters above prominent bluff point known as, 0.5 meter north of south right-of-way fence of Chicago, Milwaukee & St. Paul Ry., on bank of railroad cut, 98 meters below railroad culvert L 531, a large detached bowlder lies between bench mark and wagon road; tile and iron pipe (U. S. C. E. b. m. 229-3):	
Bolt in tile.....	678. 65
Cap on pipe.....	682. 11
Minneiska, 1 mile above; high water mark 1881.....	666. 27
Minneiska, 1 mile above; high water mark 1888.....	664. 11
Minneiska, in lower end of, 0.5 meter inside railroad right-of-way fence and end of line fence between small garden lots, 45 meters above road crossing where bluff wagon road turns back from railroad to enter town, 120 meters above culvert L 591; tile and iron pipe (U. S. C. E. b. m. 230-3):	
Bolt in tile.....	676. 79
Cap on pipe.....	680. 87
Minneiska, Chicago, Milwaukee & St. Paul Ry.; base of rail.....	667. 11
Minneiska, 3 miles above, about 300 meters above head of Island No. 47, 375 meters above Fishers Island, on right bank 15 meters back from edge; tile and pipe. Trees blazed with triangle facing bench mark: 12-inch cottonwood, 77° 02' distant 2.2 meters; 15-inch cottonwood, 147° 02' distant 4.7 meters (U. S. C. E. b. m. 231-3):	
Bolt in tile.....	658. 95
Cap on pipe.....	662. 90
Minneiska, 3 miles above, about 300 meters above head of Island No. 47, 1,090.5 meters back of b. m. 231-3, at upper end of grove of large elm trees; tile and iron pipe blazed with triangle facing stone: 24-inch elm, 178° (mag.) distant 5 meters; 18-inch elm, 7° (mag.) distant 8.5 meters; 24-inch elm, 75° (mag.) distant 26.6 meters.	
Bolt in tile.....	656. 38
Cap on pipe.....	660. 33

ALMA QUADRANGLE.

[Latitude, 44° 15'-44° 30'; longitude, 91° 45'-92°.]

Along Mississippi River.

Alma, Wis., 3 miles below, 20 meters back from West Newton chute, 0.75 mile above foot of Island No. 42, 150 meters below where sand bluff strikes bank of chute, about 250 meters above a house, 20 meters below dike. Trees blazed with triangle facing bench mark: 15-inch birch, 20° 06' distant 12.5 meters; 15-inch ash, 70° 06' distant 19.9 meters; 24-inch elm, 184° 16' distant 14.9 meters; 15-inch hickory, 334° 36' distant 9 meters; tile and iron pipe (U. S. C. E. b. m. 232-4):	Feet.
Bolt in tile.....	662. 28
Cap on pipe.....	666. 24
Alma sawmill, 0.75 mile below, at east fence on right of way of Chicago, Burlington & Quincy R. R., by milepost 81, in front of C. Moser's house, 16 feet below gate for farm crossing, 3 feet underground; copper bolt in tile (U. S. p. b. m. 149).....	675. 668
Alma, 3 miles above, on property of George Barton, 23 meters below corner of wire fence, also corner of small timber, 35 meters above barn along wire fence, Mr. Barton's house 30° (mag.) distant 69 meters; tile and iron pipe (U. S. C. E. b. m. 234-3):	
Bolt in tile.....	694. 38
Cap on pipe.....	698. 40
Alma, 3 miles above, on property of S. Brown, on top and at edge of sand ridge, at bend of fence, 10 meters above corner of fence, 200 meters below large red barn; tile and iron pipe (U. S. C. E. b. m. 234-4):	
Bolt in tile.....	698. 09
Cap on pipe.....	701. 94
Alma, Wis., and Teepeeota Point, midway between, on right bank, on top of sand bluff directly back from sheer log boom, on 7-inch oak tree; spike in root (U. S. C. E. t. b. m. 100).....	698. 31

WABASHA QUADRANGLE.

[Latitude, 44° 15'-44° 30'; longitude, 92° -92° 15'.]

Along Mississippi River.

Wabasha, 1½ miles below, in low ground covered with small willows, about 500 meters below upper end of willows, 100 meters from right bank of Coats Island Chute, on small rise between two marshes on property of Louis Housweidel, about 1 mile below lower end of Wabasha; tile and pipe 3 feet long (U. S. C. E. b. m. 235-3 triangulation east base):	
Bolt in tile.....	663. 92
Cap on pipe.....	666. 95
Wabasha, about 1 mile below, 0.5 meter east of east fence and 1.5 meters north of southeast corner of graveyard, directly toward river from county farm buildings, on top of sand terrace; tile and iron pipe (U. S. C. E. b. m. 235-4):	
Bolt in tile.....	696. 25
Cap on pipe.....	700. 22
Wabasha, on Chicago, Milwaukee & St. Paul Ry.; base of rail.....	706. 75
Wabasha, in lower part of, at top of bank of river, on River Street, 6 meters northeast of fence, 28 meters northwest of southeast corner of fence around pasture lot belonging to Lucas Kuehn, in sec. 33, T. 111, R. 10; tile and pipe (U. S. C. E. triangulation west base, Wabasha):	
Bolt in tile.....	669. 31
Cap on pipe.....	673. 27

Island No. 29, about 0.5 mile below foot of, on top of sand ridge back of towhead, 25 meters back of bank of slough, in corner of fence on property of Azel D. Southworth and about 100 meters above his barn; tile and pipe (U. S. C. E. b. m. 236-3):

Bolt in tile.....	Feet. 704. 85
Cap on pipe.....	708. 87

Wabasha, 0.25 mile above Chicago, Milwaukee & St. Paul Ry. station, 961.58 meters back of 236-3, at foot of bluffs near limekiln, west of old north-south fence line which divides property of Pat. Kennedy on the east and Rudy Burkhart on the west, limekiln 145° 00' distant 18 meters; tile and iron pipe (U. S. C. E. b. m. 236-4):

Bolt in tile.....	734. 22
Cap on pipe.....	738. 20

Reads Landing, about 1½ miles above, at foot of Lake Pepin, 0.5 meter from fence, on right of way of railroad, 80 meters above milepost 63-77, 70 meters below whistling post; tile and iron pipe (U. S. C. E. b. m. 237-3):

Bolt in tile.....	694. 17
Cap on pipe.....	698. 14

Pepin, Wis., at upper end of, 0.5 meter outside right of way of Chicago, Milwaukee & St. Paul Ry., on property of Fred S. Mouse, elevation about 20 feet above railroad track, 15 meters upstream from a point opposite station at Kings Coulee, 10-inch blazed oak tree 47° 12' distant 14.0 meters; tile and pipe (U. S. C. E. b. m. 238-3):

Bolt in tile.....	704. 47
Cap on pipe.....	708. 43

LAKE CITY QUADRANGLE.

[Latitude, 44° 15'-44° 30'; longitude, 92° 15'-92° 30'.]

Along Mississippi River.

Lake City, 2½ miles below Government breakwater, above Kings Coulee, 11 rail lengths from milepost 69-71, on rock point between Chicago, Milwaukee & St. Paul Ry. and Lake Pepin; tile and iron pipe (U. S. C. E. b. m. 239-3 triangulation Loon):

Bolt in tile.....	687. 27
Cap on pipe.....	691. 23

Lake City, in upper end of, on south side of road leading toward Sugar Loaf, 0.5 meter from fence and 25 meters back from corner of street, about 150 meters back from bank of lake; road that runs toward Sugar Loaf is about 400 meters below an old mill which stands on bank of lake at point where shore makes a big bend toward Central Point; tile and iron pipe (U. S. C. E. b. m. 240-3):

Bolt in tile.....	706. 86
Cap on pipe.....	710. 83

Lake City, on Chicago, Milwaukee & St Paul Ry.; base of rail 710. 2

MAIDEN ROCK QUADRANGLE.

[Latitude, 44° 30'-44° 45'; longitude, 92° 15'-92° 30'.]

Along Mississippi River.

Florence, in upper part of, 0.5 meter north of east-west fence on property of T. E. Freeman, fence is Mr. Freeman's south line, about 200 meters north of wagon road that leads from Florence to bluffs, 25 meters back from bank of lake; tile and iron pipe (U. S. C. E. b. m. 241-3):

Bolt in tile.....	672. 95
Cap on pipe.....	676. 92

Florence, 85 meters north of wagon road which runs from Florence toward bluffs, 12 meters east of fence that follows top of sand ridge, on top and near edge of sand ridge; tile and iron pipe (U. S. C. E. b. m. 241-4):	
Bolt in tile.....	Feet. 768. 84
Cap on pipe.....	772. 82
Lake Pepin, about 0.5 mile back of west shore, 1½ miles below Lake Side Hotel, at fork of roads in front of convent, 36 feet west from main road and 25 feet south from end of culvert under road leading to convent, on 2-foot oak tree; nail in root (U. S. C. E. t. b. m. 74)	701. 79
Frontenac, about 500 meters above hotel, on right bank of Lake Pepin on edge of bank, about 20 meters below a point opposite an old limekiln, 150 meters above an old foundation of building which stands on bank of lake. Bearing points: Blazed 10-inch ash tree, 258° 40' distant 2.0 meters; southeast corner of limekiln, 98° 10' distant 34.0 meters; tile and iron pipe (U. S. C. E. b. m. 242-3):	
Bolt in tile.....	684. 00
Cap on pipe.....	687. 98
Lake Pepin, on right bank of, about 3,280 feet below wide flat wooded sand point, which is about 3¼ miles above Lake Side, 300 feet below an exceedingly large rock, under a 6-inch ash tree blazed, on an embedded boulder about the middle of beach; highest point in square, marked "U. □ S."	672. 177
Frontenac, about 3 miles above, on right bank of Lake Pepin, on ridge 4 meters back of edge, 50 meters above where rocky shore ends and gravel bar begins, 1 mile below Government light, 20 meters from foot of bluff, on property of Lyman Boynton, 15-inch oak tree blazed 162° 08' distant 4.2 meters; 10-inch basswood tree blazed 250° 08' distant 6.3 meters; tile and pipe (U. S. C. E. b. m. 243-3):	
Bolt in tile.....	710. 19
Cap on pipe.....	714. 23
Bay City, Wis., about 0.5 mile below, on opposite bank, on side of bluff in timber, about 25 meters back from shore, about 40 feet above river, in front of cleared spot on side of bluff, opposite upper end of large boulder which stands about 15 meters back of b. m., 125 meters above upper end of Island No. 28, 8-inch oak tree blazed 120° 32' distant 4.2 meters; 7-inch linn tree blazed 36° 32' distant 5.2 meters; tile and iron pipe (U. S. C. E. b. m. 244-3):	
Bolt in tile.....	714. 37
Cap on pipe.....	718. 38
Red Wing, 2½ miles below, in front of Reform School building, 20 feet from shore, 10 feet southwest of blazed elm tree, on triangular sandstone, on right bank; square, marked "U. □ S." (U. S. C. E. t. b. m. 59)...	672. 157
RED WING QUADRANGLE.	
[Latitude, 44° 30'-44° 45'; longitude, 92° 30'-92° 45'.]	
Along Mississippi River.	
Red Wing, about 2 miles below, at wagon road crossing on railroad track, 1½ meters below east road fence, 6.1 meters north of center of track, about 0.25 mile above slaughterhouse; tile and iron pipe (U. S. C. E. 245-3=p. b. m. 114-115):	
Bolt in tile.....	697. 05
Cap on pipe.....	701. 04
Red Wing, on Chicago, Milwaukee & St. Paul Ry.; base of rail.....	682. 69

Red Wing, $1\frac{1}{2}$ miles above, 40 meters back from right bank of river and 0.75 mile below mouth of Cannon River, about 150 meters above a point opposite head of small slough which connects river with Upper Lake, in timber, near a 4-foot elm—the largest tree in the vicinity. Blazed trees, 48-inch elm, $126^{\circ} 01'$ distant 7.9 meters; 10-inch ash, $264^{\circ} 01'$ distant 4.5 meters; 12-inch maple, $1^{\circ} 46'$ distant 3.8 meters; tile and iron pipe (U. S. C. E. b. m. 246-3):

Bolt in tile..... Feet. 671. 03

Cap on pipe..... 675. 00

Red Wing, $1\frac{1}{2}$ miles above, 1,030 meters back of 246-3; on left bank of slough which joins Hay Creek through a lake about 400 meters above mouth of Hay Creek, bench mark is 30 meters south of an abrupt turn to east in slough, large maple across slough on point; tile and iron pipe (U. S. C. E. b. m. 246-4):

Bolt in tile..... 670. 73

Cap on pipe..... 674. 70

Island No. 23, at head of, on property of Thomas Colleshan and about 100 meters up river from his house, about 40 meters back from bank of river, at edge of cultivated field, by fence, 15-inch ash tree blazed $47^{\circ} 51'$ distant 14.6 meters; 10-inch ash tree blazed $96^{\circ} 21'$ distant 2.8 meters; tile and iron pipe (U. S. C. E. b. m. 247-3):

Bolt in tile..... 670. 31

Cap on pipe..... 674. 31

Island No. 23, at head of, in first bunch of ash timber in line from river, timber averages about 5 inches in diameter, 561.0 meters back of 247-3, 12-inch ash tree blazed 40° (mag.) distant 7.4 meters; 6-inch ash blazed 90° (mag.) distant 2.0 meters; 6-inch ash blazed 220° (mag.) distant 5.3 meters; tile and iron pipe (U. S. C. E. b. m. 247-4):

Bolt in tile..... 669. 89

Cap on pipe..... 673. 97

Trim Belle River, opposite a point 600 meters above, 15 meters back from right bank of river, at upper end of thick timber, in a bunch of elm trees about 500 meters below a dam, small willows and cottonwoods in front of bench mark, 15-inch elm tree blazed $51^{\circ} 01'$ distant 6.0 meters; 24-inch elm blazed $83^{\circ} 31'$ distant 10.5 meters; tile and iron pipe (U. S. C. E. b. m. 248-3):

Bolt in tile..... 673. 54

Cap on pipe..... 677. 53

Trim Belle River, about 500 meters above mouth of, 468.4 meters back of 248-3, in small maple trees, a 30-inch elm also a group of ash trees stand near bench mark, 10-inch ash blazed 330° (mag.) distant 11.0 meters, 30-inch elm blazed 135° (mag.) distant 20.5 meters; tile and iron pipe (U. S. C. E. b. m. 248-4):

Bolt in tile..... 670. 66

Cap on pipe..... 674. 63

Diamond Bluff, Wis., about 1 mile above and opposite, 80 meters above upper wing dam on right bank, 20 meters back from river bank, in root of 16-inch cottonwood tree; wire nail (U. S. C. E. t. b. m. 83 R. B.).... 677. 58

Diamond Bluff, Wis., about $2\frac{1}{4}$ miles above, on right bank and on west bank of slough, 30 meters south of wire fence which crosses slough, about 125 meters back from river, small willows stand in front of bench mark,

opposite a point about 125 meters up from foot of small willows, 12-inch ash tree blazed 322° 11' distant 7.0 meters; 18-inch elm tree blazed 121° 11' distant 3.3 meters; 15-inch ash blazed 166° 41' distant 3.3 meters; tile and pipe (U. S. C. E. b. m. 249-3):

Bolt in tile.....	Feet. 674.14
Cap on pipe.....	678.13

Diamond Bluff, Wis., about 2½ miles above, 428.8 meters back from 249-3, 8 meters west of a wire fence, in timber about 75 meters from edge, 15-inch maple tree blazed 00° (mag.) distant 6.0 meters; 10-inch elm tree blazed 230° (mag.) distant 4.0 meters; tile and iron pipe (U. S. C. E. b. m. 249-4):

Bolt in tile.....	672.22
Cap on pipe.....	676.19

Big River, 300 meters above, on right bank about 40 meters back from bank of river, back of small willows, 150 meters above upper end of revetment which is at lower end of small willows, near a 6-foot cottonwood tree blazed 244° 02' distant 8.6 meters; 18-inch elm tree blazed 88° 02' distant 4.1 meters; tile and iron pipe (U. S. C. E. b. m. 250-3):

Bolt in tile.....	681.85
Cap on pipe.....	677.90

Big River, 300 meters above, 610.2 meters back of 250-3, by fence between prairie and timber, at edge of timber, 30-inch elm tree blazed 285° (mag.) distant 18.5 meters; 8-inch ash blazed 145° (mag.) distant 15.9 meters; tile and iron pipe (U. S. C. E. b. m. 250-4):

Bolt in tile.....	673.80
Cap on pipe.....	677.78

CANNON FALLS QUADRANGLE.

[Latitude, 44° 30'-44° 45'; longitude, 92° 45'-93°.]

Along Mississippi River.

Island No. 20, at head of, 40 meters back from right river bank, by a fence, opposite head of slough which empties into Vermillion River, on property of G. K. Bye, yellow frame house 330° distant 20 meters; 24-inch elm tree blazed 229° 14' distant 16.8 meters; tile and iron pipe (U. S. C. E. b. m. 251-3):

Bolt in tile.....	680.30
Cap on pipe.....	684.27

Island No. 20, at head of, on property of Edward Morris, 50 meters in front of edge of timber, 0.5 meter east of north-south fence, 133 meters south of corner of fence, a large elm tree stands west of bench mark, 36-inch elm blazed 83° 18' distant 20.4 meters; 18-inch elm blazed 3° 18' distant 28.8 meters; tile and iron pipe (U. S. C. E. b. m. 251-4):

Bolt in tile.....	674.90
Cap on pipe.....	678.87

Prescott Island, 150 meters below head of, on right bank about 40 meters back from bank of chute, in small pasture 0.5 meter east of wire fence, on property of Ernest Beranek and 125 meters below his house, 12-inch willow tree blazed 177° 19' distant 4.7 meters; tile and iron pipe (U. S. C. E. b. m. 252-3):

Bolt in tile.....	680.30
Cap on pipe.....	684.27

Prescott Island, 150 meters below head of, in pasture on terrace, about 50 meters back from edge and 210 meters south of a wagon road which runs west from river, 1 meter east from north-south wire fence, 10-inch elm tree blazed 299° 03' distant 12.3 meters; 9-inch hackberry tree blazed 337° 18' distant 16.4 meters; tile and iron pipe (U. S. C. E. b. m. 252-4):	Feet.
Bolt in tile.....	693. 52
Cap on pipe.....	697. 49
Hastings, high water mark 1870.....	689. 19
Hastings, high water mark 1880.....	687. 16
Hastings, high water mark 1897.....	687. 38

LAKE ELMO QUADRANGLE.

[Latitude, 44° 45'-45°; longitude, 92° 45'-93°.]

Along Mississippi River.

Hastings, about 0.5 mile above north approach of wagon bridge at, 200 meters below crossing of Chicago, Milwaukee & St. Paul Ry. and Chicago, Burlington & Quincy R. R., 1 meter south of south right of way fence of first-named road, 125 meters above a wagon-road crossing, 10-inch box-elder tree blazed 330° 42' distant 41.1 meters; tile and iron pipe (U. S. C. E. b. m. 253-2):	
Bolt in tile.....	685. 15
Cap on pipe.....	689. 10
Hastings, about 0.5 mile above north approach of wagon bridge at, on right bank, in open ground 20 meters back from bank of river, a well preserved 18-inch elm stump stands in line with 253-2 and 253-3 about 5 meters back from bank of river, above a wire fence and upper end of cultivated field, 150 meters below small clump of willows on bank, 18-inch elm stump 227° 15' distant 15.4 meters; tile and iron pipe (U. S. C. E. b. m. 253-3):	
Bolt in tile.....	679. 84
Cap on pipe.....	683. 82
Hastings, 0.75 mile above wagon bridge, 8 meters down river from line of fence prolonged, 200 meters above wagon bridge crossing slough, on north side of bluff, 1 meter south of wire fence, 15 meters back from slough, 10-inch oak tree blazed 344° 48' distant 1.5 meters; 10-inch oak blazed 117° 18' distant 9.3 meters; tile and iron pipe (U. S. C. E. b. m. 253-4):	
Bolt in tile.....	695. 26
Cap on pipe.....	699. 23
Island No. 18, 6 meters from bank of Nininger slough, at lower end of large maple tree, 846.9 meters back from 254-2, 6-inch maple blazed 50° (mag.) distant 7.8 meters; 15-inch maple blazed 100° (mag.) distant 13.8 meters; tile and iron pipe (U. S. C. E. b. m. 254-1):	
Bolt in tile.....	679. 63
Cap on pipe.....	683. 59
Island No. 18, 40 meters back from bank of river, on high ground, 20 meters upstream from dam, dam is opposite and almost in line with wagon road that runs from river up through Nininger, 12-inch blazed elm tree 347° 11' distant 14.5 meters; tile and iron pipe (U. S. C. E. b. m. 254-2):	
Bolt in tile.....	680. 35
Cap on pipe.....	684. 32

Island No. 18, at foot of bluff on right bank, 12 meters upstream from west line of road which runs from river up through Nininger, 10 meters downstream from a cave in perpendicular cliff; 4-inch elm tree blazed 320° (mag.) distant 3 meters; tile and iron pipe (U. S. C. E. b. m. 254-3):	
Bolt in tile.....	Feet. 687.54
Cap on pipe.....	691.51
Boulanger slough, 600 meters above head of, by an east-west wire fence marking south line of property of John Benson, fence is on section line, in cultivated field, southwest corner of sec. 32, T. 27, R. 21, 90° distant 463.3 meters; tile and iron pipe (U. S. C. E. b. m. 255-1):	
Bolt in tile.....	696.28
Cap on pipe.....	700.25
Boulanger slough, 600 meters above head of, on left bank, 10 meters back from edge, in open ground, 100 meters above timber and 100 meters below clump of large elm trees, 8 meters below line of dike, 24-inch elm tree blazed 37° 17' distant 10.5 meters; tile and iron pipe (U. S. C. E. b. m. 255-2):	
Bolt in tile.....	684.00
Cap on pipe.....	687.97
Boulanger slough, about 600 meters above head of, opposite upper end of timber on left bank, on narrow ridge running parallel with river, 37 meters from right bank of river, in heavy elm and maple timber, 24-inch elm tree blazed 173° 01' distant 6.8 meters; 15-inch maple blazed 275° 26' distant 7.0 meters; tile and iron pipe (U. S. C. E. b. m. 255-3):	
Bolt in tile.....	682.24
Cap on pipe.....	686.23
Boulanger slough, about 600 meters above head of, 2 feet above ground in low swampy land, 526.6 meters back from 255-3, 230 meters back from wagon road, 150 meters south and 50 meters west from northwest corner of fence inclosing partly cleared timber lot, 4-inch maple tree blazed 175° (mag.) distant 11.0 meters; tile and iron pipe (U. S. C. E. b. m. 255-4):	
Bolt in tile.....	680.32
Cap on pipe.....	684.42

ST. PAUL QUADRANGLE.

[Latitude, 44° 45'-46°; longitude, 93°-93° 15'.]

Along Mississippi River.

Pine Bend landing, 300 meters below, 534.2 meters back from 256-2, in timber, 20-inch elm tree blazed 42° (mag.) distant 1.7 meters; 18-inch elm blazed 180° (mag.) distant 2.0 meters; 20-inch elm blazed 250° (mag.) distant 1.5 meters; tile and iron pipe (U. S. C. E. b. m. 256-1):	
Bolt in tile.....	684.12
Cap on pipe.....	688.09
Grey Cloud Island, about 75 meters back from bank of river, at edge of heavy timber, 5 meters upstream from an old wagon road, in line with wing dam which is opposite a point 300 meters below Pine Bend landing, 10-inch cottonwood tree 178° 16' distant 6 meters; 18-inch cottonwood 181° 46' distant 4.2 meters; tile and iron pipe (U. S. C. E. b. m. 256-2):	
Bolt in tile.....	688.95
Cap on pipe.....	692.92

Pine Bend landing, 300 meters below, about 5 meters back from highest point of bank, 100 meters below ruins of rock foundation which stand on bank of river, 160 meters below a small running stream, 15-inch cottonwood tree blazed 246° 45' distant 7.0 meters; 24-inch cottonwood blazed 163° 15' distant 18.5 meters; 18-inch cottonwood blazed 304° 15' distant 17.0 meters; tile and iron pipe (U. S. C. E. b. m. 256-3):	
Bolt in tile.....	Feet. 686. 10
Cap on pipe.....	690. 07
Newport, 3 miles below, at fork of Grey Cloud road, 1 mile below Pullman Avenue, 400 meters north of bridge over Grey Cloud slough, 1 meter east of west fence of branch of road running to bridge, 4 meters south of angle and 6 meters north of gate in same fence; tile and iron pipe (U. S. C. E. b. m. 257-1):	
Bolt in tile.....	748. 25
Cap on pipe.....	752. 21
Grey Cloud slough, 40 meters above and 125 meters from its head, 5 meters back of edge of sand terrace, 100 meters from river bank, 18-inch elm tree blazed 50° 25' distant 12 meters; 8-inch burr-oak blazed 187° 55' distant 8 meters; tile and iron pipe (U. S. C. E. b. m. 257-2):	
Bolt in tile.....	692. 55
Cap on pipe.....	696. 52
Newport, 3 miles below, at head of Grey Cloud slough, on right bank back from willow towhead 20 meters from slough in timber and 5 meters below a dam, 30-inch ash tree blazed 42° 11' distant 9 meters; to 30-inch cottonwood blazed 92° 11' distant 9.5 meters; tile and iron pipe (U. S. C. E. b. m. 257-3):	
Bolt in tile.....	688. 60
Cap on pipe.....	692. 57
Newport, 3 miles below, at head of Grey Cloud slough, 409 meters back of 257-3 and 20 meters back of slough, 200 meters above lower end of slough, between slough and wagon road, 150 meters east of Chicago Great Western R. R.; tile and iron pipe (U. S. C. E. b. m. 257-4):	
Bolt in tile.....	713. 68
Cap on pipe.....	717. 65
Newport, about 1 mile below St. Paul Park bridge, at edge of sand terrace, near end of spur siding and about 30 feet east of track, 200 feet north of ruins of large brick building; highest point on boulder (U. S. C. E. t. b. m. 70 L. B.):	
	733. 60
Newport, at lower end of, 500 meters above railroad bridge at St. Paul Park, on left bank, 180 meters back of railroad track, 1 meter south of an east-west fence at corner of cultivated field, 40 meters east of angle in fence; fence is south line of a street in lower end of Newport which runs by a platform station of Chicago, Burlington & Quincy R. R. and crosses Chicago, Milwaukee & St. Paul Ry. 100 meters below a signboard "1500 feet to station," 775.2 meters back of bench mark 258-2; tile and iron pipe (U. S. C. E. b. m. 258-1):	
Bolt in tile.....	771. 77
Cap on pipe.....	775. 72
Newport, at lower end of, on right of way of Chicago, Burlington & Quincy R. R. branch which runs to bridge at St. Paul Park, 7 meters east of center of track, large two-story white frame house 312° 01' distant 43.2 meters; 10-inch elm tree blazed 161° 16' distant 28.0 meters; tile and iron pipe (U. S. C. E. b. m. 258-2):	
Bolt in tile.....	740. 37
Cap on pipe.....	744. 34

Newport Island, 500 meters above railroad bridge at St. Paul Park, 5 meters back from right bank of river, 8 meters below wing dam which is first below warehouse at Newport on opposite side of river, 12-inch elm tree blazed $309^{\circ} 16'$ distant 4.9 meters; 6-inch box-elder blazed $245^{\circ} 46'$ distant 6.2 meters; 10-inch elm blazed $126^{\circ} 46'$ distant 3.5 meters; tile and iron pipe (U. S. C. E. b. m. 258-3):

Bolt in tile..... Feet.
690. 10

Cap on pipe..... 694. 06

Invergrove railroad station, about 500 meters above, 0.5 meter west of west right of way fence of Chicago Great Western R. R., 20 meters above upper end of a fill, 35 meters above north line of wall of brick house; tile and iron pipe (U. S. C. E. b. m. 258-4):

Bolt in tile..... 709. 43

Cap on pipe..... 713. 40

South St. Paul, on high ground in weeds, 852.9 meters back of 259-2, 150 meters north of a small grove of large trees in hay field, 6-inch double ash tree 130° (mag.) distant 7.7 meters; tile and iron pipe (U. S. C. E. b. m. 259-1):

Bolt in tile..... 687. 00

Cap on pipe..... 690. 98

South St. Paul, on opposite side of river, 50 meters below a wing dam on left bank, which is first dam above upper icehouse on left bank, 30 meters back from water's edge, on highest part of bank and 1 meter toward river from a wire fence, 24-inch elm tree blazed $276^{\circ} 41'$ distant 2 meters; 10-inch elm blazed $149^{\circ} 11'$ distant 5.5 meters; tile and iron pipe (U. S. C. E. b. m. 259-2):

Bolt in tile..... 688. 80

Cap on pipe..... 692. 76

South St. Paul, on right bank 1 meter back from top of revetted bank and on levee, 62 meters above upper icehouse and $52\frac{1}{2}$ meters above ice chute, corner of icehouse $332^{\circ} 41'$ distant 62.5 meters; tile and iron pipe (U. S. C. E. b. m. 259-3):

Bolt in tile..... 698. 42

Cap on pipe..... 702. 39

St. Paul, 2 miles below lower bridge, 0.5 mile below Dayton Bluff, back of 260-2, in pasture, 40 meters toward river from railroad track, 24-inch willow tree blazed $67^{\circ} 58'$ distant 28.8 meters; 18-inch willow blazed $114^{\circ} 13'$ distant 13.8 meters; 30-inch elm blazed $265^{\circ} 28'$ distant 24.4 meters; tile and iron pipe (U. S. C. E. b. m. 260-1):

Bolt in tile..... 690. 99

Cap on pipe..... 694. 98

Dayton Bluff, about 0.5 mile below lower end of, on top of left bank, about 25 meters above a small dry slough, at edge of timber, 5 meters back of a Government stone with square top, 4 meters from a Government light, 15-inch willow tree blazed $262^{\circ} 00'$ distant 7.1 meters; tile and iron pipe (U. S. C. E. b. m. 260-2):

Bolt in tile..... 690. 36

Cap on pipe..... 694. 34

Dayton Bluff, about 0.5 mile below lower end of, back from 260-3, at edge of scattered willows and 75 meters upstream from a wire fence, 6-inch double ash tree $27^{\circ} 02'$ distant 1.7 meters; 6-inch double willow $173^{\circ} 17'$ distant 13.7 meters; 18-inch willow $284^{\circ} 02'$ distant 39.3 meters; tile and iron pipe (U. S. C. E. b. m. 260-4):

Bolt in tile..... 689. 58

Cap on pipe..... 693. 66

St. Paul, on left bank, under high bridge, between third pair of piers back from river, 1.44 meters from southeast corner of west pier and 2.1 meters from northeast corner of same pier; tile and iron pipe (U. S. C. E. b. m. 261-2):	
Bolt in tile.....	Feet. 699. 29
Cap on pipe.....	703. 26
St. Paul, on right bank under high bridge, northwest of southeast one of four piers, northwest corner of said pier 295° 35' distant 1.2 meters; tile and iron pipe (U. S. C. E. b. m. 261-3):	
Bolt in tile.....	701. 27
Cap on pipe.....	705. 25
St. Paul, at northeast corner of Seventh and Chestnut streets, on water table, elevation city datum 84.73 (St. Paul City b. m. 1203).....	779. 25
St. Paul, on right bank of river, at northeast corner of Fillmore and Sharkey streets, on water table, elevation city datum 14.21 (St. Paul City b. m. 1132).....	708. 80
St. Paul, at northwest corner of View and Seventh streets, on square corner of catch basin, elevation city datum 92.53 (St. Paul City b. m. 1312)...	787. 04
St. Paul, at northeast corner of East Seventh and Sibley streets, on water table, elevation city datum 66.81 (St. Paul City b. m. 1238).....	761. 33
St. Paul, at Union Station; base of rail.....	705. 48
St. Paul, high-water mark 1881.....	703. 82
St. Paul, high-water mark 1887.....	702. 61
St. Paul, at foot of Jackson Street, U. S. gage, section nailed to piling reads up to 20 feet; elevation of zero.....	684. 16
St. Paul, 3 miles above high bridge, 0.25 mile below lower end of Pike Island, back of 262-2, about 50 meters toward river from foot of bluff, upper one of two small frame houses stands 54 meters northeast of bench mark, 15-inch willow tree blazed 85° 05' distant 4.7 meters; 10-inch willow blazed 269° 35' distant 24.6 meters; southeast corner of house 224° 05' distant 54.7 meters; tile and iron pipe (U. S. C. E. b. m. 262-1):	
Bolt in tile.....	693. 10
Cap on pipe.....	697. 10
St. Paul, 3 miles above high bridge, 0.25 mile below lower end of Pike Island, on left bank, 50 meters back from bank of river, at edge of cultivated ground and timber, 23 meters down river from a pair of 36-inch elm trees 1 meter apart which stand in cultivated field 10 meters back from edge of timber, 36-inch elm blazed 59° 17' distant 23.2 meters; 36-inch elm blazed 136° 17' distant 35.2 meters; 12-inch ash blazed 329° 47' distant 7.4 meters; tile and iron pipe (U. S. C. E. b. m. 262-2):	
Bolt in tile.....	699. 87
Cap on pipe.....	703. 85
St. Paul, 3 miles above high bridge, 0.25 mile below lower end of Pike Island, on right bank, 50 meters below a spring, a path leads from river to railroad track 5 meters above bench mark, opposite fifth bulldog pier below foot of Pike Island, 4 meters back from river, 6-inch cottonwood tree blazed 110° 33' distant 2.2 meters; 12-inch cottonwood blazed 44° 48' distant 9.7 meters; tile and iron pipe (U. S. C. E. b. m. 262-3):	
Bolt in tile.....	695. 06
Cap on pipe.....	699. 03

St. Paul, on Fort Snelling Reservation, on top of bluff, 5 meters from edge, station is on prolongation of line along southeast side of Bloomington road, in grass 20 meters northeast of garden patch, outside of two small stone buildings; tile and pipe (Triangulation front base):	Feet.
Bolt in tile.....	807.14
Cap on pipe.....	811.12
St. Paul, on Fort Snelling Reservation, 3 meters east of Bloomington road, opposite end of embankment in rifle range, 100 meters back of square tower on west side of road, about 1,500 meters back of end of Bloomington road near crest of bluffs; tile and iron pipe (Triangulation back base):	
Bolt in tile.....	812.30
Cap on pipe.....	816.26
St. Paul, in vicinity of southwest corner of reservation, at crest of bluff; square cut monument (Sun dial post).....	876.51
St. Paul, 0.5 mile below Soldiers' Home, on left bank at foot of bluffs, at edge of grass field and timber, 200 meters back from river, 150 meters above lower end of grass field, 6-inch basswood tree blazed 240° 03' distant 2 meters; 8-inch oak blazed 239° 03' distant 6.8 meters; tile and iron pipe (U. S. C. E. b. m. 263-2):	
Bolt in tile.....	703.07
Cap on pipe.....	707.04
St. Paul, 0.5 mile below Soldiers' Home, on right bank, 200 meters below foot of island the head of which is opposite Soldiers' Home, on high bluff bank 25 meters back from edge and 30 meters upstream from a small cabin which stands at foot of bluff bank where same leaves river, 4-inch linn tree blazed 218° 12' distant 10.5 meters; 6-inch ash blazed 294° 57' distant 4.2 meters; 9-inch elm blazed 345° 57' distant 12.4 meters; tile and iron pipe (U. S. C. E. b. m. 263-3):	
Bolt in tile.....	725.99
Cap on pipe.....	729.97

MINNEAPOLIS QUADRANGLE.

[Latitude, 44° 45'-45°; longitude, 93° 15'-93° 30'.]

Along Mississippi River.

Minneapolis, in lower part of, 0.5 meter north of south line of Marshall Street, 23 meters east of east end of Lake Street bridge, 264-3 90° 59' distant 394 meters; blazed trees: 15-inch oak, 36° 10' distant 12.9 meters; 18-inch basswood, 331° 40' distant 13.6 meters; 12-inch oak, 306° 40' distant 9.1 meters; tile and pipe (U. S. C. E. b. m. 264-2):	
Bolt in tile.....	819.19
Cap on pipe.....	823.19
Minneapolis, in lower part of, on right bank, 17 meters toward river from west abutment of Lake Street bridge, in line with pair of iron posts third from abutment, 6 meters from the south post; tile and pipe (U. S. C. E. b. m. 264-3):	
Bolt in tile.....	791.40
Cap on pipe.....	795.18
Minneapolis, on west abutment of Lake Street bridge; "U. □ S." (U. S. C. E. b. m. 1).....	815.48
Minneapolis, Thirty-fourth Street and Tenth Avenue South (Triangulation powder horn):	
Bolt in tile.....	863.45
Cap on pipe.....	867.5
City datum of Minneapolis.....	710.75

Minneapolis, in southeast part, near right of way of Great Northern Ry., 200 meters below east end of bridge; tile and pipe (U. S. C. E. p. b. m. 265-2):	Feet.
Bolt in tile.....	794.001
Cap on pipe.....	797.981
Minneapolis, at Twentieth Avenue South, in rock abutment of Northern Pacific Ry. bridge, on river end of abutment, in next to top stepping-stone; copper bolt leaded vertically marked "U. O S." (U. S. C. E. b. m. 265-3).....	815.42
Minneapolis Union Station; base of rail.....	813.72
Minneapolis, east end of Chicago, Milwaukee & St. Paul Ry. bridge; base of rail.....	840.97
Minneapolis, west end of Northern Pacific Ry. bridge; base of rail.....	818.03
Minneapolis, east end of Stone Arch bridge; base of rail.....	804.78
Minneapolis, east end of Great Northern Ry. bridge; base of rail.....	826.57
Minneapolis, northeast, near Windom Park (Triangulation Windom):	
Bolt in tile.....	952.13
Cap on pipe.....	956.11

ANOKA QUADRANGLE.

[Latitude, 45°-45° 15'; longitude, 93° 15'-93° 30'.]

Along Mississippi River.

Minneapolis, northeast, on top of left bank of river at Twenty-seventh Avenue (U. S. C. E. p. b. m. 266-2):	
Bolt in tile.....	829.962
Cap on pipe.....	833.95
Minneapolis, on center line of Thirty-fourth Street North, on property belonging to Nelson Reeves, about 43 meters back from bank of river, 0.25 meter north of an east-west fence; tile and pipe (U. S. C. E. b. m. 266-3):	
Bolt in tile.....	817.03
Cap on pipe.....	821.04
Minneapolis, on top of ridge, on Thirty-sixth Avenue North; tile and pipe (U. S. C. E. b. m. Triangulation Peck):	
Bolt in tile.....	937.45
Cap on pipe.....	941.45
Minneapolis, on top of right bank, on property belonging to J. D. Taylor and 60 meters northeast of Taylor's barn, about 75 meters east of public road, 267-2 280° 09' distant 352 meters; to blazed trees: 18-inch oak, 5° 40' distant 18.2 meters; 10-inch oak, 207° 25' distant 12 meters; 10-inch oak, 160° 55' distant 18.8 meters; tile and pipe (U. S. C. E. b. m. 267-3):	
Bolt in tile.....	823.50
Cap on pipe.....	827.51
Minneapolis, 480 meters north of Warwick post office, 400 meters from river, 0.5 meter southwest of corner of fence, on property of Thomas Warwick, on west side of public road; tile and pipe (U. S. C. E. b. m. 268-3):	
Bolt in tile.....	840.39
Cap on pipe.....	844.37
Minneapolis, on top of right bank, on property belonging to J. Weaver and 260 meters above his house, 1 meter south of a granite boulder; tile and pipe (U. S. C. E. b. m. 269-3):	
Bolt in tile.....	840.49
Cap on pipe.....	844.48

Minneapolis, 255 meters west of right bank of river, on property belonging to C. Peterson, 1.5 meters south of his northeast corner, which is at corner of fence on line between secs. 28 and 33, T. 199 N., R. 21 W., on west side of road, 18-inch oak tree blazed, 219° 04' distant 7.7 meters; 270-2 239° 55'; tile and pipe (U. S. C. E. b. m. 270-3):	Feet.
Bolt in tile.....	856. 67
Cap on pipe.....	860. 63
Champlin, 500 meters above bridge, 30 meters back of top of bank, 0.5 meter south of fence on upper line of Frank Johnson's property, at north-east corner of patch of timber, 271-2 201° 36' distant 314.6 meters; 15-inch ash tree 328° 11' distant 4 meters; tile and pipe (U. S. C. E. b. m. 271-3):	
Bolt in tile.....	834. 98
Cap on pipe.....	838. 94
Champlin, 3 miles above, one-fourth mile back of forks of road, on hill; tile and pipe (U. S. C. E. Triangulation Johnson):	
Bolt in tile.....	931. 03
Cap on pipe.....	935. 01
Clouquet Island, 100 meters below foot of, on right bank, on top of high bank, 6.5 meters back of fence running along slope of bank, on grassy spot where bank makes a sharp turn, 272-2 188° 03' distant 1,017.8 meters; blazed trees: 10-inch oak, 255° 48' distant 4.4 meters; 9-inch oak in corner of fence, 155° 58' distant 7.2 meters; tile and pipe (U. S. C. E. b. m. 272-3):	
Bolt in tile.....	867. 63
Cap on pipe.....	871. 61
Goodwins Island, 100 meters above foot of, on east brow of hill, 70 meters back of chute behind island, 0.5 meter south of wire fence on high grassy knob, on property of Alexander Bouley and Hubert Thibodeau; tile and pipe (U. S. C. E. b. m. (273-3):	
Bolt in tile.....	889. 37
Cap on pipe.....	893. 33
Dayton, about 1 mile above, in edge of timber on high ridge, directly opposite head of Dayton Island; tile and pipe (Triangulation Carrow):	
Bolt in tile.....	930. 83
Cap on pipe.....	934. 70

ELK RIVER QUADRANGLE.

[Latitude, 45° 15'-45° 30'; longitude, 93° 30'-93° 45'.]

Along Mississippi River.

Elk River, 3 miles below, one-fourth mile below Island No. 200, on right bank, on upper end of high ridge, 40 meters back from river, on property of Otove Chouinord, 0.5 meter north of a wire fence running nearly east and west, on sec. 26, T. 21 N., R. 23 W., 274-2 234° 24' distant 578.8 meters; highest point on bowlder 178° 25' distant 6.2 meters; 3-inch basswood tree 77° 55' distant 5.8 meters; tile and pipe (U. S. C. E. b. m. 274-3):	
Bolt in tile.....	882. 63
Cap on pipe.....	886. 60
Elk River, on right bank opposite lower end of town of, 75 meters from ferry landing, 0.25 meter east of a north-south fence along wagon road running south from ferry, in pasture, 5 meters south of angle in fence, 275-2 236° 49' distant 313.9 meters; 18-inch hackberry tree 278° 58' dis-	

tant 10.5 meters; 18-inch ash 226° 48' distant 13.8 meters; 12-inch oak 174° 18' distant 9.7 meters; tile and pipe (U. S. C. E. b. m. 275-3):	Feet.
Bolt in tile.....	857. 51
Cap on pipe.....	861. 48
Elk River, at Great Northern Ry. station; base of rail.....	894. 17
Elk River, at Northern Pacific Ry. station; base of rail.....	900. 51
Otsego, in east-west street in, 0.5 meter south of wire fence along north line of street, 85 meters south of river, 124 meters east of east line of north-south street running to ferry, 10 meters east of line of east side of church; 276-2 186° 54' distant 441.4 meters; 10-inch blazed poplar tree 307° 00' distant 25.8 meters; tile and pipe (U. S. C. E. b. m. 276-3):	
Bolt in tile.....	898. 97
Cap on pipe.....	902. 93
Otsego Ferry, one-half mile above, one-fourth mile below Davis Island, on top of left bank of river; tile and pipe (U. S. C. E. b. m. Triangulation Davis Island):	
Bolt in tile.....	904. 39
Cap on pipe.....	908. 36
Otsego, 3 miles above, directly opposite head of Dimmicks Island, on top of high wooded bluff; tile and pipe (U. S. C. E. Triangulation Baker):	
Bolt in tile.....	957. 02
Cap on pipe.....	960. 98
Otsego, 3 miles above, about 100 meters above head of Dimmicks Island, on top of right bank, 1 meter west of corner of fence, on property of N. E. Baker, in sec. 11, T. 121 N., R. 24 W., in northeast corner of cultivated field; tile and pipe (U. S. C. E. b. m. 277-3):	
Bolt in tile.....	911. 13
Cap on pipe.....	915. 10
Browns Island, 550 meters above head of, 40 meters back from right bank of river, in pasture, 5 meters west of corner of fence, on property of John C. Nelson, sec. 8, T. 121 N., R. 24 W., tile and pipe (U. S. C. E. b. m. 278-3):	
Bolt in tile.....	912. 64
Cap on pipe.....	916. 61

BECKER QUADRANGLE.

[Latitude, 45° 15'-45° 30'; longitude, 93° 45'-94°.]

Along Mississippi River.

Monticello, in eastern end of, 130 meters back from old ferry landing on right bank, 0.5 meter east of west line of Washington Street, between First Street and Broadway, 68 meters from Broadway; tile and pipe (U. S. C. E. b. m. 279-3):	
Bolt in tile.....	935. 30
Cap on pipe.....	939. 27.
Monticello, 2 miles above, 1,000 meters below foot of Lanes Island, in small oak timber on high ridge, 70 meters back from river and about 25 meters above point where ridge leaves river, 440 meters below house on property of N. G. Skarman, on sec. 3, T. 121 N., R. 25 W.; 280-2 234° 56' distant 635.6 meters; 4-inch oak tree 75° 23' distant 2.4 meters; 4-inch oak tree 18° 08' distant 2.6 meters; tile and pipe (U. S. C. E. b. m. 280-3):	
Bolt in tile.....	935. 87
Cap on pipe.....	939. 84

Monticello, 5 miles above, one-quarter mile above head of Island No. 163, on right bank, on slope of high ridge near top, 45 meters back from river, about 50 meters above a point opposite upper end of piling which runs from left bank to head of Island No. 163; 281-2 196° 23' distant 1,175.2 meters; blazed trees: 8-inch oak 270° 06' distant 12 meters; 9-inch oak 97° 41' distant 7.7 meters; 12-inch oak 141° 26' distant 9.5 meters; tile and pipe (U. S. C. E. b. m. 281-3):

Bolt in tile.....	Feet. 954.19
Cap on pipe.....	958.17

Bear Island, 40 meters below, on east side of public road, 0.5 meter from north-south fence, 70.3 meters from corner where this fence turns west on east-west road, 300 meters from top of right bank of river, 95 meters south of John Sende's house, sec. 14, T. 122, R. 26; tile and pipe (U. S. C. E. b. m. 282-3):

Bolt in tile.....	944.63
Cap on pipe.....	948.59

Clearwater, 6 miles below, at foot of straight reach where river makes a sharp bend to northeast, about 30 meters back from left bank of river, on high ground, back of large bunch of ash and box-elder trees which stands on bank of river, about 150 meters below lower end of high sand ridge which runs nearly straight for 500 meters, about three-fourths mile below Island No. 158; Triangulation River Bank 340° 55' distant 489.1 meters; blazed trees: 15-inch oak 74° 16' distant 7 meters; 18-inch oak 167° 11' distant 5.6 meters; 12-inch oak 203° 16' distant 6 meters; tile and pipe (U. S. C. E. b. m. 283-2):

Bolt in tile.....	936.30
Cap on pipe.....	940.28

Clearwater, 6 miles below, 150 meters back from right bank of river, on top of high ridge, opposite lower end of straight reach where river makes a sharp bend to northeast; tile and pipe (U. S. C. E. b. m. 283-3):

Bolt in tile.....	990.81
Cap on pipe.....	994.80

CLEARWATER QUADRANGLE.

[Latitude, 45° 15'-45° 30'; longitude, 94°-94° 15'.]

Along Mississippi River.

Clearwater, 3 miles below, on left bank of river, on high bank 7 meters back from edge, half a mile above cut-off, about 50 meters below high sand mound; tile and pipe (U. S. C. E. b. m. 284-2):

Bolt in tile.....	959.82
Cap on pipe.....	963.78

Clearwater, about 3½ miles below, on right bank of river, on top of high bank southeast of old cut-off; tile and pipe (U. S. C. E. b. m. 284-3=Triangulation Benson):

Bolt in tile.....	985.08
Cap on pipe.....	989.02

Clearwater, at Great Northern Ry. station; base of rail.....

962.45

Clearwater, 280 meters above ferry landing, about 140 meters above mouth of Clearwater Creek, in lot 5, block 11, 60 meters from river and about 20 meters from railroad track, 20 meters from southwest corner of old deserted hotel building, 6 meters from southeast corner of barn; tile and pipe (U. S. C. E. b. m. 285-3):

Bolt in tile.....	956.38
Cap on pipe.....	960.34

Clearwater, about 1 mile above, on right bank of river, in oak timber, 15 meters from top of high bank; tile and pipe (U. S. C. E. b. m.=Triangulation Clearwater):

Bolt in tile.....	995.88
Cap on pipe.....	999.83

Clearwater, 3 miles above, opposite head of school-section island, 40 meters back from right bank of river, 50 meters below two large elms that stand on high bank, on property of C. T. Rigsby; tile and pipe (U. S. C. E. b. m. 286-3):

Bolt in tile.....	947.62
Cap on pipe.....	951.58

St. Cloud, about 6 miles below, about 1 mile below point opposite St. Augusta church, 550 meters back from left bank of river, 0.5 meter north of an east-west fence which separates secs. 30 and 31, 60 meters east of junction of fences (north-south and east) on high ridge, on property of George Sheffenberg; tile and pipe (U. S. C. E. b. m. 287-2):

Bolt in tile.....	1,012.88
Cap on pipe.....	1,016.85

St. Cloud, about 6 miles below, about one-half mile northeast of St. Augusta church, 380 meters below mouth of Johnson Creek, on top of right bank of river; tile and pipe (U. S. C. E. b. m. 287-3=Triangulation St. Augusta):

Bolt in tile.....	1,011.25
Cap on pipe.....	1,015.22

ST. CLOUD QUADRANGLE.

[Latitude, 45° 30'-45° 45'; longitude, 94°-94° 15'.]

St. Cloud, about 2½ miles below Normal School, about 300 meters below foot of "Thousand Islands," 5 meters back from top of high sand bank on left bank of river, on property of H. Kilian and about 100 meters above his house, opposite head of Island No. 139, 3 meters west of corner of fence; 288-2 239° 00' distant 614.6 meters; blazed trees: 6-inch oak, 270° 19' distant 3.2 meters; 6-inch oak 62° 34' distant 4 meters; 5-inch oak, 11° 49' distant 6.5 meters; tile and pipe (U. S. C. E. b. m. 288-3):

Bolt in tile.....	985.31
Cap on pipe.....	989.26

St. Cloud, three blocks below upper wagon bridge, 9 meters north of north line of Third Street, on top of right bank of river, about 20 meters back from large pine trees which stand on slope of bank; 289-2 253° 30' distant 272 meters; blazed trees: 15-inch oak, 162° distant 1.2 meters; 9-inch oak, 299° distant 1.3 meters; 18-inch oak, 36° distant 1.6 meters; tile and pipe (U. S. C. E. b. m. 289-3):

Bolt in tile.....	1,027.50
Cap on pipe.....	1,031.49

St. Cloud, at Great Northern Ry. passenger station; base of rail..... 1,043.2

St. Cloud, at west end of Great Northern Ry. bridge; base of rail..... 1,033.98

East St. Cloud, at Northern Pacific Ry. passenger station; base of rail..... 1,026.6

Sauk Rapids, at Northern Pacific Ry. station; base of rail..... 1,005.3

Sauk Rapids, about 1 mile above, on right bank, 75 meters from river and directly opposite foot of Clark Island, on property of William Connel and 125 meters below his house; tile and pipe (U. S. C. E. b. m. 290-3):

Bolt in tile.....	1,007.55
Cap on pipe.....	1,011.53

Sauk Rapids, about 4 miles above the town, at foot of Watab Rapids, 5 meters back from top of right bank, 520 meters below foot of Millers Island, on high bank 70 meters below foot of small island, and 20 meters above a small ravine; 291-2 265° 24' distant 330 meters; blazed trees: 5-inch oak 181° distant 2 meters; 6-inch oak 313° distant 5 meters; 6-inch oak 313° distant 5 meters; 6-inch oak 115° distant 6.5 meters; tile and pipe (U. S. C. E. b. m. 291-3):

	Feet.
Bolt in tile.....	1, 016. 16
Cap on pipe.....	1, 020. 13

Little Rock, about three-fourths mile below a large granite knob known as, on right bank, 60 meters from river, 0.5 meter east of north-south fence, 65 meters north of corner of fence, opposite foot of slough on opposite side of river, on property of J. S. Stevenson; tile and pipe (U. S. C. E. b. m. 292-3):

Bolt in tile.....	1, 036. 08
Cap on pipe.....	1, 040. 05

Rice, about 4½ miles below, on right bank of river, at junction of fences, 320 meters back from river, 900 meters north of schoolhouse "Brockaway No. 7," at northwest corner of patch of timber, about 500 meters below Mr. Gregory's house; 293-2 253° 30' distant 513.7 meters; blazed trees: 24-inch oak, 289° 30' distant 32.5 meters; 20-inch oak, 324° 45' distant 37.4 meters; tile and pipe (U. S. C. E. b. m. 293-3):

Bolt in tile.....	1, 037. 77
Cap on pipe.....	1, 041. 76

Rice, about 2 miles south of, on top of river bank, on west side of public road, 8 meters south of section line; tile and pipe (U. S. C. E. b. m. Triangulation river base):

Bolt in tile.....	1, 051. 82
Cap on pipe.....	1, 055. 80

Rice, about 1½ miles south of, 30 meters back of right bank of river, nearly south of where road from Rice strikes high bank, about 100 meters above a gravel bar and 600 meters above a large island; 294-2 204° 58' distant 490.2 meters; blazed trees: 18-inch basswood, 228° 54' distant 6 meters; 15-inch basswood, 40° 54' distant 2 meters; 24-inch basswood, 132° 14' distant 18.7 meters; tile and pipe (U. S. C. E. b. m. 294-3):

Bolt in tile.....	1, 018. 57
Cap on pipe.....	1, 022. 56

LITTLE FALLS QUADRANGLE.

[Latitude, 45° 45'-46°; longitude, 94° 15'-94° 30'.]

Russells Ferry, 1,000 meters above, 7 meters back from top of bank, on right bank, 250 meters above junction of roads, 180 meters below fence corner on east side of road, in timber; 295-2 283° 16' distant 761.7 meters; blazed trees: 12-inch oak, 354° 30' distant 3.5 meters; 8-inch oak, 86° 30' distant 6.2 meters; 12-inch oak, 163° 45' distant 8 meters; tile and pipe (U. S. C. E. b. m. 295-3):

Bolt in tile.....	1, 050. 08
Cap on pipe.....	1, 054. 05

Island No. 88, opposite head of, on river side of public road, 100 meters from water's edge, 0.5 meter south of yard fence and 11 meters west from southeast corner of yard, 10 meters south of house of John Burggroff, jr.; tile and pipe (U. S. C. E. b. m. 296-3):

Bolt in tile.....	1, 062. 44
Cap on pipe.....	1, 066. 42

North Prairie ferry, on right bank near landing, on southeast side of road leading to ferry, 50 meters from water's edge, 110 meters southeast of house; 297-2 223° 14' distant 660.5 meters; blazed trees: 15-inch oak stub, 308° 30' distant 9.3 meters; 15-inch oak stub, 47° 45' distant 13.4 meters; tile and pipe (U. S. C. E. b. m. 297-3):	
Bolt in tile.....	Feet. 1, 046. 28
Cap on pipe.....	1, 050. 23
Two Rivers bridge, about 1½ miles above, 300 meters back from right bank, 0.25 meter north of an east-west line fence between property of John O. Urbanskie and J. Trask, directly east of Urbanskie's buildings and west of McDougalls Island, 213 meters east of an elm tree which stands in line of fence; tile and pipe (U. S. C. E. b. m. 298-3):	
Bolt in tile.....	1, 041. 12
Cap on pipe.....	1, 045. 05
Two Rivers bridge, about 4½ miles above, at lower end of cultivated field on property of Edward F. Cash, 470 meters below his house and about the same distance below Cash's Island, about 20 meters back from right bank of river, at edge of timber; 299-2 245° 48' distant 264.5 meters; 24-inch basswood tree blazed 140° 40' distant 7 meters; tile and pipe (U. S. C. E. b. m. 299-3):	
Bolt in tile.....	1, 064. 16
Cap on pipe.....	1, 068. 12
Little Falls, 4 miles below, on right bank, on property of Adam Ligman and 20 meters northeast of his house, on high ridge opposite head of Island No. 64, 70 meters from river, 2 meters north of southwest corner of lot fence, 370 meters above mouth of Swan River; tile and pipe (U. S. C. E. b. m. 300-3):	
Bolt in tile.....	1, 095. 50
Cap on pipe.....	1, 099. 47
Little Falls, 1 mile below the dam, on slope of right bank of river, about 15 meters back from water's edge, opposite center of Island No. 59, 10 meters toward river from public road, 145 meters below house of E. Nelson; 301-2 270° 36' distant 794 meters; blazed trees: 18-inch oak, 86° distant 18.4 meters; 10-inch oak, 114° distant 15.4 meters; 12-inch oak, 306° distant 23.8 meters; tile and pipe (U. S. C. E. b. m. 301-3):	
Bolt in tile.....	1, 103. 76
Cap on pipe.....	1, 107. 73
Little Falls, upper end of, Northern Pacific Ry. bridge; base of rail	1, 118. 05
Little Falls, 1 mile above upper railway bridge at, on right bank of river, on top of low bank, 15 meters back from water's edge, about 50 meters toward river from wagon road, nearly opposite a junction of wagon roads, about 100 meters upstream from a one-story house, about 350 meters downstream from a large two-story white-brick house; 302-2 272° distant 943.8 meters; blazed trees: 8-inch elm, 229° distant 3.6 meters; 18-inch basswood, 297° 30' distant 5.7 meters; 15-inch oak, 117° distant 5.1 meters; tile and pipe (U. S. C. E. b. m. 302-3):	
Bolt in tile.....	1, 107. 10
Cap on pipe.....	1, 111. 08

BELLE PRAIRIE QUADRANGLE.

[Latitude, 46°-46° 15'; longitude, 94° 15'-94° 30'.]

Along Mississippi River.

Little Falls, about 4½ miles above, on right bank of river, about 200 meters above Roscoe Island and almost directly across river from Belle Prairie church, about 150 meters back from river bank, at edge of timber, on property of William Recicot; 303-2 266° 20' distant 939.9 meters; blazed trees: 6-inch poplar, 313° distant 2.7 meters; 12-inch basswood, 46° distant 3.8 meters; tile and pipe (U. S. C. E. b. m. 303-3):

	Feet.
Bolt in tile.....	1, 118. 95
Cap on pipe.....	1, 122. 91

Belle Prairie church, 3 miles above, on lower end of sand ridge, 15 meters back from top of right bank, one-half mile above Doucette Island, about 350 meters below Island No. 45, about 200 meters above the upper of two creek on opposite side of river; 304-2 242° 39' distant 1,057.2 meters; blazed trees: 15-inch pine, 188° distant 4.5 meters; 15-inch pine, 327° distant 6.7 meters; 15-inch pine, 76° distant 7 meters; tile and pipe (U. S. C. E. b. m. 304-3):

Bolt in tile.....	1, 134. 42
Cap on pipe.....	1, 138. 41

Fort Ripley, about 4½ miles below the town, about three-fourths mile above a sharp bend in river which approaches nearest the railroad, on right bank of river, opposite foot of Beseau Bar, 315 meters from river, on side of public road next to river, 1 meter west of fence, 25 meters above George Hall's house; 305-2 242° 48' distant 903 meters; blazed trees: 12-inch oak, 337° distant 31.6 meters; 10-inch oak, 49° 27' distant 20.1 meters; tile and pipe (U. S. C. E. b. m. 305-3):

Bolt in tile.....	1, 140. 48
Cap on pipe.....	1, 144. 48

Pipe Island, 150 meters below foot of, 100 meters back from right bank of river, at angle of fence on east side of public road, on top of high ridge 1½ miles below the old ferry landing, across from county-line road between Morrison and Crow Wing counties; 306-2 271° 02' distant 994.8 meters; blazed trees: 4-inch elm, 24° 30' distant 13.4 meters; 10-inch (double) elm, 85° 12' distant 25 meters; 12-inch basswood, 167° 12' distant 25.1 meters; tile and pipe (U. S. C. E. b. m. 306-3):

Bolt in tile.....	1, 155. 63
Cap on pipe.....	1, 151. 66

Old Fort Ripley, 600 meters above blockhouse at, 50 meters above ferry landing, in open grassy spot, 30 meters back from right bank, about 100 meters above a point opposite mouth of Nokay Sebie River; 307-2 250° 49' distant 341.1 meters; blazed 9-inch elm tree 42° 10' distant 35.2 meters; tile and pipe (U. S. C. E. b. m. 307-3):

Bolt in tile.....	1, 144. 94
Cap on pipe.....	1, 148. 93

Old Fort Ripley, 3½ miles above ruins of, on right bank, 11 meters east of wagon road, 20 meters back from river, a lone pine tree stands on hill N. 20° W. about one-half mile distant, a big clump of small pines stands on left bank about 200 meters below; 308-2 279° 24' distant 167.2 meters; blazed 30-inch elm snag 189° distant 6.2 meters; tile and pipe (U. S. C. E. b. m. 308-3):

Bolt in tile.....	1, 153. 64
Cap on pipe.....	1, 157. 61

Crow Wing River, 2½ miles below lower mouth of, on right bank, on top of a high mound, 25 meters back from river, 100 meters below mouth of a small creek, 500 meters above head of Island No. 22; 309-2 330° 53' distant 592.5 meters; blazed trees: 18-inch pine, 314° 50' distant 36.7 meters; 6-inch pine, 190° distant 9.8 meters; tile and pipe (U. S. C. E. b. m. 309-3):

	Feet.
Bolt in tile.....	1, 175. 22
Cap on pipe.....	1, 179. 18

SYLVAN QUADRANGLE.

[Latitude, 46° 15'-46° 30'; longitude, 94° 15'-94° 30'.]

Along Mississippi River.

Crow Wing River, 750 meters above upper mouth of, 35 meters from Mississippi River, on right bank, on high ground, 40 meters below old Crow Wing ferry landing, on west side of narrowest part of neck of land between Mississippi and Crow Wing rivers; 310-2 332° 40' distant 598.5 meters; blazed trees: 10-inch pine, 301° distant 7.6 meters; 8-inch pine, 126° distant 10.1 meters; 12-inch pine, 191° distant 11.5 meters; tile and pipe (U. S. C. E. b. m. 310-3):

Bolt in tile.....	1, 177. 29
Cap on pipe.....	1, 181. 28

Brainerd, 6 miles below, 3½ miles above upper mouth of Crow Wing River, on right bank, on top of point of high ridge, 70 meters from Mississippi River, about 200 meters south of a small lake and one-fourth mile southeast of head of Big Bass Lake; 311-2 331° 17' distant 190.1 meters; blazed trees: 7-inch pine, 103° distant 11.3 meters; 6-inch pine, 265° distant 5.2 meters; 7-inch pine, 24° distant 16 meters; tile and pipe (U. S. C. E. b. m. 311-3):

Bolt in tile.....	1, 193. 30
Cap on pipe.....	1, 197. 27

BRAINERD QUADRANGLE.

[Latitude, 46° 15'-46° 30'; longitude, 94°-94° 30'.]

Along Mississippi River.

Brainerd, 3½ miles below railway bridge at, on right bank, on top of ridge, 20 meters back from river, 30 meters below mouth of small ravine which is opposite mouth of Buffalo Creek; 312-2 325° 8', distant 210.4 meters; blazed trees: 10-inch jack pine, 290° 30' distant 6.7 meters; 12-inch jack pine, 354° distant 3.7 meters; 12-inch Norway pine, 146° 30' distant 32 meters; tile and pipe (U. S. C. E. b. m. 312-3):

Bolt in tile.....	1, 181. 42
Cap on pipe.....	1, 185. 39

Brainerd, on right bank opposite lower part of, 600 meters below wagon bridge, 50 meters from river, on bench at foot of high ridge, directly in front of a large water tank standing on top of ridge, 16 meters N. 67° W. from northwest corner of barn; 313-2 260° 36' distant 390.2 meters; blazed trees: 5-inch jack pine, 24° distant 1 meter; 5-inch jack pine, 152° distant 4.2 meters; tile and pipe (U. S. C. E. b. m. 313-3):

Bolt in tile.....	1, 193. 72
Cap on pipe.....	1, 197. 71

Brainerd, Northern Pacific Ry. bridge; base of rail..... 1, 211. 75

Brainerd, above dam; high-water mark 1896..... 1, 177. 39

Northeast Brainerd, in center of Mill Street, at east side of Minnesota & International Ry. track, 30 meters north of road leading to dam; tile and pipe (U. S. C. E. b. m. Triangulation North Base):

	Feet.
Bolt in tile.....	1, 203. 27
Cap on pipe.....	1, 207. 25

Brainerd, one-fourth mile above dam, on hillside on right bank, 40 meters from river, 20 meters back of railroad track used for dumping logs into river, directly opposite sawmill of Brainerd Lumber Co., 150 meters below small island; tile and pipe (U. S. C. E. b. m. 314-3):

Bolt in tile.....	1, 213. 66
Cap on pipe.....	1, 217. 64

Brainerd Dam, $3\frac{1}{4}$ miles above, on right bank, and three-fourths mile above the upper end of a narrow stretch of river, on high ground opposite low point of left bank and about 300 meters above a high wooded hill across the river, 140 meters above a bay, 15 meters back from river, 315-2 278°, distant 379 meters; blazed trees: 15-inch jack pine, 88° distant 33 meters; 24-inch Norway pine, 222° distant 7.5 meters; 15-inch jack pine, 295° 30' distant 11.3 meters; tile and pipe (U. S. C. E. b. m. 315-3):

Bolt in tile.....	1, 196. 67
Cap on pipe.....	1, 200. 65

Brainerd, 6 miles above north end of, $2\frac{1}{2}$ miles below mouth of Rabbit River, on left bank of the Mississippi, 15 meters from backwater from Brainerd Dam, 200 meters below a thickly wooded point, 250 meters above an island formed by backwater from Brainerd Dam, 275 meters back of original river bank, a prominent wooded hill stands back of bench mark; 316-3 139° 37' distant 635 meters; blazed trees: 8-inch white pine, 37° distant 4 meters; 8-inch jack pine, 97° distant 5.8 meters; 20-inch Norway pine, 215° 45' distant 31.2 meters; tile and pipe (U. S. C. E. b. m. 316-2):

Bolt in tile.....	1, 176. 88
Cap on pipe.....	1, 180. 84

NOTE.—This bench mark is marked by p. b. m. tile and pipe but was not touched on by precise-level line.

Brainerd, 6 miles above north end of, $2\frac{1}{2}$ miles below mouth of Rabbit River, on right bank of the Mississippi, on downstream side of hilly point which projects to the river between two bays formed by backwater from Brainerd Dam, about 200 meters below extreme end of point, opposite island across river formed by backwater, 40 meters from backwater, 316-2 319° 37' distant 635 meters; 18-inch blazed white-pine tree 317° 21' distant 33 meters; tile and pipe (U. S. C. E. b. m. 316-3):

Bolt in tile.....	1, 197. 76
Cap on pipe.....	1, 201. 73

Rabbit River, one-half mile above mouth of, on right bank of the Mississippi, on top of lower end of ridge covered with jack pines, directly opposite small ravine on left bank, 30 meters from river and 10 meters back from top of bank 317-2 289° 10' distant 259.8 meters; blazed trees: 9-inch jack pine, 342° distant 15.1 meters; 9-inch jack pine, 67° distant 2.5 meters; tile and pipe (U. S. C. E. b. m. 317-3):

Bolt in tile.....	1, 216. 20
Cap on pipe.....	1, 220. 18

Rabbit River, $3\frac{1}{4}$ miles above mouth of, on right bank of the Mississippi, 1,000 meters below an old cut-off, on high ridge one-fourth mile back from river, one-half mile south of lake formed by the cut-off and called on old maps, "Half-moon Marsh"; 318-2 293° 33' distant 673 meters;

blazed trees: 30-inch oak, 268° distant 78 meters; 7-inch jack pine, 316° distant 8 meters; 6-inch oak, 386° distant 5.2 meters; tile and pipe (U. S. C. E. b. m. 318-3):

	Feet.
Bolt in tile.....	1, 206. 72
Cap on pipe.....	1, 210. 69

CROSS LAKE QUADRANGLE.

[Latitude, 46° 30'-46° 45'; longitude, 94°-94° 15'.]

Along Mississippi River.

Dr. Camp's house, which stands on site of old Indian mission, 600 meters above, 75 meters below mouth of slough, on right bank, on ridge 40 meters from river; 319-2 334° 07' distant 227.2 meters; blazed 6-inch oak tree 11° distant 11.7 meters; tile and pipe (U. S. C. E. b. m. 319-3):

Bolt in tile.....	1, 191. 29
Cap on pipe.....	1, 195. 26

Mission Lake, one-half mile east of, on east side of road, 2 meters north of junction of fence with east-west section line, 600 meters northwest of Dr. Camp's house, which stands on site of old Indian mission; tile and pipe (U. S. C. E. b. m. Triangulation Camp):

Bolt in tile.....	1, 198. 22
Cap on pipe.....	1, 202. 18

Pine River, 1½ miles below mouth of, on right bank of the Mississippi, three-fourths of a mile above Foster's house, 20 meters back from top of bank, on a point where river makes a sharp bend to south, river at bench mark runs southeast; 320-2 233° 37' distant 123.4 meters; blazed trees: 15-inch pine, 205° 50' distant 20.4 meters; 24-inch oak, 4° 16' distant 17.6 meters; 18-inch oak, 78° 46' distant 7.5 meters; tile and pipe (U. S. C. E. b. m. 320-3):

Bolt in tile.....	1, 184. 77
Cap on pipe.....	1, 188. 75

CUYUNA QUADRANGLE.

[Latitude, 46° 30'-46° 45'; longitude, 93° 45'-94°.]

Along Mississippi River.

Pine River, 2½ miles above, 1 mile below Island Lake, on top of high sand ridge where ridge terminates on river bank, 20 meters back from river, on right bank of the Mississippi, in sec. 32; 321-2 52° 46' distant 126.7 meters; blazed trees: 6-inch Norway pine, 183° distant 19.1 meters; 15-inch jack-pine, 312° 30' distant 22.4 meters; 15-inch Norway pine, 48° 30' distant 7.1 meters; tile and pipe (U. S. C. E. b. m. 321-3):

Bolt in tile.....	1, 211. 88
Cap on pipe.....	1, 215. 85

Towhead Rapids, three-fourths of a mile below, on right bank, 10 meters back from top of high sand ridge, directly back of where sand ridge strikes river, Big Rabbit Lake is 500 meters distant across river, Indian Lake is 600 meters northwest; 322-2 334° 52' distant 172 meters; blazed trees: 15-inch Norway pine, 272° distant 5.8 meters; 18-inch white pine, 41° distant 18.7 meters; 18-inch Norway pine, 172° distant 2 meters; tile and pipe (U. S. C. E. b. m. 322-3):

Bolt in tile.....	1, 210. 61
Cap on pipe.....	1, 214. 59

Towhead Rapids, one-fourth mile north of sharp bend in river at, on top of high ground, one-half mile west of mouth of slough just below Surre's ferry; tile and pipe (U. S. C. E. b. m. Triangulation Surre):	
Bolt in tile.....	Feet. 1, 277. 99
Cap on pipe.....	1, 281. 99
Dean Brook, 2 miles below mouth of, on right bank of the Mississippi, 50 meters above head of Island No. 1 (the only island in the vicinity), 35 meters from river, on a high ridge, the big meadow across river approaches nearest the river at this point; 323-2 320° 32' distant 170.5 meters; blazed trees: 20-inch oak, 279° 27' distant 32.6 meters; 20-inch oak, 353° 17' distant 38.1 meters; 18-inch white pine, 116° 42' distant 26.1 meters; tile and pipe (U. S. C. E. b. m. 323-3):	
Bolt in tile.....	1, 204. 37
Cap on pipe.....	1, 208. 34
Dean Brook, one-fourth mile below mouth of, 200 meters back of left bank of the Mississippi, 200 meters south of mouth of small ravine, 60 meters east of ravine, 25 meters east of a line fence; tile and pipe (U. S. C. E. b. m. Triangulation Kemres):	
Bolt in tile.....	1, 206. 86
Cap on pipe.....	1, 210. 84
Dean Brook, 1½ miles above, on right bank, 2½ miles below where river makes a sharp bend at Pine Knoll, on high ridge 130 meters back from river, 1½ meters south of a fence and 16 meters below an angle in same fence, on property of George Bund, in sec. 22; 324-2 344° 17' distant 244.6 meters; blazed trees: 15-inch white pine, 292° 55' distant 31 meters; 15-inch oak, 329° 25' distant 53.5 meters; tile and pipe (U. S. C. E. b. m. 324-3):	
Bolt in tile.....	1, 207. 66
Cap on pipe.....	1, 211. 63
Pine Knoll, one-fourth mile below small ravine which opens into sharp bend in river at, 75 meters back of top of right bank, on property of James Welton, near his new residence; tile and pipe (U. S. C. E. b. m. Triangulation Pine Knoll):	
Bolt in tile.....	1, 204. 03
Cap on pipe.....	1, 208. 01
Aitkin, Northern Pacific Ry. station; base of rail.....	1, 209. 25
Aitkin, 1 mile southeast of, on highest ground on south side of road, 300 meters west of range line; tile and pipe (U. S. C. E. b. m. Triangulation Aitkin):	
Bolt in tile.....	1, 263. 93
Cap on pipe.....	1, 267. 94
Wakefield Brook, about 250 meters above mouth of, on right bank, on high ground, 75 meters back from river, on lower bank of low open spot, 50 meters below a point opposite Frank Dotsler's house, trees blazed facing bench mark; tile and pipe (U. S. C. E. b. m. 325-3):	
Bolt in tile.....	1, 192. 21
Cap on pipe.....	1, 196. 19
Cedar Brook, about 600 meters above, on right bank of river, opposite 326-2, in timber, 50 meters back from river, trees blazed facing bench mark; tile and pipe (U. S. C. E. b. m. 326-3):	
Bolt in tile.....	1, 195. 80
Cap on pipe.....	1, 199. 76

AITKIN QUADRANGLE.

[Latitude, $46^{\circ} 30' - 46^{\circ} 45'$; longitude, $93^{\circ} 30' - 93^{\circ} 45'$.]

Along Mississippi River.

Aitkin, 3 miles below, on right bank, in timber, 20 meters back from river, about 50 meters above a point opposite Conrad Schwab's house; tile and pipe (U. S. C. E. b. m. 327-3):

Bolt in tile (not leveled to).

Feet.

Cap on pipe..... 1, 201. 81

Aitkin, on right bank, on west side of wagon road leading to wagon bridge over the Mississippi, 40 meters north from north end of bridge approach, 0.5 meter northwest of junction of fences, in William Scriven's yard, 24.6 meters southeast of southeast corner of his house; tile and pipe (U. S. C. E. b. m. 328-3):

Bolt in tile..... 1, 197. 40

Cap on pipe..... 1, 201. 39

APPENDIX C.

SECONDARY ELEVATIONS.

Water-surface elevations of prominent lakes from records and topographic maps of the United States Geological Survey are given below. The figures are approximate only and should not be used for accurate work.

Name of lake.	Quadrangle.	County.	Elevation. <i>Feet.</i>
Albert Lake.....	Barrett.....	Douglas.....	1,255
Amelia Lake.....	White Bear.....	Anoka.....	905
Annie Battle Lake.....	Battle Lake.....	Otter Tail.....	1,330
Auburn Lake.....	Minnetonka.....	Carver.....	943
Bald Eagle Lake.....	White Bear.....	Ramsey-Washington.....	910
Barrett Lake.....	Barrett.....	Grant.....	1,150
Bass Lake.....	Anoka.....	Hennepin.....	903
Battle Lake.....	Battle Lake.....	Otter Tail.....	1,333
Bavaria Lake.....	Minnetonka.....	Carver.....	974
Beebe Lake.....	Rockford.....	Wright.....	971
Big Lake.....	Herman.....	Grant.....	1,075
Birch Lake.....	White Bear.....	Ramsey.....	918
Blackhawk Lake.....	St. Paul.....	Dakota.....	810
Blanche Lake.....	Battle Lake.....	Otter Tail.....	1,329
Buchanan Lake.....	do.....	do.....	1,323
Bunker Lake.....	Anoka.....	Anoka.....	886
Burr Lake.....	Herman.....	Grant.....	1,096
Centerville Lake.....	White Bear.....	Anoka.....	880
Charlotte Lake.....	Rockford.....	Wright.....	957
Do.....	Morris.....	Stevens.....	1,135
Chaska Lake.....	Minnetonka.....	Carver.....	706
Christmas Lake.....	do.....	Carver-Hennepin.....	935
Clear Lake.....	Chokio.....	Stevens.....	1,102
Clitherall.....	Battle Lake.....	Otter Tail.....	1,336
Como Lake.....	St. Paul.....	Ramsey.....	885
Cormorant Lake.....	Barrett.....	Grant.....	1,154
Cottonwood Lake.....	Herman.....	Grant-Stevens.....	1,096
Crooked Lake.....	Anoka.....	Anoka.....	860
Crystal Bay.....	Minnetonka.....	Hennepin.....	930
Crystal Lake.....	Morris.....	Stevens.....	1,116
Cyrus Lake.....	do.....	do.....	1,119
Davidson Lake.....	Barrett.....	Douglas.....	1,256
Dead Lake.....	Battle Lake.....	Otter Tail.....	1,327
Diamond Lake.....	Anoka.....	Rockford-Hennepin.....	903
Eagle Lake.....	do.....	Hennepin.....	874
East Battle Lake.....	Battle Lake.....	Otter Tail.....	1,334
Eide Lake.....	Barrett.....	Grant.....	1,770
Elk Lake.....	do.....	do.....	1,202
Ellingson Lake.....	do.....	do.....	1,211
Fish Lake.....	Chokio.....	Stevens.....	1,091
Foster Lake.....	Rockford.....	Wright.....	866
French Lake.....	do.....	Hennepin.....	908
George Watch Lake.....	White Bear.....	Anoka.....	880
Geredt Lake.....	St. Paul.....	Dakota.....	915
Gervais Lake.....	White Bear.....	Ramsey.....	858
Gifford Lake.....	Minnetonka.....	Scott.....	701
Giffillan Lake.....	White Bear.....	Ramsey.....	909
Golden Lake.....	do.....	Anoka.....	889
Goose Lake.....	do.....	Ramsey.....	921

Name of lake.	Quadrangle.	County.	Elevation.
			<i>Feet.</i>
Gordier Lake.....	Chokio.....	Stevens.....	1,140
Gourd Lake.....	Battle Lake.....	Otter Tail.....	1,322
Graham Lake.....	Herman.....	Grant.....	1,067
Grass Lake.....	Anoka.....	Anoka.....	858
Harry Lake.....	Rockford.....	Hennepin.....	934
Hattie Lake.....	Chokio.....	Stevens.....	1,135
Hausman Lake.....	Rockford.....	Hennepin.....	992
Hazeltine Lake.....	Minnetonka.....	Carver.....	918
Head Lake.....	Battle Lake.....	Otter Tail.....	1,327
Holland Lake.....	St. Paul.....	Dakota.....	865
Holstead Bay.....	Minnetonka.....	Hennepin.....	930
Horseshoe Lake.....	Chokio.....	Stevens.....	1,129
Huset Lake.....	Barrett.....	Grant.....	1,121
Independence Lake.....	Rockford.....	Hennepin.....	958
Island Lake.....	Barrett.....	Grant.....	1,184
Johnson Lake.....	Herman.....	do.....	1,099
Jones Lake.....	do.....	do.....	1,113
Landon Lake.....	Minnetonka.....	Hennepin.....	933
Long Lake.....	Barrett.....	Grant.....	1,208
Do.....	Minnetonka.....	Carver.....	894
Do.....	do.....	Hennepin.....	945
Do.....	Morris.....	Stevens.....	1,128
Do.....	White Bear.....	Ramsey.....	864
Do.....	Battle Lake.....	Otter Tail.....	1,323
Lower Elk Lake.....	Barrett.....	Grant.....	1,205
Maple Plain.....	Rockford.....	Hennepin.....	1,022
Martha Lake.....	do.....	Wright.....	968
Medicine Lake.....	Anoka.....	Hennepin.....	887
Mesabi Range; highest point in the State yet determined.	Mesabi district.....	St. Louis.....	1,920
Miller Lake.....	Minnetonka.....	Carver.....	917
Minnetonka Lake.....	do.....	Hennepin.....	930
Minnewashta Lake.....	do.....	Carver.....	946
Mud Lake.....	Rockford.....	Hennepin.....	956
Nelson Lake.....	Herman.....	Grant.....	1,067
Niemaki Lake.....	do.....	do.....	1,070
Ohlsrud Lake.....	do.....	do.....	1,071
Olson Lake.....	do.....	do.....	1,082
Otter Tail Lake.....	Barrett.....	do.....	1,211
Owasso Lake.....	Battle Lake.....	Ottertail.....	1,320
	White Bear.....	Ramsey.....	886
Page Lake.....	Morris.....	Stevens.....	1,143
Pelican Lake.....	Rockford.....	Wright.....	953
Peltier Lake.....	White Bear.....	Anoka.....	880
Perkins Lake.....	Morris.....	Stevens.....	1,106
Peterson Lake.....	Barrett.....	Grant.....	1,220
Phalen Lake.....	St. Paul.....	Ramsey.....	859
Piersons Lake.....	Minnetonka.....	Carver.....	964
Pomme de Terre Lake.....	Barrett.....	Grant.....	1,166
Fullman Lake.....	Herman.....	do.....	1,064
Rebecca Lake.....	Rockford.....	Hennepin.....	921
Reilly Lake.....	Minnetonka.....	Carver-Hennepin.....	865
Reshanaw Lake.....	White Bear.....	Anoka.....	880
Rice Lake.....	Anoka.....	Hennepin.....	886
Do.....	Minnetonka.....	Carver-Hennepin.....	700
Do.....	Rockford.....	Hennepin.....	964
Do.....	White Bear.....	Anoka.....	880
Round Lake.....	Anoka.....	do.....	868
Do.....	Barrett.....	Grant.....	1,140
Do.....	do.....	do.....	1,193
Rush Lake.....	Battle Lake.....	Ottertail.....	1,323
Scandia Lake.....	Morris.....	Stevens.....	1,141
Sarah Lake.....	Rockford.....	Hennepin.....	981
Schultz Lake.....	Minnetonka.....	Carver.....	952
Schwappaufl Lake.....	Rockford.....	Hennepin.....	1,014
Silver Lake.....	Barrett.....	Grant-Stevens.....	1,188
Silver Lake.....	Battle Lake.....	Ottertail.....	1,331
Solberg Lake.....	do.....	Douglas.....	1,255
Steele Lake.....	Rockford.....	Wright.....	972
Stieger Lake.....	Minnetonka.....	Carver.....	947
Stuart Lake.....	Battle Lake.....	Ottertail.....	1,334
Suoker Lake.....	White Bear.....	Ramsey.....	881

Name of lake.	Quadrangle.	County.	Elevation.
			<i>Feet.</i>
Superior Lake.....	Duluth.....	St. Louis.....	602
Swan Lake.....	Morris.....	Stevens.....	1,169
Sylvan Lake.....	Rockford.....	Hennepin.....	935
Thomas Lake.....	St. Paul.....	Dakota.....	900
Thompson Lake.....	Barrett.....	Grant.....	1,233
Turtle Lake.....	do.....	do.....	1,193
Twin Lakes.....	Anoka.....	Hennepin.....	852
Vadnais Lake.....	White Bear.....	Ramsey.....	877
Walker Lake.....	Battle Lake.....	Ottertail.....	1,320
Whale Tail Lake.....	Minnetonka.....	Hennepin.....	950
Wilhelm Lake.....	Rockford.....	Wright.....	951
White Bear Lake.....	White Bear.....	Ramsey.....	923
Worn Lake.....	Barrett.....	Grant.....	1,186
Zumbra Lake.....	Minnetonka.....	Carver.....	947

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