

ILLINOIS.

PRIMARY TRAVERSE.

Augusta, Beardstown, Camp Point, Liberty, Mendon, Meredosia, Mount Sterling, Quincy, Rushville, and Vermont quadrangles.

ADAMS, BROWN, HANCOCK, AND SCHUYLER COUNTIES.

The following geographic positions on approximate North American datum were determined by E. L. McNair in 1914. They are based upon La Grange and Quincy Courthouse, triangulation points of the United States Corps of Engineers, and also on primary traverse positions of the United States Geological Survey in Colchester and Macomb quadrangles. The latter are described in Bulletins 496 and 551.

AUGUSTA QUADRANGLE.

Along highways near east border of north half of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
T. 2 N., R. 3 W., in W. $\frac{1}{2}$ sec. 20, 35 feet northeast of intersection of crossroads; iron post stamped "Prim. Trav. Sta. No. 13, 1914, Illinois"	° ' " 40 08 30.4	° ' " 90 46 14.9	Feet.
T. 2 N., R. 3 W., corner of secs. 7, 8, 17, and 18; center of north and south road at.....	40 09 49.4	90 46 30.5	8,086
T. 2 N., R. 3 W., corner of secs. 5, 6, 7, and 8; T road west.....	40 10 41.7	90 46 29.2	5,300
T. 2 N., R. 3 W., north corner of secs. 5 and 6.....	40 11 35.4	90 46 28.0	5,431
T. 3 N., R. 3 W., corner of secs. 29, 30, 31, and 32; center of north and south road.....	40 12 27.0	90 46 24.6	5,240
T. 3 N., R. 3 W., quarter corner between secs. 29 and 30; T road west.....	40 12 53.4	90 46 24.2	2,670
T. 3 N., R. 3 W., corner of secs. 19, 20, 29, and 30; center of roads north and east.....	40 13 19.2	90 46 23.8	2,610
Brooklyn, west side of schoolhouse square, 30 feet east of intersection of Kentucky Street and Broadway; iron post stamped "Prim. Trav. Sta. No. 57, 1910, Illinois"	40 13 32.6	90 45 48.8	3,042

Along highways near east border of south half of quadrangle.

Forks of road, 20 feet west to oak tree in fence line.....	40 07 40.9	90 46 16.8	.....
Little Missouri Creek; center of iron span bridge over.....	40 07 09.7	90 46 00.7	3,396
T. 2 N., R. 3 W., in middle of sec. 32; T road east.....	40 06 45.1	90 46 00.9	2,497
Brown-Schuyler county line, at crossing of the Mount Sterling-Camden public road.....	40 06 18.7	90 46 06.1	2,711
T road east.....	40 05 29.4	90 46 01.9	4,995
T. 1 N., R. 3 W., quarter corner between secs. 8 and 17; T road east.....	40 04 30.7	90 46 02.9	5,951
Daisy, 0.25 mile west of store at; T road east.....	40 03 48.7	90 46 03.8	4,252
T road east.....	40 03 15.3	90 46 04.4	3,390
T. 1 N., R. 3 W., at quarter corner between secs. 20 and 29; T road west.....	40 02 45.6	90 46 05.3	3,010
T. 1 N., R. 3 W., at quarter corner between secs. 29 and 32; T road west.....	40 01 53.0	90 46 06.7	5,329
Tps. 1 N. and 1 S., R. 3 W., approximately at quarter corner between secs. 5 and 32; crossroads.....	40 01 00.3	90 46 06.8	5,330
T. 1 S., R. 3 W., quarter corner between secs. 5 and 8, fence line east; center of north and south road.....	40 00 08.0	90 46 06.4	5,297

AUGUSTA QUADRANGLE—Continued.

Along highways near south border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
	° ' "	° ' "	Feet.
T. 1 S., R. 4 W., corner of secs. 4, 5, 8, and 9, 20 feet east and 3 feet north of stone at, is T road west.	40 00 10.9	90 52 24.6	-----
Timewell, 0.25 mile south and 0.5 mile west of, 25 feet north and 45 feet east of T road north at quarter corner between secs. 5 and 8, T. 1 S., R. 4 W., 18 feet east of corner fence post; iron post stamped "Prim. Trav. Sta. No. 15, 1914, Illinois"	40 00 11.5	90 52 58.7	2,656
T. 1 S., R. 4 W., corner of secs. 5, 6, 7, and 8; center of east and west road at north and south fences.	40 00 11.6	90 53 33.6	2,710
T road north.	40 00 12.4	90 54 25.1	4,011
Tps. 1 S. and 1 N., on north side of sec. 6, R. 4 W.; center of road at T road south.	40 01 04.9	90 54 31.4	5,343
Tps. 1 N. and 1 S., Rs. 4 and 5 W.; center of east and west road at wire fence south, on Brown-Adams county line.	40 01 05.1	90 54 52.2	1,620
Tps. 1 N. and 1 S., R. 5 W., corner of secs. 35, 36, 1, and 2; T road north.	40 01 05.6	90 56 01.8	5,410
Tps. 1 N. and 1 S., R. 5 W., quarter corner between secs. 2 and 35; T road south.	40 01 05.8	90 56 35.5	2,620
T. 1 S., R. 5 W., north corner of secs. 2 and 3; T road south (130 feet west of above corner is south corner of secs. 34 and 35, T. 1 N., R. 5 W.)	40 01 06.1	90 57 09.3	2,630
T. 1 S., R. 5 W., quarter corner on north side of sec. 3; T road south, 140 feet west of above is south corner of sec. 34, T. 1 N., R. 5 W.	40 01 06.4	90 57 44.3	2,720
T. 1 S., R. 5 W., north corner of secs. 3 and 4; center of east and west road at fence south (210 feet west is south corner of secs. 33 and 34, R. 5 W., center east and west road at hedge north)	40 01 06.6	90 58 17.9	2,620
T. 1 N., R. 5 W., south corner of secs. 32 and 33; T road north.	40 01 07.0	90 59 30.8	5,665

Along highways through center of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
	° ' "	° ' "	Feet.
T. 1 N., R. 5 W., quarter corner between secs. 20 and 29; T road north.	40 08 07.7	90 59 55.1	-----
T. 1 N., R. 5 W., corner of secs. 20, 21, 28, and 29, hedge line north; T road south.	40 08 07.0	90 59 20.8	2,660
T. 1 N., R. 5 W., quarter corner between secs. 21 and 28, fence south; T road north.	40 08 06.3	90 58 46.6	2,660
T. 1 N., R. 5 W., corner of secs. 21, 22, 27, and 28; T road north.	40 08 05.7	90 58 12.3	2,661
T. 1 N., R. 5 W., quarter corner between secs. 22 and 27; T road south.	40 08 05.0	90 57 38.0	2,670
T. 1 N., R. 5 W., corner of secs. 22, 23, 26, and 27; center of east-west road at fence line south.	40 08 04.3	90 57 03.3	2,690
T. 1 N., R. 5 W., quarter corner between secs. 23 and 25; center of crossroads.	40 08 03.4	90 56 28.8	2,680
T. 1 N., R. 5 W., corner of secs. 23, 24, 25, and 26, at hedge line south; T road north.	40 08 02.9	90 55 54.3	2,680
T. 1 N., Rs. 4 and 5 W., east corner of secs. 24 and 25, in line with roads north and west (west corner of secs. 19 and 30 in T. 1 N., R. 4 W., not determined; road north on Adams-Schuyler county line).	40 08 01.8	90 54 46.5	5,270
T. 1 N., R. 4 W., quarter corner between secs. 19 and 30; T road south.	40 08 00.9	90 54 14.0	2,526
T. 1 N., R. 4 W., 20 feet south and 20 feet east of center of crossroads, at quarter corner between secs. 20 and 29, 5 feet east of corner fence post; iron post stamped "Prim. Trav. Sta. No. 18, 1914, Illinois"	40 08 01.4	90 52 52.1	6,356
T. 1 N., R. 4 W., quarter corner between secs. 20 and 21; crossroads.	40 08 28.2	90 52 17.5	3,818
T. 1 N., R. 4 W., center of sec. 21; T road north.	40 08 28.4	90 51 42.8	2,690
T. 1 N., R. 4 W., quarter corner between secs. 21 and 22; T road north.	40 08 28.8	90 51 08.1	2,700
T. 1 N., R. 4 W., center of sec. 22; public crossroads.	40 08 29.0	90 50 34.1	2,640
T. 1 N., R. 4 W., quarter corner between secs. 22 and 23, center of east-west road, fence north, hedge south.	40 08 29.5	90 50 00.1	2,640
T. 1 N., R. 4 W., quarter corner between secs. 23 and 24.	40 08 31.3	90 48 52.4	5,258
T. 1 N., R. 4 W., in SE $\frac{1}{4}$ sec. 24; T road south.	40 08 25.9	90 48 01.2	4,012
T. 1 N., Rs. 3 and 4 W., quarter corner between secs. 19 and 24, near junction of east and west fence line and fence north.	40 08 32.1	90 47 44.1	1,470
T. 1 N., R. 3 W., quarter corner between secs. 19 and 20; center of east-west road at north and south fences.	40 08 30.5	90 46 32.6	5,555

Magnetic declination for north border of quadrangle, 5° 39' E.; for south border, 5° 31' E.; for east border, 5° 28' E.; for west border, 5° 39' E.; for center, 5° 55' E.

BEARDSTOWN QUADRANGLE.

Along highways near west border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
	° ' "	° ' "	Feet.
T. 1 N., R. 1 W., corner of secs. 14, 15, 22, and 23; roads north and west.....	40 03 26.0	90 29 30.7	.....
T road south, near cemetery; center of triangle at.....	40 03 51.8	90 29 30.4	2,615
T. 1 N., R. 1 W., in east part of sec. 10; T road west.....	40 04 47.8	90 29 46.6	5,811
T. 1 N., R. 1 W., corner of secs. 2, 3, 10, and 11; roads south and east.....	40 05 13.2	90 29 29.6	2,885
T. 1 N., R. 1 W., in east part of sec. 3; T road west.....	40 05 39.9	90 29 46.9	3,018
T. 2 N., R. 1 W., corner of secs. 2, 3, 10, and 11; T road west.....	40 10 31.4	90 29 24.7	.....
Tps. 2 and 3 N., quarter corner on north side of sec. 2.....	40 11 21.6	90 28 49.8	5,765
Ray station, 100 feet east of; public road crossing Burlington R. R. at.....	40 12 22.4	90 28 30.1	6,342
T road corners, roads east, west, and north.....	40 12 40.0	90 29 00.4	2,950
T. 3 N., R. 1 W., in E. $\frac{1}{2}$ sec. 22; T road west.....	40 13 31.0	90 29 41.4	6,066
Iron bridge; center of.....	40 13 53.4	90 29 33.8	2,340
T. 3 N., R. 1 W., quarter corner between secs. 11 and 14; center of north and south road.....	40 14 51.0	90 28 46.6	6,885

Magnetic declination for west border of quadrangle, 5° 25' E.

CAMP POINT QUADRANGLE.

Along highways near east border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
	° ' "	° ' "	Feet.
T. 1 S., R. 5 W., quarter corner on north side of sec. 5; T road south.....	40 01 07.3	91 00 02.6	.....
T. 1 N., R. 5 W., south corner of secs. 31 and 32, 25 feet south of T road north at, 2 feet north of fence line; iron post stamped "Prim. Trav. Sta. No. 16, 1914, Illinois".....	40 01 07.3	91 00 40.6	2,956
T. 1 N., R. 5 W., quarter corner between secs. 31 and 32; public crossroads.....	40 01 34.2	91 00 40.0	2,724
T. 1 N., R. 5 W., near corner secs. 29, 30, 31, and 32; Wabash R. R. crossing.....	40 02 00.7	91 00 38.9	2,674
T. 1 N., R. 5 W., quarter corner between secs. 29 and 30; public crossroads.....	40 02 27.2	91 00 38.0	2,600
T. 1 N., R. 5 W., corner of secs. 19, 20, 29, and 30; T road west.....	40 02 53.9	91 00 37.1	2,700
T. 1 N., R. 5 W., corner of secs. 17, 18, 19, and 20; center of north and south road at hedge east and fence west.....	40 03 46.4	91 00 35.2	5,321
T. 1 N., R. 5 W., quarter corner between secs. 17 and 18; public crossroads.....	40 04 12.8	91 00 33.4	2,665
T. 1 N., R. 5 W., corner of secs. 7, 8, 17, and 18; public crossroads at Union Schoolhouse.....	40 04 39.2	91 00 33.5	2,675
T. 1 N., R. 5 W., corner of secs. 5, 6, 7, and 8; T road east.....	40 05 31.7	91 00 31.6	5,320
T. 1 N., R. 5 W., north corner of secs. 5 and 6; granite boulder on north side of east and west road (150 feet west of above corner is south corner of secs. 31 and 32, T. 2 N., R. 5 W., center of east and west road on township line).....	40 06 22.3	91 00 29.8	5,122
T. 2 N., R. 5 W., corner of secs. 29, 30, 31, and 32; crossroads.....	40 07 15.7	91 00 30.6	5,399
Burlington R. R., 100 feet northeast of road crossing; center line of north and south road.....	40 07 46.4	91 00 29.9	3,110
T. 2 N., R. 5 W., 25 feet west by 23 feet south of crossroads at corner of secs. 19, 20, 29, and 30, 4 feet southeast of corner fence post; iron post stamped "Prim. Trav. Sta. No. 17, 1914, Illinois".....	40 08 08.1	91 00 29.7	2,198
T. 2 N., R. 5 W., corner of secs. 17, 18, 19, and 20; center of north and south road in line with center of road west on section line.....	40 09 01.3	91 00 28.3	5,390
T. 2 N., R. 5 W., corner of secs. 5, 6, 7, and 8; public crossroads at schoolhouse.....	40 10 46.7	91 00 26.7	10,661
T. 3 N., R. 5 W., south corner of secs. 31 and 32, stone near center of east and west road, in line with road north, on Adams-Hancock county line (190 feet east of above corner is north corner of secs. 5 and 6, T. 2 N., R. 5 W., granite stone in center of east and west road in line with T road south).....	40 11 39.0	91 00 28.3	5,291
T. 3 N., R. 5 W., corner of secs. 29, 30, 31, and 32, center of north and south road at fence line east and T road west.....	40 12 30.9	91 00 27.4	5,256
T. 3 N., R. 5 W., quarter corner of secs. 29 and 30, hedge line west, T road east.....	40 12 58.2	91 00 26.9	2,770
T. 3 N., R. 5 W., corner of secs. 19, 20, 29, and 30, fence line east, T road west.....	40 13 24.7	91 00 26.4	2,680

CAMP POINT QUADRANGLE—Continued.

Along highway near east border of quadrangle—Continued.

Station.	Latitude.	Longitude.	Distance between stations.
T. 3 N., R. 5 W., quarter corner between secs. 19 and 20; public road crossing.....	° ' " 40 13 51.3	° ' " 91 00 26.0	<i>Feet.</i> 2,690
T. 3 N., R. 5 W., corner of secs. 17, 18, 19, and 20; stone in center of north and south road at fence east and west.....	40 14 17.8	91 00 25.6	2,680
T. 3 N., R. 5 W., quarter corner between secs. 17 and 18, at hedge line east; T road west.....	40 14 44.2	91 00 25.0	2,679
T. 3 N., R. 5 W., 40 feet northeast of stone at corner of secs. 7, 8, 17, and 18, at corner of hedge in northeast corner of T road east; iron post stamped "Prim. Trav. Sta. No. 55, 1910, Illinois".....	40 15 11.0	91 00 24.1	2,713

Along highways near south border of quadrangle.

Tps. 1 N. and 1 S., T.s. 5 and 6 W.; stone in southwest corner of yard.....	40 01 08.0	91 01 50.6	.....
T. 1 S., R. 6 W., quarter corner between secs. 1 and 2; T road east.....	40 00 41.4	91 02 56.9	5,818
T. 1 S., R. 6 W., quarter corner between secs. 2 and 3; T road east. Road forks; center of north and south road at northeast corner of triangle.....	40 00 42.8	91 04 04.8	5,286
McKees Creek, north and south branch of; center of iron truss bridge over.....	40 00 11.1	91 04 23.0	3,510
T. 1 S., R. 6 W., on line between secs. 9 and 10; center of east and west road, fences north and south.....	40 00 08.0	91 04 51.8	2,263
T. 1 S., R. 6 W., in northeast quarter of sec. 9; T road east.....	40 00 05.2	91 05 13.0	1,678
T. 1 S., R. 6 W., 0.25 mile west of corner of secs. 3, 4, 9, and 10, on line between secs. 4 and 9; T road south.....	40 00 04.3	91 05 30.3	1,345
T. 1 S., R. 6 W., corner of secs. 4, 5, 8, and 9, east and west road in line with fence north from back of school yard.....	40 00 17.9	91 05 30.1	1,370
McKees Creek; center of iron bridge over.....	40 00 18.5	91 06 21.6	4,000
T. 1 S., R. 6 W., stone at quarter corner of secs. 6 and 7, roads south and east, fences north and west.....	40 00 31.7	91 07 24.0	5,034
T. 1 S., R. 7 W., corner of secs. 3, 4, 9, and 10; T road west, hedge line east.....	40 00 20.7	91 08 03.8	3,294
T. 1 S., R. 7 W., corner of secs. 4, 5, 8, and 9; T road north, hedge line south.....	40 00 22.1	91 12 15.9	.....
T. 1 S., R. 7 W., quarter corner between secs. 5 and 8; T road south, hedge line north.....	40 00 23.2	91 13 24.5	5,340
T. 1 S., R. 7 W., corner of secs. 5, 6, 7, and 8; center of east and west road at north and south hedge line.....	40 00 23.7	91 13 59.1	2,690
	40 00 24.1	91 14 33.7	2,690

Magnetic declination for east border of quadrangle, 5° 39' E.; for south border, 6° 12' E.

LIBERTY QUADRANGLE.

Along highways near north border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
T. 1 S., Rs. 6 and 7 W., corner of secs. 12, 13, 7, and 18; stone in north and south road.....	° ' " 39 59 28.8	° ' " 91 08 51.9	<i>Feet.</i>
T. 1 S., Rs. 6 and 7 W., about 380 feet south by 825 feet west of corner of secs. 12, 13, 7, and 18, at southwest corner of angle in road; iron post stamped "Prim. Trav. Sta. No. 19, 1914, Illinois".....	39 59 25.0	91 09 02.5	912
T. 1 S., R. 7 W., corner of secs. 11, 12, 13, and 14; center of crossroads.....	39 59 29.2	91 09 59.8	4,478
T. 1 S., R. 7 W., quarter corner between secs. 11 and 14; T road north.....	39 59 29.2	91 10 33.6	2,630
T. 1 S., R. 7 W., corner of secs. 10, 11, 14, and 15; T road south, hedge line north.....	39 59 29.3	91 11 07.4	2,630
T. 1 S., R. 7 W., quarter corner between secs. 10 and 15, 10 feet east to hedge south; T road north.....	39 59 29.2	91 11 41.2	2,630
T. 1 S., R. 7 W., center of sec. 10; crossroads.....	39 59 55.8	91 11 41.6	2,690

Magnetic declination for north border of quadrangle, 6° 12' E.

MENDON QUADRANGLE.

Along highways near southeast corner of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
	° ' "	° ' "	Feet.
Chicago, Burlington & Quincy R. R.; public road crossing.....	40 00 24.5	91 15 18.9	.....
T. 1 S., Rs. 7 and 8 N., 35 feet south by 15 feet west of T road south at, 150 feet north of railroad crossing west of Fowler, 8 feet south of corner fence post; iron post stamped "Prim. Trav. Sta. No. 20, 1914, Illinois".....	40 00 24.6	91 15 46.4	2,142
T. 1 S., R. 8 W., on line between secs. 11 and 12; north and south road crossing.....	40 00 05.5	91 16 54.1	5,606

Magnetic declination near southeast corner of quadrangle, 6° 24' E.

MEREDOSIA QUADRANGLE.

Along highways near north border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
	° ' "	° ' "	Feet.
La Grange triangulation station, situated at apex of an Indian mound, at the top of river bluff, 1 mile south of La Grange Landing, 600 feet southwest of dwelling house owned by John Prudence, 2,004 feet north by 258 feet east of southwest corner of sec. 32, T. 1 S., R. 1 W., established in March, 1903; station mark stone and pipe.....	39 55 54.754	90 32 51.572	.....
La Grange, 60 feet south of gate to yard in front of residence; crossroads.....	39 56 49.4	90 32 12.5	6,317
T road north.....	39 58 10.2	90 32 42.3	8,498
T road corners; roads east, west, and north.....	39 58 36.4	90 33 55.3	6,269
Crooked Creek; center of iron truss bridge over.....	39 58 48.1	90 34 55.7	4,850
T. 1 S., R. 2 W., on line between secs. 12 and 13; crossroads.....	39 59 07.6	90 34 55.5	1,974
Crossroads.....	39 59 33.5	90 34 55.2	2,620
T. 1 S., R. 2 W., center of sec. 12; T road south.....	39 59 34.1	90 34 37.5	1,383
T. 1 S., Rs. 1 and 2 W.; center of east and west road, at lane north to house.....	39 59 35.2	90 34 02.3	2,744
T. 1 S., R. 1 W., quarter corner between secs. 7 and 8, in line with road north; center of east and west road.....	39 59 35.3	90 32 53.6	5,350
T. 1 S., R. 1 W., quarter corner between secs. 8 and 9; T road south.....	39 59 34.9	90 31 45.6	5,290
Green Creek; center of iron bridge over.....	39 59 36.0	90 31 12.2	2,604
T. 1 S., R. 3 W., on line between secs. 15 and 16; center of east and west road at T road south.....	39 58 53.9	90 44 25.1	.....
T. 1 S., R. 3 W., in northeast corner of sec. 15; public crossroads.....	39 59 02.3	90 43 32.6	4,089
T. 1 S., R. 3 W., on line between secs. 13 and 14; road crossing.....	39 59 01.0	90 42 03.3	6,957
T. 1 S., Rs. 2 and 3 W.; center of east and west road at road south.....	39 58 59.9	90 40 37.4	6,678
T. 1 S., R. 2 W., in northwest quarter of sec. 17; center of small iron bridge.....	39 58 56.3	90 39 42.7	4,277
T. 1 S., R. 2 W., at quarter corner between secs. 16 and 17; crossroads.....	39 58 42.7	90 38 39.9	5,077
T. 1 S., R. 2 W., near center of sec. 16, about 15 feet south of east and west road, in line with road north and fence line south, on bank 3 feet above road, 35 feet southwest of elm tree, in triangle between roads; iron post stamped "Prim. Trav. Sta. No. 9, 1914, Illinois".....	39 58 41.9	90 38 04.7	2,736
T road south.....	39 58 41.8	90 37 47.0	1,369
T. 1 S., R. 2 W., in sec. 15; center of small iron bridge.....	39 58 30.3	90 37 04.5	3,513
T. 1 S., R. 2 W., quarter corner between secs. 15 and 22; center of north and south road.....	39 58 15.3	90 36 55.3	1,681
T. 1 S., R. 2 W., over small branch of Crooked Creek; center of small wooden bridge.....	39 58 38.3	90 35 22.0	7,621

Magnetic declination for north border of quadrangle, 5° 27' E.

MOUNT STERLING QUADRANGLE.

Along highways near north border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
T. 1 S., R. 3 W., about 0.25 mile north of quarter corner between secs. 8 and 17, 820 feet north of street in Mount Sterling, on Mount Sterling-Camden road, 35 feet west of center of north and south road, 2 feet east of wire fence on bank opposite frame cottage on east side of road; iron post stamped "Prim. Trav. Sta. No. 14, 1914, Illinois".....	° ' " 39 59 29.1 39 59 15.6	° ' " 90 46 07.2 90 46 24.0	Feet. 1,889
Mount Sterling, on west side of, on Quincy road; crossroads.....			
T. 1 S., R. 3 W., corner of secs. 7, 8, 17, and 18; center of east and west road at north and south fences.....	39 59 15.7	90 46 40.7	1,300
Wabash R. R.; public road crossing.....	39 59 15.8	90 46 55.5	1,150
T. 1 S., R. 3 W., west corner of secs. 7 and 18 (40 feet north of above corner is east corner of secs. 12 and 13, T. 1 S., R. 4 W., crossroads north and south).....	39 59 16.2	90 47 48.4	4,120
T. 1 S., R. 4 W., center of sec. 12; T road forks.....	39 59 43.5	90 48 24.1	3,918
T. 1 S., R. 4 W., center of sec. 11; public crossroads at schoolhouse.....	39 59 44.1	90 49 32.6	5,330
T. 1 S., R. 4 W., center of sec. 10; T road north.....	39 59 43.8	90 50 41.6	5,370
T. 1 S., R. 4 W., at quarter corner between secs. 8 and 9; T road east.....	39 59 44.4	90 52 24.9	8,039

Magnetic declination for north border of quadrangle, 5° 31' E.

QUINCY QUADRANGLE.

Along Chicago, Burlington & Quincy R. R. in northern part of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
T. 1 S., R. 8 W., on line between secs. 11 and 14; crossing of east and west road.....	° ' " 39 59 35.1	° ' " 91 17 49.0	Feet.
T. 1 S., R. 8 W., crossing of north and south road between secs. 14 and 15.....	39 59 25.5	91 18 02.6	1,436
Eubanks siding; center of railroad track opposite switch stand at east end of.....	39 58 59.8	91 18 39.2	3,855
T. 1 S., R. 8 W., corner of secs. 15, 16, 21, and 22; T road north.....	39 58 42.5	91 19 10.8	3,014
Eubanks, west end of siding near; center of tracks opposite switch stand.....	39 58 14.8	91 19 36.8	3,460
T. 1 S., R. 8 W., corner of secs. 19, 20, 29, and 30; T road north.....	39 57 52.1	91 21 23.2	8,972
T. 1 S., R. 8 W., center of sec. 30; east and west road crossing.....	39 57 26.4	91 22 03.1	3,770
T. 1 S., Rs. 8 and 9 W., on line between secs. 25 and 30; north and south road crossing.....	39 57 20.4	91 22 38.6	2,824
Quincy; center of intersection of North Seventh Street and Elm Street.....	39 56 26.5	91 24 16.7	9,386
Quincy; center of tower on courthouse.....	39 56 06.57	91 24 26.77	2,166

Magnetic declination near Quincy, 6° 32' E.

RUSHVILLE QUADRANGLE.

Along highways near east border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
Tps. 1 N. and 1 S., R. 1 W., near quarter corner of secs. 3 and 34, 66 feet east of north and south road on west side of levee, on top of levee, in line with road west, on township line; iron post stamped "Prim. Trav. Sta. No. 10, 1914, Illinois".....	° ' " 40 00 40.2 40 01 14.0 40 01 42.7	° ' " 90 30 05.0 90 30 08.7 90 30 08.8	Feet. 3,436 2,907
T road corners, roads north, south, and west.....			
Drainage canal; center pier of double span truss bridge.....	40 01 42.7	90 30 08.8	2,907
T. 1 N., R. 1 W., quarter corner between secs. 22 and 27; a stone 390 feet north of crossroads, 20 feet east of road.....	40 02 32.7	90 30 05.2	5,072
T road corners, roads east, west, and north.....	40 02 58.0	90 30 14.6	2,662
T. 1 N., R. 1 W., stone at quarter corner between secs. 3 and 34; road east on township line, road north 25 feet west of stone.....	40 06 06.7	90 30 01.2	2,931

RUSHVILLE QUADRANGLE—Continued.

Along highways near east border of quadrangle—Continued.

Station.	Latitude.	Longitude.	Distance between stations.
T. 2 N., R. 1 W., quarter corner between secs. 27 and 34; center of north and south road at fence west.....	° ' " 40 06 59.8	° ' " 90 30 00.6	<i>Feet.</i> 5,371
T. 2 N., R. 1 W., near center of sec. 27, 40 feet south of center of east and west road, 20 feet east of road south, about in line with road north, 10 feet south of corner fence post; iron post stamped "Prim. Trav. Sta. No. 11, 1914, Illinois".....	40 07 25.8	90 30 00.3	2,632
T. 2 N., R. 1 W., quarter corner between secs. 22 and 27; T road south.....	40 07 52.6	90 30 00.0	2,710
T. 2 N., R. 1 W., quarter corner between secs. 21 and 22; roads east and north.....	40 03 19.4	90 30 33.9	3,779
T. 2 N., R. 1 W., corner of secs. 15, 16, 21, and 22; T road west....	40 08 46.0	90 30 33.8	2,695
T. 2 N., R. 1 W., quarter corner between secs. 15 and 16; crossroads.	40 09 12.4	90 30 33.7	2,680
T. 2 N., R. 1 W., on line between secs. 9 and 10; T road west....	40 03 51.7	90 30 33.4	3,970

Along highways through center of quadrangle.

T. 2 N., R. 1 W., center of sec. 28; crossroads.....	40 07 26.6	90 31 08.6	.....
T. 2 N., R. 1 W., quarter corner between secs. 28 and 29.....	40 07 26.8	90 31 42.5	2,630
Iron bridge; center of.....	40 07 23.1	90 32 07.3	1,955
Rushville, street intersection; Presbyterian Church on southwest corner.....	40 07 26.1	90 33 43.8	7,501
Rushville station, 600 feet north of; road north.....	40 07 33.7	90 34 08.6	2,073
T road west.....	40 08 00.9	90 34 42.6	3,814
T. 2 N., R. 2 W., corner of secs. 13, 14, 23, and 24; T road south.....	40 08 47.5	90 35 07.3	5,089
T. 2 N., R. 2 W., quarter corner between secs. 14 and 23; crossroads.	40 08 47.5	90 35 41.8	2,680
T. 2 N., R. 2 W., quarter corner between secs. 15 and 22; T road south.....	40 08 48.0	90 36 49.5	5,325
T. 2 N., R. 2 W., 35 feet east and 30 feet south of crossroads at corner of secs. 15, 16, 21, and 22, 2 feet north of fence line; iron post stamped "Prim. Trav. Sta. No. 12, 1914, Illinois".....	40 08 48.0	90 37 23.7	2,580
T. 2 N., R. 2 W., on line between secs. 20 and 21; T road south.....	40 08 39.2	90 38 32.2	5,383
T. 2 N., R. 2 W., in sec. 20; T road east.....	40 08 33.1	90 39 06.6	2,744
T. 2 N., R. 2 W.; T road north.....	40 08 13.6	90 41 22.9	10,765
Crooked Creek; center of iron truss bridge over.....	40 08 03.8	90 41 53.2	2,546
T. 2 N., R. 3 W., stone at quarter corner between secs. 23 and 26; roads south and west.....	40 08 00.7	90 42 32.5	3,070
T. 2 N., R. 3 W., stone at corner of secs. 22, 23, 26, and 27; T road east.....	40 08 01.2	90 43 07.2	2,694
Mabel store; T road west at.....	40 08 23.2	90 43 40.5	3,407
Mabel store, about 0.4 mile west of; T road south.....	40 08 27.2	90 44 06.1	2,024
Mabel store, about 0.7 mile west of; T road north.....	40 08 28.2	90 44 26.3	1,567

Magnetic declination for north border of quadrangle, 5° 37' E.; for south border, 5° 27' E.; for east border, 5° 25' E.; for west border, 5° 28' E.; for center, 5° 34' E.

VERMONT QUADRANGLE.

On highway near southwest corner of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
T. 3 N., R. 1 W., in center of sec. 11; crossroads.....	° ' " 40 15 17.5	° ' " 90 28 46.0	<i>Feet.</i>
T. 3 N., R. 1 W., quarter corner between secs. 10 and 11, 95 feet north and 18 feet east of, on east side of north-south road; iron post stamped "Prim. Trav. Sta. No. 48, Ill., 1911".....	40 15 19.4	90 29 22.2	2,812

Good Hope, La Harpe, Lomax, Monmouth, and Oquawka quadrangles.

HANCOCK, HENDERSON, McDONOUGH, AND WARREN COUNTIES.

The following geographic positions upon North American datum were determined by E. L. McNair in 1914. They are based on positions given in Bulletins 496 and 551.

GOOD HOPE QUADRANGLE.

Along highways through center of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
T. 7 N., R. 1 W., 30 feet north and 30 feet west of center of crossroads, at corner secs. 3, 4, 9, and 10, in corner of schoolhouse yard, 6 feet north of corner fence post; iron post stamped "Prim. Trav. Sta. No. 16, 1912"	° ' "	° ' "	Feet.
T. 7 N., R. 1 W., corner secs. 4, 5, 8, and 9; center of crossroads.....	40 36 54.4	90 30 13.0	.....
T. 7 N., R. 1 W., at center of T road south; north corner secs. 4 and 5 (85 feet west to south corner secs. 32 and 33, T. 8 N., R. 1 W., T road north).....	40 36 55.9	90 31 21.0	5,247
T. 7 N., R. 1 W., north corner secs. 5 and 6; at T road south (110 feet west is south corner secs. 31 and 32, T. 8 N., R. 1 W., at hedge north).....	40 37 47.1	90 31 20.3	5,180
Tps. 7 and 8 N., Rs. 1 and 2 W., corner secs. 1, 6, 31, and 36; crossroads on Warren-McDonough county line.....	40 37 48.6	90 32 28.9	5,289
T. 7 N., R. 2 W., north corner secs. 1 and 2, at T road south, 170 feet east of south corner secs. 35 and 36, T. 8 N., R. 2 W.....	40 37 50.2	90 33 35.9	5,170
T. 8 N., R. 2 W., south corner secs. 34 and 35, on Warren-McDonough county line, at north-south fence; center of east-west road.....	40 37 51.2	90 34 42.9	5,170
T. 7 N., R. 2 W., north corner secs. 3 and 4; at T road south (200 feet west to south corner secs. 33 and 34, T. 8 N., R. 2 W., T road north).....	40 37 51.9	90 35 54.9	5,551
T. 8 N., R. 2 W., 15 feet north and 35 feet west of T road corners, apparently at south corner secs. 32 and 33, 15 feet west of corner fence post and 2 feet south of fence line; iron post stamped "Prim. Trav. Sta. No. 1, 1914, Ill.".....	40 37 52.5	90 37 02.0	5,171
T. 7 N., R. 2 W., at apparent north corner secs. 5 and 6; stone at T road south.....	40 37 53.4	90 38 14.8	5,620
T. 7 N., Rs. 2 and 3 W., north corner secs. 1 and 6; T road south (70 feet west of this point is T road north, at south corner secs. 31 and 36, T. 8 N., Rs. 2 and 3 W.).....	40 37 53.6	90 39 20.6	5,070
T. 7 N., R. 3 W., at north corner secs. 1 and 2; T road south (240 feet west of this point is south corner secs. 35 and 36, T. 8 N., R. 3 W., T road north).....	40 37 53.9	90 40 22.4	4,760
T. 7 N., R. 3 W., north corner secs. 2 and 3; T road south (140 feet west is south corner secs. 34 and 35, T. 8 N., R. 3 W., at T road north).....	40 37 56.3	90 41 31.5	5,334
T. 8 N., R. 3 W., at T road north, south corner secs. 33 and 34.....	40 37 58.5	90 42 41.0	5,365
	40 38 00.8	90 43 53.8	5,620

Along highways near north border of quadrangle.

T. 9 N., Rs. 2 and 3 W., corner secs. 19, 30, 24, and 25; T road corners east-west-north.....	40 44 43.2	90 33 29.2	.....
T. 9 N., R. 2 W., approximately corner secs. 23, 24, 25, and 26, is 50 feet south of road and in line with hedge north.....	40 44 44.9	90 34 38.7	5,350
T. 9 N., R. 2 W., quarter corner secs. 23 and 26; crossroads.....	40 44 45.6	90 35 13.3	2,669
T. 9 N., R. 2 W., corner secs. 22, 23, 26, and 27; at north-south hedge row.....	40 44 46.2	90 35 47.9	2,664
T. 9 N., R. 2 W., corner secs. 21, 22, 27, and 28; T road east.....	40 44 47.8	90 36 56.4	5,268

Along highways near west border of quadrangle.

T. 6 N., R. 3 W., near middle sec. 4; T road south.....	40 32 16.7	90 44 34.6	.....
T road corners east-west-north.....	40 31 22.3	90 44 17.2	5,663
T road corners east-west-south.....	40 31 23.2	90 44 48.3	2,400
T. 6 N., R. 3 W., approximately quarter corner secs. 9 and 16; T road south.....	40 30 56.0	90 44 36.6	2,892
T. 6 N., R. 3 W., 30 feet north by 15 feet east of quarter corner between secs. 16 and 21, 35 feet northeast of intersection of crossroads, inside front yard; iron post stamped "Prim. Trav. Sta. No. 47, 1910, Illinois".....	40 30 02.67	90 44 32.21	5,398

Magnetic declination for north border of quadrangle, 5° 33' E.; for south border, 5° 36' E.; for east border, 5° 34' E.; for west border, 5° 40' E.; for center, 5° 44' E.

LA HARPE QUADRANGLE.

Along highways near north border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
	° ' "	° ' "	Feet.
T. 9 N., R. 4 W., quarter corner secs. 26 and 27; crossroads.....	40 44 29.4	90 49 37.6	.....
T. 9 N., R. 4 W., corner secs. 21, 22, 27, and 28; T road west.....	40 44 55.8	90 50 46.5	5,946
T. 9 N., R. 4 W., corner secs. 20, 21, 28, and 29; crossroads.....	40 44 56.9	90 51 55.4	5,300
T. 9 N., R. 4 W., 3,069 feet west of corner secs. 20, 21, 28, and 29, 400 feet east of farmhouse on south side of road, 20 feet north of center of road, close to hedge fence; iron post stamped "Prim. Trav. Sta. No. 5, 1914, Illinois".....	40 44 57.0	90 52 35.2	3,069
T. 9 N., R. 4 W., corner secs. 19, 20, 29, and 30; T road south.....	40 44 56.7	90 53 04.7	2,269
T. 9 N., R. 5 W., east corner secs. 24 and 25, 900 feet from Strong-hurst station, 330 feet south of public road crossing Santa Fe Ry.; T road west.....	40 44 57.4	90 54 13.5	5,292
Crossroads.....	40 44 57.3	90 54 48.3	2,675
T. 9 N., R. 5 W., near corner secs. 23, 24, 25, and 26; small bridge over stream.....	40 44 57.3	90 55 21.9	2,590
T. 9 N., R. 5 W., corner secs. 22, 23, 26, and 27; private lane south and T road north.....	40 44 57.9	90 56 32.0	5,390
T. 9 N., R. 5 W., quarter corner between secs. 22 and 27; T road south.....	40 44 58.0	90 57 06.1	2,625
T. 9 N., R. 5 W., corner secs. 21, 22, 27, and 28; crossroads.....	40 44 58.0	90 57 39.9	2,605
T. 9 N., R. 5 W., corner secs. 20, 21, 28, and 29; crossroads.....	40 44 58.8	90 58 49.2	5,330
T. 9 N., R. 5 W., corner secs. 19, 20, 29, and 30; center of east-west road at hedge fence north-south.....	40 44 59.2	90 59 57.9	5,285
T. 9 N., R. 5 W., about 0.25 mile east of corner secs. 29, 30, 31, and 32; center of east-west road at T road south.....	40 44 06.9	90 59 40.4	.....
Tps. 8 and 9 N., at right angle turn in road, west of T road north, near quarter corner on south side sec. 32.....	40 43 14.4	90 59 24.6	5,448

Along highways near west border of quadrangle.

T. 8 N., R. 5 W., quarter corner between secs. 5 and 8; center of north-south road.....	40 42 38.1	90 59 25.9	.....
T road forks, north-south-west.....	40 42 11.2	90 59 26.0	2,720
T. 8 N., R. 5 W., apparent quarter corner between secs. 8 and 17; turn in road north and east.....	40 41 44.8	90 59 26.2	2,677
T. 8 N., R. 5 W., corner secs. 16, 17, 20, and 21; road crossing.....	40 40 52.7	90 58 51.1	5,919
T. 8 N., R. 5 W., corner secs. 20, 21, 28, and 29; public road crossing at Terre Haute.....	40 39 58.8	90 58 51.7	5,460

Along highways near east border of quadrangle.

T. 9 N., R. 4 W., quarter corner between secs. 20 and 29, at center of north-south road, lane west, fence east.....	40 44 53.4	90 45 35.2	.....
T. 9 N., R. 4 W., quarter corner between secs. 29 and 32, at public crossroads.....	40 44 01.3	90 45 36.2	5,271
T. 8 N., R. 4 W., quarter corner north side sec. 5; T road south (east-west road is on line between Tps. 8 and 9 N.).....	40 43 08.8	90 45 33.6	5,308
T. 8 N., R. 4 W., quarter corner between secs. 5 and 8; public crossroads.....	40 42 26.8	90 45 34.1	4,250
T. 8 N., R. 4 W., quarter corner between secs. 8 and 17; T road north.....	40 41 34.4	90 45 35.2	5,290
T. 8 N., R. 4 W., corner secs. 16, 17, 20, and 21; T road south.....	40 40 41.0	90 45 00.3	6,036
T. 8 N., R. 4 W., corner secs. 20, 21, 28, and 29, 50 feet south of T road east; small stone in center of north-south road at T road west.....	40 39 48.2	90 45 00.7	5,335
T. 8 N., R. 4 W., corner secs. 28, 29, 32, and 33; road crossing.....	40 38 55.3	90 45 01.5	5,345
T. 7 N., R. 3 W., at north corner secs. 4 and 5, and 50 feet east of corner secs. 32 and 33, at north side of road east and in line with road south; iron post stamped "Prim. Trav. Sta. No. 2, 1914, Ill.".....	40 38 03.7	90 45 01.8	5,214
T. 7 N., R. 3 W., corner secs. 4, 5, 8, and 9; crossroads.....	40 37 04.6	90 45 03.3	5,991
T. 7 N., R. 3 W., corner secs. 8, 9, 16, and 17; crossroads.....	40 36 12.0	90 45 04.6	5,320
T. 7 N., R. 3 W., corner secs. 16, 17, 20, and 21; crossroads.....	40 35 19.5	90 45 05.5	5,311
T. 7 N., R. 3 W., corner secs. 20, 21, 28, and 29; crossroads.....	40 34 26.8	90 45 05.7	5,330
T. 7 N., R. 3 W., corner secs. 28, 29, 32, and 33; crossing of Toledo, Peoria & Western Ry. at Scioto.....	40 33 33.9	90 45 06.1	5,356
T. 7 N., R. 3 W., quarter corner between secs. 32 and 33; crossroads.....	40 33 07.5	90 45 06.4	2,670
T. 7 N., R. 3 W., south corner secs. 32 and 33; stone in wire-fence line.....	40 32 41.2	90 45 07.2	2,659

LA HARPE QUADRANGLE—Continued.

Along highways through center of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
T. 7 N., R. 5 W., T road south at north corner secs. 4 and 5, stone on north side east-west road, and 190 feet west of south corner secs. 32 and 33, T. 8 N., R. 5 W.; stone at road north.....	° ' " 40 38 11.4	° ' " 90 58 55.2	Feet. 5,363
T. 7 N., R. 5 W., north corner secs. 3 and 4; T road south.....	40 38 14.0	90 57 45.7	
T. 7 N., R. 5 W., north corner secs. 2 and 3, center of east-west road at hedge line south, and 250 feet west of T road north, on south side secs. 34 and 35, T. 8 N., R. 5 W.....	40 38 15.5	90 56 36.2	5,353
T. 7 N., R. 5 W., north corner secs. 1 and 2; T road south, 130 feet west of T road north, at south corner secs. 35 and 36, T. 8 N., R. 5 W.....	40 38 15.9	90 55 25.3	5,465
Tps. 7 and 8 N., Rs. 4 and 5 W., corner Henderson, Hancock, and McDonough counties, at T road south.....	40 38 21.4	90 54 14.8	5,466
Tps. 7 and 8 N., R. 4 W., 25 feet north of T road south, at north corner secs. 5 and 6, 3 feet from hedge fence, 250 feet east of road north; iron post stamped "Prim. Trav. Sta. No. 8, 1914, Illinois".....	40 38 19.0	90 53 04.9	5,392
T. 7 N., R. 4 W., T road south at north corner secs. 4 and 5, is 100 feet west of T road north at south corner secs. 32 and 33, T. 8 N., R. 4 W.; stone in center of east-west road.....	40 38 16.7	90 51 57.2	5,224
T. 8 N., R. 4 W., south corner secs. 33 and 34; T road north (30 feet east of this point is T road south at north corner secs. 3 and 4, T. 7 N., R. 4 W.).....	40 38 15.0	90 50 48.8	5,274
Tps. 7 and 8 N., R. 4 W., apparent quarter corner secs. 3 and 34; crossroads.....	40 38 14.1	90 50 14.2	2,673
Tps. 7 and 8 N., R. 4 W., approximately corner secs. 2, 3, 34, and 35; crossroads.....	40 38 13.6	90 49 39.0	2,706
Tps. 7 and 8 N., R. 4 W., apparent corner secs. 1, 2, 35, and 36; crossroads.....	40 38 11.3	90 48 30.6	5,279
Tps. 7 and 8 N., Rs. 3 and 4 W., corner of Henderson, McDonough, and Warren counties.....	40 38 08.9	90 47 22.4	5,260
T. 8 N., R. 3 W., south corner secs. 31 and 32; T road north (165 feet west of this point is T road south at north corner secs. 5 and 6, T. 7 N., R. 3 W.).....	40 38 06.3	90 46 12.0	5,435

Magnetic declination for north border of quadrangle, 4° 49' E.; for south border, 5° 29' E.; for east border, 5° 40' E.; for west border, 5° 40' E.; for center, 5° 33' E.

LOMAX QUADRANGLE.

Along highways near north border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
T. 9 N., R. 5 W., quarter corner secs. 19 and 30, at right angle in road.....	° ' " 40 44 59.1	° ' " 91 00 32.2	Feet. 2,636
T. 9 N., R. 5 W., about 0.5 mile south of quarter corner secs. 19 and 30, 25 feet north of center of east-west road, 95 feet south of small iron bridge; iron post stamped "Prim. Trav. Sta. No. 6, 1914, Illinois".....	40 44 33.0	91 00 32.0	
Carman triangulation station, Mississippi River Commission.....	40 43 31.34	91 01 01.93	

Along highways near east border of quadrangle.

T. 8 N., R. 5 W., near corner secs. 19, 20, 29, 30, center of road west, at north-south hedge on section line; road east is about 50 feet north of above.....	40 39 57.2	91 00 02.6	
T. 8 N., R. 5 W., quarter corner between secs. 19 and 30; T road south.....	40 39 57.4	91 00 37.6	2,698
Dugout Creek; center of iron truss bridge over.....	40 39 13.8	91 00 37.7	4,410
T. 8 N., R. 5 W., near quarter corner secs. 30 and 31, at top of hill; T road forks.....	40 38 59.4	91 00 37.9	1,450
T. 8 N., Rs. 5 and 6 W., on line between secs. 31 and 36; T road south.....	40 38 58.7	91 01 19.8	3,234
Tps. 7 and 8 N., Rs. 5 and 6 W., 20 feet south and 25 feet east of crossroads, near corner fence post; iron post stamped "Prim. Trav. Sta. No. 7, 1914, Illinois".....	40 38 05.8	91 01 19.4	5,355
T. 7 N., R. 5 W., north corner secs. 5 and 6; stone in east-west road at hedge south (75 feet east is fence line north).....	40 38 09.2	91 00 04.4	5,791
Disco, north side of; railroad crossing.....	40 37 18.4	91 01 19.4	
Disco, at intersection of main public crossroads, corner secs. 1, 6, 7, and 12, T. 7 N., Rs. 5 and 6 W.....	40 37 13.1	91 01 19.2	535

LOMAX QUADRANGLE—Continued.

Along highways near east border of quadrangle—Continued.

Station.	Latitude.	Longitude.	Distance between stations.
T. 7 N., R. 6 W., east corner secs. 12 and 13; T road west (60 feet south of this point is west corner secs. 7 and 18, at road east)....	40 36 20.1	91 01 19.3	<i>Feet.</i> 5,360
T. 7 N., R. 6 W., east corner secs. 13 and 24; fence line west (70 feet south of this point is west corner secs. 18 and 19, T. 7 N., R. 5 W., fence line east).....	50 35 27.2	91 01 19.9	5,350
Center of east-west road, at T road north.....	40 34 49.4	91 01 20.1	3,830
T road forks east-west-north, center of.....	40 34 08.1	91 01 01.0	4,425
T. 7 N., R. 5 and 6 W., quarter corner secs. 25 and 30; T road east (road north only goes about 300 feet to house).....	40 34 07.6	91 01 20.1	1,480
T. 7 N., Rs. 5 and 6 W., corner secs. 25, 30, 31, and 36; T road west.	40 33 40.9	91 01 20.3	2,710
Tps. 6 and 7 N., Rs. 5 and 6 W.; T road forks east-west-north....	40 32 47.4	91 01 20.6	5,411
T road forks east-west-south.....	40 32 48.2	91 01 01.0	1,510
La Crosse station, at center of Toledo, Peoria & Western R. R. tracks.....	40 31 41.6	91 01 22.5	6,937
T. 6 N., Rs. 5 and 6 W., corner secs. 7, 12, 13, and 18; T road west.	40 31 01.5	91 01 23.3	4,060
T. 6 N., Rs. 5 and 6 W., 30 feet northwest of quarter corner between secs. 13 and 18, northwest corner of crossroads, at corner of front yard; iron post stamped "Prim. Trav. Sta. No. 49, 1910, Illinois".....	40 30 35.70	91 01 23.90	2,613

Magnetic declination for north border of quadrangle, 4° 35' E.; for east border, 5° 40' E.

MONMOUTH QUADRANGLE.

Along highways near south border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
T. 9 N., R. 1 W., corner secs. 16, 17, 20, and 21, at right angle in road.	40 45 36.4	90 31 13.3	<i>Feet.</i>
Iron bridge over creek, center of.....	40 45 28.5	90 31 40.5	2,243
T road corners, roads north-south-east.....	40 45 22.8	90 33 28.4	8,322
T. 9 N., R. 2 W., 30 feet north and 25 feet east of crossroads at corner secs. 15, 16, 21, and 22, near schoolhouse; iron post stamped "Prim. Trav. Sta. No. 3, 1914, Illinois".....	40 45 40.5	90 36 55.0	.....
T. 9 N., R. 2 W., corner secs. 16, 17, 20, and 21; crossroads.....	40 45 41.0	90 38 04.1	5,320
T. 9 N., R. 2 W., corner secs. 17, 18, 19, and 20, hedge row north-south, lane southwest to house.....	40 45 41.0	90 39 13.8	5,360
T. 9 N., R. 2 W., quarter corner secs. 18 and 19; crossroads.....	40 45 41.6	90 39 47.8	2,620
T. 9 N., Rs. 2 and 3 W., corner secs. 18, 19, 13, and 24, hedge row north-south, center of east-west road.....	40 45 42.3	90 40 24.4	2,819
T. 9 N., R. 3 W., corner secs. 13, 14, 23, and 24; road crossing.....	40 45 43.3	90 41 33.2	5,291
T. 9 N., R. 3 W., corner secs. 14, 15, 22, and 23; road crossing.....	40 45 44.9	90 42 42.1	5,310*
T. 9 N., R. 3 W., quarter corner secs. 15 and 22; road crossing.....	40 45 45.1	90 43 16.6	2,650
T. 9 N., R. 3 W., corner secs. 15, 16, 21, and 22, road crossing.....	40 45 45.2	90 43 51.2	2,660

Magnetic declination for south border of quadrangle, 5° 33' E

OQUAWKA QUADRANGLE.

Along highways near south border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
T. 9 N., R. 3 W., corner secs. 16, 17, 20, and 21; T road south.....	40 45 45.6	90 45 00.0	<i>Feet.</i>
T. 9 N., R. 3 W., quarter corner secs. 17 and 20, 40 feet east and 30 feet south of crossroads; iron post stamped "Prim. Trav. Sta. No. 4, 1914, Illinois".....	40 45 45.9	90 45 34.2	2,627
T. 9 N., R. 3 W., corner secs. 17, 18, 19, and 20; road crossing.....	40 45 46.4	90 46 09.1	2,690
T. 9 N., R. 3 W., quarter corner secs. 18 and 19; center road crossing.....	40 45 46.8	90 46 44.1	2,690
T. 9 N., R. 3 W., west corner secs. 18 and 19, right angle turn in road, on line between Henderson and Warren counties.....	40 45 46.9	90 47 18.5	2,650
T. 9 N., R. 4 W., quarter corner secs. 23 and 24; T road south.....	40 45 21.8	90 48 28.0	5,917
T. 9 N., R. 4 W., quarter corner secs. 22 and 23; T road south.....	40 45 21.8	90 49 37.3	5,330

Magnetic declination for south border of quadrangle, 4° 49' E.

Birds, Merom, and Vincennes quadrangles.

CRAWFORD AND LAWRENCE COUNTIES.

The following geographic positions on North American datum were determined by primary traverse by C. B. Kendall, in 1913. Beginning with adjusted position at Robinson the line follows public roads via Palestine to Riverton, Ind., and is tied to the United States Coast and Geodetic Survey triangulation station Merom and also to the United States Corps of Engineers bench mark No. 32 at Riverton.

A line was also run which begins at United States Coast and Geodetic Survey astronomic station at Vincennes, follows public roads north to center of Birds quadrangle at Canaan Church, thence west, and is tied to the United States Coast and Geodetic Survey station Honey Creek.

BIRDS QUADRANGLE.

Along public roads.

Station.	Latitude.	Longitude.	Distance between stations.
	° ' "	° ' "	<i>Fect.</i>
T. 4 N., R. 10 W., corner secs. 19, 20, 29, 30, public T road east at, 5 feet west to corner fence, 40 feet northeast to southwest corner of house.....	38 45 44.1	87 33 25.1	.....
T. 4 N., R. 10 W., quarter corner between secs. 19 and 20, public T road north, 15 feet north to center of triangle.....	38 46 11.0	87 33 27.0	2,726
T. 4 N., R. 10 W., corner secs. 17, 18, 19, and 20, public T road west.....	38 46 37.6	87 33 26.3	2,693
T. 4 N., R. 10 W., quarter corner between secs. 17 and 18, second-class T road east, 5 feet east to center of triangle.....	38 47 04.1	87 33 26.0	2,679
T. 4 N., R. 10 W., corner secs. 7, 8, 17, and 18, center of north-south road at east and west fences.....	38 47 30.8	87 33 26.7	2,800
T. 4 N., R. 10 W., quarter corner between secs. 7 and 8, at T road east.....	38 47 57.7	87 33 27.1	2,720
T. 4 N., R. 10 W., corner secs. 5, 6, 7, and 8, at 90° bend in road to west, 890 feet north of public T road east.....	38 48 25.0	87 33 27.6	2,761
T. 4 N., R. 10 W., corner secs. 5, 6, 7, and 8, 3,920 feet west of; public T road north.....	38 48 25.1	87 34 17.2	3,920
T. 4 N., Rs. 10-11 W., stone at west corner secs. 6 and 7; stone is in east-west road 20 feet west of public T road south.....	38 48 25.0	87 34 32.8	1,240
T. 4 N., Rs. 10-11 W., stone at west corner secs. 6 and 7, 4,030 feet north of; Union Schoolhouse, 1.3 miles south of; 3-cornered public T road west, 10 feet west to center of triangle.....	38 49 04.9	87 34 32.8	4,034
Union schoolhouse, 1 mile south of; three-corners public T road east.....	38 49 22.7	87 34 32.8	1,800
Union schoolhouse, 0.5 mile south of; three-corners public T road east, 20 feet to culvert.....	38 49 49.7	87 34 32.5	2,730
Union schoolhouse, public T road west at.....	38 50 12.3	87 34 32.9	2,290
Union schoolhouse, 1 mile north of, T. 5 N., Rs. 10 and 11 W., east corner secs. 24 and 25, on line between Crawford and Lawrence counties, at picket fence west of southeast corner of an oak grove and 1,370 feet north of a public T road west.....	38 51 06.3	87 34 32.4	5,461
NOTE.—260 feet north of the above is T. 5 N., Rs. 10 and 11 W., west corner secs. 19 and 30, and is also line between Crawford and Lawrence counties at wire fence nearly opposite the northeast corner of oak grove.			
Canaan Church, public crossroads, 15 feet southwest to two mail boxes, 15 feet north to box drain.....	38 51 46.7	87 34 32.0	4,090
NOTE.—1,280 feet north of the above is T. 5 N., Rs. 10 and 11 W., east corner secs. 13 and 24, at wire fence west, 200 feet north of this corner is the west corner secs. 18 and 19, at wire fence east.			
Canaan Church, 1 mile west of, public T road north on line between secs. 13 and 14, T. 5 N., R. 11 W.....	38 51 46.6	87 35 39.9	5,370
T. 5 N., R. 11 W., corner secs. 14, 15, 22, and 23, 35 feet north of; in the northwest corner of the Higgins schoolhouse yard, 35 feet east of center of north-south road opposite and in line with center of public T road west; iron post stamped "Prim. Trav. Sta. No. 12, 1913, Illinois".....	38 52 00.0	87 36 48.1	5,560
T. 5 N., R. 11 W., stone corner secs. 15, 16, 21, and 22, public T road south.....	38 52 00.2	87 37 56.1	5,380
T. 5 N., R. 11 W., quarter corner between secs. 16 and 21, 560 feet south of; public T road west.....	38 51 55.0	87 38 30.2	2,750
T. 5 N., R. 11 W., corner secs. 16, 17, 20, and 21, at corner of wire fence, 50 feet northwest of the northwest corner of schoolhouse.....	38 52 00.7	87 39 04.1	2,738

BIRDS QUADRANGLE—Continued.

Along public roads—Continued.

Station.	Latitude.	Longitude.	Distance between stations.
	° ' "	° ' "	Feet.
T. 5 N., R. 11 W., quarter corner between secs. 17 and 20, at public crossroads.....	38 52 00.6	87 39 38.4	2,717
Flat Rock, 2.25 miles south of; east-west public road crossing Big Four R. R., center of track at.....	38 52 00.8	87 40 10.9	2,570
T. 5 N., R. 11 W., west corner secs. 18 and 19, at public T road east, 240 feet north of bridge over Sugar Creek.....	38 52 01.4	87 41 03.9	4,192
NOTE.—270 feet south of the above is T. 5 N., R. 12 W., east corner secs. 13 and 24, corner is in creek about 50 feet east of center of north-south road at T road west, 40 feet south of center of iron bridge over Sugar Creek.			
T. 5 N., R. 12 W., stone corner secs. 13, 14, 23, and 24, at public crossroads.....	38 51 56.9	87 42 11.9	5,405
T. 5 N., R. 12 W., corner secs. 22, 23, 26, and 27; corner is about 10 feet west of oak tree, 15 feet north of a gate and 100 feet west of a 90° bend of road to north.....	38 51 55.3	87 43 18.4	5,263
T. 5 N., R. 12 W., center sec. 15 at public T road west.....	38 52 20.4	87 43 52.9	3,721
T. 5 N., R. 12 W., corner secs. 2, 3, 10, and 11, at fences north and south.....	38 53 41.0	87 43 19.4	8,581
Union Church, 1.2 miles south of, public T road west at tool house. Union Church and schoolhouse, Tps. 5 and 6 N., R. 12 W., quarter corner between secs. 2 and 35, at public T road west.....	38 53 42.0	87 42 46.3	2,620
Honey Creek triangulation station, U. S. Coast and Geodetic Survey.....	38 54 41.4	87 42 46.0	6,013
	38 55 28.78	87 42 36.78	4,849

Magnetic declination for east border of quadrangle, 3° 03' E.; for center, 3° 14' E.; for north border, 3° 07' E.

MEROM QUADRANGLE.

Along public roads on south border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
	° ' "	° ' "	Feet.
Robinson, primary traverse station No. 13, 1907 (Bull. 440).....	39 00 18.2	87 44 21.6	.....
Robinson, Main Street crossing Big Four R. R.; center of main track.....	39 00 21.3	87 43 51.6	2,393
Robinson, 1.2 miles east of, second-class road northeast (may be old Indian grant line); center of main road.....	39 00 21.9	87 43 01.0	3,990
T. 7 N., R. 12 W., quarter corner between secs. 35 and 36; public T road south.....	39 00 28.5	87 42 13.1	3,837
T. 7 N., Rs. 11 and 12 W., quarter corner between secs. 31 and 36; public crossroads.....	39 00 29.2	87 41 05.0	5,379
T. 7 N., R. 11 W., quarter corner between secs. 31 and 32; public T road north, 15 feet north to center of triangle.....	39 00 28.8	87 40 04.3	4,790
T. 7 N., R. 11 W., quarter corner between secs. 32 and 33; center of east-west road at wire fence north at white house.....	39 00 27.7	87 38 57.3	5,290
T. 7 N., R. 11 W., center of sec. 33; public crossroads.....	39 00 27.0	87 38 23.4	2,680
T. 7 N., R. 11 W., quarter corner between secs. 33 and 34; center of east-west road opposite T fence south.....	39 00 26.5	87 37 49.6	2,670
Palestine, 800 feet northwest of pumping station; public T road north, center of east-west road at.....	39 00 28.2	87 37 33.0	1,310
Palestine, at northwest corner of, 600 feet east of pumping station, Illinois Central R. R. crossing north-south public road, south rail at (270 feet north and 30 feet east of the above is T. 7 N., R. 11 W., center of sec. 34).....	39 00 23.2	87 37 16.6	1,326
Palestine, in the northwest corner of public-school grounds, 130 feet northwest of the northwest corner of school building, 40 feet south and 70 feet east of the intersection of Franklin and West Main streets; iron post stamped "Prim. Trav. Sta. No. 11, 1913, Illinois".....	39 00 13.3	87 36 44.9	2,695
T. 7 N., R. 11 W., quarter corner between secs. 35 and 36, at public T road north, 300 feet south of bridge over Super Creek.....	39 00 24.6	87 36 42.8	1,142
Palestine, 1 mile east of, west rail of Illinois Central R. R. at public east-west road crossing (530 feet east of the above is T. 7 N., R. 11 W., quarter corner between secs. 35 and 36).....	39 00 24.3	87 35 43.0	4,716
Riverton, 1 miles southwest of; center of Illinois Central R. R. over drainage ditch.....	39 00 54.3	87 34 58.3	4,654
Riverton, Illinois Central R. R. bridge over Wabash River; center of draw span.....	39 01 13.7	87 34 07.8	4,444
Riverton, U. S. Engineers iron bench mark No. 32.....	39 01 07.99	87 34 04.55	621

Magnetic declination for south border of quadrangle, 3° 07' E.

VINCENNES QUADRANGLE.

Along public roads.

Station.	Latitude.	Longitude.	Distance between stations.
Vincennes, Baltimore & Ohio R. R. crossing; First Street, center of main track at (Dup.)	° ' " 38 41 04.2	° ' " 87 31 32.3	Feet.
Vincennes, Wabash River bridge, 0.8 mile northwest of; three-corners public T road south.	38 41 24.5	87 32 44.0	6,047
T. 3 N., R. 10 W., corner secs. 7, 8, 17, and 18, 1,620 feet south of; public T road north.	38 41 54.3	87 33 20.5	4,181
T. 3 N., R. 10 W., corner secs. 7, 8, 17 and 18; T road west at, 460 feet south of railroad crossing.	38 42 10.3	87 33 20.7	1,625
T. 3 N., R. 10 W., corner secs. 7, 8, 17, and 18, 480 feet north of; north and south road crossing Baltimore & Ohio Southwestern R. R.; center of track at.	38 42 15.0	87 33 21.0	479
T. 3 N., R. 10 W., corner secs. 5, 6, 7, and 8; center of north-south road at small bridge and hedge east.	38 43 03.9	87 33 21.2	4,942
T. 3 N., R. 10 W., north corner secs. 5 and 6, at 90° bend in road to west.	38 43 58.6	87 33 21.6	5,540
NOTE.—300 feet west of the above is T. 4 N., R. 10 W., south corner secs. 31 and 32, at 90° bend of road to north.			
T. 4 N., R. 10 W., corner secs. 29, 30, 31, and 32; crossroads at.	38 44 51.8	87 33 25.2	5,384
T. 4 N., R. 10 W., corner secs. 19, 20, 29, 30; public T road east (Dup.)	38 45 44.1	87 33 25.1	5,296

Magnetic declination for northeast border of quadrangle, 3° 14' E.

Earlville, Genoa, Kirkland, Plano, Rochelle, Shabbona, and Sycamore quadrangles.

DEKALB, LEE, AND OGLE COUNTIES.

The following geographic positions upon North American datum were determined by E. L. McNair in 1914. They are based on positions in this locality given in Bulletin 551.

EARLVILLE QUADRANGLE.

Along highways near north border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
T. 38 N., R. 2 E., about 0.25 mile south of corner secs. 21, 22, 27, and 28, 35 feet south and 25 feet east of center of road crossing, 8 feet west of corner hedges; iron post stamped "Prim. Trav. Sta. No. 4, 1912, Illinois" (new position)	° ' " 41 44 32.9	° ' " 88 59 58.4	Feet.
T. 38 N., R. 2 E., corner secs. 21, 22, 27, and 28; center of north-south road at fence east.	41 44 46.5	88 59 59.2	1,377
T. 38 N., R. 2 E., corner secs. 23, 24, 25, and 26; T road east.	41 44 47.5	88 57 38.8	.....
T. 38 N., R. 2 E., at east corner secs. 24 and 25; north-south road at road west of Dekalb-Lee county line (25 feet south of above is west corner secs. 19 and 30, T. 38 N., R. 3 E., center of north-south road, in line with road east and fence line west).	41 44 47.1	88 56 28.3	5,350
T. 38 N., R. 3 E., corner secs. 19, 20, 29, and 30; T road north.	41 44 47.1	88 55 30.5	4,380
Chicago, Burlington & Quincy R. R. crossing at east rail.	41 44 47.1	88 55 17.7	970
T. 38 N., R. 3 E., corner secs. 20, 21, 28, and 29; center of east-west road at fences north-south.	41 44 47.3	88 54 20.8	4,320
Big Indian Creek; center of iron truss bridge.	41 44 48.0	88 53 16.4	4,885
T. 38 N., R. 3 E., corner secs. 21, 22, 27, and 28; center of east-west road at private lane south; fence north.	41 44 48.0	88 53 10.8	426
T. 38 N., R. 3 E., quarter-corner between secs. 22 and 27; T road west at fence east.	41 44 48.4	88 52 34.4	2,608
T. 38 N., R. 3 E., about 0.25 mile west of corner secs. 26, 27, 34, and 35, 30 feet south and 35 feet west of center of crossroads; 2 feet east of corner fence post; iron post stamped "Prim. Trav. Sta. No. 26, 1914, Illinois."	41 43 56.0	88 52 19.1	5,462
T. 38 N., R. 3 E., corner secs. 26, 27, 34, and 35; center of east-west road at fence lines north-south.	41 43 56.4	88 52 01.5	1,339
Shabbona Grove, center of east-west road at T road south; under Chicago & North Western R. R. bridge.	41 43 56.4	88 51 08.5	4,020
T. 38 N., Its. 3 and 4 E., corner secs. 25, 36, 30, and 31; center of east-west road at north-south fences.	41 43 56.5	88 49 41.3	6,610
T. 38 N., R. 4 E., quarter corner between secs. 30 and 31; T road north.	41 43 56.6	88 49 17.7	1,795

EARLVILLE QUADRANGLE—Continued.

Along highways near north border of quadrangle—Continued.

Station.	Latitude.	Longitude.	Distance between stations.
	° ' "	° ' "	Feet.
T. 38 N., R. 4 E., corner secs. 29, 30, 31, and 32; center of east-west road at north-south fences.....	41 43 56.5	88 48 42.7	2,655
Clinton schoolhouse, center of public crossroads at.....	41 43 56.6	88 48 25.6	1,300
T. 38 N., R. 4 E., corner secs. 28, 29, 32, and 33; center of east-west road at north-south fence lines.....	41 43 56.8	88 47 33.1	3,980
T. 38 N., R. 4 E., corner secs. 27, 28, 33, and 34; crossroads.....	41 43 57.2	88 46 23.6	5,270
T. 38 N., R. 4 E., corner secs. 26, 27, 34, and 35; center of east-west road at north-south fence.....	41 43 57.6	88 45 13.7	5,305

Magnetic declination near north border of quadrangle, 3° 35' E.

GENOA QUADRANGLE.

On highway near southwest corner of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
	° ' "	° ' "	Feet.
T. 41 N., R. 4 E., near center of sec. 26; 30 feet south and 40 feet east of crossroads, 750 feet north of Chicago & Great Western R. R. tracks; iron post stamped "Prim. Trav. Sta. No. 29, 1914, Illinois".....	42 00 06.7	88 44 23.6	.....

Magnetic declination near southwest corner of quadrangle, 3° 17' E.

KIRKLAND QUADRANGLE.

Along highways near south border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
	° ' "	° ' "	Feet.
T. 41 N., R. 4 E., Chicago & Great Western R. R. crossing.....	42 00 06.7	88 45 14.4	.....
T. 41 N., R. 4 E., quarter corner between secs. 27 and 28; center of east-west road at north-south fences.....	42 00 06.4	88 46 22.7	5,155
T. 41 N., R. 4 E., quarter corner between secs. 27 and 28, about 0.25 mile west of; T road south.....	42 00 06.3	88 46 40.4	1,335
T. 41 N., R. 4 E., near center of sec. 28, 110 feet west of T road north; Illinois, Iowa & Minnesota R. R. crossing.....	42 00 06.2	88 46 55.5	1,140
T. 41 N., R. 4 E., quarter corner between secs. 28 and 29; center of east-west road at north-south fence line.....	42 00 06.1	88 47 32.9	2,825
T. 41 N., R. 4 E., quarter corner between secs. 29 and 30; center of east-west road at north-south fence lines.....	42 00 05.8	88 48 43.2	5,305
T. 41 N., Rs. 3 and 4 E., quarter corner between secs. 25 and 30; center of public road crossing.....	42 00 05.6	88 49 44.8	4,650
T. 41 N., R. 3 E., quarter corner between secs. 25 and 29, at fence south and T road north.....	42 00 04.7	88 50 55.0	5,301
T. 41 N., R. 3 E.; crossroads at center of sec. 26.....	42 00 04.4	88 51 29.9	2,630
T. 41 N., R. 3 E., 25 feet north and 47 feet west of crossroads, in center of sec. 27, 17 feet west of corner fence post and 2 feet south of fence line; iron post stamped "Prim. Trav. Sta. No. 30, 1914, Illinois.....	42 00 04.4	88 52 41.2	5,382
T. 41 N., R. 3 E., center of road crossing at center of sec. 28.....	42 00 04.0	88 53 50.7	5,250
T. 41 N., R. 3 E., quarter corner between secs. 28 and 29; east-west road at north-south fence line.....	42 00 03.7	88 54 25.8	2,650
T. 41 N., R. 3 W., center of sec. 29; road crossing.....	42 00 03.6	88 55 01.1	2,660
T. 41 N., R. 3 E., center of sec. 30; T road east.....	42 00 03.4	88 56 11.6	5,320
T. 41 N., R. 3 E., quarter corner between secs. 19 and 30; T road west at fence east.....	42 00 29.4	88 56 11.7	2,635
T. 41 N., Rs. 2 and 3 E., corner secs. 24, 25, 19, and 30, on Dekalb-Ogle county line; center of east-west road at north-south fence line.....	42 00 29.3	88 56 30.0	1,380
T. 41 N., R. 2 E., corner secs. 23, 24, 25, and 26; center of crossroads.....	42 00 28.4	88 57 40.5	5,325
T. 41 N., R. 2 E., corner secs. 22, 23, 26, and 27; stone at crossroads.....	42 00 27.5	88 58 50.6	5,290

Magnetic declination near south border of quadrangle, 3° 27' E.

PLANO QUADRANGLE.

Along highways near northwest corner of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
T. 38 N., R. 4 E., about 0.25 mile east of corner secs. 26, 27, 34, and 35, 25 feet south of center of east-west road, in line with road north, 30 feet west of center of road south, 3 feet north of fence corner; iron post stamped "Prim. Trav. Sta. No. 27, 1914, Illinois".....	° ' " 41 43 57.5	° ' " 88 44 56.7	<i>Fect.</i>
T. 38 N., R. 4 E., 0.25 mile east of corner secs. 22, 23, 26, and 27; public road crossing.....	41 44 49.9	88 44 56.9	5,300

Magnetic declination near northwest corner of quadrangle, 3° 21' E.

ROCHELLE QUADRANGLE.

On highway near southeast corner of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
T. 38 N., R. 2 E., corner secs. 15, 16, 21, and 22; center of crossroads at school and church buildings.....	° ' " 41 45 39.4	° ' " 89 00 00.4	<i>Fect.</i>

SHABBONA QUADRANGLE.

Along highways near southwest corner of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
T. 38 N., R. 2 E., quarter corner between secs. 21 and 22; T road east.....	° ' " 41 45 12.9	° ' " 88 59 59.8	<i>Fect.</i>
T. 38 N., R. 2 E., corner secs. 14, 15, 22, and 23; T road north at fence line south.....	41 45 39.4	88 58 49.8	.....
T. 38 N., R. 2 E., corner secs. 13, 14, 23, and 24; center of crossroads.....	41 45 39.9	88 57 38.7	5,389

Along highways near east border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
T. 38 N., R. 4 E., corner secs. 14, 15, 22, and 23; T road north.....	41 45 42.0	88 45 14.4	.....
T. 38 N., R. 4 E., quarter corner between secs. 14 and 15; center of Chicago, Burlington & Quincy R. R. crossing (azimuth of railroad at above point is 269° 21' 11").....	41 46 08.6	88 45 14.5	2,690
T. 38 N., R. 4 E., corner secs. 10, 11, 14, and 15; 1 mile east of Waterman; center of public crossroads.....	41 46 34.2	88 45 14.6	2,585
T. 38 N., R. 4 E., corner secs. 2, 3, 10, and 11; public crossroads.....	41 47 26.9	88 45 14.0	5,335
Tps. 38 and 39 N., R. 4 E., corner secs. 2, 3, 34, and 35; center of road crossing (10-foot jog in north-south fence line on each side of road).....	41 48 20.6	88 45 13.4	5,440
T. 39 N., R. 4 E., corner secs. 26, 27, 34, and 35; road crossing.....	41 49 13.0	88 45 13.2	5,300
T. 39 N., R. 4 E., corner secs. 22, 23, 26, and 27; T road west.....	41 50 05.2	88 45 13.5	5,290
T. 39 N., R. 4 E., corner secs. 14, 15, 22, and 23; crossroads.....	41 50 57.5	88 45 13.2	5,290
T. 39 N., R. 4 E., corner secs. 10, 11, 14, and 15, 25 feet east of center of north-south road at T road west; iron post stamped "Prim. Trav. Sta. No. 28, 1914, Illinois".....	41 51 49.8	88 45 12.5	5,296
T. 39 N., R. 4 E., corner secs. 2, 3, 10, and 11; center of crossroads.....	41 52 42.2	88 45 12.6	5,302
T. 40 N., R. 4 E., south corner secs. 34 and 35; center of east-west road in line with T road north (40 feet west of above is north corner secs. 2 and 3, T. 39 N., R. 4 E., at center of east-west road at T road south).....	41 53 34.6	88 45 11.8	5,305
Chicago & North Western R. R. crossing (azimuth of railroad at this point is 204° 12' 46").....	41 53 59.2	88 45 11.5	2,480
T. 40 N., R. 4 E., corner secs. 26, 27, 34, and 35; center of crossroads.....	41 54 26.8	88 45 11.6	2,800

SHABBONA QUADRANGLE—Continued.

Along highways through center of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
	° ' "	° ' "	Feet.
T. 39 N., R. 2 E., corner secs. 10, 11, 14, and 15; center of crossroads.	41 51 45.0	88 58 50.9	.....
T. 39 N., R. 2 E., corner secs. 11, 12, 13, and 14; center of crossroads.	41 51 45.3	88 57 39.7	5,390
T. 39 N., R. 2 E., east corner secs. 12 and 13; T road west on Lee-Dekalb county line (110 feet north of this point is west corner secs. 7 and 18, T. 39 N., R. 3 E., at T road east).....	41 51 46.2	88 56 27.5	5,470
T. 39 N., R. 3 E., corner secs. 7, 8, 17, and 18; road crossing.....	41 51 47.3	88 55 29.2	4,409
T. 39 N., R. 3 E., corner secs. 8, 9, 16, and 17; crossroads.....	41 51 48.3	88 54 18.5	5,351
T. 39 N., R. 3 E., corner secs. 9, 10, 15, and 16; crossroads.....	41 51 48.7	88 53 09.9	5,195
T. 39 N., R. 3 E., 355 feet west and 23 feet north of center of crossroads at corner secs. 10, 11, 14, and 15, opposite house of Thomas Maley; iron post stamped "Prim. Trav. Sta. No. 31, 1914, Illinois".....	41 51 48.1	88 52 05.0	4,915
T. 39 N., R. 3 E., corner secs. 11, 12, 13, and 14; road crossing.....	41 51 48.2	88 50 51.2	5,585
T. 39 N., R. 3 E., east corner secs. 12 and 13, at T road west (60 feet north of above corner is west corner secs. 7 and 18, T. 39 N., R. 4 E., T road east).....	41 51 48.3	88 49 39.6	5,418
T. 39 N., R. 4 E., corner secs. 7, 8, 17, and 18; T road south.....	41 51 49.0	88 48 42.6	4,312
T. 39 N., R. 4 E., corner secs. 8, 9, 16, and 17; center of crossroads.	41 51 49.6	88 47 32.9	5,280
Eloa, center of Chicago & North Western R. R. tracks at.....	41 51 49.6	88 46 29.4	4,800
T. 39 N., R. 4 E., corner secs. 9, 10, 15, and 16; center of crossroads.	41 51 49.6	88 46 23.0	486

Magnetic declination near north border of quadrangle, 3° 27' E.; near south border, 3° 35' E.; near east border, 3° 09' E.; near west border, 1° 57' E.—3° 56' E. (from Bulletin 551); near center, 3° 28' E.

SYCAMORE QUADRANGLE.

Along highways near west border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
	° ' "	° ' "	Feet.
T. 38 N., R. 4 E., 0.25 mile east of corner secs. 14, 15, 22, and 23; T road south.....	41 45 42.2	88 44 57.2	.....
Dekalb, center of crossing of Chicago & North Western R. R. and Fourth Street.....	41 55 46.5	88 44 59.1	.....
Dekalb, just north of; center of iron truss bridge over the Kishwaukee River.....	41 56 22.2	88 44 58.7	3,608
T. 40 N., R. 4 E., near quarter corner between secs. 2 and 11; crossing of Chicago, Milwaukee & Gary R. R.....	41 57 48.1	88 44 35.0	8,875
T. 40 N., R. 4 E., forks at schoolhouse; roads northeast, northwest, and southwest.....	41 58 18.0	88 44 04.8	3,793
T. 41 N., R. 4 E., at east side of sec. 35; roads north-south-west.....	41 59 20.4	88 44 16.5	6,368

Magnetic declination near north border of quadrangle, 3° 09' E.

Dwight, Essex, Joliet, Kankakee, Morris, Peotone, Wilmington, and Yorkville quadrangles.

GRUNDY, KANKAKEE, KENDALL, AND WILL COUNTIES.

The following geographic positions were determined by primary traverse and are based on North American datum positions of United States Corps of Engineers triangulation stations, Dresden Heights, Devine, and Rock Run, and on United States Geological Survey primary traverse stations published in Bulletin 551.

The work in Dwight, Morris, and Yorkville quadrangles was done by E. L. McNair in 1914; that in Essex, Joliet, Kankakee, and Peotone quadrangles by J. H. Wilson in 1915; and that in Wilmington quadrangle by McNair in 1914 and by Wilson in 1915.

DWIGHT QUADRANGLE.

Along highways near north border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
	° ' "	° ' "	Feet.
Primary traverse station No. 9 (published in Bull. 551, p. 163)....	41 14 31.5	88 29 35.9	.....
T. 32 N., Rs. 6 and 7 W., corner secs. 13, 24, 18 and 19; T road south.	41 14 24.2	88 28 26.5	5,351
T. 32 N., R. 7 E., corner secs. 17, 18, 19, and 20; crossroads.....	41 14 25.7	88 27 27.0	4,551
T. 32 N., R. 7 E., corner secs. 16, 17, 20, and 21; crossroads.....	41 14 27.4	88 26 17.5	5,309
T. 32 N., R. 7 E., corner secs. 15, 16, 21, and 22; crossroads.....	41 14 29.2	88 25 08.0	5,310
T. 32 N., R. 7 E., corner secs. 14, 15, 22, and 23; crossroads.....	41 14 30.8	88 23 58.7	5,299
T. 32 N., R. 7 E., corner secs. 13, 14, 23, and 24; center east and west roads.....	41 14 32.4	88 22 49.6	5,279
T. 32 N., R. 7 E., quarter corner between secs. 13 and 24; crossroads.	41 14 33.2	88 22 14.6	2,669
T. 32 N. (approximate) on line between Rs. 7 and 8, center of iron truss bridge.....	41 14 34.0	88 21 40.6	2,600
T. 32 N., R. 8 E., about 0.20 mile east of west corner of secs. 18 and 19, 25 feet south of center of road, 2 feet from corner post at north-west corner of fence, in yard of M. Z. Bullon; iron bench-mark post stamped "Prim. Trav. Sta. No. 21, 1914, Illinois".....	41 14 34.2	88 21 27.7	987
T. 32 N., R. 8 E., 45 feet north of south end of (iron) truss bridge in line with road west on section line, apparent corner secs. 17, 18, 19, and 20.....	41 14 35.5	88 20 30.8	4,345
T. 32 N., R. 8 E., corner secs. 16, 17, 20, and 21; crossroads.....	41 14 37.4	88 19 21.1	5,327
T. 32 N., R. 8 E., approximate corner secs. 15, 16, 21, and 22; T road W.....	41 14 38.7	88 18 11.9	5,286

Magnetic declination for north border of quadrangle, 2° 45' E.

ESSEX QUADRANGLE.

Along highways near north border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
	° ' "	° ' "	Feet.
Custer Park, on north side of road opposite store of F. A. Buza; iron post stamped "Prim. Trav. Sta. No. 17, 1915, Ill.;" elevation, 563 feet.....	41 14 43.6	88 07 48.4	.....
Custer Park, Wabash R. R. bridge over Kankakee River, west end of.....	41 14 42.6	88 07 41.7	521
Railroad crossing, north and south section line.....	41 14 54.9	88 07 29.2	1,570
T. 32 N., R. 10 E., road east on line between secs. 17 and 20.....	41 14 53.9	88 05 43.2	.....
T. 32 N., R. 10 E., corner of secs. 16, 17, 20, and 21, north and south fence line.....	41 14 54.2	88 05 24.3	1,440
T. 32 N., R. 10 E., corner of secs. 15, 16, 21, and 22, north and south fence line at schoolhouse.....	41 14 54.9	88 04 15.1	5,290
T. 32 N., R. 10 E., corner of secs. 14, 15, 22, and 23, north and south fence just west of mail box 59.....	41 14 56.1	88 03 05.0	5,350
T. 32 N., R. 10 E., corner of secs. 13, 14, 23, and 24; T road south.....	41 14 56.6	88 01 54.7	5,370
T. 32 N., Rs. 10 and 11 E., corner of secs. 13, 24, 18, and 19; crossroads at schoolhouse, Will-Kankakee county line.....	41 14 56.9	88 00 46.2	5,230

Magnetic declination for north border of quadrangle, 3° E.

JOLIET QUADRANGLE.

Along highways near south border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
	° ' "	° ' "	Feet.
T. 35 N., R. 11 E., corner of secs. 17, 18, 19, 20, and 30 feet east and 25 feet north of, at northeast corner of crossroads; iron post stamped "Prim. Trav. Sta. No. 21, 1915, Ill.".....	41 30 41.8	88 00 15.3	.....
T. 35 N., R. 11 E., west corner of secs. 18 and 19, in line with road east (45 feet south of above corner is T. 35 N., R. 10 E., east corner of secs. 13 and 24, in line with road west).....	41 30 40.2	88 01 24.4	5,264
T. 35 N., R. 10 E., corner of secs. 13, 14, 23, and 24; crossroads.....	41 30 38.1	88 02 33.4	5,255
T. 35 N., R. 10 E., quarter corner between secs. 23 and 24; T road north.....	41 30 12.1	88 02 32.6	2,635
T. 35 N., R. 10 E., quarter corner between secs. 22 and 23, crossroads at Baldoreggan's grocery store.....	41 30 10.6	88 03 41.6	5,250
Joliet, center of street-car track at intersection of Richards Street and Mills Road, quarter corner in center of sec. 22.....	41 30 09.8	88 04 16.2	2,640
Joliet, intersection of Chicago Street and Mills Road, quarter corner between secs. 21 and 22, T. 35 N., R. 10 E.....	41 30 09.0	88 04 50.9	2,640

Magnetic declination for south border of quadrangle, 2½° E.

KANKAKEE QUADRANGLE.

Station.	Latitude.	Longitude.	Distance between stations.
T. 32 N., R. 11 E., corner of secs. 17, 18, 19, and 20, 30 feet north and 20 feet east of, at northeast corner of crossroads; iron post stamped "Prim. Trav. Sta. No. 18, 1915, Ill.".....	° ' " 41 14 57.4	° ' " 87 59 35.3	Feet.

MORRIS QUADRANGLE.

Along highways near east border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
	° ' "	° ' "	Feet.
T. 32 N., R. 8 E., corner secs. 9, 10, 15, and 16; road crossing.....	41 15 31.1	88 18 13.5	.....
T. 32 N., R. 8 E., near quarter-section line between secs. 10 and 11; railroad crossing, center of	41 15 31.8	88 17 37.8	2,725
T. 32 N., R. 8 E., corner secs. 10, 11, 14, and 15; crossroads.....	41 15 32.3	88 17 04.2	2,570
T. 32 N., R. 8 E., corner secs. 11, 12, 13, and 14; crossroads.....	41 15 33.8	88 15 55.0	5,280
T. 34 N., Rs. 8 and 9 E., corner secs. 18, 19, 13, and 24; T road north on Grundy-Will county line	41 25 09.0	88 15 02.2	.....
T. 34 N., R. 9 E., apparent (north) corner secs. 7 and 18, fence line east, 80 feet north of above is apparent east corner of secs. 12 and 13, T. 34 N., R. 8 E., fence line west, at center of north and south road on Grundy-Will county line.....	41 26 00.9	88 15 04.0	5,250
T. 34 N., Rs. 8 and 9 E., approximate corner secs. 1, 6, 7, and 12, 65 feet north of east and west road, in line with T road south, near east and west fence	41 26 53.4	88 15 05.6	5,320
Minooka station, 200 feet west of; railroad crossing, center of	41 27 17.7	88 15 41.1	3,657
Tps. 34 and 35 N., R. 8 E., quarter corner between secs. 1 and 36, on Kendall-Grundy county line; center of north and south road, at east and west fence	41 27 45.2	88 15 42.1	2,775
T. 35 N., R. 8 E., center of sec. 36; T road south.....	41 28 11.3	88 15 43.3	2,649
T. 35 N., Rs. 8 and 9 E., quarter corner between secs. 31 and 36; T road west on Kendall-Will County line	41 28 12.2	88 15 08.5	2,649
T. 35 N., R. 9 E., apparent west corner secs. 30 and 31, north and south road at fence east, 25 feet north of above is apparent east corner secs. 25 and 36, T. 35 N., R. 8 E., north and south road at fence west.....	41 28 38.2	88 15 09.4	2,635
T. 35 N., R. 8 E., quarter corner east side sec. 25; T road west.....	41 29 04.6	88 15 10.5	2,675
T. 35 N., R. 9 E., west corner secs. 19 and 30; T road east.....	41 29 30.3	88 15 11.3	2,601
T. 35 N., R. 8 E., quarter corner east side sec. 24; T road west.....	41 29 56.4	88 15 12.2	2,641

Along highways through center of quadrangle.

T. 33 N., R. 7 E., corner secs. 9, 10, 15, 16; T road south.....	41 20 35.1	88 25 17.5	.....
T. 33 N., R. 7 E., corner secs. 10, 11, 14, 15; T road south.....	41 20 37.0	88 24 07.9	5,314
T. 33 N., R. 7 E., about 0.25 mile west of corner of secs. 11, 12, 13, and 14; T road south.....	41 20 37.9	88 23 15.7	3,980
Mazon River, east end of iron truss bridge over.....	41 20 37.9	88 22 40.1	2,717
T. 33 N., R. 7 E., quarter corner secs. 12 and 13; T road south.....	41 20 38.6	88 22 23.3	1,276
T. 33 N., Rs. 7 and 8 E., corner secs. 12, 13, 7, and 18, on north side east and west road, in line with fence south, near district No. 55 schoolhouse; stone.....	41 20 39.6	88 21 48.2	2,681
T. 33 N., R. 8 E., corner secs. 7, 8, 17 and 18; T road south.....	41 20 41.0	88 20 38.9	5,289
T. 33 N., R. 8 E., apparent corner secs. 8, 9, 16, and 17, 350 feet west of, public road crossing.....	41 20 45.8	88 19 30.0	5,275
T. 33 N., R. 8 E., corner secs. 4, 5, 8, and 9, north and south road at east and west fence, lane east.....	41 21 34.6	88 19 31.0	4,931
Devine triangulation station (U. S. Corps of Engineers), about 2.5 miles southwest of Devine station on Elgin, Joliet & Eastern R. R., and 0.25 mile north west of residence of D. E. Thomas, on the west side of the highway, 1,175 feet north and 32 feet west of the southwest corner of secs. 4, T. 33 N., R. 8 E., Goose Lake Township; marked by stone and iron pipe.....	41 21 46.02	88 19 31.53	1,162
T. 33 N., R. 8 E., corner secs. 9, 10, 15, and 16; T road south.....	41 20 43.8	88 18 20.9	5,274
Elgin, Joliet & Eastern R. R. crossing.....	41 20 44.6	88 17 45.8	2,680
T. 33 N., R. 8 E., corner secs. 10, 11, 14, and 15; T road south.....	41 20 45.3	88 17 12.0	2,575

Magnetic declination for north border of quadrangle, 3° 30' E.; for south border, 2° 45' E.; for east border, 3° 00' E.; for west border, 2° 45' E.; for center, 3° 30' E.

PEOTONE QUADRANGLE.

Along highways near west border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
	° ' "	° ' "	<i>Feet.</i>
T. 32 N., R. 11 E., corner of secs. 7, 8, 17, and 18; crossroads.....	41 15 50.1	87 59 37.2	.....
T. 32 N., R. 11 E., corner of secs. 5, 6, 7, and 8; crossroads at schoolhouse.....	41 16 42.6	87 59 38.4	5,320
T. 32 N., R. 11 E., north corner of secs. 5 and 6; T road south, Will-Kankakee county line.....	41 17 34.1	87 59 40.5	5,210
T. 33 N., R. 11 E., south corner of secs. 31 and 32; T road north.....	41 17 34.0	87 59 47.3	520
T. 33 N., R. 11 E., corner of secs. 29, 30, 31, and 32; crossroads....	41 18 26.3	87 59 49.0	5,290
T. 33 N., R. 11 E., corner of secs. 19, 20, 29, and 30; crossroads....	41 19 18.6	87 59 50.4	5,300
T. 33 N., R. 11 E., corner of secs. 17, 18, 19, and 20; crossroads....	41 20 10.9	87 59 51.5	5,290
T. 33 N., R. 11 E., corner of secs. 7, 8, 17, and 18; crossroads....	41 21 03.4	87 59 52.6	5,310
T. 33 N., R. 11 E., corner of secs. 5, 6, 7, and 8; crossroads....	41 21 55.7	87 59 53.7	5,300
T. 33 N., R. 11 E., north corner of secs. 5 and 6, 30 feet north and 20 feet west of, on north side of east and west road at T road south; iron post stamped "Prim. Trav. Sta. No. 19, 1915, Ill.".....	41 22 49.6	87 59 55.0	5,450
T. 34 N., R. 11 E., south corner stone of secs. 31 and 32; T road west.....	41 22 51.6	87 59 59.0	370
T. 34 N., R. 11 E., north corner of secs. 4 and 5; crossroads (20 feet east of above corner is T. 35 N., R. 11 E., south corner of secs. 32 and 33).....	41 28 06.2	87 59 00.7	.....
T. 35 N., R. 11 E., corner of secs. 28, 29, 32, and 33; crossroads at schoolhouse.....	41 28 58.3	87 59 02.1	5,780
T. 35 N., R. 11 E., corner of secs. 20, 21, 28, and 29; T road south..	41 29 50.5	87 59 04.1	5,280

Magnetic declination for west border of quadrangle 2½° E.

WILMINGTON QUADRANGLE.

Along highways near west border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
	° ' "	° ' "	<i>Feet.</i>
T. 32 N., Rs. 8 and 9 E., 20 feet north and 30 feet east of corner of secs. 12, 13, 7, and 18, on county line between Grundy and Will counties, 7 feet southwest of fence corner, 3 feet west of large power-line pole; iron bench-mark post stamped "Prim. Trav. Sta. No. 22, 1914, Illinois".....	41 15 35.2	88 14 45.0	.....
T. 32 N., Rs. 8 and 9 E., corner secs. 1, 2, 6, and 7; road crossing.....	41 16 27.6	88 14 47.1	5,308
Tps. 32 and 33 N., Rs. 8 and 9 E., corner secs. 1, 6, 31, and 36; road crossing.....	41 17 19.3	88 14 48.9	5,240
T. 33 N., Rs. 8 and 9 E., corner secs. 25, 30, 31, and 36; T road east.....	41 18 11.4	88 14 50.3	5,274
Chicago & Alton R. R. crossing.....	41 18 54.0	88 14 51.3	4,311
T. 33 N., Rs. 8 and 9 E., corner secs. 19 and 24; crossroads.....	41 19 30.0	88 14 52.1	3,650
T. 33 N., Rs. 8 and 9 E., 25 feet east and 30 feet north of intersection of roads at corner of secs. 12, 13, 7, and 18, 5 feet north of corner fence post, 2 feet from telephone pole; iron bench-mark post stamped "Prim. Trav. Sta. No. 23, 1914, Illinois".....	41 20 48.8	88 14 53.8	7,985
T. 33 N., Rs. 8 and 9 E., corner secs. 1, 12, 6, and 7; T road west..	41 21 40.9	88 14 55.3	5,270
Dupage River, south end of bridge over.....	41 21 57.3	88 14 55.6	1,660
Tps. 33 and 34 N., Rs. 8 and 9 E., fence line east; stone.....	41 22 32.7	88 14 56.7	3,590
Dresden Heights triangulation station (U. S. Corps of Engineers), on line of Kankakee bluffs, 3 miles south of Channahon, on land owned by Thomas Patterson, 2,415 feet east and 925 feet south of the northwest corner of sec. 31, T. 34 N., R. 9 E., Channahon Township; stone and pipe.....	41 23 14.86	88 14 32.24	4,656
T. 34 N., R. 9 E., quarter corner of secs 18 and 19; T road south..	41 25 00.4	88 14 32.7	11,597

Magnetic declination for west border of quadrangle, 3° 00' E.

WILMINGTON QUADRANGLE—Continued.

Along highways near south border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
	° ' "	° ' "	Feet.
Prim. Trav. Sta. 22, 1914, Ill. (see preceding page).....	41 15 35.2	88 14 45.0	.....
T. 32 N., R. 9 E., corner of secs. 7, 8, 17, and 18; crossroads.....	41 15 36.8	88 13 35.6	5,303
Braidwood, Chicago & Alton R. R. main track, at northwest and southeast road crossing about 800 feet southwest of depot..	41 15 44.7	88 12 51.1	3,491
T. 132 N., R. 9 E., corner of secs. 8, 9, 16, and 17; crossroads.....	41 15 38.0	88 12 27.6	1,922
T. 32 N., R. 9 E., corner of secs. 9, 10, 15, and 16; T road south.....	41 15 39.4	88 11 18.7	5,260
T. 32 N., R. 9 E., corner of secs. 10, 11, 14, and 15, 10 feet east of lane south.....	41 15 40.4	88 10 10.3	5,220
T. 32 N., R. 9 E., corner of secs. 11, 12, 13, and 14; crossroads at schoolhouse.....	41 15 41.7	88 09 01.1	5,290
Ritchie, road forks, at road west on quarter-section line, just west of wagon bridge over creek.....	41 15 51.1	88 06 21.1	.....

Along highways through center of quadrangle.

Tps. 33 and 34 N., Rs. 10 and 11 E., corner of; T road south.....	41 22 49.9	88 01 03.1	.....
Tps. 33 and 34 N., R. 10 E., stone corner of secs. 1, 2, 35, and 36; crossroads.....	41 22 48.6	88 02 17.5	5,290
Tps. 33 and 34 N., R. 10 E., corner of secs. 2, 3, 34, and 35; cross- roads.....	41 22 47.4	88 03 27.4	5,330
Tps. 33 and 34 N., R. 10 E., corner of secs. 3, 4, 33, and 34; cross- roads.....	41 22 46.2	88 04 37.0	5,310
Tps. 33 and 34 N., R. 10 E., corner of secs. 4, 5, 32, and 33; cross- roads.....	41 22 45.0	88 05 46.3	5,290
Tps. 33 and 34 N., R. 10 E., corner of secs. 5, 6, 31, and 32; cross- roads.....	41 22 43.6	88 06 55.9	5,310
Tps. 33 and 34 N., Rs. 9 and 10 E., 20 feet south and 50 feet east of corner of, at southeast corner of crossroads; iron post stamped "Prim. Trav. Sta. No. 20, 1915, Ill.".....	41 22 41.6	88 08 04.6	5,236
T. 34 N., R. 9 E., south corner of secs. 35 and 36; center of east and west road at fence north.....	41 22 39.4	88 09 14.6	5,346
Tps. 33 and 34 N., R. 9 E., corner of secs. 2, 3, 34, and 35; center of east and west road at north and south fence line.....	41 22 37.9	88 10 23.8	5,275
Tps. 33 and 34 N., R. 9 E., corner of secs. 3, 4, 33, and 34; crossroads at Blodgett.....	41 22 36.9	88 11 32.3	5,230
T. 34 N., R. 9 E., south corner of secs. 32 and 33; fence north.....	41 22 35.5	88 12 41.4	5,270
Tps. 33 and 34 N., R. 9 E., corner of secs. 5, 6, 31, and 32; T road north.....	41 22 34.2	88 13 50.4	5,260

Along highways near north border of quadrangle.

T. 35 N., R. 10 E., corner of secs. 21, 22, 27, and 28; T road west..	41 29 42.7	88 04 50.0	.....
T. 35 N., R. 10 E., near the corner of secs. 20, 21, 28, and 29, 30 feet east of north and south section line, at southeast corner of cross- roads 1,330 feet southeast of Brandon's bridge over Des Plaines River; iron post stamped "Prim. Trav. Sta. No. 22, 1915, Ill.;" elevation 582 feet.....	41 29 46.6	88 05 59.9	5,332
Brandon's bridge over Des Plaines River, south end of.....	41 29 56.8	88 06 10.9	1,331
Center of river road in line with fence on north and south section line.....	41 29 55.4	88 07 08.5	4,385
Center of river road at probable north and south township line, 30 feet east of railroad crossing.....	41 29 36.0	88 08 25.4	6,174
T road northwest.....	41 28 57.8	88 09 32.7	6,419
Bridge over canal, south end of.....	41 29 14.1	88 09 47.2	1,989
T. 35 N., R. 9 E., line between secs. 23 and 24; center of road at north and south fence line.....	41 29 38.4	88 09 31.7	2,725
Rock Run triangulation station, Illinois River Survey, 4 miles southwest of Joliet on top of small mound, at the north line of highway, about 500 feet west of farm buildings owned by J. Reardon, 630 feet east of the point where aforesaid highway in- tersects the west line of sec. 24, T. 35 N., R. 9 E., Troy Township, Will County, Ill.; established in March, 1904; marked by stone and pipe.....	41 29 41.8	88 09 24.1	679
T. 35 N., R. 9 E., sec. 26, on south side of road in line with road north on quarter-section line; iron post stamped "Ill. 588".....	41 29 19.4	88 10 05.7	3,895
T. 35 N., R. 9 E., quarter corner between secs. 27 and 28; T road east.....	41 29 06.9	88 11 49.9	8,031
T. 35 N., R. 9 E., corner of secs. 21, 22, 27, and 28; T road west....	41 29 33.1	88 11 50.7	2,650
T. 35 N., R. 9 E., corner of secs. 20, 21, 28, and 29; crossroads.....	41 29 32.6	88 13 00.0	5,270
T. 35 N., R. 9 E., corner of secs. 19, 20, 29, and 30; T road south at schoolhouse.....	41 29 32.0	88 14 09.6	5,300

WILMINGTON QUADRANGLE—Continued.

Along highways near east border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
	° ' "	° ' "	Feet.
T. 34 N., R. 11 E., corner of secs. 29, 30, 31, and 32; crossroads at schoolhouse.....	41 23 43.5	88 00 00.6	.....
T. 34 N., R. 11 E., corner of secs. 19, 20, 29, and 30; crossroads....	41 24 35.8	88 00 02.4	5,290
Manhattan, 0.75 mile west of; crossroads.....	41 25 15.0	88 00 03.8	3,970
T. 34 N., R. 11 E., corner of secs. 17, 18, 19, and 20; center of north and south road at east and west fence line.....	41 25 28.1	88 00 04.3	1,330
T. 34 N., R. 11 E., corner of secs. 7, 8, 17, and 18; T road east and road southeast.....	41 26 20.3	88 00 06.3	5,290
T. 34 N., R. 11 E., corner of secs. 5, 6, 7, and 8; crossroads.....	41 27 12.6	88 00 08.1	5,297
Tps. 34 and 35 N., R. 11 E., corner of secs. 5, 6, 31, and 32.....	41 28 05.0	88 00 09.4	5,300
T. 35 N., R. 11 E., corner of secs. 19, 20, 29, and 30; crossroads.....	41 29 49.5	88 00 13.8	.....

Magnetic declination for south border of quadrangle, 3° E.; for east border, 2½° E.; for north border, 2½° E.; through center, 2½° E.

YORKVILLE QUADRANGLE.

Along highways near south border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
	° ' "	° ' "	Feet.
T. 35 N., R. 9 E., west corner secs. 18 and 19; T road east.....	41 30 22.6	88 15 13.3	.....
T. 35 N., R. 8 E., 25 feet west of T road corners at quarter corner on west side sec. 13, 70 feet north of quarter corner on west side sec. 18, T. 35 N., R. 9 E., 3 feet from north-south fence line; iron bench-mark post stamped "Prim. Trav. Sta. No. 24, 1914, Illinois".....	41 30 49.5	88 15 14.0	2,717
T. 35 N., R. 8 E., at quarter corner between secs. 13 and 14; crossroads.....	41 30 47.7	88 16 23.8	5,319
T. 35 N., R. 8 E., at quarter corner between secs. 14 and 15; T road north.....	41 30 46.1	88 17 33.0	5,259
Auxsable Creek, center of iron truss bridge over.....	41 30 44.6	88 18 39.3	5,050
T. 35 N., R. 8 E., quarter corner between secs. 16 and 17; T road south.....	41 30 43.3	88 19 51.4	5,490
T. 35 N., R. 8 E., quarter corner between secs. 17 and 18, at schoolhouse; crossroads.....	41 30 42.2	88 20 59.9	5,210
T. 35 N., Rs. 7 and 8 E., quarter corner between secs. 13 and 18, crossroads at.....	41 30 41.5	88 21 56.2	4,281
T. 35 N., R. 7 E., 20 feet south and 40 feet east of crossroads, at quarter corner between secs. 13 and 14, 10 feet east of fence corner, 3 feet north of hedgeline; iron bench-mark post stamped "Prim. Trav. Sta. No. 25, 1914, Illinois".....	41 30 40.2	88 23 05.9	5,307
T road forks, roads north, east, and west.....	41 30 39.0	88 24 16.6	5,385
T. 35 N., R. 7 E., near or at quarter corner between secs. 15 and 16; center of east-west road, at hedge running north.....	41 30 37.0	88 25 25.5	5,246
T. 35 N., R. 7 E.; center of sec. 16, T road forks north, south, and east.....	41 30 36.2	88 26 01.7	2,750
Road crossing about 1,670 feet north of above forks.....	41 30 52.6	88 26 01.1	1,670
Intersection of highway and "The Fox" and Illinois Union Ry. Co. tracks.....	41 30 52.4	88 26 01.9	70
Fork in road, at point in line with road west, roads northeast, southwest, and west.....	41 30 35.0	88 26 53.3	4,285
T. 35 N., R. 7 E., apparent quarter corner between secs. 17 and 18; center of east and west road, at hedge south and fence north.....	41 30 33.5	88 27 44.3	3,886
T. 35 N., Rs. 6 and 7 E., at southeast corner of intersection of crossroads; iron bench-mark post stamped "Prim. Trav. Sta. No. 10, 1912".....	41 30 31.4	88 28 59.0	5,685

Magnetic declination for south border of quadrangle, 3° 30' E.

Campbell Hill quadrangle.

JACKSON COUNTY.

The following positions were determined by J. H. Wilson in 1915. The line begins at Ava and was run westward along public roads to O'Harrah triangulation station of the Mississippi River Commission.

CAMPBELL HILL QUADRANGLE.

Along public roads.

Station.	Latitude.	Longitude.	Distance between stations.
	° ' "	° ' "	<i>Feet.</i>
Ava, at west edge of town, T. 7 S., R. 4 W., quarter corner between secs. 25 and 26; T road east at.....	37 53 18.5	89 30 16.8	.....
T. 7 S., R. 4 W., center of east-west road at lane south, also lane north through gate, approximate corner of secs. 26, 27, 34, and 35.	37 52 53.6	89 31 23.6	5,920
Forks of road on north-south quarter-section line through sec. 34..	37 52 47.7	89 31 56.8	2,734
Little Kincaid Creek, center of ford at.....	37 52 35.7	89 32 39.2	3,609
T. 7 S., R. 4 W., quarter corner between secs. 32 and 33, right-angle bend in road at second-class road southwest.....	37 52 27.4	89 33 37.2	4,724
T. 7 S., R. 4 W., in sec. 30, crossroads, 20 feet northwest of oak tree with advertising sigs.....	37 53 05.2	89 34 58.6	7,550
T. 7 S., R. 5 W., in sec. 36, T road east on north-south road on quarter-section line.....	37 52 51.8	89 36 23.0	6,907
T. 7 S., R. 5 W., in center of sec. 35, T road south.....	37 52 32.2	89 37 28.9	5,650
T. 7 S., R. 5 W., on south side of sec. 35, quarter corner in line with road north and road west, 40 feet east of above is fence south at probable quarter corner on north side of sec. 2.....	37 52 06.3	89 37 30.6	2,630
Degonia, southwest corner of T road south at, 2 feet east of corner of paling fence; iron post stamped "Prim. Trav. Sta. No. 10, 1915"	37 51 41.5	89 37 48.6	2,890
T. 8 S., R. 5 W., line between secs. 2 and 11, center of north-south road, fence line east.....	37 51 15.2	89 37 48.3	2,670
T. 8 S., R. 5 W., SE $\frac{1}{4}$ sec. 10, road forks at road west, Dilday's mail box.....	37 50 31.6	89 38 14.1	4,873
Sec. 15, north part of, where road crosses top of ridge, opposite small white house, mail box on south edge of road.....	37 50 19.0	89 38 46.6	2,896

Brownfield, Dongola, Equality, Fords Ferry, Golconda, Joppa, Marion, Mound City, Paducah, Stonefort, and Vienna quadrangles.

HARDIN, JOHNSON, MASSAC, PIKE, PULASKI, AND SALINE COUNTIES.

The following geographic positions on Henderson, Ky., astronomic datum were determined by C. B. Kendall in 1913 and J. H. Wilson in 1915. Lines were based on positions of primary traverse station No. 34, 1908, at Peters Creek store, described in Bulletin 440, on primary traverse stations Nos. 8 and 10, 1911, described in Bulletin 551, and on United States Corps of Engineers triangulation points at Elizabethtown, Bay City, Golconda, and Grand Chain Landing. Control for Brownfield, Equality, Fords Ferry, Golconda, Paducah, and Stonefort quadrangles was done by Kendall in 1913; that for Mound City quadrangle by Wilson in 1915; and that for Marion and Vienna quadrangles by Kendall in 1913 and Wilson in 1915.

BROWNFIELD QUADRANGLE.

Along highways near north border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
Three corners, public T road east, center of north-south road at, 10 feet northwest to dead oak, 10 feet southeast to center of triangle.....	° ' " 37 29 17.2	° ' " 88 30 37.6	Feet.
Three corners, public T road west, center of north-south road at, 15 feet west to mail box No. 60, in center of triangle.....	37 29 07.0	88 30 37.6	1,030
Second-class T road north at corner of orchard.....	37 28 58.4	88 31 10.7	2,804
T. 12 S., R. 6 E., corner secs. 10, 11, 14, and 15 (this point is within a very few feet of the above corner).....	37 29 06.6	88 31 25.6	1,457
Lusk Creek, 200 feet south of Rose Ford, 25 feet north to sycamore tree, 25 feet east to elm tree, fork in road to south and southeast.	37 29 15.2	88 32 04.8	3,279
T. 13 S., R. 6 E., 0.25 mile east of corner secs. 3, 4, 9, and 10; stone corner.....	37 29 56.9	88 32 18.2	4,363
T. 12 S., R. 6 E., quarter corner between secs. 5 and 8; crossroads, second-class road north and south.....	37 29 54.5	88 34 12.4	.....
T. 12 S., R. 6 E., quarter corner between secs. 6 and 7; cross fences.....	37 29 54.3	88 35 18.3	.....
T. 12 S., R. 5 E., stone 0.25 mile west of corner secs. 2, 3, 10, and 11 (set by county surveyor).....	37 29 54.0	88 38 25.4	.....
Three corners, public T road west, 15 feet west to center of triangle.	37 29 34.1	88 38 25.4	2,012
L. A. Walter's mail box in center of triangle at public road fork northwest.....	37 28 44.6	88 39 00.3	5,994
T. 12 S., R. 5 E., 0.25 mile north of corner secs. 15, 16, 21, and 22, corner on north and south section line.....	37 28 23.1	88 39 14.1	2,263
T. 12 S., R. 5 E., quarter corner between secs. 16 and 21, public T road south and second-class road west, 8 feet southwest to corner fence post, 18 feet north to old stump.....	37 28 10.4	88 40 03.2	4,162
T. 12 S., R. 5 E., stone corner secs. 16, 17, 20, and 21; stone is in woods 40 feet southwest of the southwest corner of clearing, on south side of road at bend to south.....	37 28 11.0	88 40 36.2	2,667
Big Bay Creek, center of iron bridge over.....	37 28 50.4	88 41 24.7	5,579
Big Bay Creek, 75 feet northwest of ford in forks of road; large sycamore tree.....	37 29 20.4	88 41 25.5	3,045
Three corners, 400 feet northwest of church; public T road south, 50 feet south to oak, 35 feet southeast to oak.....	37 29 39.6	88 41 56.9	3,184
T. 12 S., Rs. 4 and 5 E.; stone quarter corner between secs. 12 and 7, also line between Pope and Johnson counties.....	37 29 29.2	88 42 33.3	3,115
Three corners; public T road north, center of east and west road at, 12 feet southwest to two mail boxes.....	37 29 28.2	88 43 14.2	3,305
T. 12 S., R. 4 E., quarter corner between secs. 11 and 12, on south edge of road opposite fence north, and about 200 feet east of new house.....	37 29 27.6	88 43 39.4	2,031
Four corners, near top of hill; public crossroads, 5 feet west to oak stump, 50 feet southwest to center of bushy triangle, 20 feet north to center of triangle.....	37 29 16.8	88 44 09.4	2,655

Along highways through center of quadrangle.

Grantsburg, 30 feet west of west end of bridge over Big Bay Creek; public T road south, center of east-west road at.....	37 23 31.3	88 44 43.1	.....
Grantsburg, 0.75 mile east of; center of east-west road at public T road south, 10 feet south to center of triangle, 15 feet north to oak.....	37 23 09.6	88 43 57.9	4,263
T. 13 S., R. 4 E., 720 feet north of center of sec. 13; center of intersection of public crossroads.....	37 23 23.5	88 43 08.8	4,199
T. 13 S., Rs. 4 and 5 E.; stone at east corner secs. 12 and 13, on north-south line between Johnson and Pope counties.....	37 23 47.8	88 42 34.3	3,714
T. 13 S., R. 5 E., 0.25 mile east of center of sec. 18, 80 feet east of public T road south, 25 feet north to maple tree in yard, 10 feet south to center of triangle.....	37 23 15.5	88 41 49.0	4,909
Dixon Springs, 0.75 miles southwest of, three corners, public T road north, center of triangle.....	37 22 57.2	88 40 38.7	5,976
T. 13 S., R. 5 E., corner secs. 16, 17, 20, and 21, at corner of fence south and west (position is within a few feet of true corner).....	37 22 59.0	88 40 26.6	990
Dixon Springs; center of spring No. 1 ("Old Ironsides").....	37 23 04.7	88 40 09.6	1,487
Dixon Springs, 1 mile southeast of; center of east-west road, at public T road north, 25 feet northwest to oak in triangle, 75 feet east of small stream, three corners.....	37 22 22.4	88 39 54.2	4,457
Allens Spring post office, intersection of crossroads at.....	37 22 12.4	88 39 21.0	2,869
Three corners; center of east-west road at public T road north, 25 feet north to center of triangle, 15 feet south to old stump, 25 feet southwest to oak tree.....	37 22 02.6	88 38 34.9	3,855
T. 13 S., R. 5 E.; post at corner of secs. 22, 23, 26, and 27, post in corner of fences south and west, 420 feet north of public T roads south.....	37 21 58.6	88 38 15.2	1,642
T. 13 S., R. 5 E., 1,350 feet south of corner secs. 23, 24, 25, and 26, 25 feet south and 20 feet west of intersection of roads, 5 feet north of corner of wire (and rail) fence; iron post stamped "Prim. Trav. Sta. No. 9, 1913, Illinois".....	37 21 44.8	88 37 09.8	5,464

BROWNFIELD QUADRANGLE—Continued.

Along highways through center of quadrangle—Continued.

Station.	Latitude.	Longitude.	Distance between stations.
Threecorners; public T road south, at north edge of east-west road, 30 feet south to center of bridge over creek.....	37 21 35.1	88 36 04.0	<i>Fect.</i> 5,398
T. 13 S., Rs. 5 and 6 E.; stone corner secs. 25, 30, 31, and 36, 3,010 feet south of public T road south on rangeline, on west edge of north-south road, at fence corner.....	37 21 05.4	88 36 04.0	3,012
Old Brownfield, three corners at, public T road north, 5 feet north to center of triangle.....	37 21 36.4	88 35 43.1	3,563
T. 13 S., R. 6 E., 3,970 feet south of corner secs. 17, 18, 19, and 20.....	37 22 11.9	88 34 56.8	5,185
T. 13 S., R. 6 E., corner secs. 17, 18, 19, and 20; center of north-south road at public T road east.....	37 22 51.2	88 34 56.6	3,970
T. 13 S., R. 6 E., corner secs. 16, 17, 20, and 21, 10 feet north and 25 feet east of center of main road at T road east, 200 feet south of Walter Bros.' store at Waltersburg.....	37 22 40.2	88 33 48.1	5,527
Waltersburg, 1.3 miles southeast of, three corners, 100 feet east of bridge over small creek, 15 feet north to wheel with 4 mail boxes; center of main road at second-class T road north.....	37 22 13.0	88 32 36.9	6,822
T. 13 S., R. 6 E., 550 feet north of corner secs. 22, 23, 26, and 27; center of main road, at second-class T road north.....	37 21 58.6	88 31 30.5	4,857

Along highways near east border of quadrangle.

T. 13 S., R. 6 E.; center of sec. 36, 100 feet northeast of Fairview schoolhouse, oak tree in center of triangle at public T road south.....	37 20 40.5	88 30 01.1	.....
T. 14 S., R. 6 E., north quarter corner sec. 1, oak tree in center of second-class T road east; 60 feet east of the above is south quarter corner sec. 36, T. 13 S., R. 6 E.....	37 20 11.6	88 30 00.4	2,923
T. 14 S., R. 6 E.; stone corner secs. 1, 2, 11, and 12, center of crossroads, at 90° angle in main road to west, second-class road south and east.....	37 19 17.8	88 30 33.6	6,064
Three corners; center of main road at T road east, 15 feet east to center of triangle, 15 feet north to 6 mail boxes on wheel.....	37 18 46.4	88 31 45.7	6,627
T. 14 S., R. 6 E., stone quarter corner, between secs. 10 and 15, west edge of north-south road at center of T road west at store at Old Tonsio post office.....	37 18 25.4	88 32 13.6	3,103
T. 14 S., R. 6 E., 0.75 mile south of quarter corner between secs. 10 and 15; center of north-south road in line with center of public T road west, 25 feet west to center of clump of bushes in triangle.....	37 17 45.9	88 32 14.3	3,991
T. 14 S., R. 6 E., 570 feet east of quarter corner between secs. 22 and 23; three corners public T road south, 10 feet southwest to center of triangle, 28 feet east to persimmon tree.....	37 17 05.0	88 31 34.0	5,265
Bay Creek, center of iron bridge over.....	37 16 32.4	88 31 28.2	3,333
T. 14 S., R. 6 E., 1,330 feet south and 20 feet east of corner secs. 26, 27, 34, and 35, 20 feet north and 15 feet east of center of public crossroads, in corner of wire fence; iron post stamped "Prim. Trav. Sta. No. 6, 1913, Illinois".....	37 15 32.4	88 31 41.3	6,152

Along highways near south border of quadrangle.

T. 14 S., R. 6 E., on line between secs. 27 and 34, three corners public T road west, 15 feet west to center of triangle, 20 feet south to mail box.....	37 15 45.3	88 32 31.4	4,257
T. 14 S., R. 6 E., 0.25 mile west of corner secs. 27, 28, 33, and 34; stone on north edge of road.....	37 15 45.4	88 33 05.0	2,720
T. 14 S., R. 6 E., 0.25 mile west of corner secs. 28, 29, 32, and 33; center of north-south road, at public T road east, 5 feet east to center of triangle.....	37 15 45.6	88 34 11.7	5,390
Forks public road southwest, second-class road west, 23 feet south to stump, 10 feet northwest to mail box.....	37 15 46.5	88 34 49.7	3,072
T. 14 S., R. 6 E., stone corner secs. 29, 30, 31, and 32, 1,000 feet west of forks public road southwest, second-class road west.....	37 15 46.7	88 35 01.7	970
Tps. 14 and 15 S., R. 6 E., 0.25 mile north and 0.25 mile east of corner secs. 1, 6, 31, and 36; stone on south edge of east-west road and 25 feet west of second-class T road south.....	37 15 08.5	88 35 49.7	5,478
Tps. 14 and 15 S., R. 5 E., 210 feet west of south corner sec. 33, on north edge of east-west road at public T road south, is north quarter corner of sec. 4.....	37 15 00.2	88 39 59.0	.....
Massac Creek, 1,160 feet west of concrete bridge over, in southeast corner of public crossroads; large poplar snag.....	37 15 01.8	88 40 52.2	4,299
Tps. 14 and 15 S., R. 5 E., north corner secs. 5 and 6, 160 feet west of concrete bridge over small creek; center of east-west road at fence south.....	37 15 02.8	88 41 39.2	3,809
Tps. 14 and 15 S., Rs. 4 and 5 E., 400 feet west of corner secs. 1, 6, 31, and 36; public crossroads, 20 feet, southeast to oak, 20 feet northwest to telephone pole.....	37 15 03.0	88 42 41.7	5,050

BROWNFIELD QUADRANGLE—Continued.

Along highways near south border of quadrangle—Continued.

Station.	Latitude.	Longitude.	Distance between stations.
Tps. 14 and 15 S., R. 4 E., corner secs. 1, 2, 35, and 36; center of east-west road at second-class T road north and drainage ditch south.....	° ' " 37 15 03.0	° ' " 88 43 42.3	<i>Feet.</i> 4,900
Round Knob, 1 mile northwest of; center of north-south road at public T road west (may be quarter corner between secs. 34 and 35, T. 14 N., R. 4 E.).....	37 15 30.0	88 44 59.6	.....

Along highway near southwest corner of quadrangle (spur line to Army engineers' bench mark at Bay City and is not adjusted).

Bay City, about 1 mile west of, wooden bridge over Cave Creek, center of.....	37 15 26.1	88 30 50.2	.....
Bay City, about 0.80 mile west of; center of iron bridge over Barn Creek.....	37 15 21.7	88 30 38.8	1,016

Along highways near west border of quadrangle.

T. 13 S., R. 4 E., corner secs. 26, 27, 34, and 35, intersection of public crossroads, 35 feet southwest to corner wire fence, 45 feet south-east to oak tree.....	37 21 03.0	88 44 45.9	.....
T. 13 S., R. 4 E., stone corner secs. 22, 23, 26, and 27, in center of north and south road, at wire fence west.....	37 21 56.0	88 44 45.9	5,358
T. 13 S., R. 4 E., 210 feet south of approximate corner secs. 14, 15, 22, and 23, three corners at bridge over creek, center of old north-south road, 25 feet west to center of new road, 35 feet north to center of creek.....	37 22 46.3	88 44 47.2	5,090

Magnetic declination for north border of quadrangle, 4° 37' E.; for south border, 4° 23' E.; for east border, 4° 27' E.; for west border, 4° 23' E.; for center, 4° 25' E.

DONGOLA QUADRANGLE.

Along Big Four and Chicago & Eastern Illinois railroads and highways near east border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
T. 14 S., R. 2 E., crossroads 350 feet south of corner of secs. 28, 29, 32, and 33.....	° ' " 37 15 30.7	° ' " 89 00 13.9	<i>Feet.</i>
Grand Chain, at fence corner 18 feet north of stock pen, on the west side of track, 180 feet north of depot; iron post stamped "Prim. Trav. Sta. No. 15, 1915, Ill. Elev. 405".....	37 15 13.5	89 01 11.0	4,932
Second-class road crossing just north of milepost 237.....	37 16 13.8	89 00 04.5	8,135
Rago, railroad crossing, 380 feet west of west end of bridge over Cache River.....	37 18 45.3	89 00 30.0	.....
Whitehill, railroad crossing, main track.....	37 19 12.2	89 01 16.1	4,612
Joppa Junction, main track of railroad at line between secs. 6 and 31, Tps. 13 and 14 S., R. 2 E., 10 feet south of center of east and west road crossing.....	37 19 52.2	89 01 36.3	4,362
T. 13 S., R. 2 E., railroad at line between secs. 29 and 32.....	37 20 45.5	89 01 18.0	5,585
East-west road crossing.....	37 20 58.7	89 01 13.5	1,389
T. 13 S., R. 2 E., center of main track of railroad at line between secs. 20 and 29, 70 feet north of railroad crossing.....	37 21 37.8	89 01 00.2	4,101
Cypress, main track in front of window of telegraph office.....	37 21 53.3	89 00 54.9	1,619
T. 13 S., R. 2 E., line between secs. 16 and 17, bend in road 0.25-mile north of corner of secs. 16, 17, 20, and 21.....	37 22 46.2	89 00 08.1	6,558
Cypress, railroad crossing, 180 feet southeast of yard limit sign.....	37 22 45.3	89 00 41.1	2,662
Cypress, 1 mile north of, at the southeast corner of crossroads, 3 feet east of C. A. Davidson's mail box and 20 feet east of section line, 0.25 mile north of corner of secs. 17, 18, 19, and 20, T. 13 S., R. 2 E.; iron post stamped "Prim. Trav. Sta. No. 12, 1915, Ill.".....	37 22 44.4	89 01 13.6	2,631
T. 13 S., R. 2 E., corner of secs. 17, 18, 19, and 20.....	37 22 31.3	89 01 13.9	1,325
T. 13 S., R. 2 E., corner of secs. 7, 8, 17, and 18; center of north and south road at fence west.....	37 23 23.2	89 01 13.6	5,255
Crossroads at Mount Pisgah schoolhouse.....	37 24 04.0	89 01 13.0	4,124

DONGOLA QUADRANGLE—Continued.

Along Big Four and Chicago & Eastern Illinois railroads and highways near east border of quadrangle—Continued.

Station.	Latitude.	Longitude.	Distance between stations.
	° ' "	° ' "	<i>Feet.</i>
T. 13 S., R. 2 E., corner of secs. 5, 6, 7, and 8.....	37 24 17.2	89 01 12.8	1,345
Crossroads.....	37 24 21.5	89 02 12.6	4,840
Crossroads.....	37 24 44.6	89 02 12.3	2,340
Tps. 12 and 13 S., R. 2 E.; center of north and south road at line between secs. 6 and 31.....	37 25 13.6	89 02 12.2	2,930
T. 12 S., R. 2 E., quarter corner between secs. 30 and 31; center of north and south road at fence, 50 feet north of bridge over creek. NOTE.—West half of section is long; east half correct.	37 26 07.1	89 01 45.5	5,832
Pleasant Grove, crossroads, 25 feet southwest of oak tree.....	37 26 31.4	89 01 45.6	2,455
T. 12 S., R. 2 E., quarter corner between secs. 19 and 30; center of north and south road in line with fence east.....	37 27 00.1	89 01 46 0	2,905
T road south, line between secs. 18 and 19; northwest corner of wooden culvert.....	37 27 53.6	89 01 24.3	5,690
North end of bridge over Cache River.....	37 28 14.1	89 01 37.5	2,331
T. 12 S., R. 2 E., stone quarter corner between secs. 7 and 18, 100 feet north of T road east and 12 feet east of mail box No. 29.....	37 28 46.1	89 01 45.9	3,305
Elvira schoolhouse, 30 feet north of road forks; iron post stamped "Prim. Trav. Sta. No. 13, 1915, Ill.".....	37 29 36.9	89 01 49.5	5,144
T. 12 S., R. 2 E., quarter corner between secs. 6 and 7, T lane north.	37 29 39.6	89 01 46.1	389
T. 12 S., R. 2 E., corner of secs. 5, 6, 7, and 8; center of east and west road at north and south fence line.....	37 29 39.9	89 01 12.6	2,699
T road north.....	37 29 41.6	89 00 22.9	4,010
T. 12 S., R. 2 E., corner of secs. 4, 5, 8, and 9; fence corner 1,330 feet east of T road north.....	37 29 42.8	89 00 06.5	1,330

Magnetic declination for quadrangle, 44° E.

EQUALITY QUADRANGLE.

Along public roads.

Station.	Latitude.	Longitude.	Distance between stations.
	° ' "	° ' "	<i>Feet.</i>
Lusk, 1.5 miles northwest of; three corners at top of hill, public T road west, 55 feet west to three mail boxes, 10 feet northwest to center of triangle, 60 feet north to oak tree.....	37 30 28.0	88 28 36.7	.....
Hartsville, 0.25 mile south of, 300 feet northeast of church; public T road south, 30 feet south to center of triangle, 5 feet northeast to corner fence.....	37 31 53.0	88 28 57.4	8,763
Hartsville, three corners; public T road east, 20 feet east to center of triangle.....	37 32 25.8	88 28 54.9	3,326
Three corners, 300 feet south of church; second-class T road south, 15 feet south to center of plank bridge.....	37 32 45.1	88 29 11.8	2,380
T. 11 S., Rs. 6 and 7 E., stone corner secs. 19, 24, 25, and 30; stone is in center of lane 60 feet east of dwelling and about 1,200 feet south of T road south.....	37 32 33.3	88 29 11.5	1,190
Ford of Little Lusk Creek, 500 feet northwest of; second-class T road north, center of triangle at.....	37 33 10.7	88 29 53.8	5,096

Magnetic declination for south border of quadrangle, 4° 43' E.; for southwest half, 4° 44' E.

FORDS FERRY QUADRANGLE.

At Peters Creek.

Station.	Latitude.	Longitude.	Distance between stations.
	° ' "	° ' "	<i>Feet.</i>
Peters Creek store, 1,500 feet north of, on north edge of public road 200 feet east of 90° bend to east; iron post stamped "Prim. Trav. Sta. No. 34, 1908, Illinois".....	37 29 37.8	88 14 05.6	.....
Peters Creek store, 1,400 feet west of; public T road south, 5 feet south to center of triangle.....	37 29 21.6	88 14 24.5	2,230

GOLCONDA QUADRANGLE.

Along public roads.

Station.	Latitude.	Longitude.	Distance between stations.
T. 12 S., R. 9 E., west corner secs. 7 and 18; stone in center of second-class road at T fence east.	° ' " 37 28 58.1	° ' " 88 15 49.5	Feet.
NOTE.—100 feet north of the above is T. 12 S., R. 8 E., corner secs. 12 and 13.			
Three corners; public T road north, 5 feet north to center of triangle.	37 28 40.7	88 16 23.0	3,222
Bassett schoolhouse, 0.5 mile east of, 20 feet east of public T road north and 125 feet north of brick house; stone on south edge of east and west road.	37 28 04.6	88 17 13.5	5,462
Bassett schoolhouse, 400 feet west of, three corners; second-class T road west, 50 feet north of public fork east.	37 28 04.8	88 17 46.9	2,690
T. 12 S., R. 8 E., stone corner sections 14, 15, 22, and 23; stone is in center of east-west second-class road, 1,700 feet west of Bassett schoolhouse.	37 28 04.8	88 18 04.2	1,400
Elizabethtown, Hardin County courthouse; center of front or south door.	37 26 54.3	88 18 13.8	7,167
Elizabethtown, on limestone point on bank of river, directly in front of the Rose House, 5 feet west of summer house; a triangle and letters "U. S." cut in solid rock, "U. S. Engineers' Base line triangulation station".	37 26 46.2	88 18 11.8	835
NOTE.—The engineers' position for this point is (U. S. standard datum): Latitude, 37° 26' 41.746"; longitude, 88° 18' 15.349". Difference: Latitude, 4.45"; longitude, 3.55".			
Elizabethtown, 0.6 mile northwest of; stone at T road north said to be quarter corner between secs. 22 and 27, T. 12 S., R. 8 E.	37 27 10.6	88 18 38.2	3,265
T. 12 S., R. 8 E., stone corner secs. 21, 22, 27, and 28; stone is at fence corner on telephone line, about 670 feet west of 45° bend in road to northwest.	37 27 10.6	88 19 11.1	2,648
Big Creek, center of iron bridge over.	37 27 14.0	88 19 26.7	1,304
Stone Church, three corners opposite public T road north, 10 feet west to telephone pole, 35 feet east to center of triangle.	37 27 10.8	88 20 36.9	5,674
NOTE.—130 feet east of the above is an old engine cylinder buried in center of east-west road and may be one-sixteenth corner between the SE. $\frac{1}{4}$ sec. 20 and NE. $\frac{1}{4}$ sec. 29, T. 12 S., R. 8 E.			
T. 12 S., R. 8 E., quarter corner secs. 19 and 20, at second-class T road north and wire fence south, 10 feet northwest to three mail boxes.	37 27 37.0	88 21 26.2	4,783
T. 12 S., R. 8 E., stone center sec. 19, on south edge of road at second-class T road north, 100 feet east of top of hill.	37 27 37.3	88 22 00.2	2,740
T. 12 S., R. 8 E., west corner secs. 18 and 19, about 1,000 feet south of, 50 feet west of range line between secs. 19 and 24, on the north edge of east-west road opposite and in line with public T road south and 40 feet north of center of triangle; iron post stamped "Prim. Trav. Sta. No. 1, 1913, Illinois".	37 27 54.7	88 22 38.2	3,533
T. 12 S., R. 8 E., west corner secs. 18 and 19 at T fence east.	37 28 04.6	88 22 37.4	1,005
NOTE.—20 feet north of the above is T. 12 S., R. 7 E., corner of secs. 13 and 24, at T fence west.			
T. 12 S., R. 7 E., east corner secs. 13 and 24, about 0.6 mile northwest of; three corners public T road west, 20 feet southwest to four mail boxes, 25 feet northwest to corner wire fence.	37 28 32.6	88 22 53.6	3,122
T. 12 S., R. 7 E., quarter corner between secs. 13 and 14, 660 feet south of; three corners second-class T road north, 15 feet north to oak, 30 feet southwest to telephone pole.	37 28 26.0	88 23 42.6	4,003
NOTE.—660 feet north and 25 feet west of the above is within a few feet of T. 12 S., R. 7 E., quarter corner between secs. 13 and 14, at gate on east edge of road.			
T. 12 S., R. 7 E., corner secs. 10, 11, 14, and 15, 1,560 feet south of, four corners on Pope-Hardin county line; second-class cross-road.	37 28 30.8	88 24 48.2	5,313
NOTE.—1,560 feet north of the above is T. 12 S., R. 7 E., corner secs. 10, 11, 14, and 15.			
Bridge over Grand Pierre Creek, 0.6 mile east of; three corners public T road south, center of triangle at.	37 28 55.5	88 25 46.3	5,313
NOTE.—555 feet north and 620 feet west of the above is T. 12 S., R. 7 E., corner secs. 9, 10, 15, and 16; corner is said to be on north-south yard fence on line between kitchen and smoke-house of residence of Mr. Shetler, about 0.5 mile east of Grand Pierre Creek.			
Bridge over Grand Pierre Creek, 400 feet west of; forks of public roads northwest and southwest, 5 feet north to center of triangle, 15 feet southwest to two mail boxes.	37 29 04.4	88 26 27.0	3,398
Bridge over Grand Pierre Creek, 0.8 mile west of; fence corner 300 feet north of public road and may be T. 12 S., R. 7 E., corner secs. 8, 9, 16, and 17.	37 28 56.8	88 27 09.0	3,472
T. 12 S., R. 7 E., stone corner secs. 7, 8, 17, and 18; stone is at corner of picket fence on south edge of road 1,200 feet east of cross-roads at Lusk.	37 29 02.6	88 28 08.2	4,814

GOLCONDA QUADRANGLE—Continued.

Along public roads—Continued.

Station.	Latitude.	Longitude.	Distance between stations.
Lusk, store and post office, 50 feet east and 20 feet north of the northeast corner of, 220 feet north of crossroads, on east edge of north and south roads, at the southwest corner of Mrs. Lucy Barger's front yard; iron post stamped "Prim. Trav. Sta. No. 2, 1913, Illinois".....	37 29 04.8	88 28 22.8	Feet. 1,190
Lusk, 0.75 mile north of; three corners public T road west, mail box at telephone pole in center of triangle.....	37 29 42.8	88 28 10.0	3,992

Magnetic declination for north border of quadrangle, 4° 43' E.

Along highways near north border of quadrangle.

T. 12 S., Rs. 6 and 7 E., corner secs. 7, 12, 13, and 18, three corners; center of east and west road at second-class T road south...	37 29 02.5	88 29 15.2	.....
Lusk, 1.2 miles west of center of triangle at three corners; public T road north, 50 feet east of ford of Little Grand Pierre.....	37 29 02.5	88 29 36.9	1,745

Along highways near west border of quadrangle.

Golconda, at south edge of forks of public roads south and southwest, 60 feet north to oak tree, 60 feet southwest to oak tree....	37 21 39.3	88 29 23.2	.....
Golconda, in Pope County courthouse yard, west and south of north gate, U. S. Corps of Engineers' bench-mark post, stamped "891" (Henderson astronomic datum).....	37 22 04.7	88 29 02.0	3,085
NOTE.—The position of the above on approximate United States standard: Latitude, 37° 22' 01.2"; longitude, 88° 29' 03.8".			
Golconda, in northwest corner of courthouse yard and 71 feet northwest of U. S. Corps of Engineers' bench mark, in center of triangle formed by supports of city fire bell; iron post stamped "Prim. Trav. Sta. No. 10, 1913, Illinois".....	37 22 05.0	88 29 02.8	71
Golconda, at north edge of town; center of iron bridge over Lusk Creek.....	37 22 20.9	88 29 13.3	1,821
T. 13 S., Rs. 6 and 7 E., stone corner secs. 13, 18, 19, and 24; corner in pile of stones at wire and picket fence corner at old north and south road and telephone line.....	37 22 53.2	88 29 20.9	3,317
Forks at top of hill, public roads north and northeast center of triangle at.....	37 23 12.2	88 29 20.6	1,920
T. 13 S., Rs. 6 and 7 E., corner secs. 7, 12, 13, and 18; center of road opposite hedge north and east.....	37 23 46.1	88 29 20.4	3,426
T. 13 S., Rs. 6 and 7 E., corner secs. 1, 6, 7, and 12; center of main road, 25 feet south of T lane west to barn with cupola.....	37 24 38.6	88 29 19.6	5,310
T. 12 and 13 S., Rs. 6 and 7 E., stone corner secs. 1, 6, 31, and 36, at fence corner in northwest corner of pasture and about 700 feet west of public road.....	37 25 31.4	88 29 18.5	5,342
Little Grand Pierre Creek, 700 feet west of ford at; stone in center of triangle at second-class road west and 45° bend in main road to northeast.....	37 26 10.7	88 28 54.0	4,437
T. 12 S., R. 7 E., quarter corner between secs. 30 and 31 (?); center of road at east and west fence.....	37 26 24.0	88 28 44.4	1,552
Gowens's store, 125 feet south of; fork in roads, public roads north and northeast, 30 feet southeast to northwest corner shop, 60 feet northwest to front gate.....	37 26 38.4	88 28 36.6	1,577
T. 12 S., R. 7 E., corner secs. 29, 30, 31, and 32, on east and west fence row, 0.5 mile southeast of store at "Gowens".....	37 26 24.1	88 28 10.9	2,529
T. 12 S., R. 7 E., stone quarter corner between secs. 19 and 20, in corner of cross fences.....	37 27 43.3	88 28 09.9	8,010
Lusk, about 1 mile south of, 810 feet west of corner secs. 17, 18, 19, and 20, T. 12 S., R. 7 E., three corners; center of north and south road at public T road east; 5 feet northeast to center of triangle, 12 feet southeast to wire fence corner.....	37 28 09.8	88 28 19.6	2,788
Lusk, on east edge of north and south road at the southwest corner of Mrs. Lucy Bayers' front yard, 50 feet east and 20 feet north of the northeast corner of store and 220 feet north of crossroads; iron bench-mark post stamped "Prim. Trav. Sta. No. 2, 1913, Illinois".....	37 29 04.8	88 28 22.8	5,559
Bay City, 70 feet north of Glass's store, 30 feet west of center of north-south road; U. S. Corps of Engineers' bench-mark post (Henderson astronomic datum).....	37 15 03.1	88 29 47.6	.....
NOTE.—The position of above on approximate United States standard: Latitude, 37° 14' 59.6"; longitude, 88° 29' 50.4".			

Magnetic declination for west border of quadrangle 4° 27' E.

JOPPA QUADRANGLE.

Along highways near north border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
	° ' "	° ' "	Feet.
Center of east and west road, just north of telephone pole with signboard; road east, west, southeast, and southwest.....	37 14 30.3	88 59 58.1	.....
U. S. Corps of Engineers' bench mark 46, Grand Chain Landing, about 300 feet above shore end of current deflecting crib and rock dike and about 60 feet below, near corner of white frame house, on slope of hill, about 150 feet back from top of river bank, in small ravine at corner of orchard and about 25 feet from river-side corner of shed and privy respectively; top of cap of 2-inch galvanized pipe.....	37 13 44.0	88 59 37.6	4,966
Tps. 14 and 15 S., Rs. 2 and 3 E., corner of; center of north-south road on county line at fence east.....	37 14 51.3	88 55 41.3	.....
Crossroads on ridge, north-south road on Pulaski-Massac county line.....	37 14 32.3	88 55 40.6	1,926
Crossroads, 290 feet west of line between secs. 5 and 6, T. 15 S., R. 3 E.....	37 14 38.3	88 54 43.4	4,666
T. 15 S., R. 3 E., road north on line between secs. 4 and 5, just north of schoolhouse.....	37 14 24.6	88 53 37.4	5,514
Hillerman, T road east.....	37 14 13.8	88 53 21.5	1,688
T. 15 S., R. 3 E., corner of secs. 3, 4, 9, and 10; center of east-west road at north-south fence line.....	37 14 13.1	88 52 32.5	3,965
T. 15 S., R. 3 E., corner of secs. 2, 3, 10, and 11; crossroads.....	37 14 11.9	88 51 26.2	5,360
T. 15 S., R. 3 E., in SW. $\frac{1}{4}$ sec. 2, 50 feet east and 25 feet north of Chicago & Eastern Illinois R. R. at east-west road crossing; iron post stamped "Prim. Trav. Sta. No. 16, 1915, Ill.".....	37 14 20.1	88 51 05.1	1,902
T. 15 S., R. 3 E., road south on line between secs. 1 and 2.....	37 14 23.6	88 50 20.8	3,603
Tucker schoolhouse, 530 feet north of; wooden culvert at crossroads, line between secs. 1 and 6, T. 15 S., Rs. 3 and 4 E.....	37 14 17.0	88 49 15.0	5,362
T. 15 S., R. 4 E., stone quarter corner between secs. 5 and 8.....	37 14 10.5	88 47 31.2	8,419

Magnetic declination for quadrangle, $4\frac{1}{2}^{\circ}$ E.

MARION QUADRANGLE.

Along highways near east border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
	° ' "	° ' "	Feet.
T. 12 S., R. 4 E., stone quarter corner between secs. 3 and 4, 1,000 feet north of J. F. Russell's house, 5 feet north of corner rail fence at 90° angle in road to west.....	37 30 32.1	88 45 49.7	.....
Tps. 11 and 12 S., R. 4 E., within a few feet of quarter corner between secs. 4 and 33 (corner could not be found).....	37 30 46.9	88 46 22.4	3,030
Tps. 11 and 12 S., R. 4 E., 0.25 mile north and 1,900 feet east of corner secs. 4, 5, 32, and 33, three corners at Reynoldsburg, at north-east corner of triangle, 20 feet west of north-south road; iron bench-mark post stamped "Prim. Trav. Sta. No. 4, 1913, Ill.".....	37 30 58.3	88 46 30.7	1,388
Reynoldsburg, 1.3 miles northeast of; three corners, public T road west, at center of north-south road, 10 feet west to center of triangle, 20 feet northwest to elm tree.....	37 32 00.2	88 46 19.7	6,267
T. 11 S., R. 4 E., quarter corner between secs. 21 and 28, 0.5 mile west of Ozark intersection of public crossroads.....	37 32 33.6	88 46 19.7	3,390
T. 11 S., R. 4 E., stone in center of sec. 21, on north edge of east and west road at public T road south.....	37 32 59.2	88 46 19.7	2,689
T. 11 S., R. 4 E., stone corner secs. 15, 16, 21, and 22, in center of intersection of second-class crossroads.....	37 33 25.2	88 45 45.8	3,714
T. 11 S., R. 4 E., stone corner secs. 9, 10, 15, and 16, at junction of east-west wire fence and T fence south.....	37 34 27.8	88 46 19.2	6,883
New Burnside station, 300 feet east of; center of main track Big Four R. R. at north-south road crossing.....	37 34 51.5	88 46 16.9	2,414
T. 11 S., R. 4 E., stone quarter corner between secs. 4 and 9, 15 feet northwest of center of second-class east-west crossroad.....	37 35 13.1	88 46 19.0	2,195
Tps. 10 and 11 S., R. 4 E., 25 feet east of the south corner secs. 33 and 34, is north corner secs. 3 and 4; center of north-south road at east-west fence is also Johnson-Williamson county line.....	37 36 04.3	88 45 45.6	5,831
T. 10 S., R. 4 E., 12 feet north and 20 feet west of corner secs. 27, 28, 33, and 34, at northwest corner of crossroads; iron bench mark post stamped "Prim. Trav. Sta. No. 10, 1911, Illinois.".....	37 36 57.3	88 45 45.8	5,365

Magnetic declination for east border of quadrangle, $4^{\circ} 15'$ E.

MARION QUADRANGLE—Continued.

Along highways near south border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
	° ' "	° ' "	Feet.
T. 12 S., R. 2 E.; center of east-west road at fence on line between secs. 3 and 4.....	37 30 03.7	88 59 01.5	.....
T. 12 S., R. 2 E.; road forks at road south on line between secs. 2 and 3; 130 feet north of road forks is north corner of secs. 2 and 3, T. 12 S., R. 2 E., and 20 feet east of this corner is south corner of secs. 34 and 35, T. 11 S., R. 2 E.....	37 30 37.7	88 57 54.9	6,376
Chicago & Eastern Illinois R. R. crossing, 260 feet northeast of store building now used for storage purposes.....	37 31 04.4	88 57 21.6	3,806
T. 11 S., R. 2 E.; center of road at line between secs. 35 and 36, T lane north.....	37 31 16.5	88 56 48.3	2,949
T road southeast, 450 feet southwest of O. A. Lenon's mail box No. 20 in front of house.....	37 31 45.2	88 55 30.0	6,947
T. 11 S., R. 3 E.; center of road at fence on line between secs. 30 and 31.....	37 31 37.6	88 55 15.2	1,415
T. 11 S., R. 3 E., at the northeast corner of crossroads in the southwest part of the NW $\frac{1}{4}$ sec. 32, 60 feet northeast of mail boxes 14, 15, and 16, on the Vienna-Goreville road, old one-story frame house stands at the southeast corner of crossroads; iron post stamped "Prim. Trav. Sta. No. 14, 1915, Ill.".....	37 31 17.8	88 54 33.3	3,927
T. 11 S., R. 3 E., T road north; road west is second class, line between secs. 28 and 33.....	37 31 37.1	88 53 16.6	6,485
Right-angle bend in road just north of mail box 56; road west is on line between secs. 27 and 34.....	37 31 37.4	88 52 26.1	4,065
Road at creek just east of R. Riley's mail box.....	37 31 26.2	88 52 12.7	1,568
T. 11 S., R. 3 E.; center of east-west road at T lane north on line between secs. 34 and 35.....	37 31 25.7	88 51 19.6	4,277
Tunnel Hill; railroad crossing just south of depot.....	37 31 28.3	88 50 17.0	5,052
T. 11 S., R. 3 E., quarter corner between secs. 35 and 36; center of east-west road, just north of paling gate and 370 feet east of T road east, which is above and just southwest of north entrance of tunnel.....	37 31 12.8	88 50 13.6	1,587
T road south.....	37 31 13.4	88 49 57.4	1,310
T. 11 S., Rs. 3 and 4 E., quarter corner between secs. 31 and 36; T lane north.....	37 31 14.0	88 49 08.3	3,950
T road north.....	37 31 14.3	88 48 35.2	2,671
T. 11 S., R. 4 E.; T road south on line between secs. 32 and 33.....	37 31 00.8	88 46 54.6	8,220
Prim Trav. Sta. No. 4, 1913, Ill.....	37 30 58.8	88 46 30.7	1,936

Magnetic declination for south border of quadrangle, $4\frac{1}{2}^{\circ}$ E.**MOUND CITY QUADRANGLE.**

Near northeast corner of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
	° ' "	° ' "	Feet.
T. 14 S., R. 2 E., south corner of secs. 32 and 33; T road west.....	37 14 41.0	89 00 15.8	.....

PADUCAH QUADRANGLE.

Along highways near north border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
	° ' "	° ' "	Feet.
Tps. 14 and 15 S., Rs. 5 and 6 E., stone corner secs. 1, 6, 31, and 36, on west edge of traveled part of north and south road, 10 feet east of center of triangle at public T road west; also corner between Pope and Massac counties.....	37 14 55.5	88 36 05.9	.....
Tps. 14 and 15 S., R. 5 E., stone corner secs. 1, 2, 35, and 36; public T roads, on south edge of east-west road.....	37 14 56.8	88 37 12.4	5,374
Tps. 14 and 15 S., R. 5 E., 750 feet south and 1,500 feet east of corner secs. 2, 3, 34, and 35, 15 feet south and 25 feet east of intersection of crossroads; iron bench mark post stamped "Prim. Trav. Sta. No. 7, 1913, Illinois".....	37 14 50.2	88 37 59.6	3,878
Three corners, second-class T road northwest, center of northeast-southwest road at intersection, 5 feet northwest to center of triangle, 5 feet south to George Meyer's mail box.....	37 14 52.6	88 39 01.9	5,044

PADUCAH QUADRANGLE—Continued.

Along highways near north border of quadrangle—Continued.

Station.	Latitude.	Longitude.	Distance between stations.
Forks of public roads northeast and northwest, 10 feet east to center of triangle.....	° ' "	° ' "	Feet.
Round Knob, 60 feet north and 35 feet west of intersection of cross streets at Dr. Dixon's residence and drug store; iron benchmark post stamped "Prim. Trav. Sta. No. 8, 1913, Illinois".....	37 14 30.8	88 39 37.0	3,593
	37 14 54.6	88 44 11.5	.....

Magnetic declination for north border of quadrangle, 4° 23' E.

STONEFORT QUADRANGLE.

Along public roads.

Station.	Latitude.	Longitude.	Distance between stations.
T. 11 S., R. 6 E., stone corner secs. 13, 14, 23, and 24; stone is in corner of cross fences 1,300 feet north of G. L. Hancock's residence. Oak store and post office, 0.25 mile south of; public T road west, 5 feet west to center of triangle, 30 feet north to oak tree.....	° ' "	° ' "	Feet.
T. 11 S., R. 6 E., quarter corner between secs. 11 and 14, at 90° bend in road to west 0.5 mile north of Oak post office.....	37 33 24.2	88 30 16.7	.....
T. 11 S., R. 6 E., corner secs. 2, 3, 10, and 11; public T road east.....	37 33 37.9	88 30 49.8	3,004
Tps. 10 and 11 S., R. 6 E., on east-west line between secs. 2 and 35; line between Pope and Saline counties center of Harrisburg road at.....	37 34 16.7	88 30 49.0	3,930
NOTE.—2,220 feet west of the above is T. 10 S., R. 6 E., stone (south) corner of secs. 34 and 35; 140 feet east of this corner is T. 11 S., R. 6 E. (north) corner secs. 2 and 3.	37 35 08.3	88 31 02.3	5,330
Pope-Saline county line, 1.2 miles north of; second-class road south at bend of main road to north, 30 feet west to oak on bank, 30 feet south to center of triangle.....	37 35 03.5	88 30 53.6	5,627
T. 10 S., R. 6 E., east-west line between secs. 23 and 26; center of road at crossing.....	37 37 08.6	88 31 02.9	6,638
NOTE.—1,330 feet west of the above is T. 10 S., R. 6 E., corner secs. 22, 23, 26, and 27; near creek bank at corner post of wire fence. Bridge over McSparrin Branch, 500 feet north of; public T road east to Rudement, center of triangle at.....	37 37 49.3	88 31 03.4	4,115
T. 10 S., R. 6 E., stone corner secs. 23, 24, 25, and 26, at four corners, 1,000 feet east of Spring Valley Church.....	37 38 02.5	88 31 03.2	1,350
Rudement, primary traverse station No. 8, 1911.....	37 37 49.4	88 30 13.2	4,236
	37 38 15.7	88 29 22.9	4,850

Magnetic declination for southeast border of quadrangle, 4° 44' E.

Along highways near south border of quadrangle.

Three corners, center of north and south road at public T road east, 25 feet southeast to post in corner of fence.....	37 30 25.0	88 32 30.2	.....
Three corners, public T road east, center of triangle at.....	37 30 26.7	88 33 36.0	5,300
Tps. 11 and 12 S., R. 6 E., stone corner secs. 4, 5, 32, and 33, 10 feet west of oak tree at 90° bend in road to north.....	37 30 46.7	88 33 38.7	2,032
Eddyville, cross streets at Hathaway's Hotel, 35 feet northeast to corner hotel porch, 10 feet south to plank bridge.....	37 30 07.5	88 35 11.5	.....
T. 12 S., Rs. 5 and 6 E., stone quarter corner between secs. 1 and 6, 750 feet west of ford of small stream, 150 feet east of second-class fork southwest, 10 feet south of wire fence and 15 feet east of a blazed walnut tree and on line of wire fence.....	37 30 20.0	88 35 58.0	.....
Tps. 11 and 12 S., Rs. 5 and 6 E., 0.25 mile west of corner secs. 1, 6, 31, and 36, three corners, public T road west.....	37 30 45.8	88 36 14.4	2,936
Tps. 11 and 12 S., Rs. 5 and 6 E., stone corner secs. 1, 6, 31, and 36, at fence corner 0.25 mile east of three corners on township line between Tps. 11 and 12 S.....	37 30 45.8	88 35 57.7	1,342
Tps. 11 and 12 S., R. 5 E., 0.25 mile north and 0.25 mile east of corner secs. 1, 2, 35, and 36, in fence corner on south edge of east and west road in line with public T road north; iron benchmark post stamped "Prim. Trav. Sta. No. 3, 1913, Ill.".....	37 30 58.8	88 36 47.2	4,202
Tps. 11 and 12 S., R. 5 E., stone at corner corner secs. 35 and 36; 300 feet east of above is stone north corner secs. 1 and 2.....	37 30 45.9	88 37 03.9	1,872
Simon Miller's mail box, at bend of main road southwest and second-class road west.....	37 30 43.6	88 38 02.5	4,729

Magnetic declination for south border of quadrangle, 4° 37' E.; for west border, 4° 16' E.

VIENNA QUADRANGLE.

Along highways near northeast corner of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
Simpson, 0.5 mile northeast of; public T road east, 12 feet north-east to telephone pole.....	37 28 29.0	88 45 01.4	Feet.
Simpson station, 50 feet south of intersection of main track Illinois Central R. R. and public road crossing.....	37 28 04.3	88 45 16.3	2,776
T. 12 S., R. 4 E., corner secs. 9, 10, 15, and 16, at 90° bend in road to north.....	37 29 04.4	88 45 50.8	6,694
Simpson station, about 2 miles north of, 500 feet west of double bridges, 100 feet east of public T road south, intersection of Illinois Central R. R. and public road crossing.....	37 29 49.7	88 45 25.6	5,011

Along highways near east border of quadrangle.

T. 12 S., R. 4 E., quarter corner between secs. 15 and 22, 210 feet west of railroad crossing, 35 feet north of front door of shop; iron rod.....	37 28 05.1	88 45 18.7	-----
T. 12 S., R. 4 E., corner secs. 15, 16, 21, and 22; public T road south, 10 feet southeast to center of triangle.....	37 28 05.5	88 45 52.7	2,747
T. 12 S., R. 4 E., 740 feet west of quarter corner between secs. 16 and 21, on top of small hill, intersection of public crossroads.....	37 28 05.7	88 46 34.8	3,390
Simpson station, about 2 miles south of, at bottom of hill center of north and south road at second class T road through gateway, to west 25 feet northeast to hickory, 25 feet southwest to mail box.....	37 27 06.7	88 46 32.3	5,978
T. 12 S., R. 4 E., stone corner secs. 28, 29, 32, and 33, in orchard 25 feet north of center of public road at a point 25 feet east of gate to Mr. T. H. Sharpe's barn.....	37 26 20.5	88 46 58.1	5,113
Four corners, intersection of public crossroads, 30 feet northeast to corner post of wire fence, 40 feet northwest to two telephone poles. Three corners, public T road west, 10 feet west to center of triangle, 10 feet northeast to telephone pole.....	37 26 07.5	88 47 30.3	2,917
T. 13 S., R. 4 E., corner secs. 4, 5, 8, and 9, 1,370 feet east of T road north, in center of east and west road opposite rail fence north.....	37 25 15.3	88 47 12.2	5,483
Wartrace, 900 feet southeast of, in the N.E. $\frac{1}{4}$ SW. $\frac{1}{4}$ sec. 9, T. 13 S., R. 4 E., on the north edge of road opposite public T road south to New Columbia; iron bench-mark post stamped "Prim. Trav. Sta. No. 5, 1913, Illinois".....	37 24 31.8	88 46 56.1	4,595
T. 13 S., R. 4 E., stone corner secs. 9, 10, 15, and 16, in corner of east and west wire fence and T fence south, in woods 10 feet north of road.....	37 23 57.8	88 46 42.9	3,604
T. 13 S., R. 4 E., stone in center of sec. 34, 15 feet west of a gate about 300 feet southwest of John Comer's residence.....	37 23 39.8	88 45 50.8	4,582
Tps. 13 and 14 S., R. 4 E., west line between secs. 3 and 34; also line between Massac and Johnson counties, center of public road.....	37 20 36.6	88 45 20.6	-----
T. 14 S., R. 4 E., quarter corner between secs. 3 and 10; center of north and south road at second-class T road east, 0.25 mile south of schoolhouse.....	37 20 10.0	88 45 17.7	2,704
New Columbia, about 1 mile east of and 100 feet west of T road north; center of bridge over creek.....	37 19 29.2	88 45 22.3	4,137
T. 14 S., R. 4 E., stone quarter corner between secs. 10 and 15, in center of north and south road.....	37 18 50.3	88 45 22.3	3,938
Three corners, at foot of hill, 35 feet south of small stream, 20 feet west of center of triangle; center of north and south road at public T road east.....	37 18 36.7	88 45 22.1	1,373
Four corners, public T road east, second-class T road west, 30 feet south of plank bridge at south end of levee, 35 feet southeast of oak tree, 25 feet west of center of triangle.....	37 18 22.7	88 45 38.8	1,959
T. 13 S., R. 4 E., quarter corner between secs. 22 and 27, 60 feet west of road at first bridge at south end of levee.....	37 17 49.8	88 45 23.1	3,559
Three corners, near center of sec. 27, T. 14 N., R. 4 E., 150 feet north of Pleasant Union Schoolhouse; public T road west 10 feet north-west to oak.....	37 16 49.5	88 45 22.1	6,096
	37 16 23.6	88 45 23.6	2,631

Along highways through center of quadrangle.

Prim. Trav. Sta. No. 5, 1913, Ill. (See above).....	37 23 57.8	88 46 42.9	-----
Wartrace Schoolhouse, telephone pole in front of, 20 feet south of line between secs. 5 and 8, T. 13 S., R. 4 E.....	37 24 30.6	88 47 29.4	5,010
T lane north, 25 feet southwest of J. L. Hogg's mail box 47.....	37 24 43.6	88 48 04.0	3,086
T. 13 S., Rs. 3 and 4 E., center of east and west road in line with road south on town line between Rs. 3 and 4 E.....	37 24 40.0	88 49 09.3	5,282
T. 13 S., R. 4 E., west corner of secs. 6 and 7; center of north and south road at fence east.....	37 24 30.7	88 49 09.5	935
T. 13 S., R. 3 E., quarter corner between secs. 1 and 12; bend in road, 130 feet south of T road south.....	37 24 36.4	88 49 42.0	2,683

VIENNA QUADRANGLE—Continued.

Along highways through center of quadrangle—Continued.

Station.	Latitude.	Longitude.	Distance between stations.
T. 13 S., R. 3 E., center of east and west road at line between secs. 1 and 2, 200 feet south of schoolhouse and in line with fence north, 10 feet west of T lane north.....	° ' "	° ' "	Feet.
T. 13 S., R. 3 E., T road south on line between secs. 2 and 3.....	37 24 39.2	88 50.14.9	2,669
T. 13 S., R. 3 E., T road south on line between secs. 3 and 4.....	37 24 48.1	88 51 21.1	5,418
Vienna, railroad crossing, main track, just south of depot.....	37 25 03.6	88 52 27.3	5,570
Vienna, in yard of Johnson County courthouse, 9 feet west of concrete base of gun near the northwest corner of courthouse; iron post stamped "Prim. Trav. Sta. No. 11, 1915, Ill.".....	37 25 02.4	88 53 11.0	3,523
T. 13 S., R. 3 E., line between secs. 5 and 6; bend in road at fence north, 240 feet west of small bridge.....	37 24 55.6	88 53 47.0	2,980
T. 13 S., R. 2 E., east corner of secs. 1 and 12; T road west (20 feet north of above corner is T. 13 S., R. 3 E., west corner of secs. 6 and 7, fence east).....	37 24 53.8	88 54 42.2	4,460
T. 13 S., R. 2 E., corner of secs. 1, 2, 11, and 12; 20 feet north is T. 13 S., R. 3 E., center of east and west road at north and south fence line, 210 feet east of top of hill.....	37 24 37.6	88 55 41.7	5,072
T. 13 S., R. 2 E., line between secs. 2 and 11; T road south at Oak Grove schoolhouse, 2 feet east and 6 feet north of J. B. Stanley's mail box 30.....	37 24 28.6	88 56 47.5	5,382
T. 13 S., R. 2 E., quarter corner between secs. 10 and 11, 10 feet east of T lane south.....	37 24 27.4	88 57 04.0	1,339
Railroad crossing, Chicago, Burlington & Quincy R. R., east-west quarter-section line through sec. 10, T. 13 S., R. 2 E.....	37 23 58.2	88 57 54.9	5,056
Cache River, east end of bridge over.....	37 23 56.9	88 58 20.2	2,050
T. 13 S., R. 2 E., line between secs. 15 and 16; T road west, 0.25 mile north of corner of secs. 15, 16, 21, and 22.....	37 23 44.1	88 58 22.1	1,609
	37 22 49.0	88 59 01.8	6,070

Along highways near south border of quadrangle.

T. 14 S., R. 2 E., corner of secs. 27, 28, 33, and 34; center of east-west road at fence north, 200 feet east of large white house on north side of road.....	37 15 36.8	88 59 06.0	.....
T road south at Swan Lake Schoolhouse, 620 feet east of T road north.....	37 15 37.9	88 58 41.3	2,000
T. 14 S., R. 2 E., corner of secs. 26, 27, 34, and 35; T road north.....	37 15 39.8	88 57 57.1	3,580
West end of bridge over big ditch.....	37 15 41.6	88 57 08.5	3,930
T. 14 S., R. 2 E., corner of secs. 25, 26, 35, and 36; wooden post driven flush with ground in center of east and west road, in line with north and south fence.....	37 15 42.4	88 56 49.1	1,570
T. 14 S., R. 2 E., east corner of secs. 25 and 36, Pulaski-Massac county line (180 feet south of above corner is T. 14 S., R. 3 E. west corner of secs. 30 and 31; T road east).....	37 15 44.9	88 55 41.4	5,484
Right-angle bend in road at lane east; township line.....	37 15 03.0	88 47 26.9	.....
T. 14 S., R. 4 E., center of sec. 32; T road east.....	37 15 30.4	88 47 36.0	2,858
T. 14 S., R. 4 E., quarter corner between secs. 32 and 33; center of east and west road at north and south fence line.....	37 15 30.2	88 47 02.9	2,670
T. 14 S., R. 4 E., quarter corner between secs. 33 and 34; T road south.....	37 15 30.3	88 45 56.0	5,410
Round Knob, 1 mile northwest of; T road west.....	37 15 30.0	88 44 59.6	4,560

Along highways, Chicago & Eastern Illinois R. R., and Cleveland, Cincinnati, Chicago & St. Louis R. R. near west border of quadrangle.

Buncombe, 1.5 miles northwest of; north end of bridge over Lick Creek.....	37 29 25.6	88 59 59.2	.....
Chicago & Eastern Illinois R. R., at second-class road crossing, 600 feet west of milepost "J 12".....	37 18 04.7	88 59 12.0	.....
Karnak, junction of Chicago & Eastern Illinois and Big Four railroads.....	37 17 48.6	88 58 29.9	3,774
T. 14 S., R. 2 E., corner of secs. 15, 16, 21, and 22; corner fence post, 40 feet northeast of crossing.....	37 17 22.6	88 59 03.1	3,756

Magnetic declination through center of quadrangle, $4\frac{1}{2}^{\circ}$ E.; for west border, $4\frac{3}{4}^{\circ}$ E. for north border, $4\frac{1}{2}^{\circ}$ E.; for south border, $4\frac{3}{4}^{\circ}$ E.; for east border, $4^{\circ} 23'$ E.

ILLINOIS AND WISCONSIN.

PRIMARY TRAVERSE.

Belvidere, Oregon, Pecatonica, and Rockford quadrangles, Ill.; Brodhead quadrangle, Wis.

STEPHENSON AND WINNEBAGO COUNTIES, ILL.; GREEN AND ROCK COUNTIES, WIS.

The following geographic positions on North American datum were determined in 1915 by J. H. Wilson and are based on primary traverse positions determined in 1911, described in Bulletin 551:

BELVIDERE QUADRANGLE.

Along highways near west border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
	° ' "	° ' "	Feet.
T. 46 N., R. 2 E., corner secs. 3, 4, 9, and 10, 650 feet south of crossroads; center of north-south road.....	42 29 10.0	88 59 59.7	.....
T. 46 N., R. 2 E., corner secs. 9, 10, 15, and 16; crossroads.....	42 28 17.7	88 59 59.3	5,290
T. 46 N., R. 2 E., corner secs. 15, 16, 21, and 22; crossroads.....	42 27 25.4	88 59 59.0	5,300
T. 46 N., R. 2 E., corner secs. 21, 22, 27, and 28; T road north.....	42 26 33.1	88 59 58.8	5,290

Magnetic declination near west border, 2° 41' E.

OREGON QUADRANGLE.

Along highways near north border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
	° ' "	° ' "	Feet.
T. 26 N., R. 9 E., corner of secs. 16, 17, 20, and 21, 30 feet west and 30 feet north of, at northwest corner of crossroads, 0.8 mile south of Everts, at district No. 5 schoolhouse; iron post stamped "Prim. Trav. Sta. No. 33, Ill., 1911".....	42 14 39.60	89 28 26.80	.....
T. 26 N., R. 9 E., corner of secs. 15, 16, 21, and 22; crossroads.....	42 14 40.5	89 27 17.4	5,218
T. 26 N., R. 9 E., corner of secs. 14, 15, 22, and 23; center of east-west road.....	42 14 42.0	89 26 07.8	5,240
T. 26 N., R. 9 E., quarter corner between secs. 14 and 23; crossroads.....	42 14 42.6	89 25 32.8	2,630
T. 26 N., R. 9 E., corner of secs. 13, 14, 23, and 24; center of east-west road.....	42 14 43.3	89 24 58.2	2,605
T. 26 N., Rs. 9 and 10 E., corner of secs. 13, 24, 18, and 19; crossroads on Stephenson-Winnebago county line.....	42 14 43.8	89 23 47.8	5,300
T. 26 N., R. 10 E., corner of secs. 17, 18, 19, and 20; crossroads.....	42 14 44.7	89 22 38.1	5,240
T. 26 N., R. 10 E., corner of secs. 16, 17, 20, and 21; crossroads at Seward town hall.....	42 14 45.5	89 21 28.4	5,241
T. 26 N., R. 10 E., corner of secs. 15, 16, 21, and 22; T road south.....	42 14 46.2	89 20 18.4	5,270
T. 26 N., R. 10 E., corner of secs. 14, 15, 22, and 23; crossroads 20 feet north of concrete bridge.....	42 14 46.7	89 19 08.2	5,280
T. 26 N., R. 10 E., 25 feet south and 30 feet west of corner of secs. 13, 14, 23, and 24, at southwest corner of crossroads, 2 feet west of Wilke Braver's mail box; iron post stamped "Prim. Trav. Sta. No. 1, 1915".....	42 14 47.4	89 17 59.0	5,205

Magnetic declination near north border of quadrangle, 4° 19' E.

PECATONICA QUADRANGLE.

Along highways near east border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
	° ' "	° ' "	<i>Feet.</i>
T. 28 N., R. 10 E., corner secs. 25, 26, 35, and 36; crossroads at schoolhouse.	42 23 25.6	89 18 04.8	.....
T. 28 N., R. 10 E., corner secs. 23, 24, 25, and 26; crossroads.	42 24 17.7	89 18 05.9	5,279
T. 28 N., Rs. 10 and 11 E., corner secs. 24, 25, 19, and 30; crossroads.	42 24 20.1	89 16 56.6	5,207
T. 28 N., Rs. 10 and 11 E., corner secs. 13, 24, 18, and 19; crossroads.	42 25 10.3	89 16 58.3	5,085
T. 28 N., R. 10 E., east corner secs. 12 and 13; T road west (235 feet north of above corner is west corner of secs. 7 and 18, T. 28 N., R. 11 E., T road east.	42 26 02.2	89 16 59.8	5,250
Chicago, Milwaukee & St. Paul Ry.; center of north-south road crossing.	42 26 20.2	89 17 00.4	1,820
T. 28 N., R. 10 E., quarter corner east side sec. 1, T road west (215 feet north of above corner is quarter corner west side sec. 6, T. 28 N., R. 11 E., T road east at church).	42 27 20.0	89 17 02.2	6,066
Tps. 28 and 29 N., Rs. 10 and 11 E.; crossroads.	42 27 45.8	89 17 02.9	2,610
T. 29 N., R. 10 E., quarter corner east side sec. 25; right-angle turn in road.	42 29 03.9	89 17 04.9	7,910
Center of north-south road at crossing of east-west section line.	42 29 29.6	89 17 22.8	2,926
T. 29 N., R. 10 E., about 0.25 mile west of north corner of fractional secs. 19 and 24, 30 feet south and 42 feet west of center of road forks, 30 feet south of Illinois-Wisconsin State line; iron post stamped "Prim. Trav. Sta. No. 4, 1915, Ill."	42 29 56.7	89 17 23.3	2,740
T. 29 N., R. 10 E., north corner fractional secs. 23 and 24, 160 feet east of center of road forks at road northeast; center of east-west road.	42 29 57.7	89 18 15.7	3,928
T. 1 N., R. 10 E., south corner secs. 33 and 34; center of road on State line.	42 29 57.8	89 18 24.8	680
T. 29 N., R. 10 E., north corner fractional secs. 22 and 23; T road south on Illinois-Wisconsin State line.	42 29 58.9	89 19 26.6	4,631
T. 1 N., R. 10 E., south corner secs. 32 and 33; center of State line road.	42 29 59.1	89 19 35.6	680
T. 29 N., R. 11 E., quarter corner between secs. 31 and 32, center of east-west road.	42 28 13.2	89 15 52.9	.....
Sugar River, west end of bridge over.	42 28 31.1	89 15 01.1	4,290
T. 26 N., R. 10 E., corner of secs. 11, 12, 13, and 14; crossroads at schoolhouse.	42 15 39.9	89 17 59.5	.....
T. 26 N., R. 10 E., corner of secs. 1, 2, 11, and 12; crossroads.	42 16 32.2	89 18 00.1	5,290
Chicago & North Western Ry. track at north-south road crossing, 80 feet north to Rockford & Interurban Electric Ry. crossing.	42 17 13.5	89 18 00.7	4,180
T. 26 N., R. 10 E., north corner of secs. 1 and 2 (60 feet west of above corner is south corner of secs. 35 and 36, T. 27 N., R. 10 E.).	42 17 23.0	89 18 01.0	970
T. 27 N., R. 10 E., approximate quarter corner between secs. 35 and 36; crossroads.	42 17 48.9	89 18 02.0	2,623
T. 27 N., R. 10 E., corner of secs. 25, 26, 35, and 36; T road east.	42 18 15.3	89 18 02.2	2,665
T. 27 N., R. 10 E., corner of secs. 23, 24, 25, and 26; T road south.	42 19 07.6	89 18 02.6	5,295
Center of north-south road at east-west section line.	42 19 59.8	89 17 45.2	5,439
Watson Schoolhouse, T road south at.	42 20 25.8	89 17 45.3	2,640
North-south line of township, at south end of jog in road, in line with road west.	42 20 38.1	89 16 52.6	4,149
T. 27 N., R. 11 E., corner of secs. 7, 8, 17, and 18, right-angle turn in road.	42 20 53.0	89 15 45.0	5,295
T. 27 N., R. 11 E., quarter corner between secs. 8 and 17; crossroads.	42 20 53.4	89 15 10.0	2,634

Magnetic declination near east border of quadrangle, 4° 00' E.

Along highways near north border of south half of quadrangle.

North-south section line center of road.	42 22 00.4	89 15 44.9	.....
Pecatonica River, north end of Trask Bridge over, 25 feet north to large elm tree at north end of railing.	42 22 20.6	89 15 53.4	2,143
Trask Bridge, about 0.5 mile northwest of; T road north.	42 22 35.4	89 16 19.3	2,456
Mail box No. 31 (Haughton's).	42 22 35.2	89 17 12.7	4,005
T. 27 N., R. 10 E., 20 feet east of center of road north, on line between secs. 35 and 36, at northeast corner of road forks; iron post stamped "Prim. Trav. Sta. No. 2, 1915"	42 22 43.5	89 18 03.7	3, 17
Tps. 27 and 28 N., R. 10 E., about 500 feet south of apparent corner of secs. 2, 3, 34, and 35; center of north-south road at crossroads.	42 22 39.5	89 19 08.5	4,881
T. 28 N., R. 10 E., quarter corner on south side of sec. 34; T road north.	42 22 32.3	89 19 47.8	3,045
T. 27 N., R. 10 E., north corner of secs. 3 and 4; T road south (55 feet west of above corner is south corner of secs. 33 and 34, T. 28 N., R. 10 E.).	42 22 32.2	89 20 22.4	2,590

PECATONICA QUADRANGLE—Continued.

Along highways near north border of south half of quadrangle—Continued.

Station.	Latitude.	Longitude.	Distance between stations.
Tps. 27 and 28 N., R. 10 E., corner of secs. 4, 5, 32, and 33; stone at crossroads.....	° ' " 42 22 32.1	° ' " 89 21 33.1	<i>Feet.</i> 5,309
T. 27 N., R. 10 E., 35 feet south and 45 feet east of north corner of secs. 5 and 6, and 35 feet south and 20 feet east of south corner of secs. 31 and 32, T. 28 N., R. 10 E., at southeast corner of crossroads just north of Blake schoolhouse; iron post stamped "Prim. Trav. Sta. No. 3, 1915".....	42 22 31.6	89 22 42.7	5,223
Tps. 27 and 28 N., Rs. 9 and 10 E., crossroads at corner of Stephenson-Winnebago county line.....	42 22 31.4	89 23 52.0	5,202
T. 27 N., R. 9 E., north corner of secs. 35 and 36; center of east-west road.....	42 22 31.4	89 25 02.6	5,299
T. 28 N., R. 9 E., quarter corner south side of sec. 35; crossroads at schoolhouse (25 feet west of above corner is quarter corner north side of sec. 2, T. 27 N., R. 9 E.).....	42 22 31.4	89 25 37.2	2,600
T. 28 N., R. 9 E., south corner of secs. 33 and 34; T road north (135 feet west of above corner is north corner of secs. 3 and 4, T. 27 N., R. 9 E.).....	42 22 30.3	89 27 22.0	7,861
T. 27 N., R. 9 E., north corner of secs. 4 and 5, 25 feet east and 30 feet south of, at southeast corner of T road south, 100 feet west of T road north; iron post stamped "Prim. Trav. Sta. No. 30, Ill., 1911".....	42 22 29.40	89 28 33.30	5,356

Along highways south through center of south half of quadrangle.

T. 27 N., R. 9 E., southeast corner of sec. 1; T road west.....	42 21 39.6	89 23 51.6	.....
T. 27 N., R. 10 E., southwest corner of sec. 7; T road east.....	42 20 50.2	89 23 51.2	5,000
T. 27 N., R. 9 E., east corner of secs. 12 and 13; T road west at schoolhouse.....	42 20 48.0	89 23 51.3	225
T. 27 N., R. 10 E., quarter corner west side of sec. 18; T road east.....	42 20 23.7	89 23 51.1	2,460
T. 27 N., R. 10 E., quarter corner between secs. 17 and 18; T road west.....	42 20 24.2	89 22 43.1	5,110
Road forks; center of concrete culvert at.....	42 19 55.3	89 22 39.4	2,933
T road west, probably a quarter corner.....	42 19 32.7	89 21 32.5	5,525
Pecatonica; north end of concrete bridge over Pecatonica River.....	42 19 03.2	89 21 32.9	2,987
Pecatonica, just east of station; center of main track of Chicago & North Western Ry. at Main Street crossing.....	42 18 54.0	89 21 33.1	933
Pecatonica, 300 feet north of pumping station cross streets.....	42 18 35.1	89 21 32.8	1,910
Pecatonica, about 1 mile west of pumping station on north-south section line; T road south.....	42 18 30.5	89 22 42.2	5,236
T. 27 N., R. 10 E., corner of secs. 29, 30, 31, and 32; center of north-south road.....	42 18 13.6	89 22 41.9	1,720
Pecatonica, about 2.5 miles southwest of pumping station; crossroads.....	42 17 13.9	89 22 41.5	6,040
T. 26 N., R. 10 E., corner of secs. 5, 6, 7, and 8; T road west.....	42 16 29.6	89 22 40.3	4,491
T. 26 N., R. 10 E., west corner of secs. 6 and 7; T road east just south of schoolhouse (30 feet south of above corner is east corner of secs. 1 and 12; county line).....	42 16 28.4	89 23 49.2	5,182
T. 26 N., Rs. 9 and 10 E., corner of secs. 12, 13, 7, and 18; crossroads.....	42 15 35.9	89 23 48.4	5,320

Magnetic declination near south border of quadrangle, 4° 19' E.; near east border of south half, 4° 11' E.; near north border of south half, 4° 29' E.; through center of south half, 4° 18' E.

ROCKFORD QUADRANGLE.

Along highways near north border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
T. 29 N., R. 11 E., corner secs. 27, 28, 33, and 34; crossroads at Wilson schoolhouse, No. 19.....	° ' " 42 28 42.1	° ' " 89 13 32.3	<i>Feet.</i>
T. 29 N., R. 11 E., corner secs. 26, 27, 34, and 35; T road north.....	42 28 43.5	89 12 22.2	5,250
T. 29 N., R. 11 E., quarter corner between secs. 26 and 35; crossroads at district 16 schoolhouse.....	42 28 44.1	89 11 47.1	2,631
T. 29 N., R. 11 E., corner secs. 25, 26, 35, and 36; center east-west road.....	42 28 44.9	89 11 12.2	2,620
T. 11 N., R. 11 E., 20 feet north and 615 feet west of east corner secs. 25 and 36, 20 feet north and 50 feet east of T road south; iron post stamped "Prim. Trav. Sta. No. 6, 1915, Ill.".....	42 28 44.9	89 10 36.2	2,696

ROCKFORD QUADRANGLE—Continued.

Along highways near north border of quadrangle—Continued.

Station.	Latitude.	Longitude.	Distance between stations.
T. 29 N., R. 11 E., east corner secs. 25 and 36; center of road at crossing of third principal meridian (no fence, indefinite).....	° ' " 42 28 44.7	° ' " 89 10 28.0	Feet. 614
T. 46 N., R. 1 E., quarter corner between secs. 7 and 8; T road north at schoolhouse.....	42 28 36.7	89 09 25.6	4,749
T. 46 N., R. 1 E., quarter corner between secs. 8 and 9, 400 feet east of bridge; T road south.....	42 28 37.3	89 08 15.6	5,241
T. 46 N., R. 1 E., quarter corner between secs. 9 and 10, 1,320 feet west of T road south; center of east-west road.....	42 28 37.9	89 07 05.2	5,280
T. 46 N., R. 1 E., quarter corner between secs. 10 and 11; crossroads at schoolhouse.....	42 28 38.3	89 05 55.5	5,225
T. 46 N., R. 1 E., corner secs. 2, 3, 10, and 11; center of north-south road.....	42 29 04.4	89 05 55.3	2,650
T. 46 N., R. 1 E., stone at quarter corner between secs. 2 and 3; T road east.....	42 29 30.6	89 05 55.2	2,646
T. 46 N., R. 1 E., quarter corner between secs. 1 and 2; T road south.....	42 29 31.2	89 04 45.1	5,255
T. 46 N., Rs. 1 and 2 E., north corner of fractional secs. 1 and 6, on Illinois-Wisconsin State line; T road south.....	42 29 47.3	89 03 34.3	5,549
Beloit, east edge of west abutment of Shirland Avenue bridge over Rock River.....	42 29 47.5	89 02 31.8	4,683
Beloit, intersection of Broad and Prospect streets; manhole.....	42 29 56.2	89 01 50.4	3,225
Beloit, 80 feet southeast of railway crossing; north end of Grand Avenue Bridge.....	42 29 54.5	89 01 16.0	2,579
T. 46 N., R. 2 E., 35 feet north of north corner of fractional secs. 3 and 4, on State line, on north side of east-west road, at T road south; iron post stamped "Prim. Trav. Sta. No. 7, 1915, Ill.".....	42 29 46.9	89 00 00.0	5,745
Roscoe, 200 feet southeast of station, 155 feet west of T road north; center of main track of Chicago & North Western R. R.....	42 25 40.6	89 00 11.7	.....
Roscoe, at southeast corner of Bridge and Main streets; iron post stamped "Prim. Trav. Sta. No. 8, 1915, Ill.".....	42 24 47.6	89 00 32.8	5,594
Roscoe, north end of bridge over Rock River.....	42 24 48.0	89 00 58.5	1,930

Along highways near south border of north half of quadrangle.

Roscoe siding, intersection of main track and east-west road.....	42 24 45.4	89 02 42.0	7,772
Tps. 45 and 46 N., Rs. 1 and 2 E., crossroads at corner of.....	42 24 44.4	89 03 34.2	3,920
T. 45 N., R. 1 E., north corner secs. 1 and 2; T road south (30 feet west of above corner is south corner of secs. 35 and 36, T. 46 N., R. 1 E., to road north).....	42 24 43.6	89 04 43.0	5,160
T. 45 N., R. 1 E., north corner secs. 2 and 3; T road south (360 feet west of above corner is south corner of secs. 34 and 35, T. 46 N., R. 1 E.; T road north).....	42 24 43.0	89 05 50.6	5,069
T. 45 N., R. 1 E., north corner secs. 3 and 4 (375 feet west of above corner is south corner secs. 33 and 34, T. 46 N., R. 1 E.).....	42 24 42.3	89 07 00.9	5,280
T. 45 N., R. 1 E., quarter corner between secs. 3 and 4; T road west.....	42 24 16.9	89 07 00.7	2,575
T. 45 N., R. 1 E., quarter corner between secs. 4 and 5, 1,800 feet west of road north; center of east-west road.....	42 24 16.3	89 08 12.4	5,380
T. 45 N., R. 1 E., quarter corner between secs. 5 and 6, 1,350 feet west of; T road south, center of east-west road.....	42 24 15.7	89 09 21.7	5,200
T. 45 N., R. 1 E., quarter corner west side sec. 6, on principal meridian; T road east.....	42 24 15.5	89 10 28.1	4,980

Along highways on or near third principal meridian.

Tps. 28 and 29 N., R. 11 E., east corner secs. 1 and 36.....	42 27 53.6	89 10 28.3	.....
T. 46 N., R. 1 E., corner secs. 18 and 19; stone.....	42 27 18.3	89 10 28.3	3,568
T. 46 N., R. 1 E., quarter corner west side sec. 19, 150 feet north of road forks, in line with fence on principal meridian; center of road.....	42 26 52.1	89 10 28.4	2,650
Shirland, 100 feet west of station, main street crossing Chicago, Milwaukee & St. Paul Ry.....	42 26 37.9	89 11 51.3	6,377
Sugar River, south end of bridge over, between Harrison and Shirland.....	42 26 08.9	89 11 51.0	2,935
Harrison, 260 feet east of road forks, east end of bridge over Pecatonica River.....	42 25 40.2	89 11 42.7	2,968
T. 46 N., R. 1 E., 175 feet north of road forks and 45 feet north of a stone is a stone at corner of secs. 19 and 30.....	42 25 33.7	89 10 28.5	5,605
Tps. 45 and 46 N., R. 1 E., east corner secs. 6 and 31; center of north-south road.....	42 24 41.1	89 10 28.1	5,319
T. 45 N., R. 1 E., west corner secs. 6 and 7; center north and south road.....	42 23 49.2	89 10 27.7	.....
T. 45 N., R. 1 E., west corner secs. 7 and 18; center north and south road.....	42 22 56.8	89 10 27.3	5,300

ROCKFORD QUADRANGLE—Continued.

Along highways on or near third principal meridian—Continued.

Station.	Latitude.	Longitude.	Distance between stations.
	° ' "	° ' "	Feet.
Tps. 27 and 28 N., R. 11 E., east corner secs. 1 and 36; T road west..	42 22 41.3	89 10 27.0	1,570
T. 45 N., R. 1 E., west corner secs. 18 and 19; T road east.....	42 22 04.4	89 10 26.8	3,740
T. 27 N., R. 11 E., 15 feet south and 25 feet east of east corner fractional secs. 1 and 12, on east of north-south road, along third principal meridian; iron post stamped "Prim. Trav. Sta. No. 9, 1915, Ill.".....	42 21 50.7	89 10 26.2	1,384

Along highways near west border of quadrangle.

T. 27 N., R. 11 E., corner secs. 1, 2, 11, and 12; crossroads.....	42 21 50.6	89 11 05.4	2,940
T. 27 N., R. 11 E., corner secs. 2, 3, 10, and 11; T road south at cemetery.....	42 21 49.3	89 12 15.3	5,250
T. 27 N., R. 11 E., corner secs. 3, 4, 9, and 10; crossroads.....	42 21 47.7	89 13 24.4	5,191
T. 27 N., R. 11 E., corner secs. 4, 5, 8, and 9; roads northeast and southwest.....	42 21 46.4	89 14 34.6	5,272

Magnetic declination near north border of quadrangle, 3° 40' E.; near south border of north half, 3° 25' E.; near third principal meridian, 3° 23' E.

On highway near middle of west border of quadrangle.

Road forks, 20 feet from concrete culvert.....	42 21 37.9	89 14-55.3
--	------------	------------	-------

BRODHEAD QUADRANGLE.

Along highways near south border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
	° ' "	° ' "	Feet.
T. 29 N., R. 10 E., north corner secs. 21 and 22; T road south.....	42 30 00.2	89 20 36.8	.....
T. 1 N., R. 10 E., south corner secs. 31 and 32; T road north.....	42 30 00.4	89 20 45.7	665
T. 29 N., R. 10 E., north corner fractional secs. 20 and 21; State line.	42 30 01.1	89 21 47.3	4,620
T. 1 N., Rs. 9 and 10 E., south corner secs. 31 and 36; State line road at corner of Green and Rock counties.....	42 30 01.2	89 21 56.4	680
T. 29 N., R. 10 E., near fractional secs. 19 and 20; T road south.....	42-30 02.0	89 22 57.8	4,599
T. 1 N., R. 9 E., south corner secs. 35 and 36; T road north.....	42 30 02.1	89 23 06.6	664
T. 29 N., Rs. 9 and 10 E., 20 feet south and 30 feet west of north corner of fractional secs. 19 and 24, at southwest corner of crossroads; iron post stamped "Prim. Trav. Sta. No. 5, 1915, Ill.".....	42 30 02.8	89 24 04.7	4,351
T. 1 N., R. 9 E., south corner secs. 34 and 35; center of road on State line.....	42 30 03.1	89 24 17.3	949
T. 29 N., R. 9 E., north corner fractional secs. 23 and 24; T road south.....	42 30 03.8	89 25 14.6	4,290
T. 1 N., R. 9 E., south corner secs. 33 and 34; T road north.....	42 30 03.9	89 25 27.9	1,000
T. 1 N., R. 9 E., south corner secs. 32 and 33; T road north.....	42 30 04.8	89 26 38.1	5,260
T. 29 N., R. 9 E., quarter corner north side of fractional sec. 22; T road south.....	42 30 05.0	89 26 59.4	1,600
T. 1 N., R. 9 E., south corner secs. 31 and 32; stone at T road north.	42 30 05.5	89 27 49.1	3,721
T. 29 N., R. 9 E., about 0.3 mile west of northeast corner sec. 20, on south of State line road, 25 feet south and 50 feet west of T road south; iron post stamped "Prim. Trav. Sta. No. 29, Ill., 1911".....	42 30 06.3	89 29 03.9	5,607

Magnetic declination near south border of quadrangle, 3° 40' E.



WISCONSIN.

PRIMARY TRAVERSE.

Cambria, Fisk, Fox Lake, Montello, Neshkoro, Oshkosh, Portage, Poysippi, Ripon, Spring Lake, and Waupun quadrangles.

FOND DU LAC, GREEN LAKE, MARQUETTE, WAUSHARA, AND WINNEBAGO COUNTIES.

The following geographic positions on North American datum were determined by E. L. McNair in 1914 and are based upon United States Lake Survey triangulation stations Springvale and Observatory Hill, and upon a primary traverse position at South Oshkosh determined in 1908, described in Bulletin 440.

CAMBRIA QUADRANGLE.

Along highways near north border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
T. 15 N., R. 11 E., quarter corner on west side of sec. 31, at Green Lake and Marquette county line; fence corners 120 feet south of center of public road.....	° ' " 43 44 16.7	° ' " 89 14 43.0	Feet.
T. 15 N., R. 11 E., at approximate quarter corner between secs. 31 and 32, near schoolhouse and at angle in road.....	43 44 16.5	89 13 35.7	4,940
T. 15 N., R. 11 E., at quarter corner between secs. 32 and 33; T road forks east, west, and south, and fence line north.....	43 44 16.8	89 12 23.6	5,290
T. 15 N., R. 11 E., quarter corner between secs. 33 and 34; east and west road at north-south fence line.....	43 44 16.8	89 11 11.2	5,320
T. 15 N., R. 11 E., in E. $\frac{1}{2}$ sec. 34; T road forks east, west, and south.....	43 44 16.7	89 10 16.6	4,010
T. 15 N., R. 11 E., at apparent quarter corner between secs. 34 and 35; fence corners south and west.....	43 44 16.6	89 09 58.4	1,333
T. 15 N., R. 11 E., 25 feet east of T road forks north, south, and west, at quarter corner between secs. 35 and 36, 2 $\frac{1}{2}$ feet west of corner fence post in line with fence east; iron bench-mark post stamped "Prim. Trav. Sta. No. 19, Wis., 1914".....	43 44 16.7	89 08 46.5	5,282
T. 15 N., R. 11 E., corner secs. 25, 26, 35, and 36, 370 feet north of T road forks north, south, and east, at private lane west, center of north-south road.....	43 44 43.1	89 08 46.9	2,670
T. 15 N., Rs. 11 and 12 E., secs. 30 and 36; T road forks east and west, on line between.....	43 44 34.5	89 07 35.2	5,335
T. 15 N., R. 12 E., on line between secs. 29 and 30; east-west road at north and south fence line.....	43 44 11.8	89 06 23.2	5,768
T. 15 N., R. 12 E., in southeast quarter of sec. 29; T road forks east, west, and south.....	43 44 15.4	89 05 28.7	4,019
T. 15 N., R. 12 E., on line between secs. 28 and 29, at lane north and fence line south, east, and west road.....	43 44 19.0	89 05 11.1	1,338
T. 15 N., R. 12 E., in east half of sec. 28; T road forks east, west, and north.....	43 44 28.8	89 04 15.9	4,171
T. 15 N., R. 12 E., 0.25 mile south of corner of secs. 27, 28, 21, and 22, on line between secs. 7 and 28, at fence lines north and south, east and west road.....	43 44 41.6	89 03 57.9	1,847
At road forks bearing S. 27° 30' E. and S. 12° 30' W., 65 feet north of signpost marked "To Markesan, Marquette, and Princeton" in triangle formed by road forks.....	43 44 54.9	89 03 18.3	3,206

Magnetic declination for north border of quadrangle, 4° 00' E.

FISK QUADRANGLE.

Along highways near west border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
T. 15 N., R. 15 E., near center of sec. 20; crossroads.....	° ' " 43 45 23.8	° ' " 88 44 05.1	Feet.
Springvale triangulation station, in W. $\frac{1}{4}$ SE. $\frac{1}{4}$ sec. 17, T. 15 N., R. 15 E., about 2 miles north and 2 miles east of boundary, on a rocky wooded knoll about 900 feet west of north and south road. (A stone post with hole in top seems to be the center point. No reference stones found. They may be below surface of ground).....	43 46 05.42	88 43 53.29	.....

FISK QUADRANGLE—Continued.

Along highways near west border of quadrangle—Continued.

Station.	Latitude.	Longitude.	Distance between stations.
T. 15 N., R. 15 W., corner secs. 7, 8, 17, and 18, 175 feet south of east and west fence, and at center of north and south private road.....	43 46 41.9	88 44 41.9	<i>Fect.</i> 5, 134
T road corners north, south, and west, private road south to residence.....	43 47 40.4	88 44 25.1	6, 048
Tps. 15 and 16 N., R. 15 E., about quarter mile east of corner of secs. 31, 32, 5, and 6; T road forks east, west, and south at.....	43 48 28.2	88 44 24.9	4, 840
Tps. 15 and 16 N., R. 15 E., at corner secs. 31, 32, 5, and 6, center of east and west road, at north-south fence lines.....	43 48 28.1	88 44 42.1	1, 260
T. 16 N., R. 15 E., apparent corner secs. 7, 8, 17, and 18; T road forks north, south, and east.....	43 51 56.9	88 44 42.9	.....
T. 16 N., R. 15 E., 30 feet south and 30 feet east of crossroads at corner of secs. 5, 6, 7, and 8, 10 feet south of fence corner, 8 feet south of telephone pole, 2½ feet from fence line, and opposite schoolhouse; iron bench-mark post stamped "Prim. Trav. Sta. No. 7, 1914".....	43 52 49.0	88 44 41.9	5, 280
T. 16 N., R. 15 E., at quarter corner between secs. 5 and 6; T road corners north, south, and east.....	43 53 15.5	88 44 41.2	2, 679
Fond du Lac-Winnebago county line; center of road at crossing of.....	43 53 41.4	88 44 34.2	2, 670
T. 17 N., R. 15 E., at apparent quarter corner between secs. 31 and 32, and about 330 feet south of Chicago, Milwaukee & St. Paul Ry. crossing; T road forks north, south, and west.....	43 54 07.3	88 44 34.2	2, 628
Pickett, west of, crossing of public road and Chicago, Milwaukee & St. Paul Ry.....	43 54 31.7	88 44 05.7	3, 239
Pickett station, 1,070 feet east of, crossing of public road and Chicago, Milwaukee & St. Paul Ry.....	43 54 47.8	88 43 46.4	2, 156
T. 17 N., R. 15 E., in NE. ¼ sec. 29; T road forks, north, south, and west.....	43 55 12.8	88 43 46.3	2, 535
T. 17 N., R. 15 E., at center of E. ¼ sec. 20; T road forks north, south, and east, fence line west.....	43 55 51.6	88 43 46.2	3, 925
T. 17 N., R. 15 E., at center of N. ¼ sec. 20; T road forks east, west, and north.....	43 56 06.5	88 44 04.8	2, 030
T. 17 N., R. 15 E., corner secs. 17, 18, 19, and 20, set at junction of fence lines north, south, and east; square stone with cross cut in top.....	43 56 17.8	88 44 40.7	2, 864
T. 17 N., R. 15 E., corner secs. 7, 8, 17, and 18; square cut stone.....	43 57 10.3	88 44 40.8	5, 314
T. 17 N., R. 15 E., quarter corner secs. 7 and 8; square cut stone.....	43 57 36.6	88 44 40.9	2, 663
T. 17 N., R. 15 E., corner secs. 5, 6, 7, and 8; cut stone.....	43 58 02.9	88 44 41.0	2, 659
T. 17 N., R. 15 E., at apparent north corner secs. 5 and 6; T road corners east, west, and south.....	43 58 56.4	88 44 41.3	5, 416
Tps. 17 and 18 N., R. 15 E., at quarter corner between secs. 5 and 32; public crossroads.....	43 58 56.3	88 44 04.4	2, 705

Along highways near north border of quadrangle.

T. 18 N., R. 15 E., 35 feet south and 28 feet east of quarter corner secs. 29 and 32, at crossroads opposite schoolhouse and 2 feet west of fence corner; iron bench-mark post stamped "Prim. Trav. Sta. No. 8, 1914, Wis.".....	43 59 48.6	88 44 04.2	5, 299
T. 18 N., R. 15 E., at apparent corner secs. 32, 33, 28, and 29, at fence line south; center of east-west road.....	43 59 48.7	88 43 28.4	2, 618
T. 18 N., R. 15 E., corner secs. 33, 34, 27, and 28, at schoolhouse; public crossroads.....	43 59 48.4	88 42 15.5	5, 330
T. 18 N., R. 15 E., at apparent corner of secs. 34, 35, 26, and 27, at fence line south; center of east-west road.....	43 59 48.6	88 41 03.0	5, 300
T. 18 N., R. 15 E., quarter corner between secs. 26 and 35; T road forks east, west, and north, at.....	43 59 48.6	88 40 26.8	2, 650
T. 18 N., R. 15 E., corner secs. 25, 36, 25, and 26; T road corners east, west, and south, at.....	43 59 48.6	88 39 50.4	2, 660
T. 18 N., R. 15 E., quarter corner secs. 25 and 36; T road forks east, west, and north, at.....	43 59 48.5	88 39 14.0	2, 660
T. 18 N., Rs. 15 and 16 E., on range line and at corner secs. 25, 36, 30, and 31, at fence lines north and south; center of east and west road.....	43 59 48.5	88 38 37.1	2, 700
T. 18 N., R. 16 E., corner secs. 29, 30, 31, and 32; public crossroads at.....	43 59 47.8	88 37 24.0	5, 345
T. 18 N., R. 16 E., at corner secs. 28, 29, 32, and 33; T road forks east, west, and north.....	43 59 47.1	88 36 10.8	5, 349
T. 18 N., R. 16 E., between secs. 28 and 33; crossing of Chicago, Milwaukee & St. Paul Ry. and public road.....	43 59 46.8	88 35 22.8	3, 510
T. 18 N., R. 16 E., at corner secs. 27, 28, 33, and 34; public road crossing.....	43 59 46.6	88 34 57.5	1, 850
T. 18 N., R. 15 E., at apparent corner secs. 29, 30, 31, and 32; T road corners east, west, and north, at.....	43 59 48.8	88 44 41.3	.....

Magnetic declination for north border of quadrangle, 3° 14' E.; for west border, 2° 59' E.

FOX LAKE QUADRANGLE.

Along highways near north border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
	° ' "	° ' "	Feet.
T. 15 N., Rs. 13 and 14 E., at quarter corner secs. 25 and 30, county line between Green Lake and Fond du Lac counties; T road corners east, west, and north.....	43 44 33.2	88 53 06.3	-----
T. 15 N., R. 14 E., on section line between secs. 29 and 30, 60 feet east of Fairwater station, crossing of street and Chicago, Milwaukee & St. Paul Ry.....	43 44 37.2	88 51 55.4	5,225
T. 15 N., R. 14 E., at apparent corner secs. 29, 30, 31, and 32; T road corners north, south, and east.....	43 44 06.4	88 51 55.0	3,120
T. 15 N., R. 14 E., corner secs. 28, 29, 32, and 33, crossroads at.....	43 44 06.3	88 50 43.1	5,280
T. 15 N., R. 14 E., corner secs. 27, 28, 33, and 34, crossroads at.....	43 44 06.0	88 49 31.1	5,290
T. 15 N., R. 14 E., corner secs. 26, 27, 34, and 35, crossroads at.....	43 44 06.0	88 48 18.2	5,354
Brandon, at apparent corner to secs. 25, 26, 35, and 36, T. 15 N., R. 14 E., intersection of streets at; Congregational Church on north-west street corner.....	43 44 06.0	88 47 06.2	5,290
Brandon station, 190 feet north of, street crossing of Chicago, Milwaukee & St. Paul Ry.....	43 44 09.3	88 46 51.2	1,149
T. 15 N., quarter mile north of east corner of secs. 25 and 36, on range line between Rs. 14 and 15 E.; T road corners north, south, and west.....	43 44 18.6	88 45 53.8	4,315

Magnetic declination for north border of quadrangle, 3° 16' E.

MONTELO QUADRANGLE.

Along highways near east border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
	° ' "	° ' "	Feet.
T. 17 N., R. 10 E., on line between secs. 25 and 36; T road corners north, south, and west.....	43 54 32.4	89 15 05.8	-----
Tps. 16 and 17 N., on line between fence and private road east; center of road.....	43 53 40.2	89 15 06.3	5,288
Germania, 1,000 feet east of; iron bridge over Mecan River.....	43 53 28.6	89 15 12.2	1,245
T. 16 N., R. 10 E., on apparent section line between secs. 12 and 13; road forks, road west.....	43 52 33.7	89 15 12.4	5,561
T. 16 N., R. 10 E., east half of sec. 13, 15 feet west of T road corners, north, south, and east, 9 feet north and 5 feet west of signpost reading "Germania 2 miles, Princeton 6 miles"; iron post stamped "Prim. Trav. Sta. No. 17, Wis., 1914.".....	43 52 07.5	89 15 06.0	2,694
T. 16 N., R. 10 E., in N. $\frac{1}{2}$ sec. 24, at public roads crossing railroad, main crossing, north, south, east, and west, center of track at.....	43 51 29.3	89 15 32.4	4,331
T. 16 N., R. 10 E., section line between secs. 24 and 25, at fence line west center of north-south private road.....	43 50 49.4	89 15 05.0	4,511
T. 16 N., R. 10 E., about 690 feet north of line between secs. 25 and 36; T road forks east, west, and north.....	43 50 04.0	89 15 05.2	4,590
T. 15 N., R. 10 E., quarter corner between secs. 1 and 12; T road corners north, south, and east.....	43 48 11.6	89 15 20.5	-----
T. 15 N., R. 10 E., at middle of sec. 13; T road corners north, south, and west.....	43 46 52.8	89 15 18.4	7,974
T. 15 N., R. 10 E., quarter corner between secs. 13 and 14, at fence line north and second-class road south; center of east-west road.....	43 46 53.0	89 15 54.4	2,640
T. 15 N., R. 10 E., line between secs. 14 and 15, at north and south fence line; center of east-west road.....	43 46 51.7	89 17 12.3	5,720
T road corners east, west, and south.....	43 46 51.7	89 17 30.4	1,330
T. 15 N., R. 10 E., about 670 feet south of corner of secs. 9, 10, 15, and 16, at crossing of line between secs. 15 and 16, as indicated by cross fences in field; center of road.....	43 47 12.4	89 18 24.2	4,472
Montello, 35 feet southwest to edge of curb at Montello State Bank, 60 feet southeasterly to curb at Smart Block, 10 feet north to curbing.....	43 47 31.7	89 19 37.9	5,745
Montello, public road bridge at center of lock on Fox River.....	43 47 10.7	89 19 32.5	2,166
T. 15 N., R. 10 E., apparent line between secs. 17 and 20; center of angling road at fence line east and private lane west.....	43 46 26.0	89 19 56.1	4,839
T. 15 N., R. 10 E., on quarter line in west half of sec. 20; road crossing.....	43 45 59.3	89 20 22.5	3,333
T. 15 N., R. 10 E., corner of secs. 19, 20, 29, and 30, 20 feet west of center of road track, at fence lines east and west, in line with center of road south.....	43 45 33.1	89 20 48.7	3,276
T. 15 N., R. 10 E., at approximate quarter corner between secs. 29 and 30, 27 feet west of corner fence post in line with fence east and 30 feet south of center of T road west.....	43 45 06.8	89 20 48.4	2,661

Magnetic declination along east border of quadrangle, 3° 47' E.

NESHKORO QUADRANGLE.

Along highways near north border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
T. 18 N., R. 12 E., apparent corner of secs. 27, 28, 33, and 34, 1,000 feet north of crossroads, near schoolhouse at fence line east and west; center of north-south road.....	° ' "	° ' "	Feet.
T. 18 N., R. 12 E., 750 feet north of south corner of secs. 31 and 36, 15 feet south and 15 feet east of T road corners north, south, and west, 1 foot from north-south fence line; iron post stamped "Prim. Trav. Sta. No. 15, Wis., 1914".....	43 59 51.4	89 03 59.0	.....
T. 18 N., R. 11 E., line between secs. 35 and 36, at T road forks east, west, and north.....	43 59 06.6	89 07 40.3	.....
T. 18 N., R. 11 E., line between secs. 34 and 35, at T road forks east, west, and north.....	43 59 18.2	89 08 54.8	5,573
T. 18 N., R. 11 E., line between secs. 33 and 34, at fence line south; center of east-west road.....	43 59 24.7	89 10 06.2	5,262
T road forks north, south, and west.....	43 59 24.3	89 11 18.4	5,284
Chicago & North Western R'y. road crossing.....	43 59 11.1	89 13 07.1	8,054
T. 18 N., R. 11 E., in SW. $\frac{1}{4}$ sec. 31, 1,950 feet north of Waushara-Marquette county line, 35 feet south and 20 feet west of center of public crossroads, 6 feet south and 2 feet east of corner fence post; iron post stamped "Prim. Trav. Sta. No. 16, Wis., 1914".....	43 59 10.7	89 13 34.3	1,990
T. 17 N., R. 11 E., on line between secs. 6 and 7, fence lines east and west, 140 feet north of T road forks north, south, and east; center of north and south road.....	43 59 16.3	89 14 37.8	4,679
	43 58 01.2	89 14 29.4	7,634

Along highways near west border of quadrangle.

T. 17 N., R. 11 E., in west half of sec. 7; public crossroads.....	43 57 35.0	89 14 36.6	2,698
T. 17 N., R. 11 E., at line between secs. 7 and 18; public crossroads.....	43 57 08.9	89 14 32.2	2,665
T. 17 N., R. 11 E., at approximate line between secs. 18 and 19, and near quarter corner; T road forks north, south, and west.....	43 56 19.0	89 14 13.2	5,237
T. 17 N., Rs. 10 and 11 E., apparent quarter corner between secs. 19 and 24, near right angle in road; fence north and south.....	43 55 50.9	89 14 48.1	3,829
T. 17 N., Rs. 10 and 11 E., apparent corner of secs. 19, 30, 24, and 25, at crossroads.....	43 55 24.4	89 14 47.8	2,680
T. 16 N., Rs. 10 and 11 E., apparent corner of secs. 25, 36, 30, and 31, east-west fence line in line with fence north from angle of public road.....	43 49 57.2	89 14 47.0	.....
T road forks southwest, west and northeast.....	43 49 41.8	89 14 10.0	3,134
T. 16 N., R. 11 E., in southwest quarter of sec. 31, at Lutheran Church; T road forks southwest, west, and northeast.....	43 49 15.6	89 14 20.8	2,766
T. 15 N., R. 11 E., at quarter corner between secs. 5 and 6; T road corners east, west, and south.....	43 48 38.7	89 13 41.5	4,716
T. 15 N., R. 11 E., at corner of secs. 5, 6, 7, and 8; crossroads.....	43 48 12.5	89 13 40.9	2,653
T. 15 N., Rs. 10 and 11 E., at apparent corner of secs. 6, 7, 1, and 12, second-class road turns north, open field on south; center of east-west road.....	43 48 11.8	89 14 44.7	4,681

Along highways through center of quadrangle.

Mecan River; center of iron truss bridge over.....	43 52 07.9	89 13 46.4	.....
T. 16 N., R. 11 E., approximate quarter corner between secs. 16 and 17; east and west road at private lane north.....	43 52 08.4	89 12 30.4	5,569
T. 16 N., R. 11 E., in west half of sec. 16; T road forks east, west, and north.....	43 52 05.6	89 12 10.9	1,463
T. 16 N., R. 11 E., near corner of secs. 15, 16, 21, and 22, at east-west section line; center of east and west road.....	43 51 42.3	89 11 27.4	3,966
T. 16 N., R. 11 E., in SW. $\frac{1}{4}$ sec. 22, 40 feet west of mail box at road forks, in line with roads east and southwest.....	43 51 19.6	89 10 52.1	3,461
T. 16 N., R. 11 E., 875 feet west of line between secs. 22 and 23; T road forks east, west, and north.....	43 51 18.0	89 10 16.3	2,633
T. 16 N., R. 11 E., approximate quarter corner between secs. 23, and 24, at fence line north and south; center of east-west road.....	43 51 16.8	89 08 51.9	6,180
T. 16 N., R. 11 E., 1,290 feet east of quarter corner between secs. 23 and 24, 45 feet west and 25 feet north of road crossing, in line with roads north, south, and west, 5 feet west of corner fence post, opposite northeast corner of cemetery; iron post stamped "Prim. Trav. Sta. No. 20, Wis., 1914".....	43 51 17.0	89 08 34.4	1,290
Princeton station, about 200 feet west of; center of public road at crossing of Chicago & North Western R'y.....	43 51 07.8	89 07 35.6	4,407
T road forks east, west and northeast.....	43 51 27.7	89 06 57.8	3,429
T. 16 N., R. 12 E., at quarter corner between secs. 16 and 17; T road forks north, south, and west, and private lane east.....	43 51 28.6	89 05 14.1	7,600

NESHKORO QUADRANGLE—Continued.

* Along highways through center of quadrangle—Continued.

Station.	Latitude.	Longitude.	Distance between stations.
T. 16 N., R. 12 E., 670 feet north of apparent corner of secs. 8, 9, 16, and 17; T road forks east, west, and south.....	43 52 01.5	89 05 13.9	<i>Fet.</i> 3,329
T. 16 N., R. 12 E., line between secs. 9 and 10, at fence lines north and south; center of east-west road.....	43 52 01.8	89 04 01.8	5,289
T. 16 N., R. 12 E., S. $\frac{1}{2}$ sec. 10; public road crossing.....	43 52 04.8	89 03 26.0	2,640
T. 16 N., R. 12 E., on line between secs. 10 and 11, at north and south fencelines; center of east-west road.....	43 52 07.7	89 02 49.9	2,661
T. 16 N., R. 12 E., at line between secs. 11 and 12; T road forks east, west, and north.....	43 52 13.4	89 01 37.0	5,368
T. 16 N., R. 12 E., apparent quarter corner east side of sec. 12; at T road forks north, south, and west.....	43 52 17.2	89 00 24.2	5,350
T. 16 N., Rs. 12 and 13 E., on range line, apparent quarter corner on west side of sec. 7; T road forks north, south, and east.....	43 52 24.0	89 00 23.8	690

Along highways near south border of quadrangle.

T. 15 N., R. 12 E., center of sec. 23, fences north and south, at cemetery; center of east-west road.....	43 45 21.9	89 02 11.4	.....
T. 15 N., R. 12 E., 30 feet south and 35 feet east of T road corners at corner of secs. 23, 24, 25, and 26, 6 feet east of signpost at fence corners; iron post stamped "Prim. Trav. Sta. No. 12, 1914, Wis.".....	43 45 22.1	89 01 34.9	2,681
T. 15 N., Rs. 12 and 13 E., quarter corner between secs. 19 and 24; T road corners east, west, and south.....	43 45 24.3	89 00 23.9	5,220

Along highways near east border of quadrangle.

T road forks north, south, and west.....	43 59 25.6	89 00 53.6	.....
Tps. 17 and 18 N., R. 12 E., near quarter corner between secs. 1 and 36, at Waushara-Green Lake county line; T road forks north, south, and east.....	43 59 00.0	89 00 58.3	2,617
T. 17 N., R. 12 E., in S. $\frac{1}{2}$ sec. 1; T road corners east, west, and north.....	43 58 16.7	89 00 58.0	4,384
T. 17 N., Rs. 12 and 13 E., near corner of secs. 1, 6, 7, and 12, at crossing of range line; at center of road.....	43 58 09.6	89 00 21.8	2,750
T. 16 N., Rs. 12 and 13 E., on range line, apparent quarter corner on west side of sec. 7; T road forks north, south, and east.....	43 52 24.0	89 00 23.8	.....
Chicago & Northwestern Ry. and public road crossing.....	43 51 30.6	89 03 26.2	.....
T. 16 N., R. 12 E., apparent center of sec. 22; T road forks east, west, and north.....	43 50 36.9	89 03 26.1	5,440
T. 16 N., R. 12 E., center of sec. 21; T road forks east, west, and south.....	43 50 36.2	89 04 38.4	5,295
T. 16 N., R. 12 E., quarter corner between secs. 21 and 28; public road crossing.....	43 50 10.1	89 04 38.4	2,640
T. 16 N., R. 12 E., quarter corner between secs. 28 and 33, at fence lines east and west; center of north-south road.....	43 49 17.6	89 04 38.2	5,323
T. 16 N., R. 12 E., center of sec. 33; public road crossing.....	43 48 51.3	89 04 38.3	2,660
Tps. 15 and 16 N., R. 12 E., at quarter corner between secs. 4 and 33; T road forks north, south, and west.....	43 48 25.1	89 04 38.1	2,649
T. 15 N., R. 12 E., apparent quarter corner between secs. 4 and 9, at east and west fenceline; center of north-south road.....	43 47 32.1	89 04 37.9	5,370
T. 15 N., R. 12 E., near center of sec. 9; T road corners east, west, and north.....	43 47 06.2	89 04 37.4	2,620
T. 15 N., R. 12 E., corner of secs. 9, 10, 15, and 16; T road forks east, west, and south.....	43 46 39.4	89 04 01.4	3,788
T. 15 N., R. 12 E., corner of secs. 15, 16, 21, and 22, at fence lines east and west; at center of north-south road.....	43 45 47.2	89 03 00.0	5,285
T. 15 N., R. 12 E., in NE. $\frac{1}{4}$ sec. 21; T road forks north, south, and west.....	43 45 34.1	89 03 59.7	1,331
T. 15 N., R. 12 E., quarter corner between secs. 21 and 22, in line with road north at fence line west and 30 feet south of road east.....	43 45 21.0	89 03 59.4	1,320

Magnetic declination along north border of quadrangle, 1° 45' E. to 5° 46' E. (range), 3° 36' E. (mean); for south border, 4° E.; for east border, 3° 30' E.; for west border, 3° 47' E.; near center, 3° 50' E.

OSHKOSH QUADRANGLE.

Along highways near south border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
T. 18 N., R. 16 E., on line between secs. 26 and 27; center of public road at north and south road.....	° ' " 44 00 16.2	° ' " 88 33 44.4	Feet.
South Oshkosh, at crossing of Tenth Street and "Soo" Ry.....	44 00 34.1	88 33 02.3	3,572
Oshkosh, in T. 18 N., R. 16 E., at crossing of line between secs. 25 and 26, intersection of Oregon and Tenth streets.....	44 00 34.2	88 32 32.4	2,185
South Oshkosh, second track of Chicago & North Western Ry., east of station and opposite bay window (description and position also in Bull. 440, p. 611).....	44 00 32.8	88 32 04.3	2,059

Magnetic declination near south border of quadrangle, 3° 14' E.

PORTAGE QUADRANGLE.

Along highways near north border of northeast quarter of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
T. 15 N., R. 10 E., at corner of secs. 29, 30, 31, and 32, 870 feet north of overhead crossing of Chicago & North Western Ry., at fence line east and west; center of north and south road.....	° ' " 43 44 40.8	° ' " 89 20 48.0	Feet.
Tps. 14 and 15 N., R. 10 E., quarter corner between secs. 31 and 32; north and south road at east and west fence line.....	43 44 14.6	89 20 47.2	2,650
Tps. 14 and 15 N., R. 10 E., approximate corner of secs. 31, 32, 5, and 6, at east and west fence line; center of north and south road.....	43 43 48.6	89 20 47.1	2,638
T. 14 N., R. 10 E., approximate quarter corner between secs. 5 and 6, in line with roads north and west.....	43 43 22.1	89 20 46.2	2,682
T. 14 N., R. 10 E., in SW. $\frac{1}{4}$ sec. 6; T road corners east, west, and south.....	43 43 06.5	89 20 27.5	2,095
Observatory Hill triangulation station of the Coast and Geodetic Survey, in sec. 8, T. 14 N., R. 10 E., 864 feet east and 1,044 feet south of west quarter corner; underground mark; drill hole in rock ledge, rough surface, 3 feet below surface of ground; no surface mark.....	43 42 19.62	89 20 32.96	4,764
Chicago & North Western Ry., 500 feet south and a little west of bridge over tracks; T road corners north, south, and east.....	43 42 46.8	89 18 45.1	.....
T. 14 N., R. 10 E., about 0.25 mile west of corner of secs. 3, 4, 9, and 10, 30 feet south of road east, 15 feet east of center of road running west of south, 8 feet south of corner fence post, 1.5 feet from fence, in line with road north; iron post stamped "Prim. Trav. Sta. No. 18, 1914, Wis.".....	43 42 56.2	89 18 38.7	1,058
T. 14 N., R. 10 E., quarter corner between secs. 3 and 4; T road forks north, south, and west.....	43 43 22.7	89 18 21.8	2,962
Tps. 14 and 15 N., R. 10 E., corner of secs. 3, 4, 33, and 34, at fence line west; center of north and south road.....	43 43 49.5	89 18 22.7	2,710
Grand River; old bridge across and center of stream.....	43 44 00.6	89 16 09.5	9,845
T. 15 N., R. 10 E., on line between secs. 35 and 36.....	43 44 00.7	89 15 55.0	1,063

Magnetic declination near north border of northeast quarter of quadrangle, 4° E.

RIPON QUADRANGLE.

Along highways near east border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
T. 16 N., R. 15 E., at quarter corner between secs. 30 and 31; T road corners east, west, and north.....	° ' " 43 49 20.6	° ' " 88 45 18.1	Feet.
T. 16 N., R. 15 E., 120 feet south of apparent quarter corner between secs. 19 and 30; crossing of public road and Chicago & North Western Ry.....	43 50 11.7	88 45 18.2	5,180
T road corners north, south, and east.....	43 50 38.6	88 45 16.9	2,724
T road corners east, west, and south.....	43 51 04.9	88 45 16.2	2,663
Chicago, Milwaukee & St. Paul Ry. and public road crossing.....	43 59 48.9	88 45 32.4	.....
T. 18 N., Rs. 14 and 15 E., corner of secs. 25, 30, 31, and 36.....	43 59 49.0	88 45 51.8	1,420

RIPON QUADRANGLE—Continued.

Along highways near north border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
T. 18 N., R. 14 E., apparent corner of secs. 25, 26, 35, and 36, at fence lines north and south; center of east and west public road.	° ' " 43 59 50.0	° ' " 88 47 04.5	<i>Fect.</i> 5,317
T. 18 N., R. 14 E., corner of secs. 34, 35, 26, and 27; public crossroads.	43 59 50.8	88 48 17.6	5,340
T. 18 N., R. 13 E., corner of secs. 26, 27, 34, and 35; T road forks east, west, and north.	43 59 52.8	88 55 34.6	.....
T. 18 N., R. 13 E., quarter corner between secs. 27 and 34; T road forks east, west, and north.	43 59 52.8	88 56 11.4	2,690
T. 18 N., R. 13 E., corner of secs. 27, 28, 33, and 34; public crossroads.	43 59 52.9	88 56 47.5	2,645
T. 18 N., R. 13 E., quarter corner between secs. 28 and 33; T road forks north, south, and east.	43 59 52.8	88 57 23.8	2,650

Along highways near west border of quadrangle.

T. 17 N., R. 13 E., in S. $\frac{1}{2}$ sec. 6; T road corners east, west, and north.	43 58.11.1	88 59 48.5	.....
T. 17 N., R. 13 E., corner of secs. 5, 6, 7, and 8, in lane north and south, at fence west and about 200 feet south of center of public road.	43 58 04.6	88 59 12.8	2,691
T. 17 N., R. 13 E., corner of secs. 7, 8, 17, and 18; stone.	43 57 12.8	88 59 12.5	5,236
T. 17 N., R. 13 E., corner of secs. 17, 18, 19, and 20; public crossroads.	43 56 20.4	88 59 12.5	5,305
T. 17 N., R. 13 E., corner of secs. 16, 17, 20, and 21; public crossroads.	43 56 21.6	88 58 00.1	5,305
T. 17 N., R. 13 E., quarter corner between secs. 20 and 21; T road west.	43 55 55.4	88 58 00.2	2,650
North and south road at fence line east.	43 55 27.4	88 58 00.0	2,840
T. 17 N., R. 13 E., quarter corner between secs. 28 and 29; public crossroads.	43 55 02.7	88 57 59.9	2,500
T. 17 N., R. 13 E., corner of secs. 28, 29, 32, and 33, at fence line east; center of north and south road.	43 54 36.6	88 57 59.5	2,640
Tps. 16 and 17 N., R. 13 E., corner of secs. 31, 32, 5, and 6; road corners east and south.	43 53 43.0	88 59 11.6	7,566
T. 16 N., R. 13 E., quarter corner between secs. 5 and 6; crossroads.	43 53 16.5	88 59 11.3	2,690
T. 16 N., R. 13 E., 30 feet north and 25 feet west of T road corners at quarter corner between secs. 7 and 8, 2 feet northeast of corner fence post, signpost reads "Princeton 8 miles, Ripon 8 miles, Berlin 8 miles"; iron post stamped "Prim. Trav. Sta. No. 11, 1914, Wis."	43 52 24.6	88 59 11.8	5,257
T. 16 N., R. 13 E., center of sec. 8; T road south.	43 52 24.0	88 58 34.7	2,723
T. 16 N., R. 13 E., quarter corner between secs. 8 and 9; center of east and west road at north and south fence line.	43 52 23.8	88 57 58.4	2,655
T. 16 N., R. 13 E., center of sec. 9; T road forks east, west, and north.	43 52 23.4	88 57 21.6	2,700
T. 16 N., R. 13 E., quarter corner between secs. 9 and 10, brick schoolhouse at corners; public crossroads.	43 52 23.0	88 56 44.2	2,740
Public crossroads; center of.	43 52 18.1	88 55 32.1	5,305
T. 16 N., R. 13 E., corner of secs. 10, 11, 14, and 15; center of north and south road at fence line east.	43 51 56.5	88 55 32.2	2,185
Public crossroads.	43 51 17.4	88 55 32.6	3,960
T. 16 N., R. 13 E., corner of secs. 14, 15, 22, and 23, at fence line east and west near schoolhouse; center of north and south road.	43 51 04.4	88 55 32.8	1,321
T. 16 N., R. 13 E., quarter corner between secs. 22 and 23; T road forks east, west, and north.	43 50 38.2	88 55 33.5	2,646
T road forks north, south, and west.	43 50 38.3	88 54 38.8	4,010
Green Lake; small iron bridge over inlet of.	43 50 23.9	88 54 30.6	1,578
T. 16 N., R. 13 E., approximate corner of secs. 23, 24, 25, and 26, 20 feet east to fence line north; T road corners northeast, south-west, and south.	43 50 12.8	88 54 21.1	1,323
T. 16 N., R. 13 E., corner of secs. 25, 26, 35, and 36; T road corners north, south, and west.	43 49 20.5	88 54 21.2	5,298
T. 16 N., R. 13 E., quarter corner between secs. 35 and 36; T road south.	43 48 54.3	88 54 21.1	2,650
T. 16 N., R. 13 E., corner of secs. 1, 2, 35, and 36; crossroads.	43 48 28.1	88 54 20.4	2,650
T. 15 N., R. 13 E., north corner of secs. 2 and 3; T road corners east, west, and south.	43 48 27.3	88 55 32.4	5,278
T. 15 N., R. 13 E., corner of secs. 2, 3, 10, and 11; crossroads.	43 47 35.5	88 55 31.5	5,240
T. 15 N., R. 13 E., corner of secs. 10, 11, 14, and 15; center of north and south road.	43 46 43.4	88 55 31.0	5,275
T. 15 N., R. 13 E., quarter corner between secs. 14 and 15; crossroads.	43 46 16.8	88 55 30.8	2,695

RIPON QUADRANGLE—Continued.

Along highways near south border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
	° ' "	° ' "	Feet.
T. 15 N., R. 13 E., quarter corner between secs. 19 and 20; center of east and west road at north and south fence line.....	43 45 24.8	88 59 09.1	.....
T. 15 N., R. 13 E., quarter corner between secs. 20 and 21; center of east and west road at fence line north.....	43 45 25.1	88 57 55.4	5,410
T. 15 N., R. 13 E., center of sec. 21; crossroads.....	43 45 25.0	88 57 19.0	2,670
T. 15 N., R. 13 E., quarter corner between secs. 23 and 24; at crossroads.....	43 45 25.0	88 55 30.6	7,955
T. 15 N., R. 13 E., quarter corner between secs. 23 and 24; at crossroads.....	43 45 25.2	88 54 18.4	5,305
T. 15 N., Rs. 13 and 14 E., at quarter corner between secs. 19 and 24, 30 feet north and 35 feet west of center of public crossroads, 5 feet west of guide-post at fence corner, 2 feet from fence; iron post (not stamped) "Prim. Trav. Sta. No. 13, 1914, Wis.".....	43 45 25.8	88 53 06.8	5,252

Along highways through center of quadrangle.

T. 16 N., Rs. 14 and 15 E., 280 feet east of corner of secs. 1, 6, 12, and 7; T road forks east, northeast, and southwest.....	43 52 49.6	88 45 49.8	.....
T. 16 N., R. 14 E., on line between secs. 11 and 12; T road forks north, northeast, and southwest.....	43 52 10.5	88 47 07.3	6,920
T. 16 N., R. 14 E., on line between secs. 11 and 14; T road forks west, southwest, and northeast.....	43 51 58.1	88 47 31.8	2,186
Chicago, Milwaukee & St. Paul Ry. and public road crossing.....	43 51 58.2	88 48 07.8	2,645
T. 16 N., R. 14 E., 0.25 mile east of corner of secs. 9, 10, 15, and 16; public road crossing.....	43 51 58.4	88 49 14.9	4,915
Chicago, Milwaukee & St. Paul Ry. and public road crossing; 60 feet east of T road forks east, west, and north.....	43 51 58.4	88 49 50.4	2,600
Ripon, intersection of Eureka and Oshkosh streets, also quarter corner between secs. 16 and 21, T. 16 N., R. 14 E.....	43 51 05.5	88 50 09.7	5,534
Ripon; crossing of Oshkosh Street and Chicago & North Western Ry. (This is very close to corner of secs. 16, 17, 20, and 21, T. 16 N., R. 14 E.).....	43 51 05.1	88 50 45.0	2,588
T. 16 N., R. 14 E., in sec. 18; T road forks northwest and southeast.....	43 51 31.6	88 52 19.3	7,412
T. 16 N., Rs. 13 and 14 E., 25 feet south and 12 feet west of T road corners east, west, and north at quarter corner between secs. 13 and 18, 2 feet from fence and 4 feet from fences; iron post stamped "Prim. Trav. Sta. No. 14, 1914, Wis." (also county line between Fond du Lac and Green Lake counties).....	43 51 31.6	88 53 07.0	3,490
T. 16 N., R. 13 E., in sec. 13; T road forks, east, west, and northwest.....	43 51 35.6	88 53 39.8	2,441
T. 16 N., R. 13 E., at section line between secs. 13 and 14; T road forks east, west, and south.....	43 51 30.3	88 54 19.6	2,967

Magnetic declination for north border of quadrangle, 3° 23' E.; for south border, 3° 16' E.; for east border, 2° 59' E.; for west border, 3° 30' E.; for center, 3° 36' E.

POYSIPPI QUADRANGLE.

Along highways near south border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
	° ' "	° ' "	Feet.
T. 18 N., R. 14 E., line between secs. 27 and 28, at fence line north and south; center of public road.....	44 00 00.8	88 49 29.7	.....
Eureka, crossroads at; Methodist Church on northeast corner.....	44 00 08.1	88 50 29.1	4,407
Eureka; drawbridge over Fox River.....	44 00 20.1	88 50 35.8	1,312
T. 18 N., R. 14 W., line between secs. 29 and 30; turn in public road south at private lane north.....	44 00 21.3	88 51 56.1	5,870
T. 18 N., Rs. 13 and 14 E., on line between, about 1,570 feet south of quarter corner between secs. 25 and 30, in line with road north on south side of road, 3 feet north of fence line, 4 feet northwest of oak tree at gateway to lane south; iron post stamped "Prim. Trav. Sta. No. 9, 1914, Wis.".....	44 00 02.6	88 53 09.8	5,710
T. 18 N., Rs. 13 and 14 E., quarter corner between secs. 25 and 30; T road forks north, south, and west.....	44 00 18.1	88 53 09.9	1,570
T. 18 N., R. 13 E., in W. ½ sec. 25; T road forks north, south, and east.....	44 00 18.4	88 54 04.6	4,005
T. 18 N., R. 13 E., on line between secs. 21 and 28; crossroads.....	44 00 44.7	88 57 34.1	.....
T. 18 N., R. 13 E., corner of secs. 20, 21, 28, and 29, at fence line north and south; center of east and west road.....	44 00 44.7	88 58 00.0	1,895

POYSIPPI QUADRANGLE—Continued.

Along highways near south border of quadrangle—Continued.

Station.	Latitude.	Longitude.	Distance between stations.
T. 18 N., R. 13 E., at quarter corner between secs. 20 and 29; T road forks east, west, and south.....	° ' " 44 00 44.4	° ' " 88 58 35.7	<i>Feet.</i> 2,605
T. 18 N., R. 13 E., corner of secs. 19, 20, 29, and 30; T road forks north, south, and east.....	44 00 44.2	88 59 11.7	2,630
T. 18 N., R. 13 E., quarter corner between secs. 29 and 30; T road forks north, south, and west.....	44 00 18.3	88 59 11.8	2,620

Magnetic declination for south border of quadrangle, 3° 23' E.

SPRING LAKE QUADRANGLE.

Along highways near south border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
T. 18 N., R. 12 E., near center of sec. 25, 25 feet east of center of road north, in line with road south and in line with lane west to house, 10 feet northeast of mail boxes; iron post stamped "Prim. Trav. Sta. No. 10, 1914, Wis.".....	° ' " 44 00 11.3	° ' " 89 00 57.4	<i>Feet.</i>
T. 18 N., R. 12 E., in N. $\frac{1}{2}$ sec. 25; T road forks north, south, and west.....	44 00 30.6	89 00 59.0	.....
T. 18 N., R. 12 E., at quarter corner between secs. 22 and 23; T road forks north, south, and west.....	44 01 10.0	89 02 47.5	8,878
T. 18 N., R. 12 E., line between secs. 28 and 29, at north and south fence line; center of east and west road.....	44 00 07.3	89 05 12.1	.....
T. 18 N., R. 12 E., SW. $\frac{1}{4}$ sec. 29; T road forks northeast, southwest, and south.....	44 00 02.2	89 06 05.7	3,956
T. 18 N., R. 12 E., S. $\frac{1}{4}$ sec. 30; public crossroads.....	44 00 04.0	89 07 00.0	3,968
T. 18 N., R. 12 E., SW. $\frac{1}{4}$ sec. 30; T road forks east, west, and south.....	44 00 09.2	89 07 29.5	2,223

Magnetic declination near south border of quadrangle, 3° 36' E. (range from 1° 45' E. to 5° 46' E.).

WAUPUN QUADRANGLE.

Along highways near northwest corner of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
T. 15 N., R. 15 E., quarter corner between secs. 29 and 30; east and west road at fence line north and south.....	° ' " 43 44 31.3	° ' " 88 44 40.8	<i>Feet.</i>
T. 15 N., R. 15 E., in center of sec. 29; T road corners east, west, and north.....	43 44 31.4	88 44 04.9	2,640
T. 15 N., R. 15 E., quarter corner between secs. 20 and 29, at fence line east and west; at north and south road.....	43 44 57.9	88 44 05.0	2,680

Magnetic declination near northwest corner of quadrangle, 3° 16' E.



WISCONSIN AND MINNESOTA.

PRIMARY TRAVERSE.

Carlton, Superior, and Rockmont quadrangles.

DOUGLAS COUNTY, WIS.; ST. LOUIS COUNTY, MINN.

The following geographic positions on North American datum were determined by primary traverse and are based on Coast and Geodetic Survey triangulation stations Annie, Dedham, Superior, and Minnesota Point, south base. The work was done by E. L. McNair in 1914.

CARLTON QUADRANGLE.

Along highways near east border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
WISCONSIN.			
	° ' "	° ' "	<i>Feet.</i>
T. 47 N., R. 15 W., corner secs. 8, 9, 16, and 17; stake.....	46 33 40.4	92 15 56.8	.....
T. 47 N., R. 15 W., corner secs. 20, 21, 28, and 29, as located by south local surveyor.....	46 31 56.1	92 15 59.3	10,568
T. 47 N., R. 15 W., corner secs. 28, 29, 32, and 33; center north and south road.....	46 31 02.8	92 15 55.9	5,397
T. 47 N., R. 15 W., south corner secs. 32 and 33, 20 feet south and 5 feet east to T road forks, 2 feet northwest of post in east and west fence, and about 1 mile east of Foxboro; iron bench mark post stamped "Prim. Trav. Sta. No. 4, 1914, Wisconsin".....	46 30 13.2	92 15 54.5	5,032
T. 46 N., R. 15 W., north corner secs. 4 and 5; T road south.....	46 30 13.3	92 15 30.6	1,685

Along highways and Duluth, Winnipeg & Pacific Ry.

MINNESOTA.			
Spirit Line Park station, about 300 feet northwest of; center of bridge over center of main track of Northern Pacific R. R.....	46 40 44.3	92 15 37.6	.....
Duluth, Winnipeg & Pacific R. R.; public road crossing.....	46 41 08.2	92 15 42.2	2,450
Duluth, Winnipeg & Pacific R. R.; road crossing under trestle....	46 41 32.3	92 16 19.9	3,585
Duluth, Winnipeg & Pacific R. R.; north and south road crossing.....	46 42 03.8	92 16 46.1	3,682
Annie triangulation station, in SW. $\frac{1}{4}$ SE. $\frac{1}{4}$ sec. 20, T. 49 N., R. 15 W., on highest point of a prominent wooded hill one- fourth mile south of Carlton and Duluth wagon road, 10 miles by road northeast of West Duluth; cross cut on rock; over this was set a piece of terra-cotta pipe 4 inches in diameter; pipe was filled with concrete and wire nail set in center of top marking station; reference mark, center of rude cross inscribed in circle about 5 inches in diameter, cut on surface of outcropping ledge, and distant 16.78 meters north of east from the station.....	46 42 28.60	92 15 55.55	4,324
T. 49 N., R. 15 W., quarter corner between secs. 20 and 21; forks of roads north, south, and west.....	46 42 48.4	92 15 31.7	2,606
T. 49 N., R. 15 W., apparent corner secs. 16, 17, 20, and 21.....	46 43 14.4	92 15 31.6	2,635

Magnetic declination near east border of quadrangle, 7° 30' E.

SUPERIOR QUADRANGLE.

Along highways and railroad near center to east border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
WISCONSIN.			
Superior triangulation station, in south side center of SE. $\frac{1}{4}$ sec. 11, T. 48 N., R. 14 W., about 1.8 miles southeast of South Superior and 20 paces north of wagon road along side of sec. 11; station and reference marks, usual type; the latter is 41.71 meters east from station, just inside fence along north side of road.	° ' "	° ' "	<i>Fect.</i>
"Soo" Ry., 595 feet west of Great Northern R. R. crossing; overhead bridge.	46 38 52.84	92 05 06.22	-----
T. 48 N., R. 14 W., quarter corner secs. 12 and 13; T road forks, roads north and south, second-class road west.	46 38 52.3	92 04 27.2	2, 719
United States Steel Co.'s Belt Line R. R., north rail main track, at road crossing.	46 38 52.2	92 03 58.3	2, 015
United States Steel Co.'s Belt Line R. R., at intersection with range line between secs. 13 and 14; center of track.	46 38 23.1	92 03 58.7	2, 950
T. 48 N., R. 13 W., intersection United States Steel Co.'s Belt Line R. R. and line between secs. 17 and 18; center of track.	46 38 24.7	92 03 21.2	2, 619
United States Steel Co.'s Belt Line R. R., overhead crossing at road east and west.	46 38 30.3	92 02 09.8	5, 010
T. 48 N., R. 13 W., corner secs. 8, 9, 16, and 17; road crossing.	46 38 52.1	92 01 31.6	3, 466
Intersection of Northern Pacific Ry. and public road east and west known as "Lake Shore" road, in sec. 4.	46 38 52.2	92 00 55.2	2, 535
Intersection Northern Pacific Ry. and highway.	46 40 20.8	92 00 02.9	-----
Crossing of Northern Pacific Ry. and track used by Great Northern Ry. leading to Itasca elevator.	46 40 44.4	92 00 30.1	3, 051
Allouez flag station, Northern Pacific Ry. street crossing at Minnesota Point, south base, triangulation station; St. Louis County, Minn., situated on Minnesota Point near its southern extremity. Station mark, intersection of two cross lines cut in the surface of a brass frustrum leaded in end of a stone post 1 by 1 by 3 feet, 2 feet below surface. Observer, Lake Survey, 1870-71; Coast and Geodetic Survey, 1905. New station mark, a solid granite monument, 1 foot square at top, stands 15 inches above ground. No reference monuments visible. A well-made tower painted white erected over station. E. L. McNair, 1914.	46 41 06.0	92 00 59.3	2, 993
	46 41 24.6	92 01 23.1	2, 510
	46 42 49.77	92 01 54.39	8, 889

Along highways through center of quadrangle.

T. 48 N., R. 14 W., on line between secs. 13 and 24; T road forks, roads north, south, and west.	46 38 00.1	92 04 01.6	-----
"Soo" Ry. crossing; center of track.	46 38 00.0	92 04 05.9	295
T. 48 N., R. 14 W., at quarter corner secs. 14 and 23; roads east, west, and south (a good graveled road leads south and west).	46 38 00.1	92 05 15.5	4, 861
T. 48 N., R. 14 W., on line between secs. 15 and 22; crossroads.	46 38 00.3	92 06 15.6	4, 190
T. 48 N., R. 14 W., 425 feet west of quarter corner of secs. 15 and 22, 25 feet north of center of road east and in line with road south to Boylston, 230 feet east of center of Great Northern Ry. tracks, 3 feet south of wire fence and about 1,500 feet south of Saunders station; iron bench mark post stamped "Prim. Trav. Sta. No. 2, 1914, Wis."	46 38 00.7	92 06 36.8	1, 473
Saunders station, about 400 feet north of; center of west track of Great Northern R. R., at center of trestle over United States Steel Co.'s Belt Line R. R.	46 38 19.4	92 06 32.2	1, 924
T. 48 N., R. 14 W., at apparent center of sec. 16; intersection of roads north and south.	46 38 27.3	92 07 46.1	5, 213
T. 48 N., R. 14 W., through middle of sec. 9; T roads forks, northeast, southwest, and south.	46 39 02.1	92 07 45.3	3, 530
Crossing of Northern Pacific R. R. and United States Steel Co.'s Belt Line R. R. about 500 feet southeast of.	46 38 48.9	92 08 46.1	4, 450
T. 48 N., R. 14 W., approximate at quarter corner between secs. 17 and 18; road forks (a cleared out but unused road to east).	46 38 28.6	92 09 38.9	4, 214
T. 48 N., Rs. 14 and 15 W., on range line between secs. 19 and 24; center of road (an old cutting is visible north and south although much grown up; line is 60 feet east of telephone post No. 5895).	46 37 45.7	92 10 54.4	6, 826
T. 48 N., R. 15 W., at crossroads, at telephone post No. 5868; north and south road is in middle of sec. 24.	46 37 23.0	92 11 32.9	3, 534
T. 48 N., R. 15 W., in southwest quarter of sec. 26, near angle in road, and opposite telephone pole No. 5822; center of road.	46 36 35.5	92 12 55.9	7, 527
T. 48 N., R. 15 W., about 750 feet south of corner secs. 27, 28, 33, and 34, 55 feet south and 20 feet west of T road with newly cleared road south, not graded or traveled; at edge of right-of-way cutting; iron bench mark post stamped "Prim. Trav. Sta. No. 3, 1914, Wis."	46 36 08.7	92 14 42.8	7, 937

SUPERIOR QUADRANGLE—Continued.

Along highways near west border of southwest quarter of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
	° ' "	° ' "	Feet.
Tps. 47 and 48 N., R. 15 W., corner secs. 3, 4, 33, and 34; iron pipe	46 35 23.8	92 14 42.1	4,550
T. 47 N., R. 15 W., corner secs. 3, 4, 9, and 10; north and south road.....	46 34 32.8	92 14 41.7	5,170

Along highways near south border of quadrangle.

T. 47 N., R. 15 W., south corner of secs. 34 and 35; T road north	46 30 14.0	92 13 25.2	.....
T. 47 N., R. 15 W., approximate south corner secs. 35 and 36, right angle in road; roads north and west.....	46 30 14.5	92 12 10.2	5,250
T. 47 N., R. 15 W., at right angle in road, corner secs. 23, 24, 25, and 26.....	46 31 57.5	92 12 10.5	10,440
T. 47 N., Rs. 14 and 15 W., corner secs. 19, 30, 24, and 25; fence line north and south.....	46 31 58.6	92 10 55.9	5,220
Forks at schoolhouse; roads east, west, and south.....	46 31 58.2	92 10 17.6	2,689
T. 47 N., R. 14 W., corner secs. 19, 20, 29, and 30; forks, roads east, west, and south.....	46 31 58.7	92 09 39.2	2,690
Dedham triangulation station in NW. $\frac{1}{4}$ sec. 29, T. 47, R. 14, about 900 feet south of Dedham and Black River Falls wagon road, 2.5 miles south of east from Dedham railway station on Great Northern Ry., and 2 miles southwest from Black River Falls on top of small rocky hill covered with small poplar brush. The point of 40-penny nail is subsurface stationmark. Piece of terra-cotta pipe was set over subsurface mark, and filled with concrete level with surface. A 60-penny wire nail in center of pipe marks center of surface station mark.	46 31 49.93	92 09 27.46	1,213
T. 47 N., R. 14 W., quarter corner between secs. 20 and 29; stake.....	46 31 58.8	92 09 02.3	1,975
Manitou Falls, 415 feet northeast of concrete bridge over Black River, 40 feet west of center of north and south road on line between secs. 21 and 22, T. 47 N., R. 14 W.; iron bench-mark post stamped "Prim. Trav. Sta. No. 5, 1914, Wis."	46 32 11.7	92 07 10.1	7,949
T. 47 N., R. 14 W., corner secs. 22, 23, 26, and 27; road forks east, west, and south, fence line north.....	46 31 58.4	92 05 53.2	5,541
T. 47 N., R. 14 W., corner secs. 23, 24, 25, and 26; forks of roads east, west, and south (schoolhouse is at forks).....	46 31 58.0	92 04 37.3	5,309
T. 47 N., R. 14 W., quarter corner secs. 24 and 25; center of public road crossing Borden Avenue north and south.....	46 31 57.7	92 03 59.2	2,665

Along highways on checked line.

T. 47 N., R. 14 W., center of sec. 25; T road west.....	46 31 31.2	92 03 59.5	2,690
T. 47 N., R. 14 W., quarter corner secs. 25 and 36; center of north and south road.....	46 31 05.1	92 03 59.8	2,640
T. 47 N., R. 14 W., quarter corner south side sec. 36, in line with road north and fence west.....	46 30 12.6	92 04 00.1	5,320

Main line continued.

T. 47 N., R. 13 W., apparent west corner of secs. 19 and 30; forks in road, east, west, and south; double fence line north.....	46 31 56.7	92 03 21.6	.....
T road corners; roads east, west, and north.....	46 31 56.5	92 02 45.8	2,505
T. 47 N., R. 13 W., corner secs. 19, 20, 29, and 30, east and west road at fence line south; clearing north.....	46 31 57.3	92 02 07.9	2,649
T. 47 N., R. 13 W., corner secs. 20, 21, 28, and 29; crossroads at signpost reading "Borden Ave. $2\frac{1}{2}$ miles," "Rossiter Ave. $1\frac{1}{2}$ miles," "South Range $6\frac{1}{2}$ miles".....	46 31 56.5	92 00 52.2	5,294

Along highways near west border of northwest quarter of quadrangle.

Carnegie station, about 0.25 mile west of; road crossing (this crossing is close to quarter corner secs. 13 and 24, T. 48 N., R. 15 W.).....	46 38 01.2	92 11 32.4	.....
T. 48 N., Rs. 14 and 15 W., corner secs. 12, 13, 7, and 18.....	46 38 53.5	92 10 53.9	5,945
United States Steel Co. Ry.; public road crossing.....	46 39 27.1	92 11 00.4	3,429
MINNESOTA.			
St. Louis River, west end abutment of United States Steel Co.'s bridge over.....	46 39 30.6	92 12 51.8	.....
New Duluth, intersection of Commonwealth Avenue and Peary Street.....	46 39 35.8	92 13 34.3	3,015
New Duluth, 0.50 mile northwest of; T road north (road west to sand pit).....	46 39 49.8	92 14 06.0	2,623

SUPERIOR QUADRANGLE—Continued.

Along highways on checked line.

Station.	Latitude.	Longitude.	Distance between stations.
Forks of roads northwest, east, and southwest; roads to Carlton and Cloquet branch here.....	° ' " 46 43 26.0	° ' " 92 14 47.9	Feet.
T. 49 N., R. 15 W., on north and south line between secs. 15 and 16; crossroads.....	46 43 21.3	92 14 16.1	2,267
T. 49 N., R. 15 W., corner secs. 9, 10, 15, and 16; center of north and south road.....	46 44 06.7	92 14 16.2	4,600
T. 49 N., R. 15 W., about 0.25 mile south of corner secs. 3, 4, 9, and 10, 30 feet north and 25 feet west of T road east and 20 feet north of lane west, 9 feet north of telephone pole; iron bench-mark post stamped "Prim. Trav. Sta. No. 1, 1914, Minnesota".....	46 44 45.8	92 14 16.3	3,965
Proctor station, 100 feet north of; street crossing, center of double tracks.....	46 44 38.6	92 13 35.6	2,934
Proctor, water tower at (Proctor Knott tank connected with this point by topographer using plane-table stadia and solar chart)...	46 44 51.2	92 12 42.6	3,903

Magnetic declination for east border of quadrangle, 8° E.; for west border, 7° 30' E.; for south border, 8° 30' E.; for center, 8° 15' E.

ROCKMONT QUADRANGLE.

Along highways near west border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
T. 47 N., R. 13 W., corner secs. 21, 22, 27, and 28; T road south.....	° ' " 46 31 57.0	° ' " 91 59 36.7	Feet.

Along highways on unchecked spur line.

T. 47 N., R. 13 W., quarter corner secs. 27 and 28; T road west.....	46 31 31.1	91 59 36.3	
T. 47 N., R. 13 W., approximate corner secs. 27, 28, 33, and 34, 20 feet south of T road west; crossing of logging railway and public road.....	46 31 05.0	91 59 36.2	2,630 2,640
T. 47 N., R. 13 W., south corner secs. 33 and 34, 20 feet south of T road north, in line with road north; iron bench-mark post stamped "Prim. Trav. Sta. No. 6, 1914, Wis.".....	46 30 12.7	91 59 35.7	5,299

Main line continued.

T. 47 N., R. 13 W., quarter corner secs. 22 and 27; roads north and west.....	46 31 56.9	91 58 58.9	.....
T. 47 N., R. 13 W., quarter corner secs. 15 and 22; crossroads.....	46 32 49.2	91 58 59.0	5,300
T. 47 N., R. 13 W., apparent quarter corner secs. 10 and 15; center of north and south road at east and west fence.....	46 33 41.2	91 59 01.2	5,264
T. 47 N., R. 13 W., apparent quarter corner secs. 3 and 10; center of north and south road.....	46 34 33.2	91 59 00.3	5,274
T. 47 N., R. 13 W., center of sec. 3, at Lundeen School; center of public crossroads.....	46 34 59.3	91 58 59.5	2,640
T. 48 N., R. 13 W., quarter corner secs. 27 and 34; T road west.....	46 36 15.5	91 59 00.6	7,720
T. 47 N., R. 13 W., apparent quarter corner between secs. 22 and 27; T road corners, roads north, south, and east.....	46 37 07.8	91 59 00.9	5,300
T. 48 N., R. 13 W., apparent quarter corner between secs. 15 and 22, at center of north and south road, 440 feet south of junction of Rossiter Avenue and Grand Avenue roads.....	46 38 00.1	91 59 01.4	5,295
T road forks, roads northeast, southwest, and north; center of....	46 38 35.2	91 59 40.5	4,486

Along highways near west border of quadrangle.

Crossing of Chicago & North Western R. R.; also used by Duluth, South Shore & Atlantic Ry.....	46 38 52.2	91 59 57.4	.....
T. 48 N., R. 13 W., 125 feet west and 20 feet south of T road south at quarter corner secs. 10 and 15, 2 feet south of east and west fence and 1 foot east of fence north, 0.75 mile east of Chicago & North Western R. R. at Parkland; iron bench-mark post stamped "Prim. Trav. Sta. No. 1, 1914, Wisconsin".....	46 38 52.3	91 59 02.3	3,842
Northern Pacific R. R.; public road crossing.....	46 38 52.0	91 58 35.1	1,899
T. 48 N., R. 13 W., on section line between secs. 3 and 10, at public road crossing Northern Pacific R. R.....	46 39 43.9	91 59 30.8	6,535

Magnetic declination near west border of quadrangle, 8° E.

MINNESOTA.

PRIMARY TRAVERSE.

Anoka, Elk River, Lakenetta, Tarn, and Walbo quadrangles.

ANOKA AND ISANTI COUNTIES.

The following geographic positions on North American datum were determined by J. H. Wilson in 1915 and are based on Mississippi River Commission triangulation stations Carvel and Clark.

ANOKA QUADRANGLE.

Along highways near north border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
Anoka, about 1 mile northwest of, in NW. $\frac{1}{4}$ SW. $\frac{1}{4}$ sec. 36, T. 32 N., R. 25 W., 400 meters north of Great Northern Ry., 500 meters west of north-south State road, 250 meters north of residence of B. Nye, and 8.1 meters east of southeast corner of small vacant house used as a granary on property of R. D. Carvel. Blazed trees, 24-inch double oak 190°, 10.8 meters; 10-inch double oak 137°, 8.4 meters; tile and pipe on high ground in cultivated field; Carvel triangulation station.....	° ' " 45 13 05.40	° ' " 93 24 08.42	Feet.
Anoka, center of Great Northern Ry. track in front of telegraph-office window of station.....	45 12 19.8	93 22 35.6	8,090
Tps. 31 and 32 N., R. 24 W., quarter corner between secs. 6 and 31; center of north-south road.....	45 12 45.0	93 22 39.8	2,561
T. 32 N., R. 24 W., quarter corner between secs. 30 and 31; center of north-south road.....	45 13 37.0	93 22 39.5	5,269
T. 32 N., R. 24 W., quarter corner between secs. 19 and 30; center of north-south road at fence line, lane east.....	45 14 28.6	93 22 38.4	5,231

Magnetic declination for north border of quadrangle, 8° 26' E.

ELK RIVER QUADRANGLE.

Along highways near east border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
Itasca, 1.5 miles north of railroad station, 0.5 mile east of Anoka-Sherburne county line, 1,000 meters northeast of George Clark's house, on quarter-section line of N. $\frac{1}{4}$ sec. 18, T. 32 N., R. 25 W., 15 meters west and 4 meters south of fence corner at southeast corner of cultivated field, in edge of pasture, tile and pipe; Mississippi River Commission triangulation station Clark.....	° ' " 45 16 04.43	° ' " 93 30 04.39	Feet.
T. 32 N., R. 25 W., quarter corner between secs. 6 and 7; T road east.....	45 17 05.6	93 30 02.1	6,206
Tps. 32 and 33 N., R. 25 W., quarter corner between secs. 6 and 31, 660 feet south of T road east at schoolhouse; crossroads.....	45 17 57.9	93 30 00.9	5,296
T. 33 N., R. 25 W., quarter corner between secs. 30 and 31, north-south road at fence line.....	45 18 49.9	93 30 01.5	5,270
T. 33 N., R. 25 W., quarter corner between secs. 19 and 30, at German Lutheran Church; crossroads.....	45 19 42.0	93 30 02.0	5,278
T. 33 N., Rs. 25 and 26 W., corner secs. 18, 19, 13, and 24, 20 feet west of right-angle bend in road.....	45 20 33.3	93 30 36.4	5,746
T. 33 N., Rs. 25 and 26 W., corner secs. 7, 18, 12, and 13; center of county line road at fence west.....	45 21 25.8	93 30 35.8	5,312
T. 33 N., Rs. 25 and 26 W., corner secs. 6, 7, 1, and 12, 20 feet east of T road west.....	45 22 18.1	93 30 35.5	5,302

ELK RIVER QUADRANGLE—Continued.

Along highways near east border of quadrangle—Continued.

Station.	Latitude.	Longitude.	Distance between stations.
T. 33 N., Rs. 25 and 26 W., 1,319 feet north of corner of secs. 6, 7, 1, and 12, 20 feet north of T road east, on Anoka-Sherburne county line; iron post stamped "Prim. Trav. Sta. No. 8, 1915, Minn."...	° ' "	° ' "	<i>Feet.</i>
Tps. 33 and 34 N., Rs. 25 and 26 W., 15 feet east to T fence east; probable corner.....	45 22 31.2	93 30 35.3	1,319
Fork in road, 690 feet north of road east; road south.....	45 23 08.2	93 30 34.8	3,750
T. 34 N., Rs. 25 and 26 W., corner secs. 18, 19, 13, and 24; T road east.....	45 24 18.8	93 30 37.5	7,148
T. 34 N., Rs. 25 and 26 W., stone at corner secs. 7, 18, 12, and 13, 12 feet east of center of crossroads.....	45 25 44.5	93 30 36.1	8,692
T. 34 N., R. 25 W., on line between secs. 6 and 7; center of road at fence.....	45 26 36.6	93 30 37.0	5,278
	45 27 28.1	93 30 02.8	5,758

Magnetic declination for east border of quadrangle, 7° 36' E.

LAKENETTA QUADRANGLE.

Along highways near west border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
T. 32 N., R. 23 W., corner secs. 17, 18, 19, and 20; center of east-west road, at fence line.....	° ' "	° ' "	<i>Feet.</i>
T. 32 N., R. 23 W., 20 feet north and 20 feet east of quarter corner of secs. 17 and 20, on east side of Minneapolis-Duluth road; iron post stamped "Prim. Trav. Sta. No. 5, 1915, Minn.".....	45 15 19.0	93 14 42.7	.....
T. 32 N., R. 23 W., 3,940 feet north of quarter corner secs. 17 and 20; crossroads.....	45 15 19.6	93 14 04.8	2,715
T. 32 N., R. 23 W., quarter corner secs. 5 and 8, 1,190 feet south of road forks at church, 150 feet south of road east to Coon Lake, center of north-south road at fence line.....	45 15 58.4	93 14 05.5	3,940
Tps. 32 and 33 N., R. 23 W., quarter corner secs. 5 and 32; T road west.....	45 17 03.9	93 14 05.3	6,630
T. 33 N., R. 23 W., approximate quarter corner secs. 29 and 32.....	45 17 53.2	93 14 03.0	4,990
T. 33 N., R. 23 W., center of sec. 29; crossroads.....	45 18 45.0	93 14 08.7	5,269
T. 33 N., R. 23 W., center of sec. 20, 640 feet south of road west; T road east.....	45 19 11.1	93 14 10.3	2,640
T. 33 N., R. 23 W., quarter corner between secs. 17 and 20; center of north-south road at road southwest.....	45 20 03.1	93 14 12.5	5,269
T. 33 N., R. 23 W., quarter corner between secs. 8 and 17; T road west.....	45 20 29.6	93 14 12.7	2,690
T. 33 N., R. 23 W., 20 feet south and 30 feet west of quarter corner between secs. 5 and 8, just inside of fence corner at southwest corner of crossroads at Methodist Church and district No. 40 schoolhouse; iron post stamped "Prim. Trav. Sta. No. 6, 1915, Minn.".....	45 21 21.7	93 14 12.7	5,270
T. 33 N., R. 23 W., on line between secs. 5 and 32; T road west.....	45 22 14.0	93 14 12.6	5,300
T. 34 N., R. 23 W., quarter corner between secs. 29 and 32, just north of district No. 3 schoolhouse; crossroads.....	45 23 05.4	93 14 05.1	5,236
T. 34 N., R. 23 W., quarter corner between secs. 26 and 29, on Isanti-Anoka County line; T road east.....	45 23 57.3	93 14 04.7	5,258
T. 34 N., R. 23 W., quarter corner between secs. 17 and 20; T lane east.....	45 24 49.8	93 14 06.4	5,310
T. 34 N., R. 23 W., quarter corner between secs. 8 and 17; crossroads at schoolhouse.....	45 25 41.8	93 14 07.2	5,270
T. 34 N., R. 23 W., quarter corner between secs. 5 and 8; T road east.....	45 26 34.0	93 14 08.2	5,290
Tps. 34 and 35 N., R. 23 W., quarter corner between secs. 5 and 32; center of north-south road at fence line.....	45 27 26.6	93 14 06.0	5,331
T. 35 N., R. 23 W., line between secs. 29 and 32, 0.25 mile south and 0.25 mile east of Isanti.....	45 28 16.6	93 14 04.9	5,060
T. 35 N., R. 23 W., 30 feet south of east-west half section line in sec. 29, 0.70 mile east of public-school building at Isanti, and just south of district school at crossroads; iron post stamped "Prim. Trav. Sta. No. 11, 1915, Minn.".....	45 29 08.6	93 14 16.9	5,330
	45 29 34.5	93 14 13.5	2,634

Magnetic declination for west border of quadrangle, 8° 37' E.

TARN QUADRANGLE.

Along highways near south border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
T. 32 N., R. 24 W., 15 feet west of quarter corner between secs. 18 and 19, on west side of north-south road in line with road east, 700 feet south of yellow brick schoolhouse; iron post stamped "Prim. Trav. Sta. No. 4, 1915, Minn.".....	° ' " 45 15 20.7	° ' " 93 22 38.0	Feet.
T. 32 N., R. 24 W., corner secs. 17, 18, 19, and 20, center of east-west road.....	45 15 20.8	93 22 01.0	2,650
T. 32 N., R. 24 W., corner secs. 16, 17, 20, and 21, 55 feet north and 70 feet east of northeast corner of town hall.....	45 15 20.0	93 20 47.5	5,259
T. 32 N., R. 24 W., quarter corner between secs. 16 and 17, 10 feet north of lane west; T road east.....	45 15 46.2	93 20 47.9	2,643
T. 32 N., R. 24 W., quarter corner between secs. 15 and 16, 890 feet east of road northeast, at fence south; center of east-west road.....	45 15 46.7	93 19 33.7	5,310
T. 32 N., R. 24 W., center of sec. 15, 45 feet west of Christenson's mail box; T road south.....	45 15 46.0	93 18 57.8	2,568
T. 32 N., R. 24 W., quarter corner secs. 14 and 15, 190 feet south of crossroads; center of north-south road.....	45 15 45.4	93 18 20.8	2,648
Constance, just north of milepost 129; railroad crossing.....	45 15 44.6	93 17 25.9	3,928
T. 32 N., R. 24 W., quarter corner between secs. 13 and 14; crossroads at Constance post office.....	45 15 44.3	93 17 07.6	1,310
T. 32 N., R. 24 W., corner secs. 13, 14, 23, and 24; crossroads.....	45 15 18.1	93 17 07.3	2,655
T. 32 N., Rs. 23 and 24 W., near corner secs. 13, 24, 18, and 19; T road south.....	45 15 22.0	93 15 54.4	5,226

Along highways through center of quadrangle.

T. 33 N., Rs. 23 and 24 W., corner secs. 1, 12, 6, and 7; crossroads... Bethel, 2 miles south of; east-west roads, at railroad crossing.....	45 22 14.2 45 22 13.9	93 15 55.7 93 16 26.7	..... 2,215
T. 33 N., R. 24 W., corner secs. 1, 2, 11, and 12; T road north.....	45 22 13.6	93 17 09.5	3,055
T. 33 N., R. 24 W., corner secs. 2, 3, 10, and 11; east-west road.....	45 22 13.3	93 18 24.0	5,320
T. 33 N., R. 24 W., corner secs. 3, 4, 9, and 10, 1,320 feet west of road north; center of east-west road.....	45 22 13.3 45 22 14.0	93 19 37.8 93 20 51.0	5,266 5,229
T. 33 N., R. 24 W., corner secs. 4, 5, 8, and 9; T road east.....			
St. Francis, 330 feet west of west end of bridge over Rum River, in northwest corner of park, at southeast corner of T road south; iron post stamped "Prim. Trav. Sta. No. 7, 1915, Minn.".....	45 23 12.8	93 21 33.2	6,670
Seeley Brook, 760 feet southwest of bridge over, just east of east end of Norris Lake, 45 feet west of mail box on twin oak tree; center of triangle at road forks.....	45 22 45.7	93 23 01.2	6,856
Norris Lake, center of road along north side of, at fence north.....	45 22 49.0	93 23 17.9	1,244
O. E. Liens's and two other mail boxes at road forks.....	45 22 45.3	93 24 31.7	5,280
T. 33 N., R. 25 W., corner secs. 2, 3, 10, and 11, at district No. 49 schoolhouse; crossroads.....	45 22 16.2	93 25 45.6	6,047
Nordstrom's, Weslund's, and Anderson's mail boxes, at road east.....	45 22 16.0	93 26 46.5	4,347
T. 33 N., R. 25 W., 0.25 mile south of corner of secs. 3, 4, 9, and 10, 400 feet west of road forks, at fence line; center of east-west road.....	45 22 03.3	93 26 59.4	1,581
T road north.....	45 22 03.6	93 27 54.7	3,950
Road forks, center of, at road west.....	45 22 30.2	93 29 13.8	6,258

Along highways near west border of quadrangle.

Blue Lake, on banks of, 300 feet east of green house, at end of lane west; T road south.....	45 28 12.3	93 29 55.5	.....
Blue Lake, on east side of, at fence east, center of road; probably on line between secs. 6 and 31, Tps. 34 and 35 N., R. 25 W.....	45 28 18.5	93 29 49.1	785
T. 35 N., R. 25 W., corner secs. 29, 30, 31, and 32, 10 feet west of T road east.....	45 29 12.0	93 29 29.8	5,594
T. 35 N., R. 25 W., in NW $\frac{1}{4}$ sec. 29, at top of rise at northeast corner of T road south, 125 feet north of small frame shack; iron post stamped "Prim. Trav. Sta. No. 9, 1915, Minn.".....	45 29 47.0	93 29 07.5	3,882

Along highways near north border of quadrangle.

T. 35 N., Rs. 24 and 25 W., 20 feet south and 20 feet west of corner of secs. 19, 30, 24, and 25, at Union Mercantile Co.'s store at Oxlip; iron post stamped "Prim. Trav. Sta. No. 10, 1915, Minn.".....	45 29 59.6	93 23 20.1	.....
T. 35 N., R. 24 W., on line between secs. 27 and 28, at south end of Lake Francis; road south.....	45 29 54.4	93 19 39.0	.....
T. 35 N., R. 24 W., quarter corner secs. 25 and 26; T road east.....	45 29 35.5	93 17 10.7	.....
Isanti, at public-school building; crossroads.....	45 29 34.8	93 15 02.8	9,112

Magnetic declination for north border of quadrangle, 8° E.; for south border, 8° 26' E.; for east border, 8° 37' E.; for west border, 7° 36' E.; for center, 8° 16' E.

WALBO QUADRANGLE.

Along highway near south border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
Baxtc Lake, near east edge of, at fence line, between secs. 20 and 29, 1. 35 N., R. 25 W.; center of road.....	° ' " 45 30 03.8	° ' " 93 28 51.0	Feet.
T. 35 N., R. 25 W., quarter corner between secs. 20 and 21; T road north.....	45 30 29.6	93 28 16.1	3,601
T. 35 N., R. 25 W., center of sec. 21; T road west.....	45 30 29.1	93 27 39.5	2,609
T. 35 N., R. 25 W., corner secs. 21, 22, 27, and 28; T road south.....	45 30 02.9	93 27 02.7	3,727
T. 35 N., R. 25 W., quarter corner between secs. 22 and 27; T road west.....	45 30 02.7	93 26 25.7	2,635
T. 35 N., R. 25 W., 0.25 mile north of corner of secs. 22, 23, 26, and 27, at north-south section line; center of east-west road.....	45 30 15.4	93 25 48.7	2,934
T. 35 N., R. 25 W., quarter corner between secs. 23 and 26, 1,320 feet north of T road east; center of north-south road.....	45 30 01.8	93 25 11.6	2,988
T. 35 N., R. 25 W., corner secs. 23, 24, 25, and 26; roads northeast and southwest.....	45 30 00.4	93 24 34.4	2,651
T. 35 N., R. 24 W., corner secs. 19, 20, 29, and 30; T road north.....	45 30 00.2	93 22 06.4	.....
T. 35 N., R. 24 W., corner secs. 20, 21, 28, and 29; T road south.....	45 30 01.6	93 20 53.3	5,213
T. 35 N., R. 24 W., corner secs. 22, 23, 26, and 27; crossroads.....	45 30 02.1	93 18 24.5	.....
T. 35 N., R. 24 W., corner secs. 23, 24, 25, and 26; T road west.....	45 30 01.6	93 17 10.5	5,276

Magnetic declination near south border of quadrangle 8° E.

Belle Prairie, Brainerd, Browerville, Cushing, Lastrup, Little Falls, Motley, Pine River, Swanville, and Sylvan quadrangles.

CASS, CROW WING, MORRISON, AND TODD COUNTIES.

The following geographic positions on North American datum were determined by J. H. Wilson in 1915 and are based upon United States Coast and Geodetic Survey and Mississippi River Commission triangulation and United States Geological Survey primary traverse of 1912. The latter is described in Bulletin 551.

BELLE PRAIRIE QUADRANGLE.

Along Northern Pacific Railway and highways near north border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
Big Mound triangulation station, Mississippi River Commission, in NE. $\frac{1}{4}$ sec. 23, T. 132 N., R. 30 W., about 4 miles above old Fort Ripley, on right bank of the Mississippi River and 1.5 miles from river. It is on the top of the largest mound in the vicinity, which is the largest mound east of Chadwick Lake. A small log cabin stands at the junction of the above road with the river road. Station mark, tile and pipe.....	° ' " 46 13 52.5	° ' " 94 25 11.2	Feet.
T. 132 N., Rs. 29 and 30 W., corner of secs. 18, 19, 13, and 24, 120 feet west of; gate in west and east fence line.....	46 14 18.4	94 23 31.0	7,517
Road northwest about 90 feet from river bank.....	46 13 10.4	94 23 46.3	6,970
Road west on line between secs. 25 and 36, T. 132 N., R. 30 W., 75 feet from river bank.....	46 12 27.4	94 23 39.7	4,389
Tps. 131 and 132 N., Rs. 29 and 30 W., corner of, in line with roads east and south, 30 feet west and 80 feet north of above corner is in line with roads west and north, exact corner of townships not ascertained because of roads being out of alignment.....	46 11 40.7	94 23 31.0	4,769
T. 131 N., Rs. 29 and 30 W., corner of secs. 1, 12, 6, and 7, T road east.....	46 10 48.8	94 23 31.0	5,260
Bend in road in line with road north and road west.....	46 10 09.4	94 23 31.5	3,995
Fort Ripley triangulation station; Mississippi River Commission; tile and pipe on right bank of river, 1 mile west of blockhouses at old Fort Ripley, near center of large concave bend in crest of bluff, 5 meters from crest of bluff at lower side of grove of black oak trees, and about 50 meters east of mouth of large ravine.....	46 10 19.0	94 23 45.0	1,361
T. 131 N., R. 29 W., corner of secs. 5, 6, 7, and 8, center of road in line with fence north.....	46 10 46.9	94 22 15.6	.....

BELLE PRAIRIE QUADRANGLE—Continued.

Along Northern Pacific Railway and highways near north border of quadrangle—Continued.

Station.	Latitude.	Longitude.	Distance between stations.
Fort Ripley, 1 mile above, west end of bridge over Mississippi River.....	46 10 48.5	94 22 00.4	Feet. 1,080
Railroad crossing.....	46 11 35.8	94 21 51.6	4,833
T. 43 N., R. 32 W., railroad crossing on line between secs. 15 and 22.....	46 12 03.7	94 21 54.8	2,839
T. 43 N., R. 32 W., railroad crossing on line between secs. 10 and 15.....	46 12 55.2	94 21 39.8	5,328
Railroad crossing just southeast of Thunder Lake.....	46 13 51.8	94 21 18.8	5,920
T. 43 N., R. 32 W., corner of secs. 1, 2, 11, and 12.....	46 13 48.7	94 20 03.8	5,285
T. 43 N., Rs. 31 and 32 W., corner of secs. 1, 12, 6, and 7; crossroads.....	46 13 46.0	94 18 49.2	5,247
T. 43 N., R. 31 W., corner of secs. 5, 6, 7, and 8; center of east and west road, 810 feet west of crossroads.....	46 13 47.4	94 17 33.9	5,300
T. 43 N., R. 31 W., corner of secs. 4, 5, 8, and 9; center of east and west road at fence south just east of J. E. Stuard's residence.....	46 13 47.2	94 16 18.4	5,310
T. 43 N., R. 31 W., corner of secs. 3, 4, 9, and 10; crossroads at schoolhouse.....	46 13 46.5	94 15 03.5	5,260
Prim. Trav. Sta. No. 28, 1912 (Bull. 551, p. 235).....	46 13 46.0	94 13 48.9	5,248

Along highways near east border of quadrangle.

Road south one-half mile southwest of St. Mathias Church.....	46 13 01.2	94 15 40.8	.....
T. 43 N., R. 31 W., quarter corner between secs. 9 and 16; center of small wooden bridge about 450 feet north of bridge over Nokay River.....	46 12 54.6	94 15 40.7	680
T. 43 N., R. 31 W., quarter corner between secs. 16 and 21, T road east, 250 feet south of T road west, No. 16 schoolhouse.....	46 12 02.2	94 15 40.8	5,300
T. 43 N., R. 31 W., quarter corner between secs. 21 and 28.....	46 11 10.5	94 15 41.4	5,242
T. 43 N., R. 31 W., corner stake of secs. 20, 21, 28, and 29, in east and west road.....	46 11 10.8	94 16 19.4	2,678
Tps. 42 and 43 N., R. 31 W., approximate corner of secs. 5, 6, 31, and 32; crossroads, Crow Wing-Morrison county line.....	46 09 26.0	94 17 31.3	11,767
T. 42 N., R. 31 W., corner of secs. 5, 6, 7, and 8; crossroads.....	46 08 36.0	94 17 36.2	5,077
T. 42 N., R. 31 W., approximate corner of secs. 4, 5, 8, and 9; east and west road in line with road south.....	46 08 32.7	94 16 18.5	5,483
T. 42 N., R. 31 W., corner of secs. 8, 9, 16, and 17; T road east.....	46 07 40.8	94 16 22.2	5,273
T. 42 N., R. 31 W., corner of secs. 16, 17, 20, and 21, 10 feet south and 5 feet east of; on south side of east and west road at T road north; iron post stamped "Prim. Trav. Sta. No. 18, 1915, Minn.".....	46 06 48.5	94 16 18.7	5,300
T. 42 N., R. 31 W., corner of secs. 20, 21, 28, and 29; T road south.....	46 05 56.6	94 16 15.2	5,262
T. 42 N., R. 31 W., corner of secs. 28, 29, 32, and 33; T road north, 0.25 mile west of schoolhouse.....	46 05 03.8	94 16 13.7	5,346
T. 41 N., R. 31 W., corner of secs. 20, 21, 28, and 29; T road west.....	46 00 44.7	94 16 14.3	.....

Along highways near west border of quadrangle.

T. 129 N., R. 30 W., corner of secs. 5, 6, 7, and 8; center of north and south road at fence line.....	46 00 22.3	94 29 36.8	.....
Tps. 129 and 130 N., R. 30 W., corner of secs. 5, 6, 31, and 32; T fence east.....	46 01 14.1	94 29 36.9	5,250
T. 131 N., R. 30 W., corner of secs. 17, 18, 19, and 20; right-angle bend in road.....	46 09 03.7	94 29 44.9	.....
T. 131 N., R. 30 W., corner of secs. 7, 8, 17, and 18; center of north and south road 160 feet north of crossroads.....	46 09 56.2	94 29 45.6	5,315
T. 131 N., R. 30 W., corner of secs. 5, 6, 7, and 8, 0.25 mile east of; center of north and south road at east and west section line.....	46 10 48.7	94 29 28.4	5,462
Southeast corner of schoolhouse.....	46 11 21.5	94 29 27.9	3,328
Roads, south, east, and northwest, line between Tps. 131 and 132 N., about 0.25 mile east of corner of secs. 5, 6, 31, and 32.....	46 11 39.9	94 29 27.9	1,870
Road forks on east edge of Lake Alexander.....	46 12 00.4	94 29 58.6	2,997
T. 132 N., R. 30 W., corner of secs. 29, 30, 31, and 32; right angle bend in road 0.25 mile east of Lake Alexander.....	46 12 31.7	94 29 46.7	3,291
T. 132 N., R. 30 W., corner of secs. 19, 20, 29, and 30; 70 feet east of road west at Rail Prairie.....	46 13 23.8	94 29 46.2	5,284
T. 132 N., R. 30 W., corner of secs. 17, 18, 19, and 20; crossroads at schoolhouse.....	46 14 15.7	94 29 47.1	5,255

Along highways through center of quadrangle.

T. 131 N., R. 30 W., corner of secs. 29, 30, 31, and 32; center of east and west road at fence line.....	46 07 18.5	94 29 42.7	.....
T. 131 N., R. 30 W., corner of secs. 28, 29, 32, and 33; center of east and west road at fence south.....	46 07 18.4	94 28 28.3	5,240
T. 131 N., R. 30 W., quarter corner between secs. 27 and 28; T road west on west side of Round Lake.....	46 07 45.3	94 27 12.8	5,980

BELLE PRAIRIE QUADRANGLE—Continued.

Along highways through center of quadrangle—Continued.

Station.	Latitude.	Longitude.	Distance between stations.
	° ' "	° ' "	Feet.
Center of road forks at road northwest, line between secs. 27 and 34, T. 131 N. R. 30 W.....	46 07 20.0	94 26 38.1	3,542
Center of crossroads just east of swamp.....	46 07 16.5	94 26 00.0	2,708
Center of triangle at road forks at southeast corner of clearing where house originally stood.....	46 07 33.7	94 25 21.4	3,228
Crossroads, east and west section line.....	46 07 19.6	94 24 18.9	4,634
T. 131 N., Rs. 29 and 30 W., corner of secs. 30, 31, 25, and 36.....	46 07 20.8	94 23 26.4	3,700
T. 131 N., R. 29 W., on east side of river road, at road west in sec. 30, 230 feet south of small iron bridge over small creek; iron post stamped "Prim. Trav. Sta. No. 23, 1915, Minn.".....	46 07 27.3	94 22 28.5	4,132
Road forks, at road west, just east of elm tree with DeLaval Cream Separator's sign and 460 feet below upper prong of same road fork.....	46 08 24.9	94 22 53.3	6,091
Center of river road directly over pipe culvert just north of gates on both sides of road.....	46 08 52.8	94 22 39.9	2,982

Magnetic declination for north border of quadrangle, 8° E.; for east border, 8½° E.; for south border, 8¼° E.; for west border, 8¼° E.; for center, 8¼° E.

BRAINERD QUADRANGLE.

Near west border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
	° ' "	° ' "	Feet.
T. 133 N., R. 28 W., corner of secs. 5, 6, 7, and 8.....	46 21 16.1	94 14 39.7	-----

BROWERVILLE QUADRANGLE.

Along highways near east border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
	° ' "	° ' "	Feet.
T. 132 N., R. 32 W., corner of secs. 29, 30, 31, and 32; T lane east..	46 12 33.5	94 45 06.2	-----
Tps. 131 and 132 N., R. 32 W., corner of secs. 5, 6, 31, and 32, center of north-south road in line with fence, west.....	46 11 41.3	94 45 06.8	5,292
T road west at quarter corner.....	46 11 15.2	94 45 07.1	2,650
T. 131 N., R. 32 W., corner of secs. 5, 6, 7, and 8; T road west.....	46 10 48.9	94 45 07.2	2,660
T. 131 N., R. 32 W., corner of secs. 7, 8, 17, 18; crossroads.....	46 09 56.6	94 45 07.4	5,300
Road forks at road north near northwest corner of Rice Lake.....	46 09 14.8	94 45 07.0	4,241
T. 131 N., R. 32 W., center of north-south road, at telephone line west between secs. 18 and 19.....	46 09 04.0	94 45 25.4	1,695
T. 131 N., R. 32 W., 15 feet north and 15 feet east of center of crossroads, 15 feet north of line between secs. 19 and 30, and about 0.25 mile west of corner of secs. 19, 20, 29, and 30; iron post stamped "Prim. Trav. Sta. No. 26, 1915, Minn.".....	46 08 11.6	94 45 25.9	5,309
Crossroads just south of Thunder Lake.....	46 06 53.7	94 45 20.1	7,907
Tps. 130 and 131 N., R. 32 W., road forks at road southwest near northwest corner of Round Lake, 20 feet north of line between secs. 6 and 31.....	46 06 27.6	94 45 39.1	-----
Long Lake, about 200 feet west of, gate in fence.....	46 05 39.4	94 46 16.9	5,561
T. 130 N., R. 33 W., stake at quarter corner between secs. 1 and 12, bend in road.....	46 05 34.0	94 46 53.9	2,667
T. 130 N., R. 33 W., quarter corner between secs. 12 and 13, T road north.....	46 04 41.8	94 46 54.2	5,292
T. 130 N., R. 33 W., corner of secs. 11, 12, 13, and 14, crossroads at concrete block schoolhouse.....	46 04 41.3	94 47 31.7	2,645
T. 130 N., R. 33 W., corner of secs. 13, 14, 23, and 24, T road east..	46 03 49.3	94 47 32.9	5,275
T. 130 N., R. 33 W., quarter corner between secs. 25 and 26, east-west road at fence south.....	46 02 31.2	94 47 33.8	7,912
T. 130 N., Rs. 32 and 33 W., quarter corner between secs. 25 and 30, T road south.....	46 02 31.9	94 46 18.4	5,310
T. 130 N., R. 32 W., road south on line between secs. 29 and 30, at northwest corner of cleared field.....	46 02 35.7	94 45 05.4	5,163

BROWERVILLE QUADRANGLE—Continued.

Along highways near east border of quadrangle—Continued.

Station.	Latitude.	Longitude.	Distance between stations.
One triangulation station (C. & G. S.); in the NE. $\frac{1}{4}$ SE. $\frac{1}{4}$ sec. 29, T. 130 N., R. 32 W., the high sharp hill on which it is located is quite prominent, two trees on it; about 0.5 mile from the middle of the east side of Lake McClure, in Hartford Township; it is 5 miles north and 6 miles east from Long Prairie on the Great Northern Railway; station mark: A terra-cotta pipe set in concrete...			
T. 130 N., R. 32 W., corner of secs. 29, 30, 31, and 32, T road west...	46 02 24.6	94 43 59.6	4,777
Tps. 129 and 130 N., R. 32 W., corner of secs. 5, 6, 31, and 32, 10 feet south of, in south side of east-west road on line with T road north; iron post stamped "Prim. Trav. Sta. No. 28, 1915, Minn."	46 02 05.7	94 45 05.8	5,047
	46 01 13.4	94 45 07.4	5,308

Magnetic declination for east border of quadrangle, 91° E.**CUSHING QUADRANGLE.**

Along highways near east border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
	° ' "	° ' "	Feet.
T. 130 N., Rs. 30 and 31 W., quarter corner between secs. 31 and 36.	46 01 39.7	94 30 52.1	.....
T. 130 N., Rs. 30 and 31 W., corner of secs. 30, 31, 25, and 36, T road west.....	46 02 05.9	94 30 52.8	2,655
T. 130 N., Rs. 30 and 31 W., corner of secs. 19, 30, 24, and 25, T road west.....	46 02 58.1	94 30 55.3	5,290
T. 130 N., Rs. 30 and 31 W., corner of secs. 18, 19, 13, and 24, T road west.....	46 03 50.6	94 30 52.3	5,318
T. 130 N., Rs. 30 and 31 W., corner of secs. 7, 18, 12, and 13, center of east-west road at fence line east, 470 feet south of bridge over Little Elk River.....	46 04 42.2	94 30 52.6	5,230
T. 130 N., Rs. 30 and 31 W., quarter corner between secs. 7 and 12, T road east.....	46 05 08.4	94 30 52.8	2,655
T. 130 N., Rs. 30 and 31 W., corner of secs. 6, 7, 1, and 12, T road south, 0.5 mile west of Randall.....	46 05 35.0	94 30 53.3	2,694
Randall, main track at east-west road crossing, about 1,000 feet northwest of depot.....	46 05 35.5	94 30 18.1	2,485
Randall, 1 mile north of, T road east on east-west section line.....	46 06 26.6	94 30 15.1	5,179
Randall, 2 miles north of, at southwest corner of crossroads at district 85 schoolhouse, 30 feet south and 25 feet west of quarter corner between secs. 30 and 31, T. 131 N., R. 30 W., iron post stamped "Prim. Trav. Sta. No. 22, 1915, Minn.".....	46 07 18.2	94 30 20.4	5,238
T. 131 N., Rs. 30 and 31 W., corner of secs. 30, 31, 25, and 36.....	46 07 18.1	94 30 51.6	2,199
T. 131 N., Rs. 30 and 31 W., corner of secs. 19, 30, 24, and 25, T road west.....	46 08 10.2	94 30 54.0	5,284
T. 131 N., Rs. 30 and 31 W., quarter corner between secs. 19 and 24, T road east.....	46 08 36.4	94 30 54.5	2,650
Johnson triangulation station (C. & G. S.). In the northern half of SW. $\frac{1}{4}$ sec. 7, T. 131 N., R. 30 W., on the highest part of a mound on a prominent brush-covered hill. In Prairie Township, 0.5 mile northwest of the Randall and Alexander wagon road, on land belonging to Ed. Johnson, whose house is 95 paces from station. Station mark: A terra cotta pipe set in concrete.....	46 10 22.0	94 30 42.7	.....

Along highways near north border of quadrangle.

T. 132 N., Rs. 30 and 31 W., corner of secs. 18, 19, 13, and 24, crossroads.....	46 14 15.2	94 30 57.4	.....
T. 132 N., R. 31 W., corner of secs. 13, 14, 23, and 24, corner stake in small open swamp, 350 feet east of east end of graded road....	46 14 14.3	94 32 12.5	5,280
T. 132 N., R. 31 W., corner of secs. 14, 15, 22, and 23, crossroads....	46 14 13.5	94 33 27.2	5,258
T. 132 N., R. 31 W., corner of secs. 15, 16, 21, and 22, T road south....	46 14 14.5	94 34 42.0	5,258
T. 132 N., R. 31 W., corner of secs. 16, 17, 20, and 21, stake in center of east-west road, at north and south fence line.....	46 14 14.5	94 35 58.0	5,340
T. 132 N., R. 31 W., corner of secs. 17, 18, 19, and 20, fence south. Lincoln, 2 miles north of, at bend in road, 30 feet south of gate and 20 feet south of approximate corner of secs. 18, 19, 13, and 24, Morrison-Todd county line; iron post stamped "Prim. Trav. Sta. No. 24, 1915, Minn." (NOTE.—West tier of sections in R. 31 W. are long).....	46 14 16.3	94 37 13.3	5,297
Lincoln, 1 mile north of, corner of secs. 19, 30, 24, and 25, T road east, county line.....	46 14 17.2	94 38 50.2	6,817
Staples Auto Club sign at road forks.....	46 13 26.8	94 38 50.0	5,105
	46 14 12.2	94 39 34.1	5,549

CUSHING QUADRANGLE—Continued.

Along highways near north border of quadrangle—Continued.

Station.	Latitude.	Longitude.	Distance between stations.
Road forks, 30 feet southwest of jackpine tree with sign reading "Motley 6 1/2 miles".....	46 14 47.3	94 39 40.4	<i>Fect.</i> 3,577
North end of bridge over Fish Trap Creek, 750 feet north and 10 feet east of stake in center of sec. 16, T. 132 N., R. 32 W.....	46 14 51.5	94 43 12.9	.....
Road forks, at road north, about 150 feet southeast of concrete-block house.....	46 13 25.9	94 43 27.5	8,731
T. 132 N., R. 32 W., corner of secs. 20, 21, 28, and 29, center of east and west road, at fence line.....	46 13 25.9	94 43 50.7	1,630
T. 132 N., R. 32 W., about 900 feet east of corner of secs. 19, 20, 29, and 30, 15 feet north and 5 feet east of T road south at schoolhouse; iron post stamped "Prim. Trav. Sta. No. 25, 1915, Minn.".....	46 13 24.8	94 44 53.3	4,405

Along highways near south border of quadrangle.

Tps. 129 and 130 N., R. 32 W., corner of secs. 4, 5, 32, and 33; flag-pole, 20 feet west of north-south telephone line.....	46 01 13.0	94 43 52.4	.....
Gate in fence.....	46 01 22.8	94 41 46.8	8,922
T. 130 N., R. 32 W., center of north-south road at line between secs. 34 and 35.....	46 01 30.9	94 41 22.6	1,899
J. Schrupp's mail box at road northwest.....	46 01 13.7	94 40 46.0	3,109
Tps. 129 and 130 N., R. 32 W., corner of secs. 1, 2, 35, and 36, fence corner 25 feet south of road forks at road north.....	46 01 14.6	94 40 07.8	2,698
T. 129 N., Rs. 31 and 32 W., quarter corner between secs. 1 and 6; 15 feet north and 15 feet west of, set at northwest corner of T road east, Morrison-Todd county line; iron post stamped "Prim. Trav. Sta. No. 29, 1915, Minn.".....	46 00 47.2	94 38 52.4	6,010
Center of gate at northwest corner of barn-yard; about 250 feet northwest of white-washed frame house, on top of hill.....	46 00 49.1	94 37 53.1	4,190
Tps. 129 and 130 N., R. 31 W., corner of secs. 5, 6, 31, and 32, center of east and west road, 20 feet east of west end of small swamp which is about 150 feet wide, no stake or fence but corner was pointed out by old settler.....	46 01 16.2	94 37 06.3	4,297
Tps. 129 and 130 N., R. 31 W., corner of secs. 4, 5, 32, and 33, cross-roads.....	46 01 15.7	94 35 51.1	5,305
T. 129 N., R. 31 W., corner of secs. 4, 5, 8, and 9, T road east.....	46 00 20.7	94 35 51.3	5,570
T. 129 N., R. 31 W., corner of secs. 3, 4, 9, and 10, center of east-west road at fence line.....	46 00 21.4	94 34 36.4	5,289
T. 129 N., R. 31 W., quarter corner between secs. 3 and 10, cross-roads.....	46 00 21.5	94 33 59.5	2,610
T. 129 N., R. 31 W., corner of secs. 2, 3, 10, and 11, center of east-west road at fence line.....	46 00 21.7	94 33 22.2	2,630
T. 129 N., R. 31 W., quarter corner between secs. 2 and 11, cross-roads.....	46 00 21.9	94 32 44.3	2,680
T. 129 N., R. 31 W., corner of secs. 1, 2, 11, and 12, center of east-west road at fence north, 20 feet west of T lane north.....	46 00 21.7	94 32 06.9	2,640
Cross-roads; north-south section line.....	46 00 07.4	94 30 51.1	5,542

Along highways through center of quadrangle.

Road forks near southeast corner of Thunder Lake, roads east, west, and southwest.....	46 06 46.9	94 44 48.0	.....
T. 131 N., R. 32 W., line between secs. 32 and 33, bend in road in line with road south and road east; about 250 feet southeast of yellow frame house.....	46 07 09.9	94 43 51.9	4,592
T. 131 N., R. 32 W., corner of secs. 27, 28, 33, and 34, center of east-west road at center of line south between north-south fences about 60 feet apart, just north of Pine Island Lake, and about 300 feet west of green residence on north side of road.....	46 07 20.2	94 42 36.5	5,411
T. 131 N., R. 32 W., center of sec. 26, fence corner at right angle bend in road.....	46 07 45.3	94 40 44.2	8,303
T. 131 N., R. 32 W., corner of secs. 23, 24, 25, and 26, center of east-west road, 15 feet north of fence corner at northeast corner of Tippey's farm, 15 feet northwest of white pine stump.....	46 08 12.0	94 40 06.8	3,777
T. 131 N., Rs. 31 and 32 W., corner of secs. 19, 30, 24, and 25, 20 feet north and 4 feet west of; iron post set on north side of east-west road, 4 feet west and 1 foot south of fence north on Morrison-Todd county line, about 650 feet east of schoolhouse; iron post stamped "Prim. Trav. Sta. No. 27, 1915, Minn.".....	46 08 13.1	94 38 50.8	5,345
T. 131 N., R. 31 W., corner of secs. 19, 20, 29, and 30, center of east-west road at telephone line north, 250 feet west of wooden bridge.....	46 08 14.0	94 37 09.2	7,156
Center of wooden culvert.....	46 08 38.4	94 35 53.1	5,901
Cushing railroad crossing, main track, about 100 feet northwest of depot.....	46 08 22.6	94 34 37.3	5,573

CUSHING QUADRANGLE—Continued.

Along highways through center of quadrangle—Continued.

Station.	Latitude.	Longitude.	Distance between stations.
T. 131 N., R. 31 W., corner of secs. 22, 23, 26, 27, roads east and northwest and cut-out line south.....	° ' " 46 08 11.4	° ' " 94 33 23.6	<i>Feet.</i> 5,316
T. 131 N., R. 31 W., corner of secs. 23, 24, 25, and 26, crossroads at schoolhouse.....	46 08 11.4	94 32 09.0	5,250

Magnetic declination for east border of quadrangle, $8\frac{1}{2}^{\circ}$ E.; for north border, $9\frac{1}{4}^{\circ}$ E.; for center, $9\frac{1}{2}^{\circ}$ E.; for south border, $9\frac{1}{4}^{\circ}$ E.; for west border, $9\frac{1}{4}^{\circ}$ E.

MOTLEY QUADRANGLE.

Along highways near east border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
T. 133 N., R. 30 W., quarter corner between secs. 7 and 18, T road north.....	° ' " 46 20 24.7	° ' " 94 30 21.7	<i>Feet.</i>
T. 133 N., R. 30 W., quarter corner between secs. 6 and 7, center of north and south road, line west is cut out.....	46 21 17.0	94 30 23.6	5,300
Road forks, 5 feet north and 12 feet west of advertising sign on jack-pine tree.....	46 22 41.2	94 31 13.8	9,228
T. 134 N., Rs. 30 and 31 W., big square stone at corner of secs. 25, 30, 31, and 36, just south of bend in road at south end of north-south road.....	46 23 01.0	94 31 03.6	2,125
T. 134 N., Rs. 30 and 31 W., corner of secs. 24, 25, 19, and 30, 30 feet south and 25 feet east of, at southeast corner of crossroads $\frac{1}{4}$ mile south of Fairview schoolhouse; iron post stamped "Prim. Trav. Sta. No. 13, 1915, Minn.".....	46 23 53.1	94 31 03.6	5,274
T. 134 N., Rs. 30 and 31 W., stone corner of secs. 13, 24, 18, and 19, crossroads.....	46 24 45.8	94 31 05.3	5,340
T. 134 N., Rs. 30 and 31 W., corner of secs. 7, 18, 12, and 13; iron pipe.....	46 25 38.1	94 31 06.6	5,298
T. 134 N., Rs. 30 and 31 W., corner of secs. 6, 7, 1, and 12, wooden hub on transit line.....	46 26 30.1	94 31 07.8	5,270
Sunrise schoolhouse, 1 mile east of, second-class road at cut-out north-south section line.....	46 26 30.6	94 31 07.8	50
Gate in east-west fence.....	46 26 42.8	94 30 26.0	3,176

Near south border of quadrangle.

T. 132 N., R. 32 W., approximate corner of secs. 11, 12, 13, and 14, tall jack-pine tree with signboard reading "Philbrook"; just north of east-west road, 420 feet west of gate in fence.....	46 15 10.8	94 40 05.8	.....
Philbrook, 2.5 miles southeast of, east-west railroad crossing, apparently east-west section line.....	46 15 12.6	94 41 17.7	5,055
Road forks, 900 feet northeast of abandoned log house.....	46 15 02.2	94 42 12.5	3,994

Magnetic declination for east border of quadrangle, 9° E.; for south border, $9\frac{1}{4}^{\circ}$ E.

LASTRUP QUADRANGLE.

Along highways near west border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
T. 42 N., R. 31 W., corner of secs. 27, 28, 33, and 34, T road north.....	° ' " 46 05 03.3	° ' " 94 14 58.6	<i>Feet.</i>
T. 42 N., R. 31 W., corner of secs. 26, 27, 34, and 35, T road south.....	46 05 05.4	94 13 44.6	5,216
Tps. 41 and 42 N., R. 31 W., corner of secs. 2, 3, 34, and 35, crossroads.....	46 04 12.6	94 13 43.2	5,340
T. 41 N., R. 31 W., corner of secs. 2, 3, 10, and 11; crossroads.....	46 03 21.8	94 13 41.9	5,150
T. 41 N., R. 31 W., corner of secs. 10, 11, 14, and 15, crossroads.....	46 02 29.2	94 13 44.1	5,327
T. 41 N., R. 31 W., corner of secs. 14, 15, 22, and 23, crossroads.....	46 01 37.3	94 13 43.2	5,260
T. 41 N., R. 31 W., corner of secs. 22, 23, 26, and 27, T road west.....	46 00 45.5	94 13 44.0	5,252
T. 41 N., R. 31 W., corner of secs. 21, 22, 27, and 28, 15 feet north of fence corner.....	46 00 45.3	94 14 59.3	5,320

Magnetic declination for west border of quadrangle, $8\frac{1}{2}^{\circ}$ E.

LITTLE FALLS QUADRANGLE.

Along highways near north border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
	° ' "	° ' "	Feet.
T. 41 N., R. 31 W., corner of secs. 28, 29, 32, and 33, 15 feet south and 5 feet east of, in south side of east-west road at T road north; iron post stamped "Prim. Trav. Sta. No. 19, 1915, Minn."	45 59 52.0	94 16 14.8	.....
T. 41 N., R. 31 W., corner of secs. 29, 30, 31, and 32, center of east-west road at fence south	45 59 52.0	94 17 30.3	5,330
T. 41 N., R. 31 and 32 W., corner of secs. 30, 31, 25, and 26, center of east-west road at fence line	45 59 51.2	94 18 47.3	5,440
T. 41 N., R. 32 W., quarter corner between secs. 25 and 36, T road east	45 59 51.4	94 19 24.9	2,655
Calvary Cemetery, center of east-west road in front of gate	45 59 25.6	94 20 40.3	5,935
Road east, 335 feet west of railroad crossing	45 59 25.6	94 21 07.2	1,933
Little Falls, intersection of Fifth Street and Seventh Avenue NE	45 59 02.9	94 21 13.4	2,335
Little Falls, spire of public-school building, originally the high school	45 58 38.2	94 21 27.6	2,699
Little Falls, west end of Broadway Street Bridge over Mississippi River	45 58 38.0	94 22 08.8	2,914
Little Falls, southwest corner of T road south, 1,340 feet west of Broadway Street Bridge; iron post stamped "Prim. Trav. Sta. No. 20, 1915, Minn."	45 58 37.2	94 22 27.7	1,339
Little Falls, cross streets at west edge of, corner of secs. 18, 19, 13, and 24, T. 129 N., Rs. 29 and 30 W.	45 58 36.6	94 23 15.9	3,407
Railroad crossing	45 58 36.9	94 24 07.8	3,665
T. 129 N., R. 30 W., corner of secs. 13, 14, 23, and 24, crossroads	45 58 36.7	94 24 31.2	1,655
T. 129 N., R. 30 W., center of secs. 14, 15, 22, and 23, center of east-west road in line with north-south road	45 58 36.9	94 25 46.3	5,300
T. 129 N., R. 30 W., approximate corner of secs. 15, 16, 21, and 22, 35 feet north of east-west road	45 58 37.6	94 27 02.3	5,370
T. 129 N., R. 30 W., quarter corner between secs. 16 and 21, crossroads	45 58 37.4	94 27 40.5	2,700
Center of road at north-south section line	45 58 48.3	94 28 19.4	2,959
T. 129 N., R. 30 W., corner of secs. 17, 18, 19, and 20, center of east-west road at fence line	45 58 37.5	94 29 35.7	5,496

Magnetic declination for north border of quadrangle $8\frac{1}{2}^{\circ}$ E.

PINE RIVER QUADRANGLE.

Along highways near south border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
	° ' "	° ' "	Feet.
Prim. Trav. Sta. No. 32, 1912	46 29 37.0	94 13 30.9	.....
Hubert, railroad crossing just west of depot	46 30 05.1	94 15 25.2	8,489
Railroad crossing at north and south section line	46 30 18.8	94 15 57.5	2,652
Nisswa, railroad crossing just east of depot	46 31 15.6	94 17 18.7	8,088
Railroad crossing east-west section line	46 31 43.8	94 17 41.3	3,265
Road forks, 30 feet south of sign reading "Pine River Garage 15 $\frac{1}{2}$ miles"	46 31 54.4	94 18 05.9	2,027
Road forks at road leading to Knudsen's farm	46 31 47.2	94 18 29.1	1,774
Road forks at blind trail down lake	46 31 29.8	94 19 04.4	3,035
Fence corner	46 32 02.6	94 20 07.8	5,542
Road forks, 25 feet northeast of W. Erickson's mail box	46 32 19.0	94 20 14.7	1,724
Gull Lake, center of bridge over inlet to	46 32 23.8	94 20 32.8	1,360
T. 135 N., R. 29 W., corner of secs. 5, 6, 7, and 8, T road south at Geo. Gehweiler's mail box	46 31 44.8	94 22 19.3	8,427
T. 135 N., R. 29 W., corner of secs. 7, 8, 17, and 18, 15 feet south and 15 feet west of, on east side of north and south road, 460 feet south of Jud. Bressler's mail box; iron post stamped "Prim. Trav. Sta. No. 1, 1915, Minn."	46 30 52.2	94 22 19.3	5,327
T. 135 N., R. 29 W., corner of secs. 17, 18, 19, and 20, 25 feet south and 30 feet west of, at southwest corner of crossroads at Portview schoolhouse; iron post stamped "Prim. Trav. Sta. No. 2, 1915, Minn."	46 30 00.0	94 22 20.0	5,296
Center of road on grade of old narrow-gage logging road at blind trail leading south, about 300 feet south of log cabin and 50 feet north of lone oak tree having no bark on its north side	46 30 34.3	94 24 19.0	9,024
Cross trails on old grade	46 31 04.6	94 25 08.2	4,605
T. 135 N., R. 30 W., on line between secs. 10 and 11, T road south at Collins-Cole mail box	46 31 26.0	94 26 03.0	4,405
Center of road at north and south line, 400 feet east of road north at 3 mail boxes	46 31 43.2	94 27 17.9	5,526
Crossroads, 1,815 feet north of corner of secs. 4, 5, 8, and 9, T. 135 N., R. 30 W.	46 32 01.9	94 28 33.2	5,591
T. 135 N., R. 30 W., corner of secs. 4, 5, 8, and 9	46 31 44.0	94 28 32.4	1,815

PINE RIVER QUADRANGLE—Continued.

Along highways near south border of quadrangle—Continued.

Station.	Latitude.	Longitude.	Distance between stations.
T. 135 N., R. 30 W., corner of secs. 8, 9, 16, and 17, crossroads at Gillman schoolhouse.....	° ' "	° ' "	<i>Feet.</i>
Fire tower at southwest corner of T road west at quarter corner between secs. 16 and 17, T. 135 N., R. 30 W.....	46 30 52.4	94 28 32.2	5,231
T. 135 N., R. 30 W., corner of secs. 16, 17, 20, and 21, 25 feet south and 30 feet west of, at southwest corner o. T road west; iron post stamped "Prim. Trav. Sta. No. 3, 1915, Minn.".....	46 30 26.3	94 28 32.8	2,635
	46 30 00.2	94 28 33.1	2,645

Magnetic declination for south border of quadrangle, $8\frac{1}{2}^{\circ}$ E.

SWANVILLE QUADRANGLE.

Near northeast corner of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
T. 129 N., Rs. 30 and 31 W., corner of secs. 18, 19, 13, and 24, 30 feet south and 25 feet west of; iron post set at southwest corner of crossroads stamped "Prim. Trav. Sta. No. 21, 1915, Minn."....	° ' "	° ' "	<i>Feet.</i>
T. 129 N., Rs. 30 and 31 W., corner of secs. 7, 18, 12, and 13, T road west.....	45 58 37.1	94 30 52.1	.....
	45 59 29.5	94 30 51.4	5,308

Magnetic declination for quadrangle, $7^{\circ} 45'$ E.

SYLVAN QUADRANGLE.

Along Northern Pacific Railway through center of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
T. 133 N., Rs. 28 and 29 W., center of railroad at line between secs. 7 and 12, fence south, just south of east end of tangent and 990 feet east of milepost 122.....	° ' "	° ' "	<i>Feet.</i>
Railroad crossing, second class.....	46 20 54.9	94 15 54.9	.....
Baxter railroad crossing, 25 feet west of line between secs. 11 and 12, T. 133 N., R. 29 W.....	46 20 48.4	94 16 20.4	1,910
Railroad at milepost 124.....	46 20 35.5	94 17 10.6	3,750
Railroad crossing.....	46 20 22.2	94 18 31.8	5,854
Crow Wing-Cass county line, railroad at north and south section line.....	46 20 25.7	94 19 22.1	3,550
T. 133 N., R. 29 W., railroad at line between secs. 16 and 17.....	46 20 27.3	94 19 38.1	1,130
Gull River, east end of railroad bridge over.....	46 20 23.8	94 20 52.9	5,262
T. 133 N., R. 29 W., railroad crossing 45 feet west of line between secs. 17 and 18.....	46 20 20.9	94 21 13.3	1,460
T. 133 N., Rs. 29 and 30 W., railroad crossing 30 feet west of line between secs. 13 and 18.....	46 20 13.3	94 22 09.8	4,039
Sylvan, railroad crossing at depot.....	46 20 08.7	94 23 25.7	5,349
T. 133 N., R. 30 W., railroad at line between secs. 13 and 14.....	46 20 05.9	94 24 28.4	4,405
T. 133 N., R. 30 W., railroad at line between secs. 14 and 15, 120 feet east of milepost No. 130.....	46 20 07.3	94 24 40.5	858
Railroad crossing.....	46 20 13.0	94 25 57.0	5,401
Pillager, at railroad crossing sign, 30 feet north and 20 feet east of crossing at depot, 20 feet east of north and south section line; iron post stamped "Prim. Trav. Sta. No. 12, 1915, Minn."; elevation, 1,210 feet.....	46 20 00.1	94 27 21.2	6,053
	46 19 47.7	94 28 27.5	4,820

Along highways near west border of quadrangle.

T. 135 N., R. 30 W., corner of secs. 17, 18, 19, and 20; line is cut out east and north.....	46 29 58.8	94 29 48.7	.....
Home Brook, center of bridge over.....	46 29 59.8	94 29 16.2	2,270
T. 135 N., R. 30 W., corner of secs. 20, 21, 28, and 29, T road east.....	46 29 08.3	94 28 32.3	.....
T. 135 N., R. 30 W., corner of secs. 21, 22, 27, and 28, T road south....	46 29 08.2	94 27 15.9	5,345
T. 135 N., R. 30 W., corner of secs. 27, 28, 33, and 34, center of north and south road.....	46 28 15.8	94 27 14.1	5,310
T road east at quarter corner.....	46 27 49.8	94 27 14.7	2,630

SYLVAN QUADRANGLE—Continued.

Along highways near west border of quadrangle—Continued.

Station.	Latitude.	Longitude.	Distance between stations.
Tps. 134 and 135 N., R. 30 W., corner of secs. 3, 4, 33, and 34, center of north and south road at fence line, road northwest leading to Hardy Lake.	° ' "	° ' "	Feet.
Road forks at east end of Hardy Lake, in line with road east.	46 27 24.0	94 27 15.4	2,625
Hardy Lake, road at outlet of.	46 27 34.3	94 28 24.5	4,950
Small poplar tree on north side of road, about 100 feet east of second-class road forks; tree is blazed on the south and west sides and five nails are in blaze on west side 10 inches above ground.	46 27 18.5	94 28 51.0	2,448
T. 133 N., R. 30 W., corner of secs. 7, 8, 17, and 18, center of east and west road at fence south.	46 27 26.5	94 29 35.9	3,244
T. 133 N., R. 30 W., quarter corner between secs. 8 and 17, crossroads.	46 20 25.1	94 29 44.1	.....
T. 133 N., R. 30 W., corner of secs. 16, 17, 20, and 21, cross streets near south edge of Pillager.	46 20 24.5	94 29 06.1	2,665
T. 133 N., R. 30 W., corner of secs. 20, 21, 28, and 29, crossroads.	46 19 32.3	94 28 27.6	.....
T. 133 N., R. 30 W., corner of secs. 28, 29, 32, and 33, center of north and south road at fence line.	46 18 40.7	94 28 26.3	5,240
Tps. 132 and 133 N., R. 30 W., corner of secs. 4, 5, 32, and 33, telephone line east.	46 17 48.6	94 28 25.4	5,280
T. 132 N., R. 30 W., corner of secs. 4, 5, 8, and 9, telephone line east, 810 feet south of T road east.	46 16 56.1	94 28 25.9	5,326
T. 132 N., R. 30 W., corner of secs. 8, 9, 16, and 17, 40 feet north and 20 feet west of, at northwest corner of crossroads; iron post stamped "Prim. Trav. Sta. No. 16, 1915, Minn."; elevation, 1,305 feet.	46 16 05.9	94 28 28.6	5,086
Home Brook schoolhouse, 20 feet north of gate and just inside of fence; iron post stamped "Prim. Trav. Sta. No. 14, 1915, Minn."; elevation, 1,293 feet.	46 15 09.4	94 28 30.1	5,734
T. 134 N., R. 30 W., corner of secs. 2, 3, 10, and 11, flagpole in swamp.	46 27 10.3	94 27 16.7	.....
Second-class road at dim road north.	46 26 29.6	94 26 03.4	6,585
Road forks about 500 feet south of old log barn.	46 25 56.5	94 25 09.5	5,052
Road forks; roads north, northeast, and southwest.	46 25 22.4	94 24 51.0	3,686
Fence corner at southwest corner of fenced-in ground, east side of road.	46 24 56.7	94 25 01.6	2,715
Wilson Lake, old white-pine stump at west end of, in line with roads west and south.	46 24 46.0	94 25 01.2	1,086
Center of triangle at road forks on top of ridge, junction of Brainerd-Pillager roads.	46 23 52.0	94 25 01.0	5,468
Nail in small oak tree, 5 feet above ground; west side of road at east end of Wilson Lake at point where Brainerd road leaves lake, about 30 feet east of lake shore.	46 23 32.9	94 25 05.9	1,968
Road forks at second-class road northeast.	46 23 21.4	94 23 53.5	5,211
West end of bridge over stream connecting two lakes.	46 23 09.5	94 22 46.9	4,821
In angle formed by road forks on top of rise, about 570 feet southeast of bridge over stream connecting small lake with Gull Lake, and 810 feet southeast of cottage on strip of land between lakes; iron post stamped "Prim. Trav. Sta. No. 15, 1915, Minn.".	46 23 08.4	94 21 55.9	3,576
Northeast corner of schoolhouse.	46 23 04.5	94 21 50.0	568
Road forks, west end of triangle.	46 22 13.9	94 21 35.3	5,237
Apparent line between secs. 5 and 8, T. 133 N., R. 29 W., not in road.	46 21 31.4	94 21 26.9	4,346
	46 21 18.0	94 21 46.4	1,926

Along highways near south border of quadrangle.

T. 132 N., R. 30 W., corner of secs. 7, 8, 17, and 18, 25 feet east of crossroads at church.	46 15 07.7	94 29 45.2	.....
Prim. Trav. Sta. No. 16, 1915 (see description above).	46 15 09.4	94 28 30.1	5,276
T. 132 N., R. 30 W., stake at corner of secs. 9, 10, 15, and 16, center of east and west road; two telephone lines north, one on each side of section line.	46 15 08.9	94 27 14.4	5,323
T. 132 N., R. 30 W., corner of secs. 10, 11, 14, and 15, telephone line south.	46 15 10.8	94 25 59.0	5,305
T. 132 N., R. 30 W., corner of secs. 11, 12, 13, and 14, T road north.	46 15 10.8	94 24 43.8	5,287
T. 132 N., Rs. 29 and 30 W., corner of secs. 7, 8, 12, and 13; 30 feet south and 25 feet west of, at northwest corner of crossroads; iron post stamped "Prim. Trav. Sta. No. 17, 1915, Minn."; elevation, 1,198 feet.	46 15 10.9	94 23 29.8	5,205

On north border of quadrangle.

T. 135 N., R. 29 W., corner of secs. 17, 18, 19, and 20, 25 feet south and 30 feet west of, at southwest corner of crossroads at Portview schoolhouse; iron post stamped "Prim. Trav. Sta. No. 2, 1915, Minn.".	46 30 00.0	91 22 20.0
---	------------	------------	-------

Magnetic declination for north border of quadrangle, $8\frac{1}{2}^{\circ}$ E.; for center, $8\frac{1}{4}^{\circ}$ E. for west border, 9° E.; for south border, 8° E.

MINNESOTA, NORTH DAKOTA, AND SOUTH DAKOTA.

PRIMARY TRAVERSE.

Beardsley, New Effington, Marvin, Peever, Sisseton, and White Rock quadrangles.

BIG STONE AND TRAVERSE COUNTIES, MINN.; RICHLAND COUNTY, N. DAK.; ROBERTS COUNTY, S. DAK.

The following geographic positions on North American datum were determined by George T. Hawkins in 1915. Lines were run around the borders and through the center of quadrangles and tied to the following stations of the United States Coast and Geodetic Survey: Homer Siding, Enwiller, Layden, and Brown Valley southeast base.

BEARDSLEY QUADRANGLE.

Along highways near south border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
MINNESOTA.			
Beardsley, 1.5 miles southwest of, 30 feet north and 20 feet east of corner secs. 13, 18, 19, and 24, 4 feet from corner of fence; iron post stamped "Prim. Trav. Sta. No. 11, 1915".....	45 32 44.6	96 44 25.5	Feet.
T. 124 N., R. 48 W., corner secs. 17, 18, 19, and 20, crossroads.....	45 32 43.3	96 43 11.8	5,250
T. 124 N., R. 48 W., corner secs. 16, 17, 20, and 21, crossroads.....	45 32 43.4	96 41 58.8	5,197
T. 124 N., R. 48 W., corner secs. 15, 16, 21, and 22, crossroads.....	45 32 42.8	96 40 44.3	5,300
T. 124 N., R. 48 W., corner secs. 14, 15, 22, and 23, crossroads.....	45 32 41.8	96 39 30.1	5,280
T. 124 N., R. 48 W., corner secs. 13, 14, 23, and 24, crossroads.....	45 32 40.7	96 38 15.7	5,300
T. 124 N., Rs. 47 and 48 W., 30 feet north and 60 feet east of corner secs. 13, 24, 18, and 19, and 4 feet south of corner of fence; iron post stamped "Prim. Trav. Sta. No. 12, 1915".....	45 32 40.0	96 37 00.2	5,374
T. 124 N., R. 47 W., corner secs. 17, 18, 19, 20, crossroads.....	45 32 38.6	96 35 45.6	5,310
T. 124 N., R. 47 W., corner secs. 16, 17, 20, and 21, crossroads.....	45 32 37.8	96 34 31.7	5,260
T. 124 N., R. 47 W., corner secs. 15, 16, 21, and 22, crossroads.....	45 32 37.9	96 33 17.2	5,300
T. 124 N., R. 47 W., corner secs. 14, 15, 22, and 23, crossroads.....	45 32 38.2	96 32 02.4	5,328
T. 124 N., R. 47 W., 35 feet south and 20 feet east of crossroads, at corner secs. 13, 14, 23, and 24, at northwest corner of grove; iron post stamped "Prim. Trav. Sta. No. 13, 1915".....	45 32 37.2	96 30 48.5	5,260

Along highways near east border of quadrangle.

T. 124 N., R. 47 W., corner secs. 11, 12, 13, and 14, crossroads.....	45 33 29.7	96 30 49.7	5,316
Graceville, 4 miles west of, railway crossing.....	45 33 52.9	96 30 50.0	2,350
T. 124 N., R. 47 W., corner secs. 1, 2, 11, and 12, crossroads.....	45 34 22.0	96 30 50.0	2,950
T. 124 N., R. 47 W., north corner secs. 1 and 2, T road south.....	45 35 08.0	96 30 50.5	4,670
T. 125 N., Rs. 46 and 47 W., south corner secs. 31 and 36, T road north.....	45 35 08.1	96 30 38.7	840
T. 125 N., Rs. 46 and 47 W., corner secs. 25, 30, 31, and 36.....	45 35 59.9	96 30 38.1	5,250
T. 125 N., Rs. 46 and 47 W., corner secs. 24, 25, 19, and 30, T road north.....	45 36 52.6	96 30 38.1	5,342
T. 125 N., Rs. 46 and 47 W., 20 feet south and 30 feet west of crossroads, at corner secs. 13, 18, 19, and 24, 3 feet from corner of fence; iron post stamped "Prim. Trav. Sta. No. 14, 1915".....	45 37 44.4	96 30 38.6	5,249
T. 125 N., Rs. 46 and 47 W., corner secs. 7, 12, 13, and 18, crossroads.....	45 38 37.0	96 30 38.5	5,329
T. 125 N., Rs. 46 and 47 W., corner secs. 1, 6, 7, and 12, crossroads.....	45 39 29.1	96 30 38.7	5,280
Tps. 125 and 126 N., Rs. 46 and 47 W., corner secs. 1, 6, 31, and 36, T road east.....	45 40 21.6	96 30 38.8	5,310
T. 126 N., Rs. 46 and 47 W., corner secs. 30, 31, 36, and 25, crossroads.....	45 41 13.6	96 30 38.8	5,270
T. 126 N., Rs. 46 and 47 W., corner secs. 19, 30, 24, and 25, crossroads.....	45 42 05.8	96 30 38.7	5,290
T. 126 N., Rs. 46 and 47 W., corner secs. 13, 24, 18, and 19, crossroads.....	45 42 57.9	96 30 38.7	5,280
T. 126 N., Rs. 46 and 47 W., corner secs. 12, 13, 7, and 18, crossroads.....	45 43 50.1	96 30 38.6	5,280
T. 126 N., Rs. 46 and 47 W., corner secs. 1, 12, 6, and 7, crossroads.....	45 44 42.4	96 30 38.5	5,300

BEARDSLEY QUADRANGLE—Continued.

Along highways near north border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
MINNESOTA.			
	° ' "	° ' "	Feet.
T. 126 N., R. 47 W., corner secs. 2, 3, 10, and 11, crossroads.....	45 44 42.0	96 33 07.2	.....
T. 126 N., R. 47 W., corner secs. 3, 4, 9, and 10, crossroads.....	45 44 42.2	96 34 21.8	5,290
T. 126 N., R. 47 W., corner secs. 4, 5, 8, and 9, crossroads.....	45 44 42.5	96 35 36.4	5,290
T. 126 N., R. 47 W., 20 feet north and 10 feet east of T road south, at corner secs. 5, 6, 7, and 8, 3 feet from corner of wire fence; iron post stamped "Prim. Trav. Sta. No. 16, 1915".....	45 44 43.4	96 36 51.0	5,290
T. 126 N., R. 47 W., corner secs. 7, 8, 17, and 18, crossroads.....	45 43 51.3	96 36 51.0	5,272
T. 126 N., R. 47 W., corner secs. 17, 18, 19, and 20, crossroads.....	45 42 59.2	96 36 51.4	5,280
T. 126 N., Rs. 47 and 48 W., corner secs. 18, 19, 13, and 24, crossroads.....	45 42 59.2	96 38 08.9	5,497
T. 126 N., Rs. 47 and 48 W., corner secs. 24, 25, 19, and 30, crossroads.....	45 42 06.9	96 38 08.8	5,296
T. 126 N., R. 48 W., corner secs. 23, 24, 25, and 26, T road east.....	45 42 07.0	96 39 24.4	5,360
T. 126 N., R. 48 W., corner secs. 25, 26, 35, and 36, crossroads.....	45 41 14.9	96 39 24.3	5,280
T. 126 N., R. 48 W., corner secs. 26, 27, 34, and 35, crossroads.....	45 41 15.0	96 40 38.8	5,290
T. 126 N., R. 48 W., corner secs. 27, 28, 33, and 34, road north.....	45 41 15.4	96 41 53.0	5,270
T. 126 N., R. 48 W., corner secs. 28, 29, 32, and 33, T road south.....	45 41 15.4	96 43 08.7	5,369

Along highways near west border of quadrangle.

T. 125 N., R. 48 W., corner secs. 32, 33, 34, and 35, crossroads.....	45 40 23.1	96 43 08.1	5,291
T. 125 N., R. 48 W., quarter corner secs. 4 and 5, crossroads.....	45 39 57.2	96 43 08.3	2,630
T. 125 N., R. 48 W., corner secs. 4, 5, 8, and 9, crossroads.....	45 39 31.0	96 43 08.4	2,649
T. 125 N., R. 48 W., corner secs. 5, 6, 7, and 8, crossroads.....	45 39 31.1	96 44 23.5	5,330
T. 125 N., R. 48 W., corner secs. 7, 8, 17, and 18, crossroads.....	45 38 38.7	96 44 23.6	5,300
Layden triangulation station, U. S. Coast and Geodetic Survey (Traverse County, Minn., 1903-4) in the SW. $\frac{1}{4}$ NW. $\frac{1}{4}$ sec. 17, T. 125 N., R. 48 W., on land belonging to James Layden; station is on a prominent mound 3.5 miles north and 4.5 miles east of Brown Valley. Mark is a terra-cotta pipe 4 inches in diameter, filled with concrete, and has a 60-penny wire nail embedded in top. Reference mark is also a terra-cotta pipe with nail in top, and is at the southwest corner of section, in southwest corner of a field, and 371.128 meters from the station in azimuth $46^{\circ} 27' 31''$; is 6.4 meters lower in elevation than the station. The following azimuths and distances are from the triangulation station: William Cobert's house, chimney, $96^{\circ} 03' 51''$, about $\frac{1}{2}$ mile; James Layden's house, chimney, $170^{\circ} 30' 20''$, about $\frac{1}{2}$ mile; windmill tower at William Boner's house, $271^{\circ} 58' 21''$, about $\frac{1}{2}$ mile. The quarter corner in the center of the west side of this section is connected with the station.....	45 38 21.13	96 44 10.6	2,005
T. 125 N., R. 48 W., 20 feet south and 20 feet east of, corner secs. 17, 18, 19, and 20, 3 feet from corner of fence; iron post stamped "Prim. Trav. Sta. No. 17, 1915".....	45 37 46.1	96 44 23.0	3,657
T. 125 N., R. 48 W., corner secs. 19, 20, 29, and 30.....	45 36 54.2	96 44 23.3	5,265
T. 125 N., R. 48 W., corner secs. 29, 30, 31, and 32, crossroads.....	45 36 02.0	96 44 23.2	5,290
T. 125 N., R. 48 W., south corner secs. 31 and 32, T road north.....	45 35 09.6	96 44 23.4	5,300
T. 124 N., Rs. 48 and 49 W., north corner secs. 1 and 6, T road south.....	45 35 09.6	96 44 26.5	220
T. 124 N., Rs. 48 and 49 W., corner secs. 1, 6, 7, and 12.....	45 34 28.8	96 44 26.4	4,130
Beardsley, 1 mile west of road crossing.....	45 33 45.4	96 44 26.1	4,400
T. 124 N., Rs. 48 and 49 W., corner secs. 7, 12, 13, and 18.....	45 33 36.8	96 44 26.1	870

Along highways through center of quadrangle.

T. 125 N., R. 48 W., corner secs. 16, 17, 20, and 21, crossroads.....	45 37 46.3	96 43 08.3	.....
T. 125 N., R. 48 W., corner secs. 15, 16, 21, and 22, crossroads.....	45 37 46.5	96 41 53.0	5,350
T. 125 N., R. 48 W., corner secs. 14, 15, 22, and 23, road north.....	45 37 46.4	96 40 38.4	5,300
T. 125 N., R. 48 W., corner secs. 14, 15, 10, and 11, road east.....	45 38 38.8	96 40 38.1	5,300
T. 125 N., R. 48 W., corner secs. 11, 12, 13, and 14, crossroads.....	45 38 38.4	96 39 24.6	5,220
T. 125 N., Rs. 48 and 47 W., quarter corner between secs. 13 and 18, road south.....	45 38 12.3	96 38 09.5	5,957
T. 125 N., Rs. 47 and 48 W., 30 feet north and 15 feet east of crossroads at corner secs. 13, 18, 19, and 24; iron post stamped "Prim. Trav. Sta. No. 18, 1915".....	45 37 46.5	96 38 09.1	2,608
T. 125 N., R. 47 W., corner secs. 17, 18, 19, and 20, crossroads.....	45 37 45.7	96 36 52.0	5,478
T. 125 N., R. 47 W., corner secs. 16, 17, 20, and 21, crossroads.....	45 37 45.8	96 35 37.3	5,310
T. 125 N., R. 47 W., corner secs. 15, 16, 21, and 22, crossroads.....	45 37 45.4	96 34 22.6	5,310
T. 125 N., R. 47 W., corner secs. 14, 15, 22, and 23, crossroads.....	45 37 45.1	96 33 07.9	5,306
T. 125 N., R. 47 W., corner secs. 13, 14, 23, and 24, crossroads.....	45 37 45.3	96 31 52.8	5,339

Magnetic declination for north border of quadrangle, $11^{\circ} 40' E.$; for south border, $11^{\circ} 29' E.$; for east border, $11^{\circ} 21' E.$; for west border, $11^{\circ} 30' E.$; for center, $10^{\circ} 57' E.$

NEW EFFINGTON QUADRANGLE.

Along highways near north border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
NORTH DAKOTA.			
T. 129 N., R. 50 W., near corner secs. 17, 18, 19, and 20, 500 feet northwest of small white house, windmill, and barn, 70 feet east of north-south section line, and on east-west section line; iron post stamped "Prim. Trav. Sta. No. 3, 1915".....	45 58 48.0	96 59 27.4	Feet.
T. 129 N., R. 50 W., corner secs. 7, 8, 17, and 18, crossroads.....	45 59 40.2	96 59 28.0	5,285
T. 129 N., R. 50 W., corner secs. 8, 9, 16, and 17, crossroads.....	45 59 39.9	96 58 14.4	5,200
T. 129 N., R. 50 W., corner secs. 9, 10, 15, and 16, crossroads.....	45 59 39.2	96 58 59.4	5,300
T. 129 N., R. 50 W., corner secs. 10, 11, 14, and 15, crossroads.....	45 59 38.7	96 55 43.8	5,340
T. 129 N., R. 50 W., corner secs. 11, 12, 13, and 14, crossroads.....	45 59 38.7	96 54 29.4	5,260
T. 129 N., Rs. 49 and 50 W., at corner secs. 7, 12, 13, and 18, 15 feet northwest to telephone pole, 50 feet southeast to telephone pole; iron post stamped "Prim. Trav. Sta. No. 4, 1915".....	45 59 38.6	96 53 15.2	5,242
T. 129 N., R. 49 W., corner secs. 7, 8, 17, and 18, crossroads.....	45 59 38.4	96 52 00.6	5,269
T. 129 N., R. 49 W., corner secs. 8, 9, 16, and 17, crossroads.....	45 59 38.1	96 50 45.0	5,339
T. 129 N., R. 49 W., corner secs. 9, 10, 15, and 16, crossroads.....	45 59 37.9	96 49 30.6	5,257
T. 129 N., R. 49 W., corner secs. 10, 11, 14, and 15, crossroads.....	45 59 38.1	96 48 16.0	5,268
T. 129 N., R. 49 W., corner secs. 11, 12, 13, and 14, crossroads.....	45 59 36.7	96 47 01.9	5,240
T. 129 N., Rs. 48 and 49 W., 40 feet from corner secs. 7, 18, 12, and 13, at east end of row of cottonwood trees; iron post stamped "Prim. Trav. Sta. No. 5, 1915".....	45 59 36.9	96 45 47.4	5,261
T. 129 N., Rs. 48 and 49 W., corner sections, crossroads.....	45 58 44.5	96 45 48.0	5,308
T. 129 N., Rs. 48 and 49 W., corner sections, T road north.....	45 57 52.9	96 45 48.2	5,221

Along highways through center of quadrangle.

SOUTH DAKOTA.			
T. 128 N., R. 49 W., corner secs. 13, 14, 23, and 24, T road south.....	45 51 48.7	96 45 02.9	.....
T. 128 N., R. 49 W., corner secs. 14, 15, 22, and 23, crossroads.....	45 51 48.4	96 46 16.9	5,238
T. 128 N., R. 49 W., corner secs. 15, 16, 21, and 22, crossroads.....	45 51 48.8	96 47 32.6	5,359
T. 128 N., R. 49 W., corner secs. 17, 18, 19, and 20, crossroads.....	45 51 48.4	96 50 02.6	10,615
T. 128 N., R. 49 W., corner secs. 18, 19, 13, and 24, crossroads.....	45 51 48.4	96 51 16.8	5,250
T. 128 N., R. 50 W., corner secs. 13, 14, 23, and 24, four corners.....	45 51 48.4	96 52 31.8	5,310
T. 128 N., R. 50 W., 1,770 feet east of corner of secs. 14, 15, 22, and 23, on north side of road, near white church; iron post stamped "Prim. Trav. Sta. No. 2, 1915".....	45 51 48.4	96 53 22.0	3,550
T. 128 N., R. 50 W., corner secs. 15, 16, 21, and 22, crossroads.....	45 51 47.8	96 55 02.0	7,080
Effington, 0.30 mile west of, second class, T road north.....	45 51 21.8	96 55 39.5	3,743
T. 128 N., R. 50 W., corner secs. 20, 21, 28, and 29, four corners.....	45 50 55.4	96 56 16.5	3,744
T. 128 N., R. 50 W., corner secs. 19, 20, 29, and 30, crossroads.....	45 50 55.1	96 57 31.8	5,330
T. 128 N., Rs. 50 and 51 W., corner secs. 19, 24, 25, and 30, crossroads.....	45 50 55.4	96 58 45.0	5,180
T. 128 N., R. 51 W., corner secs. 23, 24, 25, and 26, crossroads.....	45 50 56.3	96 59 59.5	5,279

Along highways near south border of quadrangle.

T. 127 N., R. 49 W., corner secs. 23, 24, 25, and 26, crossroads.....	45 45 41.3	96 45 00.4	.....
T. 127 N., R. 49 W., corner secs. 22, 23, 26, and 27, crossroads.....	45 45 41.7	96 46 15.6	5,330
T. 127 N., R. 49 W., corner secs. 21, 22, 27, and 28, crossroads.....	45 45 41.7	96 47 30.6	5,320
T. 127 N., R. 49 W., corner secs. 20, 21, 28, and 29, crossroads.....	45 45 41.5	96 48 45.6	5,320
T. 127 N., R. 49 W., corner secs. 19, 20, 29, and 30, crossroads.....	45 45 41.5	96 50 00.6	5,320

Magnetic declination along north border of quadrangle, 12° 02' E.; along south border, 11° 31' E.; along east border, 10° 50' E.; along west border, 11° 34' E.; in center, 11° 25' E.

PEEVER QUADRANGLE.

Along highways near west border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
SOUTH DAKOTA.			
	° ' "	° ' "	Feet.
T. 126 N., R. 51 W., corner secs. 11, 12, 13, and 14, crossroads.....	45 42 13.1	96 59 57.0	.....
T. 126 N., Rs. 50 and 51 W., corner secs. 7, 12, 13, and 18, crossroads.....	45 42 11.9	96 58 42.6	5,280
T. 126 N., Rs. 50 and 51 W., corner secs. 13, 18, 19, and 24, crossroads.....	45 41 20.1	96 58 41.8	5,257
T. 126 N., Rs. 50 and 51 W., corner secs. 19, 24, 25, and 30, T road north.....	45 40 28.0	96 58 41.2	5,282
T. 126 N., R. 51 W., corner secs. 23, 24, 25, and 26, T road south.....	45 40 28.5	96 59 56.1	5,317
T. 126 N., R. 51 W., corner secs. 25, 26, 35, and 36, crossroads.....	45 39 35.6	96 59 55.6	5,370
Tps. 125 and 126 N., R. 51 W., corner secs. 1, 2, 35, and 36, crossroads.....	45 38 42.9	96 59 55.1	5,340
T. 125 N., R. 51 W., corner secs. 1, 2, 11, and 12, crossroads.....	45 37 50.7	96 59 56.4	5,299
T. 125 N., R. 51 W., corner secs. 11, 12, 13, and 14.....	45 36 58.7	96 59 56.3	5,272
T. 125 N., R. 51 W., corner secs. 13, 14, 23, and 24.....	45 36 06.3	96 59 56.5	5,307
T. 125 N., R. 51 W., 1,008 feet south of corner secs. 13, 14, 23, and 24, on west side of north and south road; iron post stamped "Prim. Trav. Sta. No. 9, 1915".....	45 35 56.4	96 59 56.7	1,008
T. 125 N., R. 51 W., corner secs. 23, 24, 25, and 26, crossroads.....	45 35 13.9	96 59 57.6	4,314
T. 125 N., R. 51 W., corner secs. 25, 26, 35, and 36, crossroads.....	45 34 21.0	96 59 58.7	5,360
T. 125 N., R. 51 W., quarter corner between secs. 35 and 36, T road west.....	45 33 55.3	96 59 59.4	2,610
Tps. 124 and 125 N., corner secs. 1, 2, 35, and 36, T road west.....	45 33 28.9	96 59 59.3	2,680
T. 124 N., R. 51 W., corner secs. 1, 2, 11, and 12, crossroads.....	45 32 37.7	96 59 58.6	5,190
T. 124 N., R. 51 W., corner secs. 11, 12, 13, and 14, T road north.....	45 31 45.4	96 59 58.3	5,310
T. 124 N., Rs. 50 and 51 W., corner secs. 7, 12, 13, and 18.....	45 31 44.7	96 58 45.0	5,218
T. 124 N., R. 50 W., corner secs. 13, 18, 19, and 24, crossroads.....	45 30 52.8	96 58 43.8	5,260
T. 124 N., R. 50 W., 15 feet north and 20 feet east of corner secs. 19, 30, 24, and 25, east side of north and south road and north of east and west road, 5 feet from corner of wire fence; iron post stamped "Prim. Trav. Sta. No. 10, 1915".....	45 30 00.6	96 58 43.9	5,293

Along highways near south border of quadrangle.

T. 124 N., R. 50 W., corner secs. 19, 20, 29, and 30.....	45 30 00.6	96 57 29.8	5,280
T. 124 N., R. 50 W., corner secs. 20, 21, 23, and 29.....	45 30 00.9	96 56 15.1	5,319
Crossing of Sisseton Branch of the Chicago Milwaukee & St. Paul Ry.....	45 30 00.6	96 55 52.1	1,639
Tps. 123 and 124 N., R. 50 W., corner secs. 21, 22, 28, and 3, crossroads.....	45 30 00.6	96 55 01.6	3,590
T. 124 N., R. 49 W., corner secs. 25, 30, 31, and 36, crossroads.....	45 30 51.0	96 51 41.1	.....
T. 124 N., R. 49 W., corner secs. 19, 24, 25, and 30, crossroads.....	45 31 44.0	96 51 41.4	5,360
T. 124 N., R. 49 W., corner secs. 13, 18, 19, and 24.....	45 32 36.0	96 51 41.2	5,260
Brown Valley Southeast Base triangulation station C. & G. S. (Roberts County, S. Dak., O. W. F. 1903; 1906), situated near the south side of sec. 18, T. 124 N., R. 49 W., on land belonging to Smith & Engebritzen, bankers, in Brown Valley, and rented to Sanford Allen. It is 4½ miles south, 22° west from Brown Valley. It is marked by a deep cross cut in a ½-inch copper bolt set in the head of a stone block resting in a mass of concrete, its top level with the surface of the ground. The reference mark is in the section line, in azimuth 356° 44' 13" from the station; it is 1.49 meters lower in elevation than the station. The southeast corner of this section (18) is connected with the station. The following azimuths and distances are from the triangulation station: Windmill at Larson's house, 115° 55' 08", about 1 mile; Dittmann's red barn, south gable, 200° 25' 22", about 1,000 meters; Jim Bitner's house, chimney, 351° 46' 30", about 800 meters....			
	45 32 38.72	96 50 48.02	3,793

Along highways through center of quadrangle.

T. 125 N., Rs. 50 and 51 W., corner secs. 7, 12, 13, and 18, crossroads.....	45 36 58.0	96 58 42.4	.....
T. 125 N., R. 50 W., corner secs. 7, 8, 17, and 18, crossroads.....	45 36 57.8	96 57 28.5	5,256
T. 125 N., R. 50 W., corner secs. 8, 9, 16, and 17, crossroads.....	45 36 58.0	96 56 13.1	5,360
T. 125 N., R. 50 W., corner secs. 9, 10, 15, and 16, 3 corners.....	45 36 57.7	96 54 59.2	5,250
T. 125 N., R. 50 W., iron and concrete bridge.....	45 36 53.9	96 54 31.1	2,040
T. 125 N., R. 50 W., corner secs. 10, 11, 14, and 15, crossroads.....	45 36 58.0	96 53 45.0	3,302
Brown Valley, 3 miles northwest of, 0.3 mile southwest of Mission Church; iron bridge.....	45 36 58.0	96 52 32.5	5,150
MINNESOTA.			
Brown Valley, in northwest part of elbow in road.....	45 35 53.7	96 50 55.5	.....
Brown Valley water tower triangulation station, U. S. C. & G. S., 1903.....	45 35 40.26	96 49 51.87	4,729
Brown Valley, 1.5 miles north of, elbow in road.....	45 36 54.5	96 50 01.1	7,543
T. 125 N., R. 49 W., corner secs. 21, 22, 27, and 28, crossroads.....	45 36 54.4	96 49 23.8	2,580
T. 125 N., R. 49 W., corner secs. 22, 23, 26, and 27, crossroads.....	45 36 54.5	96 48 08.7	5,340
T. 125 N., R. 49 W., corner secs. 23, 24, 25, and 26, crossroads.....	45 36 54.6	96 46 53.6	5,340
T. 125 N., R. 49 W., corner secs. 24, 25, 19, and 30, crossroads.....	45 36 54.6	96 45 38.9	5,310

Magnetic declination for north border of quadrangle, 11° 31' E.; for south border, 11° 18' E.; for east border, 11° 30' E.; for west border, 10° 59' E.; for center, 11° 02' E.

PEEVER QUADRANGLE—Continued.

Along highways near north border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
SOUTH DAKOTA.			
T. 127 N., Rs. 49 and 50 W., corner secs. 30, 31, 25, and 36, second-class T road south.....	° ' " 45 44 48.1	° ' " 96 51 15.5	Feet.
T. 127 N., R. 50 W., 12 feet south and 35 feet west of corner of secs. 26, 27, 34, and 35, 4 feet northwest of telephone pole; iron post stamped "Prim. Trav. Sta. No. 7, 1915".....	45 44 48.0	96 53 45.1	10,609
T. 127 N., R. 50 W., corner secs. 27, 28, 33, and 34, crossroads.....	45 44 47.3	96 54 59.5	5,283
T. 127 N., R. 50 W., corner secs. 28, 29, 32, and 33, crossroads.....	45 44 48.7	96 56 13.9	5,280
T. 127 N., R. 50 W., corner secs. 29, 30, 31, and 32, crossroads.....	45 44 48.8	96 57 28.4	5,290
T. 127 N., Rs. 50 and 51 W., corner secs. 30, 31, 25, and 36, crossroads.....	45 44 49.1	96 58 44.0	5,360
T. 127 N., R. 51 W., corner secs. 25, 26, 35, and 36, crossroads.....	45 44 49.0	96 59 57.7	5,230

Magnetic declination for north border of quadrangle, 11° 31' E.

SISSETON QUADRANGLE.

Along highways near east border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
SOUTH DAKOTA.			
T. 128 N., R. 51 W., corner secs. 22, 23, 26, and 27, crossroads.....	° ' " 45 50 55.4	° ' " 97 01 14.5	Feet.
Harmers siding, about 0.40 mile south of, in sec. 23, T. 128 N., R. 51 W., very high steeple on church (U. S. C. & G. S. point).....	45 51 00.69	97 01 16.35	555
Harmers siding, crossroads at.....	45 51 21.7	97 01 15.3	2,130
T. 128 N., R. 51 W., corner secs. 14, 15, 22, and 23, crossroads.....	45 51 48.3	97 01 15.7	2,690
T. 128 N., R. 51 W., corner secs. 10, 11, 14, and 15, T road west.....	45 52 41.7	97 01 15.4	5,410
T. 128 N., R. 51 W., corner secs. 2, 3, 10, and 11, crossroads.....	45 53 33.2	97 01 15.4	5,210
T. 128 N., R. 51 W., in sec. 2, white church steeple.....	45 53 44.3	97 01 14.1	1,132
T. 128 N., R. 51 W., north corner secs. 2 and 3, T road south.....	45 54 24.2	97 01 15.2	4,040
T. 129 N., R. 51 W., south side secs. 35 and 36, T road north.....	45 54 24.3	97 01 09.6	398
T. 129 N., R. 51 W., corner secs. 25, 26, 35, and 36, crossroads.....	45 55 16.8	97 01 09.6	5,320
T. 127 N., R. 51 W., 20 feet north and 20 feet west of crossroads at corner secs. 26, 27, 34, and 35; iron post stamped "Prim. Trav. Sta. No. 8, 1915".....	45 44 49.2	97 01 13.0	.....
T. 127 N., R. 51 W., corner secs. 22, 23, 26, and 27, crossroads.....	45 45 41.2	97 01 14.1	5,268
T. 127 N., R. 51 W., corner secs. 14, 15, 22, and 23, crossroads.....	45 46 33.8	97 01 15.8	5,320
T. 127 N., R. 51 W., corner secs. 10, 11, 14, and 15, crossroads.....	45 47 26.1	97 01 16.2	5,299
T. 127 N., R. 51 W., corner secs. 2, 3, 10, and 11, crossroads.....	45 48 18.7	97 01 15.4	5,320
Tps. 127 and 128 N., R. 51 W., corner secs. 2, 3, 34, and 35, crossroads.....	45 49 10.2	97 01 14.5	5,220
T. 128 N., R. 51 W., corner secs. 26, 27, 34, and 35, crossroads.....	45 50 03.0	97 01 15.0	5,340

Magnetic declination for east border of north half of quadrangle, 11° 34' E.

Along highways.

Prim. Trav. Sta. No. 8, 1915.....	45 44 49.17	97 01 13.04	.....
Tps. 126 and 127 N., R. 51 W., corner secs. 2, 3, 34, and 35, second-class crossroad.....	45 43 56.4	97 01 11.7	5,350
T. 126 N., R. 51 W., corner secs. 2, 3, 10, and 11, second-class crossroad.....	45 43 06.8	97 01 12.4	5,030
T. 126 N., R. 51 W., corner secs. 10, 11, 14, and 15, T road north.....	45 42 13.9	97 01 12.9	5,360

Along highways near east border of quadrangle.

T. 129 N., R. 51 W., corner secs. 23, 24, 25, and 26, crossroads on Stateline.....	45 56 09.4	97 01 09.1	.....
T. 129 N., R. 51 W., corner secs. 13, 14, 23, and 24, crossroads.....	45 57 02.1	97 01 09.0	5,340
T. 129 N., R. 51 W., corner secs. 11, 12, 13, and 14, T road south.....	45 57 53.7	97 01 08.9	5,230
Second-class road crossing.....	45 58 48.9	97 00 42.4	5,900

WHITE ROCK QUADRANGLE.

Along highways near south border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
MINNESOTA.			
T. 126 N., Rs. 46 and 47 W., 20 feet north and 15 feet east of north corner secs. 1 and 6, 2 feet from corner of fence; iron post stamped "Prim. Trav. Sta. No. 15, 1915"	45 45 34.8	96 30 38.0	Feet.
T. 126 N., R. 47 W., north corner secs. 1 and 2.....	45 45 34.8	96 31 52.8	5,300
T. 126 N., R. 47 W., north corner secs. 2 and 3, T road south.....	45 45 34.8	96 33 07.2	5,280

Magnetic declination for south border of quadrangle, 11° 40' E.

MARVIN QUADRANGLE.

Along highways near north border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
SOUTH DAKOTA.			
Tps. 123 and 124 N., R. 50 E., corner secs. 2, 3, 22, and 35, crossroads.	45 29 59.7	96 54 11.0	Feet.
Tps. 123 and 124 N., R. 50 E., corner secs. 1, 2, 35, and 36, crossroads.	45 29 59.8	96 52 55.4	5,380
Tps. 123 N. and 124 N., R. 49 and 50 W., corner secs. 1, 6, 31, and 36, crossroads.....	45 29 59.5	96 51 41.3	5,280

Magnetic declination for north border of quadrangle, 11° 18' E.

WHITE ROCK QUADRANGLE.

Along highways near west border of quadrangle.

Station.	Latitude.	Longitude.	Distance between stations.
NORTH DAKOTA.			
T. 129 N., Rs. 48 and 49 W., corner sections, 250 feet southwest of schoolhouse, four corners	45 57 53.6	96 44 33.1	Feet.
T. 129 N., Rs. 48 and 49 W., corner sections T road north at	45 57 01.5	96 44 33.7	5,270
T. 129 N., R. 49 W., corner sections, 30 feet northeast to letter box, four corners at.....	45 57 01.7	96 43 19.2	5,270
State line, 3 feet northwest of 12-inch stone post, 2.5 feet above ground, marked "N. D." on north side and "S. D." on south side; iron post stamped "Prim. Trav. Sta. No. 5, 1915".....	45 56 09.7	96 43 19.4	5,266
SOUTH DAKOTA.			
T road south.....	45 55 17.9	96 43 36.6	Feet.
T road north, jog in road to west.....	45 54 25.1	96 43 36.4	5,349
T road south, at north corner secs. 1 and 6.....	45 54 25.1	96 43 47.2	760
T. 128 N., Rs. 48 and 49 W., corner secs. 1, 6, 7, and 12, crossroads..	45 53 34.2	96 43 47.4	5,160
T. 128 N., Rs. 48 and 49 W., corner secs. 7, 12, 13, and 18, T road west.....	45 52 41.6	96 43 47.4	5,330
Rosholt, east end of Main Street, 3 feet north of telephone pole, 80 feet southeast of blacksmith shop; iron post stamped "Prim. Trav. Sta. No. 1, 1915"	45 52 00.4	96 43 47.7	4,170
T. 128 N., Rs. 48 and 49 W., corner secs. 18, 19, 24, and 13, four corners.....	45 51 49.3	96 43 47.4	1,125
T. 128 N., Rs. 48 and 49 W., corner secs. 19, 30, 24, and 25, four corners.....	45 50 56.7	96 43 47.5	5,330
T. 128 N., Rs. 48 and 49 W., corner secs. 30, 31, 25, and 36, four corners.....	45 50 04.2	96 43 47.4	5,320
Enwiller triangulation station, U. S. C. & G. S., T. 128 N., R. 49 W., near the east side of N.E. 1/4 sec. 36, in Victor Township, Sisseton Indian Reservation, about 0.25 mile due south of the northeast corner of sec. 36, on land belonging to Harry Enwiller; 2 miles east and 1.25 miles south of Crawford post office, on a prominent east and west ridge, 13 paces west from center of wagon road where it crosses the ridge, 4.39 meters east of fence line on east side of sec. 36; iron pipe filled with concrete and 60-penny nail in top..	45 49 51.92	96 43 47.86	1,239
T corner and crossroads.....	45 49 11.9	96 43 47.2	4,060
T. 127 N., R. 48 W., at southwest quarter corner of sec. 6, 10 feet west of road; iron bench-mark post stamped "El. 1078".....	45 48 45.6	96 43 47.4	2,670
T. 127 N., R. 49 W., corner secs. 1, 6, 7, and 12, crossroads.....	45 48 19.3	96 43 47.0	2,660
T. 127 N., R. 49 W., corner secs. 7, 18, 12, and 13, crossroads.....	45 47 26.8	96 43 46.8	5,330
T. 127 N., R. 49 W., corner secs. 18, 19, 13, and 24, crossroads.....	45 46 34.2	96 43 46.3	5,330
T. 127 N., R. 49 W., 20 feet south and 15 feet east of corner of secs. 19, 30, 24, and 25, at northwest corner of grove; iron post stamped "Prim. Trav. Sta. No. 6, 1915"	45 45 41.4	96 43 45.7	5,353

Magnetic declination for west border of quadrangle, 10° 50' E.