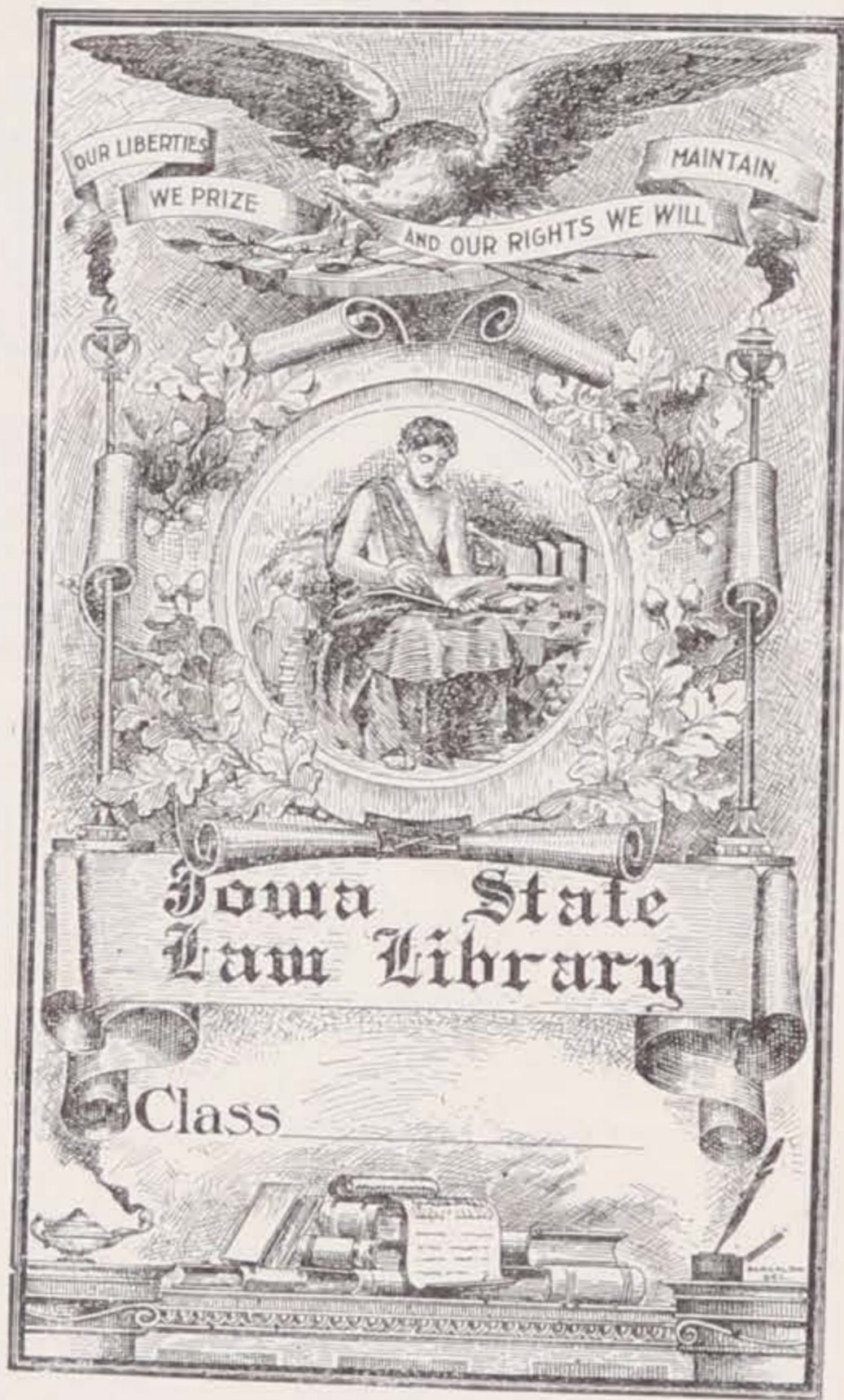


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**CARROLL LOOP
SUPPLEMENTARY ADJUSTMENT**

**SECOND-ORDER LEVELS
IOWA GEODETIC SURVEY**



I O W A
LIBRARY
PROJECT
Des Moines, Iowa
WORK PROJECTS
ADMINISTRATION

Work Projects Administration

IOWA GEODETIC SURVEY

WPA Project No. 665-72-3-79.

Des Moines, Iowa

1940

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This report has been prepared by the Iowa Geodetic Survey, a state-wide project of the Work Projects Administration, under the sponsorship of the United States Coast and Geodetic Survey and the Engineering Experiment Station of Iowa State College.

All computations and results were prepared by WPA Project #4485, and were checked and approved by the United States Coast and Geodetic Survey.

IOWA GEODETIC SURVEY

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IOWA STATE
LAW LIBRARY

Leveling in Iowa

CARROLL LOOP

CONTENTS

	Page
General Statement	2
Instruments and Field Methods	3
The 1929 General Adjustment	3
Orthometric Correction	3
Computations and Adjustments	4
Rail Elevations	4
Cooperation in the Preservation of Bench Marks	4

Descriptions and Elevations of Bench Marks:

Line L-4 4 (Part) St. Joseph, Mo., to Sioux City, Ia.,	7
Line L- 144 (Part) Minneapolis, Minn., to Glasgow, Mo., ...	17
Line L- 928 Fort Dodge to Sergeant Bluff, Ia.,	29
Line L-7638 Council Bluffs to Des Moines, Ia.,	47
Line L-6034 Sac City to Carroll, Ia.,	57
Line L-6037 Manilla to Neola, Ia.,	63
Line L-6046 Atlantic to Manning, Ia.,	71
Line L-6049 Hamlin to Guthrie Center, Ia.,	79
Line L-6052 Jefferson to Guthrie Center, Ia.,	83
Line L-6055 Guthrie Center to Menlo, Ia.,	89
Line L-6375 Ogden to Smithland, Ia.,	91
Line L-6378 Onawa to Smithland, Ia.,	113
Line L-6381 Sac Junction to Ute, Ia.,	117
Line L-6384 Smithland to Correctionville, Ia.,	123
Line L-6387 Ute to Mondamin, Ia.,	127
Line L-6390 Rockwell City to Jefferson, Ia.,	133

Index	139
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ILLUSTRATIONS

Index Map showing Carroll Loop	2a
Sketch, indicating Standard Markers	4a

At the beginning of each line will be found a short description of the route followed, the Chief of Party, and the year in which the work was performed.

This Publication contains the descriptions and elevations of bench marks in the following Counties of the State of Iowa:

Adair	Dallas	Plymouth
Audubon	Greene	Polk
Boone	Guthrie	Pottawattamie
Calhoun	Harrison	Sac
Carroll	Ida	Shelby
Cass	Madison	Webster
Crawford	Monona	Woodbury

The elevations have been determined by First- or Second-order Leveling by the U.S. Coast & Geodetic Survey. All the necessary releveling in the Carroll Loop was run by the Iowa Geodetic Survey under the direction of the U.S. Coast & Geodetic Survey.

The several lines are listed below, together with years in which the original work was done:

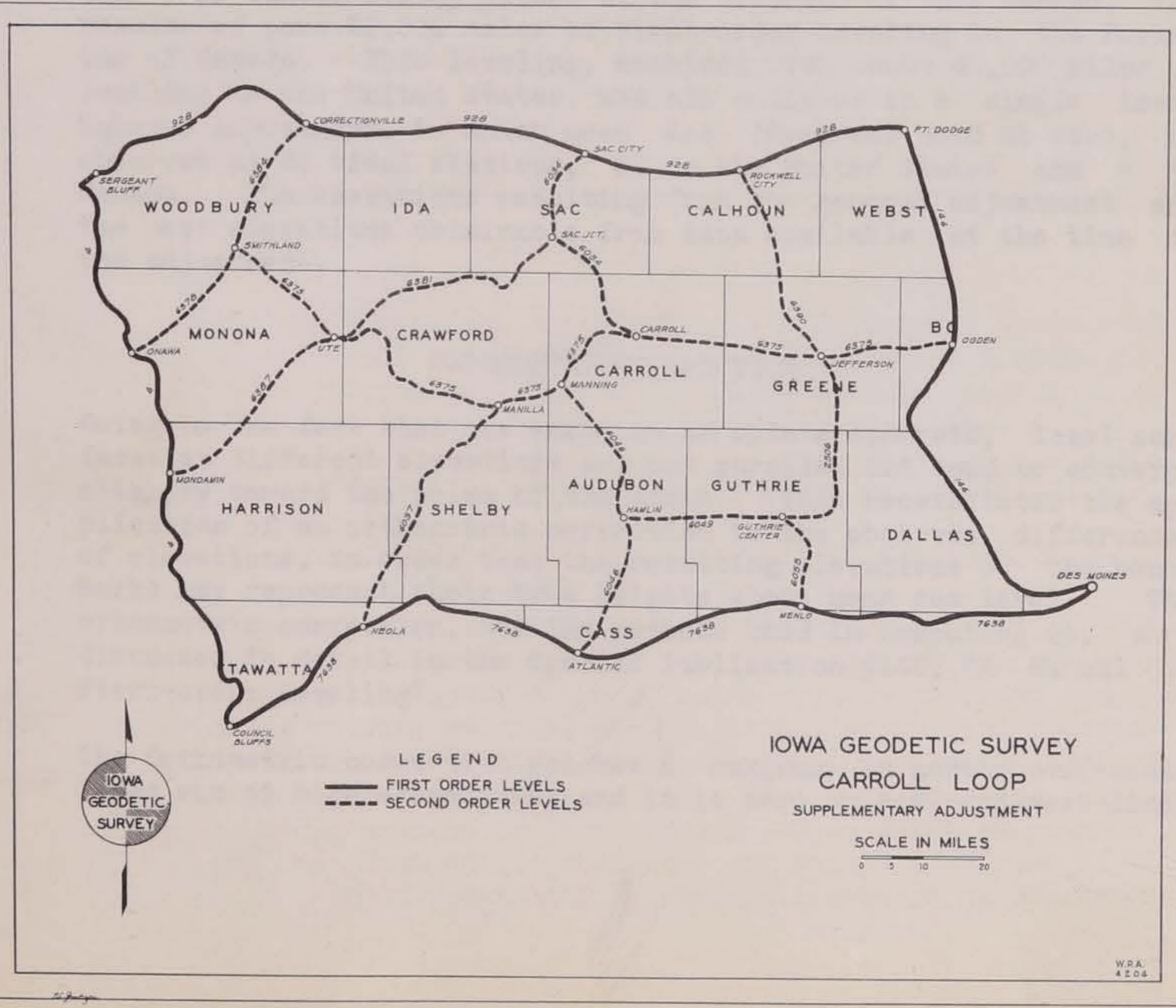
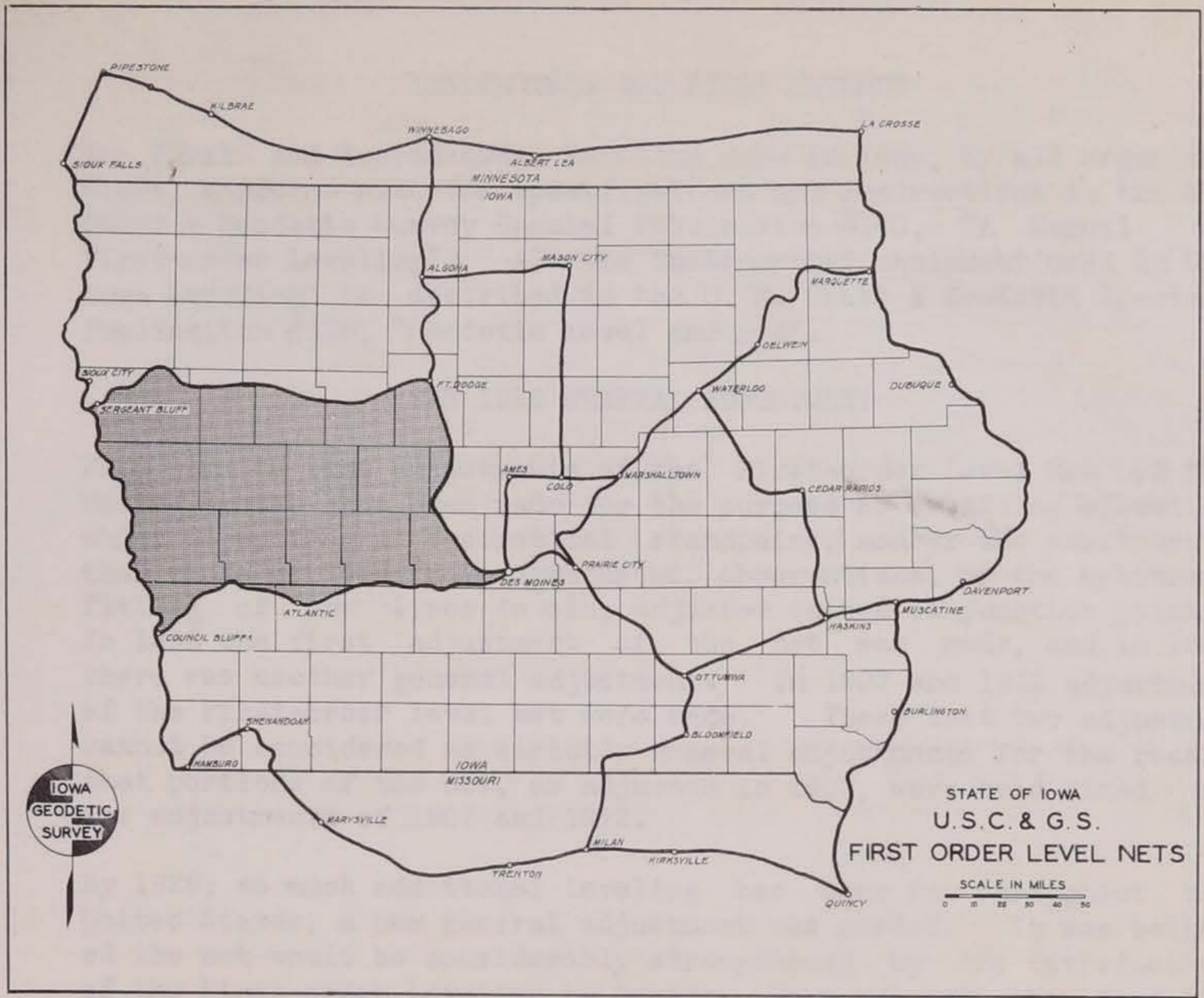
First-order Lines

		<u>Year</u>
Line L- 4 (Part)	St. Joseph, Mo., to Sioux City, Ia....	
Line L- 144 (Part)	Minneapolis, Minn., to Glasgow, Mo., .	1930
Line L- 928	Fort Dodge to Sergeant Bluff, Ia., ...	1933
Line L-7638	Council Bluffs to Des Moines, Ia., ...	1905

Second-order Lines

Line L-6034	Sac City to Carroll, Ia.,	1935
Line L-6037	Manilla to Neola, Ia.,	1935
Line L-6046	Atlantic to Manning, Ia.,	1935
Line L-6049	Hamlin to Guthrie Center, Ia.,	1935
Line L-6052	Jefferson to Guthrie Center, Ia.,	1935
Line L-6055	Guthrie Center to Meala, Ia.,	1935
Line L-6375	Ogden to Smithland, Iowa,	1935
Line L-6378	Onawa to Smithland, Ia.,	1935
Line L-6381	Sac Junction to Ute, Ia.,	1935
Line L-6384	Smithland to Correctionville, Ia., ...	1935
Line L-6387	Ute to Mondamin, Ia.,	1935
Line L-6390	Rockwell City to Jefferson, Ia.,	1935

At the beginning of each Line will be found a short description of the route followed, the Chief of Party, and the year in which the work was performed.



The First- and Second-order Leveling done in Iowa, by all organizations, conforms with the specifications and instructions in the U.S. Coast & Geodetic Survey Special Publication #140, "A Manual of First-order Leveling". All the instrumental equipment used in the Iowa Leveling is described in the U. S. Coast & Geodetic Special Publication #129, "Geodetic Level and Rod".

THE 1929 GENERAL ADJUSTMENT

From time to time adjustments of the First-order Level Net of the United States have been made for the purpose of obtaining elevations which were, from a theoretical standpoint, nearer the exact truth than those derived from unadjusted observations, or the arbitrary fitting of new lines to old, adjusted values of junction points. In 1898 the first adjustment of the net was made, and in 1903 there was another general adjustment. In 1907 and 1912 adjustments of the First-order level net were made. These last two adjustments cannot be considered as strictly general adjustments for the reason that portions of the net, as adjusted in 1903, were held fixed in the adjustments of 1907 and 1912.

By 1929, so much additional leveling had been run throughout the United States, a new general adjustment was needed. It was believed the net would be considerably strengthened by the introduction of the First-order Leveling in Canada. Upon request, the Geodetic Survey of Canada kindly placed at the disposal of this Bureau, the results of some 20,000 miles of First-order Leveling in the Dominion of Canada. This leveling, combined with about 40,000 miles of leveling in the United States, was all adjusted in a single Least Squares Adjustment, in which mean sea level was held at zero, as observed at 26 tidal stations, 21 in the United States and 5 in Canada. The elevations resulting from the general adjustment are the best elevations obtainable from data available at the time of the adjustment.

ORTHOMETRIC CORRECTION

Owing to the fact that the earth is an oblate spheroid, level surfaces at different elevations are not parallel but tend to converge slightly toward the poles of the earth. This necessitates the application of an orthometric correction to the observed differences of elevations, in order that the resulting elevations of the bench marks may represent their true heights above mean sea level. The orthometric correction, and the methods used in computing it, are discussed in detail in the Special Publication #140, "A Manual of First-order Leveling".

The Orthometric correction reaches a maximum on north- and -south lines run at high elevations, and it is zero on east-and-west lines.

The orthometric correction has been applied to the leveling included in this publication. In order that persons using this publication may form an idea as to the order of size of the orthometric correction, the following example is cited:

The difference in elevation between two bench marks, at about the latitude of Manning, Iowa, in such locations that the geographic latitudes would differ by two minutes (approximately 12,000 feet), and the average elevation of the line of levels connecting them would be 1,380 feet, would require an orthometric correction of .0042 foot. This correction varies directly with the average elevation, and with the difference in latitude between the marks, and depends slightly upon the latitude. Tables for use in computing the orthometric correction are given in the Special Publication #140.

COMPUTATIONS AND ADJUSTMENTS

The entire First-order Level Net covering the State of Iowa was included in the 1929 General Adjustment, as computed by the U.S. Coast & Geodetic Survey. (See Index Map showing State of Iowa First-order Level Nets)

This report covers the Carroll Loop (See Index Map), and the report has been computed and adjusted by the Iowa Geodetic Survey, in accordance with the specifications and instructions set up in the U. S. Coast & Geodetic Survey Special Publication #140. The elevations of the bench marks on the First-Order Lines were fixed by the 1929 General Adjustment; the elevations of the bench marks of the Second-order Lines within the Carroll Loop were computed by Least Square Adjustment. The computations and final elevations have been checked and approved by the U. S. Coast & Geodetic Survey Office at Washington, D.C.

RAIL ELEVATIONS

Interspersed throughout the descriptions and elevations of the bench marks will be found the descriptions and elevations, in tenths of feet, of tops of rails opposite railroad stations, or at railroad and highway crossings. These elevations are approximate only, since the track does not accurately maintain a constant elevation for any great length of time.

COOPERATION IN THE PRESERVATION OF BENCH MARKS

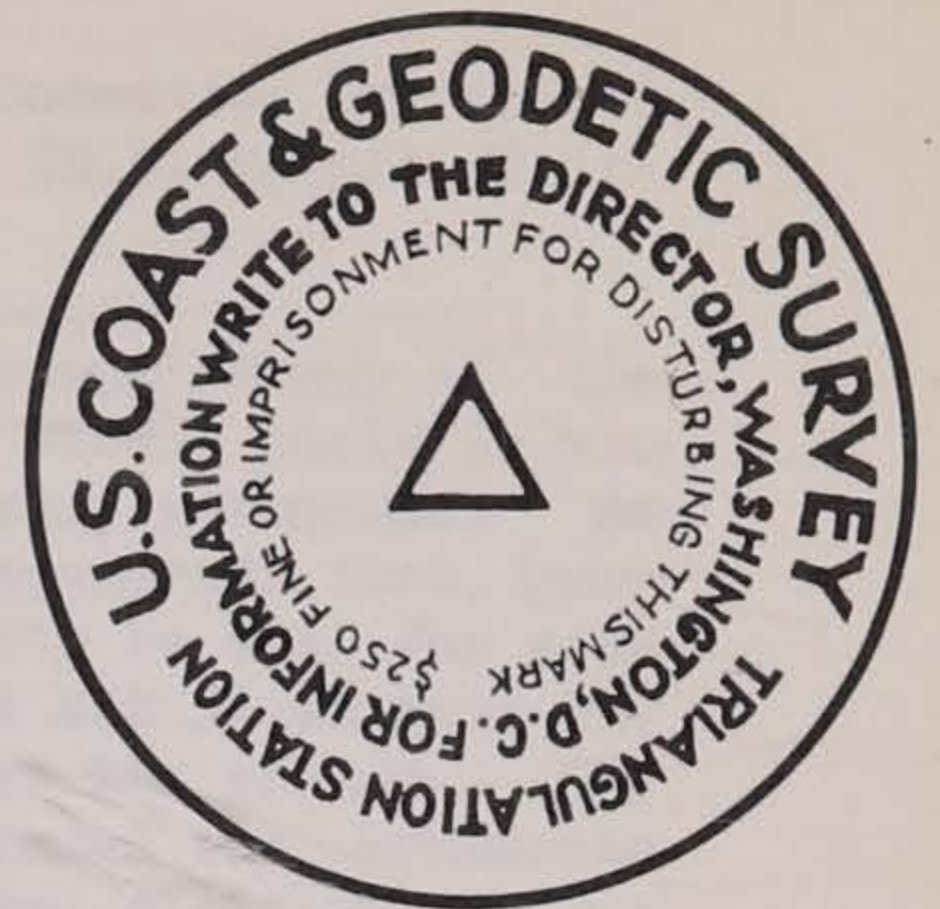
A bench mark is useful only as long as it is recoverable. When changes occur, as they often do, in the surrounding natural and cultural features with relation to which the mark is described, it becomes increasingly difficult to find the mark by means of the published description. Engineers, and others who have occasion to visit any bench marks established by this Bureau or other Government organizations, will be doing a public service if they will report the condition of the marks and make suggestions as to needed changes in the descriptions.



A



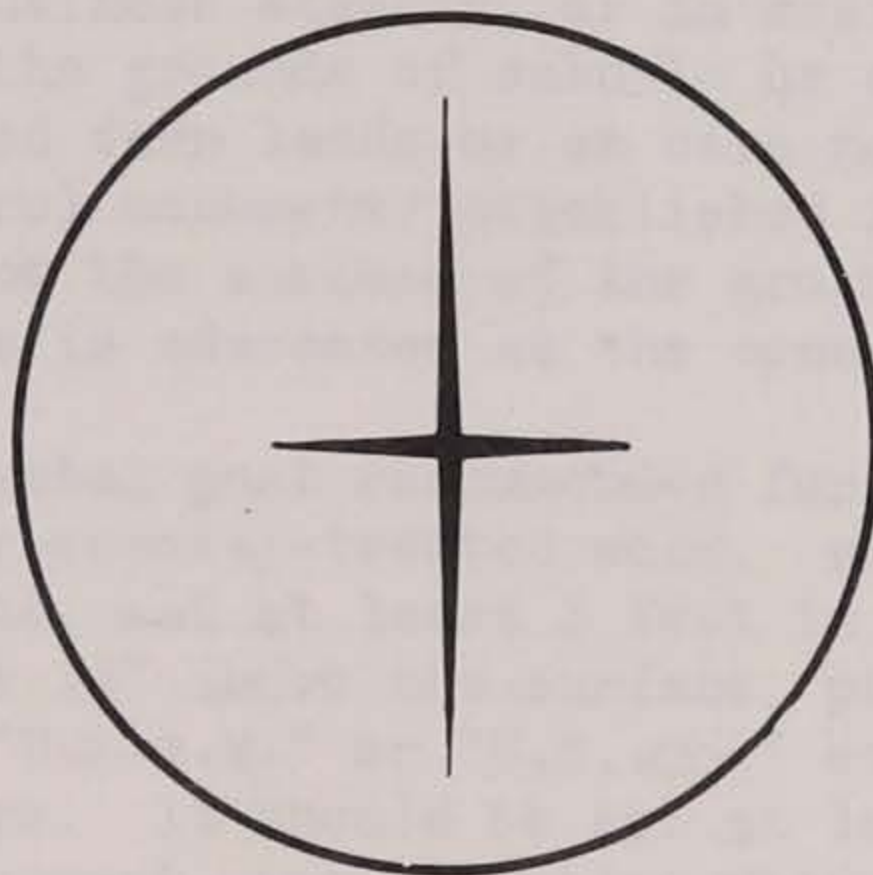
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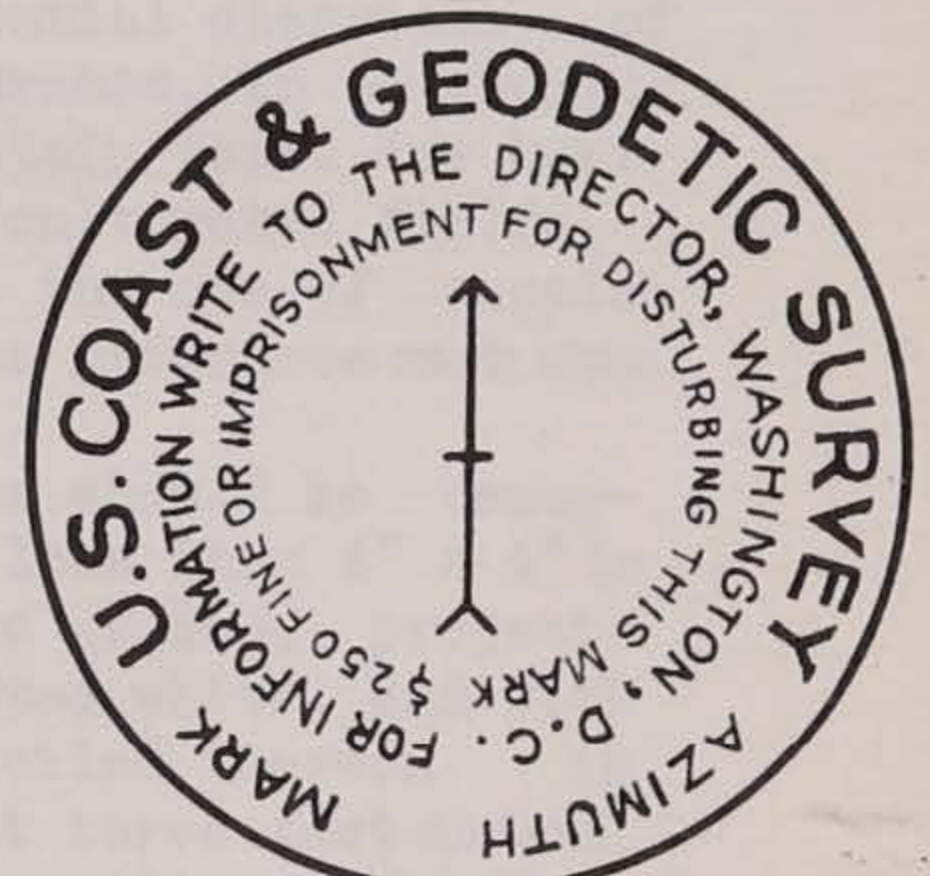
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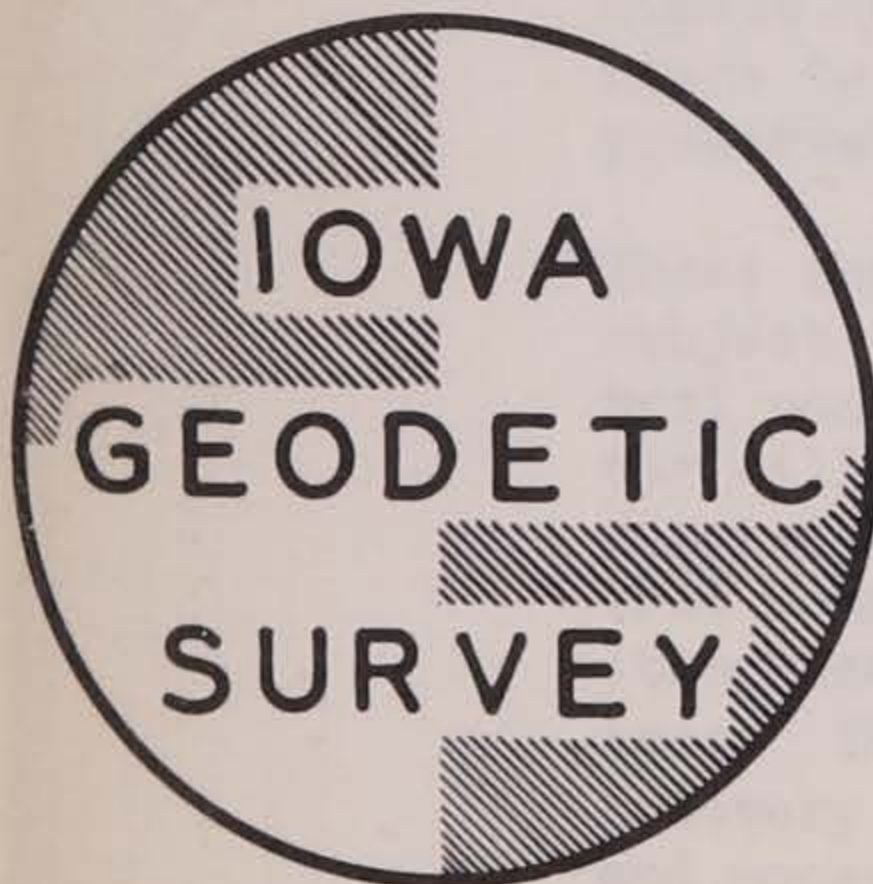
D



E



F



G

NOTE—

A-U.S.C. & G.S. standard Reference Mark disc.

B-U.S.C. & G.S. standard B.M. disc. (Used by precise level parties.)

C-U.S.C. & G.S. standard Triangulation station disc.

D-U.S.C. & G.S. and I.G.S. standard Traverse station disc.

E-I.G.S. standard corner stone disc.


F-U.S.C. & G.S. standard Azimuth mark disc.

G-Standard symbol for I.G.S.

STANDARD MARKERS

The following motion was adopted by the Committee on Control of the Federal Board of Surveys and Maps (H.W. Hemple, Chairman) on March 14, 1939:

"The Committee on Control has made a thorough study of the proposed use of supplemental wooden or steel posts in connection with federal control concrete survey monuments. As a result of this study the Committee recommends that, insofar as practicable, such supplemental posts be used for control survey monuments where the marks are set flush with the surface, or project but a few inches above the ground. The supplemental posts are especially recommended for monuments established along public highways, in rural districts, or along the right-of-ways of railroads, in wooded areas, and along the shore lines of rivers, lakes or oceans. Supplemental posts are not recommended for monuments established along any business streets, or in residential districts of cities, on the grounds of schools or churches, in cemeteries, in cultivated farm lands or on bare mountain tops. For horizontal control monuments established in cultivated fields, and set below the surface of the ground, the use of supplemental posts is advocated at the concrete reference mark sites.

"The supplemental post recommended for use should be decay-resistant or special-treated wood, not less than 4" x 4" in cross-section, set at least 3 feet in the ground, projecting at least 18" above the surface, painted white, and with the legend "U.S.B.M." or "U.S.  " stenciled thereon in black letters. It should be set at least three feet distant from the monument, in a location where it will not affect subsequent survey operations.

"The field parties establishing the supplemental posts should direct the attention of highway, county, and local engineers to the monuments and enlist their cooperation in the preservation and maintenance of the markers.

"These supplemental posts, where established along highways subject to improvement, will aid in the preservation of control monuments in that the attention of the highway contractor will be directed to the presence of the markers before construction operations disturb their location. Many control monuments will thus be protected and perpetuated which otherwise would be thoughtlessly disturbed and rendered useless. The supplemental posts will also be an aid to easy recovery of the station mark, resulting in a saving of time and money to many users."

LINE 4. ST. JOSEPH, MO., to SIOUX CITY, IOWA
(First-order Leveling)

This Line follows the Chicago & North Western Railway from Council Bluffs, Iowa, to Sergeant Bluff, Iowa.

The field work was done by the Corps of Engineers, of the U. S. Army. Elevations are based on the 1929 General Adjustment of the First-order Level Net. These elevations supersede those previously published.

For descriptions of additional bench marks in this vicinity, see page 47.

- P.B.M. 347 In Pottawattamie County, at the Union Station at Council Bluffs, in the window sill of the second window west of the northeast corner of the station, 0.39 foot from the east jamb and 0.33 foot from the face of the sill. The top of a copper bolt - leaded vertically in the stone. El. Ft. 986.169
- (Spur line to Omaha, Nebraska)
- T.B.M. 804 In Douglas County, near Omaha, about 0.75 mile east of the east portal of the Union Pacific Railroad bridge over the Missouri River and midway between the two tracks of the Union Pacific Railroad. A cross cut in the top of a stone post. 1005.533
- P.B.M. 346 gauge B.M. In Douglas County, at Omaha, at the west end of the Union Pacific Railroad bridge over the Missouri River, 137 feet southeast of south cylindrical pier next to the approach abutment, 59.0 feet south of the south cylindrical pier next to river and 39.0 feet east of the east switch track of the Chicago, Burlington & Quincy Railroad. The top of a copper bolt leaded in a stone, 18.0 inches square and set about 4.0 feet underground, access to which is had thru an iron pipe bearing a Missouri River Commission standard cap. (Elevation of cap: 975.211 feet). 971.245
- P.B.M. 345 In Douglas County, at Omaha, at the west end of the Omaha and Council Bluffs wagon bridge, west of the cylindrical piers and in the top of the pedestal block supporting the first iron post on the north side. The top of a copper bolt leaded vertically in the stone. 981.081

- CITY In Douglas County, at Omaha, at Fifteenth & Dodge Streets and at the southeast corner of the Post Office building. The top of a small projection on the surface of the third course of stone above the sidewalk. (DESTROYED) El. Ft. 1040.569
- P.B.M. 344 In Douglas County, at Omaha, at Fifteenth & Dodge Streets, and in the upper surface of a water table of the Post Office building, 5.7 feet east of southwest corner of the building. The top of a copper bolt, leaded vertically in the stone. (DESTROYED) 1039.532
- (End of the spur line)
- P.B.M. 348 -121/2. In Pottawattamie County, at Council Bluffs, in the southwest corner of the Court House yard and 3.0 feet from either fence. The top of a copper bolt leaded in a stone, 18.0 inches square and set about 4.0 feet underground, access to which is had through an iron pipe bearing a Missouri River Commission standard cap. (Elevation of cap: 993.958 feet) 989.939
- P.B.M. 349 - 122/2 In Pottawattamie County, at Council Bluffs, 197 feet above the upper end of the ways of the United States boat yard, 112 feet from the northwest corner of the boat-yard storehouse. The top of a copper bolt leaded in a stone, 18.0 inches square and set 4.0 feet underground, access to which is had through an iron pipe bearing a Missouri River Commission standard cap. (Elevation of cap: 978.984 feet) 974.965
- P.B.M. 350 In Pottawattamie County, about 4.0 miles above Council Bluffs, on the Chicago & North Western Railway, 404 feet north of milepost #4; 62.0 feet south of the south end of bridge #1066 and 28.0 feet east of track. The top of a copper bolt leaded in a stone, 18.0 inches square and set about 4.0 feet underground, access to which is had through an iron pipe bearing a Missouri River Commission standard cap. (Elevation of cap ---- 999.227 feet) 995.221
- P.B.M. 351 In Pottawattamie County, about 6.0 miles north of Union Station at Council Bluffs, on the Chicago & North Western Railway, 630 feet north of the shore end of the upper Government dike, 367 feet north of south end of bridge #1043 and 16.0 feet west of the track. The top of a copper bolt leaded in a stone, 18.0 inches square and set about 4.0 feet under ground ----

LEVELING IN IOWA

- access to which is had through an iron pipe bearing a Missouri River Commission standard cap. (Elevation of cap: 990.362 feet) 986.350
- P.B.M. 352. In Pottawattamie County, at Crescent, 183.0 feet south of the Chicago & North Western Railway station, 15.0 feet east of the track and in a small park belonging to the railway company. The top of a copper bolt leaded in a stone, 18.0 inches square and set about 4.0 feet underground, access to which is secured through an iron pipe bearing a Missouri River Commission standard cap. (Elevation of cap: 992.071 feet) 988.052
- P.B.M. 353. In Pottawattamie County, about 1.75 miles south of the Chicago & North Western Railway station at Honey Creek, about 0.4 mile south of milepost #12; 112.0 feet north of the north end of railroad bridge #1007 and 49.0 feet east of the track. The top of a copper bolt leaded in a stone, 18.0 inches square and set about 4.0 feet underground, access to which is had through an iron pipe bearing a Missouri River Commission standard cap. (Elevation of cap: 999.722 feet) 995.717
- P.B.M. 354. In Pottawattamie County, near the station at Honey Creek, in the west end of the south bridge seat of the plate-girder bridge #998 over Honey Creek, 4.0 feet west of the south end of the west girder. The top of a copper bolt leaded vertically in the stone. 1004.430
- P.B.M. 355. In Pottawattamie County, about 2.0 miles north of the Chicago & North Western Railway station at Honey Creek, about 0.5 mile south of milepost #16; 46.0 feet east of the track. The top of a copper bolt leaded in a stone, 18.0 inches square and set about 4.0 feet underground, access to which is had through an iron pipe bearing a Missouri River Commission standard cap. (Elevation of cap, 1004.283 feet) 1000.264
- P.B.M. 356. In Pottawattamie County, at Loveland, at the southwest corner of the Chicago & North Western Railway bridge #979 over Boyer Creek, 2.5 feet from the north edge of the abutment and 0.33 foot east of the bedplate under the inclined end post. The top of a copper bolt leaded vertically in the stone. 999.749

ST. JOSEPH, MO. to SIOUX CITY, IOWA

- P.B.M. 357. In Harrison County, about 2.25 miles south of Missouri Valley, on the Chicago & North Western Railway, 300 feet south of the south end of railway bridge #978; 90.0 feet south of milepost #20 and 46.0 feet east of the track. The top of a copper bolt leaded in a stone, 18.0 inches square and set about 4.0 feet underground, access to which is had through an iron pipe bearing a Missouri River Commission standard cap. (Elevation of cap, 998.640 feet) El. Ft. 994.627
- P.B.M. 358. In Harrison County, at Missouri Valley, at the northwest corner of Second and Erie Street, in southeast corner of Mr. Kreder's billiard hall, 1.23 feet above the sidewalk and 7.5 inches west of the east face of the building. The center of a copper bolt leaded horizontally into the stone. (DESTROYED) 1006.084
- P.B.M. 359. In Harrison County, about 3.0 miles west of Missouri Valley, on the Chicago & North Western Railway, 886 feet west of milepost #3; 335 feet east of east end of railroad bridge #4 and 47.0 feet north of the track. The top of a copper bolt leaded in a stone, 18.0 inches square and set about 4.0 feet underground, access to which is had through an iron pipe bearing a Missouri River Commission standard cap. (Elevation of cap 1005.293 feet) 1001.274
- P.B.M. 360.=127/3. In Harrison County, About 758 feet east of the station at California Junction, 56.0 feet south of the Chicago & North Western Railway track, in north west corner of Mr. A. W. Smith's orchard and 3.0 feet from each fence. The top of a copper bolt leaded in a stone, 18.0 inches square and set about 4.0 feet underground, access to which is had through an iron pipe bearing a Missouri River Commission standard cap. (Elevation of cap, 1006.127 feet) 1002.121
- P.B.M. 361. In Harrison County, about 1.75 miles north of the station at California Junction, on the Chicago & North Western Railway, 70.0 feet south of a public road crossing, and 44.0 feet east of the track. The top of a copper bolt leaded in a stone, 18.0 inches square and set about 4.0 feet underground, access to which is had through an iron pipe, bearing a Missouri River Commission standard cap. (Elevation of cap, 1008.951 feet) 1004.939

P.B.M. 362. In Harrison County, about 0.75 mile south of Modale, on the Chicago & North Western Railway, 195.0 feet north of railroad bridge #10, and 46.0 feet east of the track. The top of a copper bolt leaded in a stone, 18.0 inches square and set about 4.0 feet underground, access to which is had through an iron pipe bearing a Missouri River Commission standard cap. (Elevation of cap, 1012.386 feet) El. Ft. 1008.397

P.B.M. 363. In Harrison County, about 1 mile north of Modale, on the Chicago & North Western Railway, about 0.4 mile north of milepost #11; 60.0 feet south of a high way crossing and 46.0 feet east of the track. The top of a copper bolt leaded in a stone, 18.0 inches square and set about 4.0 feet underground, access to which is had through an iron pipe bearing a Missouri River Commission standard cap. (Elevation of cap, 1013.787 ft.) 1009.778

P.B.M. 364. In Harrison County, about 2.0 miles south of Mondamin, 54.0 feet west of the Chicago & North Western Railway track and 7.0 feet west of the right-of-way fence. The top of a copper bolt leaded in a stone, 18.0 inches square and set about 4.0 feet underground, access to which is had through an iron pipe bearing a Missouri River Commission standard cap. (Elevation of cap, 1017.472 feet) 1013.456

P.B.M. 365. In Harrison County, at Mondamin, 246 feet east of the Chicago & North Western Railway track, in the southwest corner of the brick building occupied by D. Ganet & Co., and 0.71 foot from the west wall of the building. The center of a copper bolt leaded horizontally in the center of a sandstone block. 1024.703

For descriptions of additional bench marks in this vicinity, see page 131.

P.B.M. 366. In Harrison County, about 0.4 mile north of the station at Mondamin, on the Chicago & North Western Railway, 890 feet south of a public road crossing, 33.0 feet south of milepost #17 and 46.0 feet east of the track. The top of a copper bolt leaded in a stone, 18.0 inches square and set about 4.0 feet underground, access to which is had through an iron pipe bearing a Missouri River Commission standard cap. (Elevation of cap, 1025.667) 1021.665

- CITY In Douglas County, at Omaha, at Fifteenth & Dodge Streets and at the southeast corner of the Post Office building. The top of a small projection on the surface of the third course of stone above the sidewalk. (DESTROYED) El. Ft. 1040.569
- P.B.M. 344 In Douglas County, at Omaha, at Fifteenth & Dodge Streets, and in the upper surface of a water table of the Post Office building, 5.7 feet east of south west corner of the building. The top of a copper bolt, leaded vertically in the stone. (DESTROYED) 1039.532
(End of the spur line)
- P.B.M. 348 -121/2. In Pottawattamie County, at Council Bluffs, in the southwest corner of the Court House yard and 3.0 feet from either fence. The top of a copper bolt leaded in a stone, 18.0 inches square and set about 4.0 feet underground, access to which is had through an iron pipe bearing a Missouri River Commission standard cap. (Elevation of cap: 993.958 feet) 989.939
- P.B.M. 349 - 122/2 In Pottawattamie County, at Council Bluffs, 197 feet above the upper end of the ways of the United States boat yard, 112 feet from the northwest corner of the boat-yard storehouse. The top of a copper bolt leaded in a stone, 18.0 inches square and set 4.0 feet underground, access to which is had through an iron pipe bearing a Missouri River Commission standard cap. (Elevation of cap: 978.984 feet) 974.965
- P.B.M. 350 In Pottawattamie County, about 4.0 miles above Council Bluffs, on the Chicago & North Western Railway, 404 feet north of milepost #4; 62.0 feet south of the south end of bridge #1066 and 28.0 feet east of track. The top of a copper bolt leaded in a stone, 18.0 inches square and set about 4.0 feet underground, access to which is had through an iron pipe bearing a Missouri River Commission standard cap. (Elevation of cap ---- 999.227 feet) 995.221
- P.B.M. 351 In Pottawattamie County, about 6.0 miles north of Union Station at Council Bluffs, on the Chicago & North Western Railway, 630 feet north of the shore end of the upper Government dike, 367 feet north of south end of bridge #1043 and 16.0 feet west of the track. The top of a copper bolt leaded in a stone, 18.0 inches square and set about 4.0 feet under ground ----

LEVELING IN IOWA

- access to which is had through an iron pipe bearing a Missouri River Commission standard cap. (Elevation of cap: 990.362 feet) 986.350
- P.B.M. 352. In Pottawattamie County, at Crescent, 183.0 feet south of the Chicago & North Western Railway station, 15.0 feet east of the track and in a small park belonging to the railway company. The top of a copper bolt leaded in a stone, 18.0 inches square and set about 4.0 feet underground, access to which is secured through an iron pipe bearing a Missouri River Commission standard cap. (Elevation of cap: 992.071 feet) 988.052
- P.B.M. 353. In Pottawattamie County, about 1.75 miles south of the Chicago & North Western Railway station at Honey Creek, about 0.4 mile south of milepost #12; 112.0 feet north of the north end of railroad bridge #1007 and 49.0 feet east of the track. The top of a copper bolt leaded in a stone, 18.0 inches square and set about 4.0 feet underground, access to which is had through an iron pipe bearing a Missouri River Commission standard cap. (Elevation of cap: 999.722 feet) 995.717
- P.B.M. 354. In Pottawattamie County, near the station at Honey Creek, in the west end of the south bridge seat of the plate-girder bridge #998 over Honey Creek, 4.0 feet west of the south end of the west girder. The top of a copper bolt leaded vertically in the stone. 1004.430
- P.B.M. 355. In Pottawattamie County, about 2.0 miles north of the Chicago & North Western Railway station at Honey Creek, about 0.5 mile south of milepost #16; 46.0 feet east of the track. The top of a copper bolt leaded in a stone, 18.0 inches square and set about 4.0 feet underground, access to which is had through an iron pipe bearing a Missouri River Commission standard cap. (Elevation of cap, 1004.283 feet) 1000.264
- P.B.M. 356. In Pottawattamie County, at Loveland, at the southwest corner of the Chicago & North Western Railway bridge #979 over Boyer Creek, 2.5 feet from the north edge of the abutment and 0.33 foot east of the bedplate under the inclined end post. The top of a copper bolt leaded vertically in the stone. 999.749

- CITY In Douglas County, at Omaha, at Fifteenth & Dodge Streets and at the southeast corner of the Post Office building. The top of a small projection on the surface of the third course of stone above the sidewalk. (DESTROYED) El. Ft. 1040.569
- P.B.M. 344 In Douglas County, at Omaha, at Fifteenth & Dodge Streets, and in the upper surface of a water table of the Post Office building, 5.7 feet east of southwest corner of the building. The top of a copper bolt, leaded vertically in the stone. (DESTROYED) 1039.532
(End of the spur line)
- P.B.M. 348 -121/2. In Pottawattamie County, at Council Bluffs, in the southwest corner of the Court House yard and 3.0 feet from either fence. The top of a copper bolt leaded in a stone, 18.0 inches square and set about 4.0 feet underground, access to which is had through an iron pipe bearing a Missouri River Commission standard cap. (Elevation of cap: 993.958 feet) 989.939
- P.B.M. 349 - 122/2 In Pottawattamie County, at Council Bluffs, 197 feet above the upper end of the ways of the United States boat yard, 112 feet from the northwest corner of the boat-yard storehouse. The top of a copper bolt leaded in a stone, 18.0 inches square and set 4.0 feet underground, access to which is had through an iron pipe bearing a Missouri River Commission standard cap. (Elevation of cap: 978.984 feet) 974.965
- P.B.M. 350 In Pottawattamie County, about 4.0 miles above Council Bluffs, on the Chicago & North Western Railway, 404 feet north of milepost #4; 62.0 feet south of the south end of bridge #1066 and 28.0 feet east of track. The top of a copper bolt leaded in a stone, 18.0 inches square and set about 4.0 feet underground, access to which is had through an iron pipe bearing a Missouri River Commission standard cap. (Elevation of cap ---- 999.227 feet) 995.221
- P.B.M. 351 In Pottawattamie County, about 6.0 miles north of Union Station at Council Bluffs, on the Chicago & North Western Railway, 630 feet north of the shore end of the upper Government dike, 367 feet north of south end of bridge #1043 and 16.0 feet west of the track. The top of a copper bolt leaded in a stone, 18.0 inches square and set about 4.0 feet under ground ----

LEVELING IN IOWA

- access to which is had through an iron pipe bearing a Missouri River Commission standard cap. (Elevation of cap: 990.362 feet) 986.350
- P.B.M. 352. In Pottawattamie County, at Crescent, 183.0 feet south of the Chicago & North Western Railway station, 15.0 feet east of the track and in a small park belonging to the railway company. The top of a copper bolt leaded in a stone, 18.0 inches square and set about 4.0 feet underground, access to which is secured through an iron pipe bearing a Missouri River Commission standard cap. (Elevation of cap: 992.071 feet) 988.052
- P.B.M. 353. In Pottawattamie County, about 1.75 miles south of the Chicago & North Western Railway station at Honey Creek, about 0.4 mile south of milepost #12; 112.0 feet north of the north end of railroad bridge #1007 and 49.0 feet east of the track. The top of a copper bolt leaded in a stone, 18.0 inches square and set about 4.0 feet underground, access to which is had through an iron pipe bearing a Missouri River Commission standard cap. (Elevation of cap: 999.722 feet) 995.717
- P.B.M. 354. In Pottawattamie County, near the station at Honey Creek, in the west end of the south bridge seat of the plate-girder bridge #998 over Honey Creek, 4.0 feet west of the south end of the west girder. The top of a copper bolt leaded vertically in the stone. 1004.430
- P.B.M. 355. In Pottawattamie County, about 2.0 miles north of the Chicago & North Western Railway station at Honey Creek, about 0.5 mile south of milepost #16; 46.0 feet east of the track. The top of a copper bolt leaded in a stone, 18.0 inches square and set about 4.0 feet underground, access to which is had through an iron pipe bearing a Missouri River Commission standard cap. (Elevation of cap, 1004.283 feet) 1000.264
- P.B.M. 356. In Pottawattamie County, at Loveland, at the southwest corner of the Chicago & North Western Railway bridge #979 over Boyer Creek, 2.5 feet from the north edge of the abutment and 0.33 foot east of the bedplate under the inclined end post. The top of a copper bolt leaded vertically in the stone. 999.749

ST. JOSEPH, MO. to SIOUX CITY, IOWA

- P.B.M. 357. In Harrison County, about 2.25 miles south of Missouri Valley, on the Chicago & North Western Railway, 300 feet south of the south end of railway bridge #978; 90.0 feet south of milepost #20 and 46.0 feet east of the track. The top of a copper bolt leaded in a stone, 18.0 inches square and set about 4.0 feet underground, access to which is had through an iron pipe bearing a Missouri River Commission standard cap. (Elevation of cap, 998.640 feet) El. Ft. 994.627
- P.B.M. 358. In Harrison County, at Missouri Valley, at the northwest corner of Second and Erie Street, in southeast corner of Mr. Kreder's billiard hall, 1.23 feet above the sidewalk and 7.5 inches west of the east face of the building. The center of a copper bolt leaded horizontally into the stone. (DESTROYED) 1006.084
- P.B.M. 359. In Harrison County, about 3.0 miles west of Missouri Valley, on the Chicago & North Western Railway, 886 feet west of milepost #3; 335 feet east of east end of railroad bridge #4 and 47.0 feet north of the track. The top of a copper bolt leaded in a stone, 18.0 inches square and set about 4.0 feet underground, access to which is had through an iron pipe bearing a Missouri River Commission standard cap. (Elevation of cap 1005.293 feet) 1001.274
- P.B.M. 360.=127/3. In Harrison County, About 758 feet east of the station at California Junction, 56.0 feet south of the Chicago & North Western Railway track, in north west corner of Mr. A. W. Smith's orchard and 3.0 feet from each fence. The top of a copper bolt leaded in a stone, 18.0 inches square and set about 4.0 feet underground, access to which is had through an iron pipe bearing a Missouri River Commission standard cap. (Elevation of cap, 1006.127 feet) 1002.121
- P.B.M. 361. In Harrison County, about 1.75 miles north of the station at California Junction, on the Chicago & North Western Railway, 70.0 feet south of a public road crossing, and 44.0 feet east of the track. The top of a copper bolt leaded in a stone, 18.0 inches square and set about 4.0 feet underground, access to which is had through an iron pipe, bearing a Missouri River Commission standard cap. (Elevation of cap, 1008.951 feet) 1004.939

P.B.M. 362. In Harrison County, about 0.75 mile south of Modale, on the Chicago & North Western Railway, 195.0 feet north of railroad bridge #10, and 46.0 feet east of the track. The top of a copper bolt leaded in a stone, 18.0 inches square and set about 4.0 feet under ground, access to which is had through an iron pipe bearing a Missouri River Commission standard cap. (Elevation of cap, 1012.386 feet) 1008.397

P.B.M. 363. In Harrison County, about 1 mile north of Modale, on the Chicago & North Western Railway, about 0.4 mile north of milepost #11; 60.0 feet south of a highway crossing and 46.0 feet east of the track. The top of a copper bolt leaded in a stone, 18.0 inches square and set about 4.0 feet underground, access to which is had through an iron pipe bearing a Missouri River Commission standard cap. (Elevation of cap, 1013.787 ft.) 1009.778

P.B.M. 364. In Harrison County, about 2.0 miles south of Mondamin, 54.0 feet west of the Chicago & North Western Railway track and 7.0 feet west of the right-of-way fence. The top of a copper bolt leaded in a stone, 18.0 inches square and set about 4.0 feet underground, access to which is had through an iron pipe bearing a Missouri River Commission standard cap. (Elevation of cap, 1017.472 feet) 1013.456

P.B.M. 365. In Harrison County, at Mondamin, 246 feet east of the Chicago & North Western Railway track, in the southwest corner of the brick building occupied by D. Ganet & Co., and 0.71 foot from the west wall of the building. The center of a copper bolt leaded horizontally in the center of a sandstone block. 1024.703

For descriptions of additional bench marks in this vicinity, see page 131.

P.B.M. 366. In Harrison County, about 0.4 mile north of the station at Mondamin, on the Chicago & North Western Railway, 890 feet south of a public road crossing, 33.0 feet south of milepost #17 and 46.0 feet east of the track. The top of a copper bolt leaded in a stone, 18.0 inches square and set about 4.0 feet underground, access to which is had through an iron pipe bearing a Missouri River Commission standard cap. (Elevation of cap, 1025.667) 1021.665

ST. JOSEPH, MO. to SIOUX CITY, IOWA

- P.B.M. 367=130/2 In Harrison County, about 2.25 miles north of Mondamin, on the Chicago & North Western Railway, about 300 feet north of the residence of Mr. Joseph Krummel, about 250 feet north of a public road crossing and 105 feet east of the track, in a corner of a field. The top of a copper bolt leaded in a stone, 18 inches square and set about 4.0 feet underground, access to which is had through an iron pipe bearing the Missouri River Commission standard cap. (Elevation of cap, 1024.165 feet) El. Ft. 1020.172
- P.B.M. 368. In Harrison County, about 2.5 miles south of the station at River Sioux, on the Chicago & North Western Railway, about 0.7 mile north of milepost #20 and 51.0 feet east of the track. The top of a copper bolt leaded in a stone, 18.0 inches square and set about 4.0 feet underground, access to which is had through an iron pipe bearing a Missouri River Commission standard cap. (Elevation of cap, 1029.525 feet) 1025.523
- P.B.M. 369=131/3. In Harrison County, about 0.25 miles south of the station at River Sioux, on the Chicago & North Western Railway, 541 feet south of milepost #23; 45.0 feet east of the track. The top of a copper bolt leaded in a stone, 18.0 inches square and set about 4.0 feet underground, access to which is had through an iron pipe bearing a Missouri River Commission standard cap. (Elevation of cap, 1035.654 feet) 1031.658
- P.B.M. 370. In Harrison County, about 2.25 miles north of the station at River Sioux, on the Chicago & North Western Railway, about 0.3 mile north of milepost #25 and 47.0 feet east of the track. The top of a copper bolt leaded in a stone, 18.0 inches square and set about 4.0 feet underground, access to which is had through an iron pipe bearing a Missouri River Commission standard cap. (Elevation of cap, 1032.603 feet) 1028.597
- The line continues into Monona County, Iowa.
- P.B.M. 371. In Monona County, about 4.5 miles south of Blencoe, on the Chicago & North Western Railway, about 0.25 mile south of milepost #28 and 46.0 feet east of the track. The top of a copper bolt leaded in a stone, 18.0 inches square and set about 4.0 feet underground, access to which is had through an iron pipe bearing a Missouri River Commission standard cap. (Elevation of cap, 1034.817 feet) 1030.812

LEVELING IN IOWA

- P.B.M. 372 = 132/4. In Monona County, about 4.5 miles south of Blencoe, on the Chicago & North Western Railway, about 0.2 mile south of milepost #28 and 46.0 feet west of the track. The top of a copper bolt leaded in a stone, 18 inches square and set about 4.0 feet under ground, access to which is had through an iron pipe bearing a Missouri River Commission standard cap. (Elevation of cap, 1031.612 feet) El. Ft.
- P.B.M. 373. In Monona County, about 1.75 miles south of Blencoe, on the Chicago & North Western Railway, about 0.3 mile north of milepost #30, about 0.25 mile south of railroad bridge #25 and 46.0 feet east of the track. The top of a copper bolt leaded in a stone, 18.0 inches square and set about 4.0 feet underground, access to which is had through an iron pipe bearing a Missouri River Commission standard cap. (Elevation of cap, 1037.819 feet) 1033.817
- P.B.M. 374. = 133/4. In Monona County, at Blencoe, 623 feet north of the station, 525 feet west of the Chicago & North Western Railway track, 58.0 feet east and 25.0 feet north of the northeast corner of Mr. Isaac Fleener's house. The top of a copper bolt leaded in a stone, 18.0 inches square and set about 4.0 feet underground, access to which is had through an iron pipe bearing a Missouri River Commission standard cap. (Elevation of cap, 1040.907 feet) 1036.917
- P.B.M. 375. In Monona County, about 4.0 miles south of station at Onawa, 44.0 feet east of the Chicago & North Western Railway track and 259 feet east of Mr. E. S. Cody's farmhouse, in line with the south side of it. The top of a copper bolt leaded in a stone, 18.0 inches square and set about 4.0 feet underground, access to which is had through an iron pipe bearing a Missouri River Commission standard cap. (Elevation of cap 1045.982 feet) 1041.960
- P.B.M. 376. In Monona County, about 2.25 miles south of Onawa, on the Chicago & North Western Railway, 0.3 mile south of milepost #37, about 0.2 mile south of the east-and-west road crossing and 45.0 feet east of the track. The top of a copper bolt leaded in a stone, 18.0 inches square and set about 4.0 feet underground, access to which is had through an iron pipe bearing a Missouri River Commission standard cap. (Elevation of cap, 1048.230 feet) 1044.207

ST. JOSEPH, MO. to SIOUX CITY, IOWA.

- P.B.M. 377. In Monona County, at Onawa, at the Iowa Avenue entrance of the courthouse, in the west end of the stone doorsill, 1.12 feet from the face of the sill, and 0.43 foot from the west jamb. The top of a copper bolt leaded vertically in the stone. El. Ft. 1052.137
- P.B.M. 378= 134/3. In Monona County, at Onawa, at Granite and Maple Streets, in the northwest corner of the German Lutheran churchyard, 3.0 feet from the alley fence and 3.0 feet from the southwest corner of a stable. The top of a copper bolt leaded in a stone, 18.0 inches square and set about 4.0 feet underground, access to which is had through an iron pipe bearing a Missouri River Commission standard cap. (Elevation of cap, 1051.428 feet) 1047.360
- For additional descriptions of bench marks in this vicinity, see page 113.
- P.B.M. 379. In Monona County, about 2.25 miles north of the station at Onawa, on the Chicago & North Western Railway, 810 feet north of milepost #41; 180 feet north of the north end of railroad bridge #40 and 44.0 feet east of the track. The top of a copper bolt leaded in a stone, 18.0 inches square and set about 4.0 feet underground, access to which is had through an iron pipe bearing a Missouri River Commission standard cap. (Elevation of cap, 1051.953 feet) 1047.954
- P.B.M. 380. In Monona County, about 2.75 miles south of the station at Whiting, on the Chicago & North Western Railway, 958 feet south of milepost #44; 46.0 feet east of the track, 6.0 feet south of the south fence of road crossing the track and 3.0 feet from the east right-of-way fence. The top of a copper bolt leaded in a stone, 18.0 inches square and set about 4.0 feet underground, access to which is had through an iron pipe bearing a Missouri River Commission standard cap. (Elevation of cap, 1054.919 feet) 1050.834
- P.B.M. 381. In Monona County, at Whiting, about 0.2 mile south of the Chicago & North Western Railway station, 66.0 feet south of the south headblock and 46.0 feet east of the track. The top of a copper bolt leaded in the stone, 18.0 inches square and set about 4.0 feet underground, access to which is had through an iron pipe, bearing a Missouri River Commission standard cap. (Elevation of cap, 1060.841 feet) 1056.770

LEVELING IN IOWA

P.B.M. 382. In Monona County, about 2.5 miles north of the station at Whiting, on the Chicago & North Western Railway, 282 feet south of milepost #49, opposite Mr. Daley's residence and 46.0 feet east of the track. The top of a copper bolt leaded in a stone, 18.0 inches square and set about 4.0 feet underground, access to which is had through an iron pipe bearing a Missouri River Commission standard cap. (Elevation of cap, 1064.174 feet) El. Ft. 1060.159

P.B.M. 383=138/3. In Monona County, about 3.0 miles south of the station at Sloan (Woodbury County) on the Chicago & North Western Railway, about 0.25 mile south of milepost #52 and 47.0 feet west of the track. The top of a copper bolt leaded in a stone, 18.0 inches square and set about 4.0 feet underground, access to which is had through an iron pipe bearing a Missouri River Commission standard cap. (Elevation of cap, 1066.609 feet) 1062.547

The line continues into Woodbury County, Iowa.

P.B.M. 384. In Woodbury County, at Sloan, about 0.25 mile south of the Chicago & North Western railway station, 47.0 feet west of the track and 3.0 feet south of the south edge of an east-and-west public road. The top of a copper bolt leaded in a stone, 18 inches square and set about 4.0 feet underground, access to which is had through an iron pipe bearing a Missouri River Commission standard cap. (Elevation of cap, 1071.802 feet) 1067.800

P.B.M. 385. In Woodbury County, at Sloan, at 4th and Evans Streets, and in the northeast corner of the stone doorsill of the State Bank. A cross cut in the stone. 1076.346

P.B.M. 386=139/3 In Woodbury County, about 1.0 mile north of the station at Sloan, on the Chicago & North Western Railway, 879 feet south of milepost #56 and 49 feet west of the track. The top of a copper bolt leaded in a stone, 18.0 inches square and set about 4.0 feet underground, access to which is had through an iron pipe bearing a Missouri River Commission standard cap. (Elevation of cap, 1073.354 feet) 1069.352

P.B.M. 387. In Woodbury County, about 2.5 miles south of the station at Salix, on the Chicago & North Western Railway, 240 feet south of a farm-road crossing and 46 feet east of the track. The top of a copper bolt lead-

ST. JOSEPH, Mo. to SIOUX CITY, IOWA.

ed in a stone, 18.0 inches square and set about 4 feet underground, access to which is had through an iron pipe bearing a Missouri River Commission standard cap. (Elevation of cap, 1075.582 feet) El.Ft. 1071.556

P.B.M. 388. In Woodbury County, about 0.25 mile south of the station at Salix, on the Chicago & North Western Railway, 144 feet north of the south headblock of the siding and 46.0 feet east of the track. The top of a copper bolt leaded in a stone, 18.0 inches square and set about 4.0 feet underground, access to which is had through an iron pipe bearing a Missouri River Commission standard cap. (Elevation of cap, 1082.455 feet) 1078.453

NOTE: This bench mark was formerly B.M. 140/3. It had been established in a low, swampy place, and also had been disturbed. It was taken up and reestablished as described above.

P.B.M. 389. In Woodbury County, about 2.75 miles north of the station at Salix, on the Chicago & North Western Railway, 623 feet north of a road crossing, 361.0 feet north of Mr. C. W. Wheeler's house, 47.0 feet east of the track and on the south side of the old river bed. The top of a copper bolt leaded in a stone, 18.0 inches square and set about 4.0 feet underground, access to which is had through an iron pipe bearing a Missouri River Commission standard cap. (Elevation of cap, 1089.299 feet) 1085.293

P.B.M. 390. In Woodbury County, about 2.75 miles south of the station at Sergeant Bluff, on the Chicago & North Western Railway, about 0.4 mile south of milepost #66, about 0.25 mile north of Mr. Louis Godferson's house, 656 feet north of a road crossing and 46.0 feet east of the track. The top of a copper bolt leaded in a stone, 18.0 inches square and set about 4.0 feet underground, access to which is had through an iron pipe bearing a Missouri River Commission standard cap. (Elevation of cap, 1089.017 feet) 1085.001

P.B.M. 391=142/3 In Woodbury County, at Sergeant Bluff, 52.0 feet from the northwest corner of Tenth and Walnut Streets, in Lot 1, Block 2, and 10.0 feet from the southwest corner of Mr. E. T. Berry's house. The top of a copper bolt leaded in a stone, 18.0 inches square and set about 4.0 feet underground, access to which is had through an iron pipe bearing a Missouri River Commission standard cap. (Elevation of cap, 1094.014 feet) 1090.021

For descriptions of additional bench marks in this vicinity, see page 46.

LINE 144. MINNEAPOLIS, MINN., to GLASGOW, MO. (Part)
(First-order Leveling)

This Line follows the Minneapolis & St. Louis Railroad from Fort Dodge, Iowa, to West Des Moines, Iowa. The field work was done during July and August, 1930, by a party in charge of J. D. Thurmond, Chief of Party, and H. G. Conerly, Observer on Sub-party.

Elevations are based on the 1929 General Adjustment of the First-order Level Net.

	El. Ft.
Top of rail opposite Minneapolis & St. Louis Railroad MP 218.	1105.0
Top of rail opposite Minneapolis & St. Louis Railroad MP 219.	1067.7
<u>Q-2</u> In Webster County, about 1.5 miles north of Fort Dodge, on the Minneapolis & St. Louis Railroad, about 0.12 mile north of milepost #220, at bridge #152, and in the west end of the north abutment. A standard disc, stamped "Q-2, 1930".	1039.972
Top of rail opposite Minneapolis & St. Louis Railroad MP 220.	1033.3
<u>R-2</u> In Webster County, at Fort Dodge, at the Quaker Oats' Plant, in the northeast footing of the water tank, and 25.0 feet west of the Minneapolis & St. Louis Railroad. A standard disc, stamped "R-2, 1930".	990.615
For descriptions of additional bench marks in this vicinity, see page 29.	
<u>S-2</u> In Webster County, at Fort Dodge, in the Minneapolis & St. Louis Railroad yards, about 300 yards south of the railroad shops, and in the northeast corner of the foundation of a coal chute. A standard disc, stamped "S-2, 1930".	995.234
<u>T-2</u> In Webster County, about 4 miles south of Fort Dodge, on the Minneapolis & St. Louis Railroad at the bridge carrying the Fort Dodge, Des Moines & Southern Electric Railway over the tracks of the Minneapolis & St. Louis Railroad, and in the foundation of the south pier on the west side of the railroad. A standard disc, stamped "T-2, 1930".	982.003

MINNEAPOLIS, MINN. to GLASGOW, MO. (Part)

Top of rail opposite Minneapolis & St. Louis Railroad MP 227.	El. Ft. 1038.8
<u>U-2.</u> In Webster County, about 7.0 miles south of <u>Fort Dodge</u> , on the Minneapolis & St. Louis Railroad, 7 poles south of milepost #228; about 150 yards north of bridge #172, and in the west end of a culvert. A standard disc, stamped "U-2, 1930".	1098.443
<u>V-2.</u> In Webster County, about 0.25 mile north of the Minneapolis & St. Louis Railroad station at <u>Otho</u> , at a road crossing, about 45.0 feet west of the railroad, and about 40.0 feet north of the road. A standard disc, set in a concrete monument, and stamped "V-2, 1930".	1124.916
Top of rail opposite Minneapolis & St. Louis Railroad station at Otho.	1126.1
<u>W-2.</u> In Webster County, about 2.25 miles south of <u>Otho</u> , on the Minneapolis & St. Louis Railroad, about 25.0 feet north of a crossroad, about 10.0 feet west of the railroad, and in a culvert. A standard disc, stamped "W-2, 1930".	1111.619
Top of rail opposite Minneapolis & St. Louis Railroad MP 233.	1117.8
<u>X-2.</u> In Webster County, about 4.0 miles south of <u>Otho</u> , on the Minneapolis & St. Louis Railroad, about 13.0 yards south of the main road to Burnside and about 13.0 yards east of the railroad, in a fence corner. A standard disc, set in the top of a concrete monument, and stamped "X-2, 1930".	1125.037
Top of rail opposite Minneapolis & St. Louis Railroad MP 234.	1121.8
Top of rail opposite Minneapolis & St. Louis Railroad MP 235.	1136.8
Top of rail opposite Minneapolis & St. Louis Railroad Station at Burnside	1140.4
<u>Y-2.</u> In Webster County, about 0.25 mile south of <u>Burnside</u> , near the Minneapolis & St. Louis Railroad, and in the south steps of the Burnside Consolidated School building. A standard disc, stamped "Y-2, 1930".	1142.852
Top of rail opposite Minneapolis & St. Louis Railroad MP 236.	1142.3

	El. Ft.
Top of rail opposite Minneapolis & St. Louis Railroad MP 237.	1144.3
<u>Z-2.</u> In Webster County, about 2.25 miles south of Burnside, on the Minneapolis & St. Louis Railroad, about 100 feet north of a crossroad, and about 40.0 feet west of the railroad. A standard disc set in the top of a concrete monument, and stamped "Z-2, 1930".	1147.301
Top of rail opposite Minneapolis & St. Louis Railroad MP 238.	1149.8
Top of rail opposite Minneapolis & St. Louis Railroad MP 239.	1147.2
<u>A-3.</u> In Webster County, about 1.6 miles north of Dayton, on the Minneapolis & St. Louis Railroad, about 11 yards south of a crossroad and about 13.0 yards west of the railroad. A standard disc, stamped "A-3, 1930"- and set in the top of a concrete monument.	1139.837
Top of rail opposite Minneapolis & St. Louis Railroad MP 240.	1139.0
Top of rail opposite Minneapolis & St. Louis Railroad MP 241.	1125.3
<u>B-3.</u> In Webster County, about 0.25 mile south of the Minneapolis & St. Louis Railroad station at Dayton, at the steel bridge over the Chicago & North Western Railway, and in the east end of the north abutment. A standard disc, stamped "B-3, 1930".	1133.534
Top of rail opposite Minneapolis & St. Louis Railroad station at Dayton.	1126.1
Top of rail opposite Minneapolis & St. Louis Railroad MP 242.	1134.8
<u>C-3.</u> In Webster County, about 1.0 mile south of Dayton, on the Minneapolis & St. Louis Railroad, about 125 feet south of the "Station One-Mile" sign, and in the west end of a culvert. A standard disc, stamped "C-3, 1930".	1145.824
Top of rail opposite Minneapolis & St. Louis Railroad MP 243.	1148.0
<u>D-3.</u> In Webster County, about 100 yards south of South Dayton, on the Minneapolis & St. Louis Railroad, about	

MINNEAPOLIS, MINN. to GLASGOW, MO. (Part)

13.0 yards east of the railroad, and about 7.0 yards-northwest of a crossroad, in a fence corner. A standard disc, stamped "D-3, 1930" and set in the top of a concrete monument.	El. Ft.
	1134.161
Top of rail opposite Minneapolis & St. Louis Railroad MP 244.	1142.7
Top of rail opposite Minneapolis & St. Louis Railroad MP 245.	1118.3
The line continues into Boone County, Iowa.	
<u>E-3.</u> In Boone County, about 1.75 miles south of <u>South Dayton</u> , on the Minneapolis & St. Louis Railroad, about 25.0 feet south of a crossroad and about 40.0 feet east of the railroad, at a fence line. A standard disc, stamped "E-3, 1930" and set in the top of a concrete monument.	1121.815
Top of rail opposite Minneapolis & St. Louis Railroad MP 246.	1120.0
Top of rail opposite Minneapolis & St. Louis Railroad MP 247.	1109.4
Top of rail opposite Minneapolis & St. Louis Railroad MP 248.	1104.1
<u>F-3.</u> In Boone County, about 0.25 mile north of <u>Pilot Mound</u> , on the Minneapolis & St. Louis Railroad, about 40.0 feet north of a crossroad, about 45.0 feet east of the railroad, and at a fence line. A standard disc, stamped "F-3, 1930" and set in the top of a concrete monument.	1106.284
Top of rail opposite Minneapolis & St. Louis Railroad station at Pilot Mound.	1103.9
Top of rail opposite Minneapolis & St. Louis Railroad MP 249.	1104.1
Top of rail opposite Minneapolis & St. Louis Railroad MP 250.	1094.0
<u>G-3.</u> In Boone County, about 2.0 miles south of <u>Pilot Mound</u> , at the crossing of the Minneapolis & St. Louis Railroad, and the Fort Dodge, Des Moines & Southern Electric Railway, and about 10.0 yards north of the elec-	

LEVELING IN IOWA

- trio line and about 8.0 yards east of the railroad. A standard disc, stamped "G-3, 1930" and set in the top of a concrete monument. El. Ft. 1086.530
- Top of rail opposite Minneapolis & St. Louis Railroad MP 251. 1087.4
- Top of rail opposite Minneapolis & St. Louis Railroad MP 252. 1116.0
- H-3. In Boone County, about 2.0 miles south of Wolf, on the Minneapolis & St. Louis Railroad, about 2 poles N of milepost 253, about 20.0 yards north of a crossroad, and in the west end of a culvert. A standard disc, stamped "H-3, 1930". 1112.809
- Top of rail opposite Minneapolis & St. Louis Railroad MP 253. 1113.6
- Top of rail opposite Minneapolis & St. Louis Railroad MP 254. 1120.2
- J-3. (Reset) In Boone County, about 2.0 miles north of Ogden, on the Minneapolis & St. Louis Railroad, at the northeast corner of the road intersection, in the southwest corner of Section 17, T-84-N, R-27-W, 26.7 feet north of the fence corner post, 22.4 feet north of a telephone pole, 73.3 feet northeast of a telephone pole, and 32.5 feet south of the cross spikes in fence post. A bronze cap, stamped "J-3, Reset" and set in a concrete monument. 1116.514
- K-3. In Boone County, about 2.0 miles north of Ogden, on the Minneapolis & St. Louis Railroad, about 200 yards south of the crossroad at milepost 256, and in the east end of a culvert. A standard disc, stamped "K-3, 1930". 1095.595
- Top of rail opposite Minneapolis & St. Louis Railroad MP 255. 1112.4
- Top of rail opposite Minneapolis & St. Louis Railroad MP 256. 1098.2
- Top of rail opposite Minneapolis & St. Louis Railroad MP 257. 1095.9
- L-3. In Boone County, at Ogden, about 100 yards north of the main street at Ogden, and about 9.0 yards north west of the intersection of the Minneapolis-St. Louis

Railroad with the Chicago & North Western Railway. A standard disc, stamped "L-3, 1930" and set in the top of a concrete monument.	El. Ft. 1098.203
For descriptions of additional bench marks in this vicinity, see page 91.	
Top of rail opposite Minneapolis & St. Louis Railroad MP 258.	1091.0
Top of rail opposite Minneapolis & St. Louis Railroad MP 259.	1082.4
<u>M-3.</u> In <u>Boone County</u> , about 2.0 miles south of <u>Ogden</u> , on the Minneapolis & St. Louis Railroad, about 40.0 feet north of a crossroad, and about 40.0 feet east of railroad, at the fence line. A standard disc, stamped "M-3 1930" and set in the top of a concrete monument.	1055.100
Top of rail opposite Minneapolis & St. Louis Railroad MP 260.	1061.7
Top of rail opposite Minneapolis & St. Louis Railroad MP 261.	1037.0
Top of rail opposite Minneapolis & St. Louis Railroad MP 262.	1028.7
<u>N-3.</u> In <u>Boone County</u> , 4.0 miles south of <u>Ogden</u> , on the Minneapolis & St. Louis Railroad, at a grade crossing, 0.5 mile south of milepost 262; 45.0 feet south of the road and about 45.0 feet east of the railroad, in a fence corner. A standard disc, stamped "N-3, 1930" and set in the top of a concrete monument.	1019.355
Top of rail opposite Minneapolis & St. Louis Railroad MP 263.	1018.0
Top of rail opposite Minneapolis & St. Louis Railroad MP 264.	994.6
<u>P-3.</u> In <u>Boone County</u> , at <u>Berkley</u> , on the Minneapolis & St. Louis Railroad, at a grade crossing about 0.5 mile north of the station, 500 feet south of milepost #265; 60.0 feet south of the road and about 45.0 feet west of the railroad, in a fence corner. A standard disc, stamped "P-3, 1930" and set in the top of a concrete monument.	972.531
Top of rail opposite Minneapolis & St. Louis Railroad MP 265.	974.1

LEVELING IN IOWA

- | | | | |
|--|---|----------------------------------|----------|
| Top of rail opposite station at Berkley. | Minneapolis & St. Louis Railroad | El. Ft. | 989.5 |
| Top of rail opposite MP 266. | Minneapolis & St. Louis Railroad | | 998.6 |
| Top of rail opposite MP 267. | Minneapolis & St. Louis Railroad | | 996.0 |
| <u>Q-3.</u> | In <u>Boone County</u> , about 2.0 miles south of <u>Berkley</u> , on the <u>Minneapolis & St. Louis Railroad</u> , about 0.5 mile south of milepost 267; 100 yards south of grade crossing and in the west end of a culvert. A standard disc, stamped "Q-3, 1930". | | |
| | Top of rail opposite MP 268. | Minneapolis & St. Louis Railroad | 998.102 |
| | Top of rail opposite MP 269. | Minneapolis & St. Louis Railroad | 1008.8 |
| | Top of rail opposite MP 269. | Minneapolis & St. Louis Railroad | 1016.3 |
| <u>R-3.</u> | In <u>Boone County</u> , at <u>Angus</u> , on the <u>Minneapolis & St. Louis Railroad</u> , about 0.5 mile north of the station, 0.5 mile south of milepost 269; 200 feet south of a grade crossing, 60.0 feet west of the road and in the east end of a culvert. A standard disc, stamped "R-3, 1930". | | |
| | Top of rail opposite MP 270. | Minneapolis & St. Louis Railroad | 1026.986 |
| | Top of rail opposite station at Angus. | Minneapolis & St. Louis Railroad | 1027.5 |
| | Top of rail opposite station at Angus. | Minneapolis & St. Louis Railroad | 1024.5 |
| <u>S-3.</u> | In <u>Boone County</u> , at <u>Angus</u> , on the <u>Minneapolis & St. Louis Railroad</u> , about 0.6 mile south of the station, at a grade crossing near a small schoolhouse, 40.0 feet north of the road and about 20.0 feet west of the rail road. A standard disc, stamped "S-3, 1930" and set in the top of a concrete monument. | | |
| | Top of rail opposite MP 274. | Minneapolis & St. Louis Railroad | 1013.253 |
| | Top of rail opposite MP 274. | Minneapolis & St. Louis Railroad | 996.3 |
| | The line continues into Dallas County, Iowa. | | |
| <u>T-3.</u> | In <u>Dallas County</u> , about 1.5 miles north of <u>Perry</u> , on the <u>Minneapolis & St. Louis Railroad</u> , 0.5 mile south of milepost 274; 0.125 mile south of a grade crossing | | |

MINNEAPOLIS, MINN. to GLASGOW, MO. (Part)

and 45.0 feet west of the railroad, at a fence line. A standard disc, stamped "T-3, 1930" and set in the top of a concrete monument.	El. Ft. 989.119
Base of rail opposite Minneapolis & St. Louis Railroad MP 275.	968.8
Top of rail opposite Minneapolis & St. Louis Railroad depot at Perry.	962.8
Top of rail opposite Minneapolis & St. Louis Railroad MP 276.	962.8
Top of rail at center line of crossing of Minneapolis & St. Louis Railroad with State Highway #17.	962.7
<u>U-3.</u> In <u>Dallas County</u> , at <u>Perry</u> , on the Warford Street side of the Post Office, under the grilled window, 10.0 feet from the northwest corner of the building and 2.5 feet above the ground, in the water table. A standard disc, stamped "U-3, 1930".	969.129
<u>V-3.</u> In <u>Dallas County</u> , at <u>Perry</u> , on the Minneapolis & St. Louis Railroad, about 0.75 mile south of the station, 0.25 mile north of milepost 277, near the horse stables at the Fair Grounds, on the east end of a culvert. A standard disc, stamped "V-3, 1930".	957.492
Top of rail opposite Minneapolis & St. Louis Railroad MP 277.	961.3
Top of rail opposite Minneapolis & St. Louis Railroad MP 278.	996.0
Top of rail opposite Minneapolis & St. Louis Railroad MP 279.	1025.0
<u>W-3.</u> In <u>Dallas County</u> , about 3.25 miles north of <u>Minburn</u> , on the Minneapolis & St. Louis Railroad, 0.25 mile north of milepost 280, at a road crossing, 30.0 feet west of the railroad and about 30.0 feet south of the gravelled road. A standard disc, stamped "W-3, 1930", and set in the top of a concrete monument.	1026.307
Top of rail opposite Minneapolis & St. Louis Railroad MP 280.	1027.3
<u>X-3.</u> In <u>Dallas County</u> , about 2.0 miles northwest of <u>Minburn</u> , on the Minneapolis & St. Louis Railroad, at the	

LEVELING IN IOWA

grade crossing at milepost 281; 43.0 feet east of the road and 30.0 feet north of the railroad. A standard disc, stamped "X-3, 1930" and set in the top of a concrete monument.	El. Ft. 1026.205
Top of rail opposite Minneapolis & St. Louis Railroad station at Minburn.	1048.3
Top of rail opposite Minneapolis & St. Louis Railroad MP 283.	1047.4
<u>Y-3.</u> In <u>Dallas County</u> , about 0.75 mile south of <u>Minburn</u> , on the <u>Minneapolis & St. Louis Railroad</u> , about 0.125 mile north of milepost 284, at a grade crossing, 10.0 feet south of the road and 30.0 feet west of the railroad at a fence line. A standard disc, stamped "Y-3, 1930" and set in the top of a concrete monument.	1047.209
Top of rail opposite Minneapolis & St. Louis Railroad MP 284.	1047.5
<u>Z-3.</u> In <u>Dallas County</u> , about 3.75 miles north of <u>Dallas Center</u> , on the <u>Minneapolis & St. Louis Railroad</u> , 0.25 mile south of milepost 286; 150 feet north of a crossing and 10.0 feet east of the railroad. A standard disc, stamped "Z-3, 1930" and set in a light grey rock along the fill.	1035.611
Top of rail opposite Minneapolis & St. Louis Railroad MP 286.	1040.5
<u>A-4.</u> In <u>Dallas County</u> , about 2.0 miles north of <u>Dallas Center</u> , on the <u>Minneapolis & St. Louis Railroad</u> , 100.0 yards south of milepost 287 and 40.0 feet west of railroad under the telephone line. A standard disc, stamped "A-4, 1930", and set in the top of a concrete monument.	1044.375
Top of rail opposite Minneapolis & St. Louis Railroad MP 287.	1044.8
Top of rail opposite Minneapolis & St. Louis Railroad MP 288.	1051.0
Top of rail opposite Minneapolis & St. Louis Railroad MP 289.	1071.0
Top of rail at center line of crossing of <u>Minneapolis & St. Louis Railroad</u> with <u>State Highway #64</u> .	1062.3

MINNEAPOLIS, MINN. to GLASGOW, MO. (Part)

Top of rail opposite Minneapolis & St. Louis Railroad Station at Dallas Center.	El. Ft. 1070.7
Top of rail opposite Minneapolis & St. Louis Railroad MP 290.	1037.1
Top of rail opposite Minneapolis & St. Louis Railroad MP 291.	1032.6
<u>B-4.</u> In <u>Dallas County</u> , about 2.7 miles south of <u>Dallas Center</u> , on the Minneapolis & St. Louis Railroad, 0.875 mile south of milepost 291, at a grade crossing, 30.0 feet west of the railroad and 20.0 feet north of the road, inside the fence line. A standard disc, stamped "B-4, 1930" and set in the top of a concrete monument.	1028.695
Top of rail opposite Minneapolis & St. Louis Railroad MP 292.	1037.7
Top of rail opposite Minneapolis & St. Louis Railroad MP 293.	1034.2
<u>C-4.</u> In <u>Dallas County</u> , about 1.0 mile north of <u>Waukee</u> , on the Minneapolis & St. Louis Railroad, 0.25 mile south of milepost 294 and on the north end of a culvert. A standard disc, stamped "C-4, 1930".	1023.528
Top of rail opposite Minneapolis & St. Louis Railroad MP 294.	1029.3
<u>1035 (U.S.G.S.)</u> In <u>Dallas County</u> , at <u>Waukee</u> , 4 poles west of the crossing of the Chicago, Minneapolis, St. Paul & Pacific Railroad, 10.0 feet south of a road and at a fence corner. A United States Geological Survey standard cap, stamped "1035" and riveted on the top of a $3\frac{1}{2}$ -inch iron pipe.	1034.119
Top of rail opposite Minneapolis & St. Louis Railroad MP 296.	1035.0
Top of rail opposite Minneapolis & St. Louis Railroad Station at Waukee.	1035.7
<u>D-4.</u> In <u>Dallas County</u> , about 2.0 miles south of <u>Waukee</u> , on the Minneapolis & St. Louis Railroad, at a grade crossing at the northwest corner of a large grove of trees, 45.0 feet east of the railroad and 30.0 feet south of the road, under the telephone line. A stand-	

LEVELING IN IOWA

ard disc, stamped "D-4, 1930" and set in the top of a concrete monument.	El. Ft. 1045.333
Top of rail opposite Minneapolis & St. Louis Railroad MP 297.	1040.8
Top of rail opposite Minneapolis & St. Louis Railroad MP 299.	1011.6
<u>E-4.</u> In <u>Dallas County</u> , about 5.0 miles south of <u>Waukee</u> , on the <u>Minneapolis & St. Louis Railroad</u> , 30 rails north of milepost 300, at a road crossing, 45.0 feet east of the railroad and 30.0 feet south of the road. A standard disc, stamped "E-4, 1930" and set in the top of a concrete monument.	981.737
Top of rail opposite Minneapolis & St. Louis Railroad MP 300.	971.3
Top of rail opposite Minneapolis & St. Louis Railroad MP 302.	891.8
The line continues into Polk County, Iowa.	
<u>F-4.</u> In <u>Polk County</u> , at <u>Ashawa</u> , on the <u>Minneapolis & St. Louis Railroad</u> , 10 rails north of the station, 20.0 feet west of the railroad and 17.0 feet east of the siding. A standard disc, stamped "F-4, 1930" and set in the top of a concrete monument.	884.903
Top of rail opposite Minneapolis & St. Louis Railroad Station at Ashawa.	885.4
Top of rail opposite Minneapolis & St. Louis Railroad MP 303.	879.5
Top of rail opposite Minneapolis & St. Louis Railroad MP 304.	839.5
<u>G-4.</u> In <u>Polk County</u> , at <u>West Des Moines</u> , on the <u>Minneapolis & St. Louis Railroad</u> , about 0.3 mile west of the station, on the south side of the railroad yards, and in the southeast corner of the concrete base of the signal tower #3627. A standard disc, stamped "G-4, 1930".	813.450
Top of rail opposite Minneapolis & St. Louis Railroad station at West Des Moines.	813.7
For additional bench mark descriptions in this vicinity see page 55.	

and also, stamped "P-4, 1880" and set in the top of a concrete monument.

Top of well opposite Minneapolis & St. Louis Railroad
No. 297.

Top of well opposite Minneapolis & St. Louis Railroad
No. 298.

2-4. In Polk County, about 2.0 miles south of station on the Minneapolis & St. Louis Railroad, 35 miles west of station, on the east side of the railroad, 45.0 feet east of the station and 5.0 feet south of the road. A standard iron, stamped "P-4, 1880" and set in the top of a concrete monument.

Top of well opposite Minneapolis & St. Louis Railroad
No. 299.

Top of well opposite Minneapolis & St. Louis Railroad
No. 300.

The line continues into Polk County, Iowa.

2-4. In Polk County, at station on the Minneapolis & St. Louis Railroad, 10 miles west of the station, 25.0 feet west of the railroad and 15.0 feet east of the station. A standard iron, stamped "P-4, 1880" and set in the top of a concrete monument.

Top of well opposite Minneapolis & St. Louis Railroad
Station at Adams.

Top of well opposite Minneapolis & St. Louis Railroad
No. 301.

Top of well opposite Minneapolis & St. Louis Railroad
No. 302.

2-4. In Polk County, at West Des Moines, on the Minneapolis & St. Louis Railroad, about 1.5 miles west of the station, on the east side of the railroad, 45.0 feet east of the southwest corner of the concrete base of the signal tower, stamped "P-4, 1880" and set in the top of a concrete monument.

Top of well opposite Minneapolis & St. Louis Railroad
Station at West Des Moines.

For additional data see description in this vicinity see page 18.

LINE 928. FORT DODGE to SERGEANT BLUFF, IOWA
(First-order Leveling)

This Line follows the Illinois Central Railroad from Fort Dodge to Rockwell City, Iowa, and the Chicago & North Western Railway from Rockwell City through Sac City and Correctionville to Sergeant Bluff, Iowa.

The field work was done during the fall of 1933, by a party in charge of A. L. Wardwell. The elevations are based on the 1929 General Adjustment of the First-order Level Net.

For descriptions of additional bench marks in this vicinity, see page 17.

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- 1099 (U.S.G.S.) In Webster County, at Fort Dodge, in El. Feet.
the front wall of the Post Office, 12.0 inches south of
the north edge, and 20.0 inches above the sidewalk. A
United States Geological Survey standard disc, stamped
"1919-Iowa, 1099" and set vertically. 1098.571
- A-13. In Webster County, about 2.5 miles north-
west along the Illinois Central Railroad from Fort
Dodge, about 60.0 yards west of semaphore #377.6, at a
bridge #W-377.6; in the top of the southwest end of
the southeast concrete abutment, and 9.5 feet southwest
of the center line of the track. A standard disc, stamp-
ed "A-13, 1933". 1015.526
- 1120 (U.S.G.S.) In Webster County, about 2.5 miles north
west along a county road from Fort Dodge, at corner of
Sections 23, 24, 25 and 26, T-89-N, R-29-W, about 75.0
yards south of a residence at the Oakdale Dairy Farm,
42.5 feet east of the southeast corner of the residence
yard, 43.0 feet southeast of an 18-inch maple tree,
29.0 feet north of the center line of the road, 21.0
feet east of the center line of a T-road. A United
States Geological Survey standard cap, stamped "1919 -
Iowa-1120" and riveted on the top of a $3\frac{1}{2}$ -inch iron pipe. 1119.853
- B-13. In Webster County, about 1.5 miles east
along the Illinois Central Railroad from Tara, about
0.5 mile west of milepost 379, about 70.0 feet east of
the center line of a county highway, 41.5 feet east of
the first high-tension pole north of the track, 39.9
feet north of the center line of the track, and 10.0
feet south of a fence line. A standard disc, stamped
"B-13, 1933" and set in the top of a concrete monument. 1120.815

FORT DODGE to SARGEANT BLUFF, IOWA

- C-13. In Webster County, at Tara, 24.5 feet west of the east end of the Illinois Central Railroad station, in the front wall, and 19.4 feet north of the center line of the track, and 4.0 feet above the platform. A standard disc, stamped "C-13, 1933" and set vertically. El. Ft. 1148.981
- Top of E rail at the intersection of Minneapolis & St. Louis Railroad with Illinois Central Railroad at Tara. 1148.3
- D-13. In Webster County, about 1.0 mile west along the Illinois Central Railroad from Tara, about 47.0 yards west of milepost #0-382, near the west end of the railroad yards, 36.5 feet west of the west end of a switch point, 24.0 feet south of the center line of the south main track, and 21.5 feet northwest of a pole. A standard disc, stamped "D-13, 1933" and set in the top of a concrete monument. 1151.697
- E-13. In Webster County, about 5.0 miles southwest along the Illinois Central Railroad from Tara, about 100.0 yards west of milepost #0-130-386, at bridge #WA-386.1, in the top of the east concrete abutment, and 9.2 feet southeast of the center line of the main track. A standard disc, stamped "E-13, 1933". 1170.188
- F-13. In Calhoun County, at Knierim, 111 feet west of the west end of the Illinois Central Railroad station, 30.0 yards south of the center line of a dirt road paralleling the track, and 16.5 feet south of the center line of the main track. A standard disc, stamped "F-13, 1933" and set in the top of a concrete monument. 1175.464
- G-13. In Calhoun County, about 2.5 miles northeast along the Illinois Central Railroad from Richards, about 30.0 yards north of pole #440-10, on the Chicago, Rock Island & Pacific Railway, in the top of the southwest concrete abutment of cattle pass #WA-391.7; 37.0 feet east of the center line of the Chicago, Rock Island & Pacific Railway, and 10.7 feet south of the center line of the Illinois Central Railroad track. A standard disc, stamped "G-13, 1933", 12 yards east of CRI&P bridge. 1202.547
- H-13 In Calhoun County, at Richards, about 120.0 feet east of the east end of the Illinois Central Railroad station, 11.5 feet east of the east end of platform, and 18.0 feet south of the center line of the main track. A standard disc, stamped "H-13, 1933" and set in the top of a concrete monument. 1187.970

LEVELING IN IOWA

El. Ft.

- J-13. In Calhoun County, about 2.0 miles northeast along along the Illinois Central Railroad from Rockwell City, about 300 yards east of milepost 398; 47.0 feet northwest of pole #E-50; 38.0 feet north of a fence along the south side of the right-of-way, 29.5 feet east of the center of a dirt-road crossing, and 11.0 feet south of the south rail. A standard disc, stamped "J-13, 1933" and set in the top of a concrete monument. 1202.553
- K-13. In Calhoun County, at Rockwell City, about 300 yards east of the Illinois Central Railroad station, at a railroad junction, 42.0 feet west of the southwest corner of the junction control house, 24.6 feet north of the north rail of the Illinois Central Railroad, 21.0 feet northeast of the northeast rail of the Fort Dodge, Des Moines & Southern Railroad, and 13.3 feet west of the west rail of the Chicago, Milwaukee, St. Paul & Pacific Railroad. A standard disc, stamped "K-13, 1933" and set in the top of a concrete monument. 1217.150
- L-13. In Calhoun County, at Rockwell City, 120.6 feet SE of the southwest corner of the courthouse, at the south side of the yard, 31.0 feet north of the north curb line of a street parallel to the south side of the courthouse, 6.0 feet east of the east edge of a concrete walk leading to the courthouse, and 5.0 feet south of the flagpole. A standard disc, stamped "L-13, 1933" and set in the top of a concrete monument. 1233.990
- M-13. In Calhoun County, at the north part of Rockwell City, about 0.5 mile northwest of the Chicago, St. Paul & Pacific Railroad station, 92.0 feet east of the west switch point of a wye, 31.0 feet east of the center line of a north-and-south dirt road, about 30.0 yards south west of a house owned by L. A. Gochiguan, 5.5 feet east of a pole, in a garden, and 3.0 feet south of the south west corner of the fence. A standard disc, stamped "M-13, 1933" and set in the top of a concrete monument. 1229.630

For additional bench marks in this vicinity, see pages 133.

- N-13. In Calhoun County, about 3.0 miles west along the Chicago, Milwaukee, St. Paul & Pacific Railroad from Rockwell City, just west of a road between Sections 27 and 28, T-83-N, R-33-W, 64.6 feet west of a pole, 47.8 feet north of the center line of the main track, 41.0 feet west of the center line of a north-and-south dirt road, 12.0 feet west of a fence corner, and 1.5 feet west of the fence line. A standard disc, stamped

FORT DODGE to SERGEANT BLUFF, IOWA.

- "N-13, 1933" and set in the top of a concrete monument. El. Ft.
1233.029
- P-13 In Calhoun County, about 5.0 miles east along the Chicago, Milwaukee, St. Paul & Pacific Railroad from Lytton (Sac County), in the NE $\frac{1}{4}$ of Section 26, T-88-N, R-34-W, just west of a road crossing, 38.0 feet south west of the southeast corner of a field, 30.3 feet north of the center line of the track, and 19.5 feet south of the north right-of-way fence. A standard disc, stamped "P-13, 1933" and set in the top of a concrete monument. 1218.980
- Q-13 In Calhoun County, about 1.25 miles east along the Chicago, Milwaukee, St. Paul & Pacific Railroad from Lytton (Sac County), 62.0 feet west of the crossing of a road between Sections 20 and 21, T-88-N, R-34-W; 44.0 feet northwest of a fence corner, 28.7 feet northwest of a pole. A standard disc, stamped "Q-13, 1933" and set in the top of a concrete monument. 1207.560
- R-13. In Sac County, at Lytton, about 125.0 yards west of the Chicago, Milwaukee, St. Paul & Pacific Railroad station, 93.0 feet south of the center line of U.S. Highway #20; 82.0 feet northwest of the northwest corner of the Lytton Grain Company Elevator, 32.0 feet west of the center of a road crossing, 30.8 feet north of the center of the track, and 18.0 feet west of a power-transmission pole. A standard disc, stamped "R-13, 1933" and set in the top of a concrete monument. 1222.727
- S-13. In Sac County, about 2.8 miles east along the Chicago, Milwaukee, St. Paul & Pacific Railroad from Sac City, just east of the crossing of the dirt road between Sections 20 and 21, T-88-N, R-35-W, about 79.0 yards south of the center line of U.S. Highway #20; 35.2 feet north of the center line of the track, 31.0 feet east of the center line of the road, and 16.6 feet south of a fence corner. A standard disc, stamped "S-13, 1933" and set in the top of a concrete monument. 1231.297
- T-13. In Sac County, at Sac City, 98.1 feet east of the east end of the Chicago, Milwaukee, St. Paul & Pacific Railway Station, about 100 feet west of the water tank, 69.6 feet north of the north curb line of Sioux Street, and 17.9 feet south of the south rail of the main track. A standard disc, stamped "T-13, 1933" and set in the top of a concrete monument. 1200.066
- SAC CITY In Sac County, at Sac City, at a park about 60.0 yards south of the county courthouse, 129.3 feet east

- of east curb line of West State Street, at the Union Soldiers' Memorial Monument, 39.4 feet northeast of the bottom step, 37.1 feet north of the northeast corner of the bottom step, 12.1 feet south of the south curb line of Main Street, and 2.0 feet north of the north edge of the sidewalk. A standard disc, stamped "SAC CITY, 1933" and set in the top of a 4-inch heavy water main embedded in concrete and projecting 16.0 inches above the surface. El. Ft. 1211.261
- 1211.6 (City of Sac City) In Sac County, at Sac City, about 50.0 yards southwest of the southwest corner of the courthouse, near the southwest corner of the yard, 28.5 feet east of the east curb line of West State St., 17.1 feet east of a fire hydrant, 8.4 feet north of the north curb line of Main Street, and 2.6 feet south of the south edge of the sidewalk. A copper bolt, set in the top of a concrete monument, flush with the surface. (Old City B.M.) 1211.615
- U-13. In Sac County, at Sac City, 27.6 feet south of the northwest corner of the Chicago & North Western Railway station, in the front or west brick wall, 31.5 feet north of the middle of the bay window, 21.6 feet east of the center line of the track, and 4.1 feet above the platform. A standard disc, stamped "U-13, 1933" and set vertically. 1279.801
- 1274.4 (City of Sac City) In Sac County, at Sac City, on Main Street, across from the Chicago & North Western Railway station, at the east side of the main entrance to the Wayt & Son building, on the top of the northeast corner of a stone column base. An unmarked point. (New City B.M.) 1274.387
- Depot (C. & N.W.Ry.) (709.74) In Sac County, at Sac City, 13.7 feet north of the southwest corner of the Chicago & North Western Railway station, at the ladies' waiting room, and on the southwest corner of metal door-sill. An unmarked point. 1276.759
- RV-1 (C. & N.W. Ry.) In Sac County, at Sac City, directly in front of the bay window of the Chicago & North Western Railway station, and in the top of the concrete curb along the platform. A standard monel-metal rivet. 1275.286

For descriptions of additional bench marks in this vicinity, see page 57.

FORT DODGE to SERGEANT BLUFF, IOWA.

- RV-2 (C. & N.W. Ry.) In Sac County, about 1.5 miles west El. Ft.
along the Chicago & North Western Railway, from the station at Sac City, about 0.9 mile west of milepost #14, at the south side of Section 15, T-88-N, R-36-W, at culvert #1443, and in the center of the top of the north concrete head wall, 1.0 foot west of the east end. A standard monel-metal rivet. 1285.414
- Bridge #1443 (C. & N.W. Ry.) (719.00) In Sac County, 1.5 miles west along the Chicago & North Western Railway from the station at Sac City, about 0.9 mile west of milepost #14, at the south side of Section 15, T-88-N, R-36-W, at a culvert, and on the top of the northwest corner of the north concrete head wall. An unmarked point. 1285.362
- RV-3 (C. & N.W. Ry.) In Sac County, about 2.9 miles west along the Chicago & North Western Railway from Sac City, about 1/3 mile west of milepost #16, at Section 16, T-88-N, R-36-W, at culvert #1450, and in the top of the east end of the north concrete head wall. A standard monel-metal rivet. 1296.818
- Bridge #1450 (C. & N.W. Ry.) (730.25) In Sac County, about 2.9 miles west along the Chicago & North Western Railway from Sac City, about 1/3 mile west of milepost #16, at Section 16, T-88-N, R-36-W, at a culvert, and on the top of the northwest corner of the north concrete head wall. An unmarked point. 1296.707
- RV-4 (C. & N.W. Ry.) In Sac County, about 3.8 miles west, along the Chicago & North Western Railway from Sac City, about 980 feet west of milepost #17, at NW $\frac{1}{4}$ of Section 17, T-88-N, R-36-W, at bridge #1451 over drainage ditch #71, in the top of the east concrete back wall, 2.6 feet south of the north end, and 7.7 feet north of the north rail. A standard monel-metal rivet. 1299.883
- Bridge #1451 (C. & N.W. Ry.) (733.40) In Sac County, about 3.8 miles west along the Chicago & North Western Railway from Sac City, about 980 feet west of milepost #17, in NW $\frac{1}{4}$ of Section 17, T-88-N, R-36-W, at bridge #1451 over drainage ditch #71, and on the top of northeast corner of the west concrete bridge seat. An unmarked point. 1297.520
- V-13 In Sac County, about 4.0 miles west along the Chicago & North Western Railway from Sac City, about 400 yards west of bridge #1451, at the Northeast corner of Section 18, along the road between Sections 17 and 18 of T-88-N, R-36-W, 80.0 feet north of a willow tree, 16 feet

- west of the center of road crossing, 33.6 feet south of center line of track, 17.0 feet north of south right of-way fence line. A standard disc, stamped "V-13,1933" and set in the top of a concrete monument. El. Ft. 1305.109
- RV-5 (C. & N.W. Ry.) In Sac County, 4.75 miles west along The Chicago & North Western Railway from Sac City, 720 feet west of milepost #18, at culvert #1454, and in the top of the south stone headwall, 1.0 foot west of east end. A standard monel metal rivet. 1317.384
- Bridge #1454 (C. & N.W. Ry.) (750.88) In Sac County, 4.75 miles west along the Chicago & North Western Railway from Sac City, about 720 feet west of milepost #18, at the SW $\frac{1}{4}$ of Section 7, T-88-N, R-36-W, at a culvert, and on the top of the northwest corner of the north stone headwall. An unmarked point. 1317.346
- RV-6 (C. & N.W. Ry.) In Sac County, about 3.4 miles east along the Chicago & North Western Railway from Early, 0.4 mile west of milepost #18, at SE $\frac{1}{4}$ of Section 12, T-88-N, R-37-W, at culvert #1455, in the top of the north headwall, 1.0 foot west of the east end. A standard monel-metal rivet. 1338.869
- W-13 In Sac County, at Early, 55.0 feet southeast of the southeast corner of the Chicago & North Western Railway station, 33.0 feet west of the center of a street crossing, 13.3 feet south of the south rail of a sidetrack, 9.0 feet east of the east edge of the sidewalk, and 5.0 feet northwest of a high-tension pole. A standard disc stamped "W-13, 1933" and set in the top of a concrete monument. 1332.734
- RV-7 (C. & N.W. Ry.) In Sac County, 0.75 mile west along the Chicago & North Western Railway from Early, 0.5 mile west of milepost #22, at SW $\frac{1}{4}$ of Section 4, T-88-N, R-37-W, about 60.0 yards east of the road along the west side of Section 4, at culvert #1468, and in the top of south east corner of the south stone headwall. A standard monel-metal rivet. 1325.063
- Bridge #1468 (C. & N.W. Ry.) (758.65) In Sac County, 0.75 mile west along the Chicago & North Western Railway from Early, 0.5 mile west of milepost #22, at SW $\frac{1}{4}$ of Section 4, T-88-N, R-37-W, :60.0 yards east of a road along the west side of Section 4, at a culvert, on the top of the northwest corner of north stone headwall. An unmarked point. 1325.001
- Bridge #1471 (C. & N.W. Ry.) (740.45) In Sac County, 1.25 miles northwest along the Chicago & North Western Rail-

FORT DODGE to SERGEANT BLUFF, IOWA

- way from Early, near milepost #23, at Section 5, T-88-N, R-37-W, at north end of a concrete pipe culvert, and on the top of the bell. An unmarked point. El. Ft. 1306.782
- RV-8 (C. & N.W. Ry.) In Sac County, about 1.75 miles north west along the Chicago & North Western Railway from Early, about 0.5 mile west of milepost #23, at Section 5, T-88-N, R-37-W, at culvert #1472, and in the top of the southeast corner of the south stone head wall. A standard monel-metal rivet. 1306.612
- RV-9 (C. & N.W. Ry.) In Sac County, about 2.25 miles west along the Chicago & North Western Railway from Early, about 50.0 feet west of milepost #24, near the southwest corner of Section 35, T-89-N, R-37-W, at bridge #1476, in the top of the north end of the back wall of the west concrete abutment. A standard monel-metal rivet. 1309.935
- Bridge #1477 (C. & N.W. Ry.) (753.57) In Sac County, 2.75 miles west along the Chicago & North Western Railway from Early, about 0.5 mile west of milepost #24, at Section 34, T-89-N, R-37-W, at the south end of a cast-iron pipe culvert, and on the top of the bell. An unmarked point. 1319.892
- RV-10 (C. & N.W. Ry.) In Sac County, about 4.0 miles west along the Chicago & North Western Railway from Early, about 0.8 mile west of milepost #25, at the north side of Section 33, T-89-N, R-37-W, at culvert #1479, and in the top of the northeast corner of the stone cap of the north head wall. A standard monel-metal rivet. 1355.683
- Bridge #1479 (C. & N.W. Ry.) (789.01) In Sac County, west 4.0 miles along the Chicago & North Western Railway from Early, about 0.8 mile west of milepost #25, at Section 33, T-89-N, R-37-W, at a culvert, and on the top of the northwest corner of the stone cap of the north head wall. An unmarked point. 1355.575
- X-13 In Sac County, about 3.25 miles east along the Chicago & North Western Railway from Schaller, near milepost #26, about 1/3 mile west of bridge #1479, about 168 yards east of bridge #1479 $\frac{1}{2}$; 71.0 feet south of the center line of the road along the north side of Section 33, T-89-N, R-37-W, 34.3 feet south of a 30-inch oak tree, and 25.0 feet north of the center line of the track. A standard disc, stamped "X-13, 1933" and set in the top of a concrete monument. 1373.157

LEVELING IN IOWA

Bridge #1482 (C. & N.W. Ry.) (841.93) In Sac County, El. Ft.
 about 1.25 miles east along the Chicago & North West-
 ern Railway from Schaller, near milepost #28, in Sec-
 tion 30, T-89-N, R-37-W, at a culvert, and on the top
 of the southeast corner of the south head wall. An
 unmarked point. 1406.920

Y-13 In Sac County, at Schaller, 131.3 feet west of
 the west end of the Chicago & North Western Railway
 station, 67.3 feet northeast of the northeast corner
 of a concrete grain elevator, 20.5 feet south of the
 center line of the main track, and 15.2 feet west of
 the west curb line of a paved street. A standard
 disc, stamped "Y-13, 1933" and set in the top of a
 concrete monument. 1396.690

Bridge #1491 (C. & N.W. Ry.) (777.92) In Sac County,
 1.6 miles west along the Chicago & North Western
 Railway from Schaller, about 0.25 mile west of mile-
 post #31, at the SW $\frac{1}{4}$ of Section 22, T-89-N, R-38-W,
 south of the track, and on the top of the bell of a
 cast-iron pipe.culvert. An unmarked point. 1344.207

RV-11 (C. & N.W. Ry.) In Sac County, about 3.75 miles
 west along the Chicago & North Western Railway from
Schaller, about 1/3 mile west of milepost #33, at
 Section 29, T-89-N, R-38-W, at culvert #1497, and
 in the top of the east end of the north concrete
 head wall. A standard monel-metal rivet. 1321.146

Bridge #1497 (C. & N.W. Ry.) (754.47) In Sac County,
 about 3.75 miles along the Chicago & North Western
 Railway, ^{west} from Schaller, about 1/3 mile west of mile-
 post #33, at Section 29, T-89-N, R-38-W, at a cul-
 vert, and on the top of the northwest corner of the
 concrete head wall. An unmarked point. 1321.083

Z-13 In Sac County, about 4.0 miles west along the
 Chicago & North Western Railway from Schaller, 0.25
 mile east of milepost #34, at Section 30, T-89-N,
 R-38-W, about 40.0 yards west of the center line of
 the road running along the east side of Section 30;
 40.0 feet northeast of a fence corner, at a 6- by
 6-foot concrete underpass #1498, in the top of the
 southwest corner of the south abutment, and 10.8
 feet south of the south rail. A standard disc,
 stamped "Z-13, 1933". 1318.393

FORT DODGE TO SERGEANT BLUFF, IOWA

- Water Tank (C. & N.W. Ry.) (722.01) In Ida County, at Galva El. Ft.
near the east end of the Chicago & North Western Rail-
way station, at the water tank, and on the top of north
east corner of the footing of the west pedestal near-
est the track. An unmarked point. 1288.537
- A-14 In Ida County, at Galva, 119.4 feet west of the west
end of the Chicago & North Western Railway station, 70.5
feet west of the center of a street crossing, 19.8
feet west of a high-tension pole, and 15.1 feet south
of the south rail of the main track. A standard disc,
stamped "A-14, 1933" and set in the top of a concrete
monument. 1287.327
- RV-12 (C. & N.W. Ry.) In Ida County, at the west part of Gal-
va, on the Chicago & North Western Railway, about 0.5
mile west of milepost #36, at culvert #1509, and in the
top of the southeast corner of the stone cap of south
head wall. A standard monel-metal rivet. 1285.043
- RV-13 (C. & N.W. Ry.) In Ida County, about 3.1 miles south-
west along the Chicago & North Western Railway, from
Galva, about 0.4 mile west of milepost #39, at Section
33, T-89-N, R-39-W, at culvert #1522, and in the top of
the northwest corner of the north stone head wall, 6.0
inches south of the north edge. A standard monel-metal
rivet. 1264.791
- B-14 In Ida County, about 4.3 miles southwest along the
Chicago & North Western Railway from Galva, about 150
yards east of the east end of bridge #1528, at the NE $\frac{1}{2}$
of Section 32, T-89-N, R-39-W, 46.8 feet northeast of
the center line of the track, 36.0 feet west of center
line of the road running along the east side of Section
32, and 6.3 feet south of a high-tension pole. A
standard disc, stamped "B-14, 1933" and set in the top
of a concrete monument. 1283.252
- RV-14 (C. & N.W. Ry.) In Ida County, about 3.4 miles east
along the Chicago & North Western Railway from Holstein,
about 0.8 mile west of milepost #41, at Section #29,
T-89-N, R-39-W, at culvert #1531, and in the top of the
northeast corner of the north stone head wall. A
standard monel-metal rivet. 1319.938
- Bridge #1535 (C. & N.W. Ry.) (788.50) In Ida County, about
2.5 miles east along the Chicago & North Western Rail-
way from Holstein, at Section 30, T-89-N, R-39-W, at a
culvert, and in the top of the east end of the capstone

LEVELING IN IOWA

- of the north stone head wall. The top of a 1-inch iron rivet. El. Ft. 1354.991
- RV-15 (C. & N.W. Ry.) In Ida County, about 2.2 miles east along the Chicago & North Western Railway from Holstein, about 250 feet west of milepost #43, at the west side of Section 30, T-89-N, R-39-W, at culvert #1537, and in the top of the southeast corner of the south stone head wall. A standard monel-metal rivet. 1367.104
- RV-16 (C. & N.W. Ry.) In Ida County, about 1.4 miles east along the Chicago & North Western Railway from Holstein, about 0.9 mile west of milepost #43, at Section 29, T-89-N, R-40-W, at culvert #1542, and in the top of the southeast corner of the south stone head wall. A standard monel-metal rivet. 1408.678
- C-14 In Ida County, at Holstein, 111.8 feet northeast of the northeast corner of the Chicago & North Western Railway station, 5.0 feet west of bridge #1546; 14.4 feet north of the north rail of a sidetrack, and 6.8 feet east of the east edge of the pavement. A standard disc stamped "C-14, 1933" and set in the top of a concrete monument. 1446.060
- Bridge #1558 (C. & N.W. Ry.) (870.03) In Ida County, about 3.3 miles west along the Chicago & North Western Railway from Holstein, about 0.5 mile west of milepost #48, at a cast-iron pipe culvert, and on top of the north bell. An unmarked point. 1436.316
- D-14 In Ida County, about 3.4 miles west along the Chicago & North Western Railway from Holstein, about 120 yards west of bridge #1559, about 16.0 yards west of the brow of a small knoll, 45.4 feet south of the center line of the track, and 41.3 feet north of the center line of U. S. Highway #20. A standard disc, stamped "D-14, 1933" and set in the top of a concrete monument. 1427.543
- RV-17 (C. & N.W. Ry.) In Ida County, about 1.8 miles east along the Chicago & North Western Railway from Cushing (Woodbury County), about 0.6 mile west of milepost #50, at culvert #1571, and in the top of the north east corner of the north stone head wall. A standard monel-metal rivet. 1323.022
- Bridge #1571 (C. & N.W. Ry.) (756.25) In Ida County, 1.8 miles east along the Chicago & North Western Railway from Cushing (Woodbury County), 0.6 mile west of mile-

FORT DODGE TO SERGEANT BLUFF, IOWA

- post #50, at a culvert, and on the top of northwest corner of the north head wall. An unmarked point. El. Ft. 1323.032
- Bridge #1576 (C. & N.W. Ry.) (739.54) In Ida County, 1.0 mile east along the Chicago & North Western Railway from Cushing (Woodbury County) about 0.5 mile west of milepost #51, on the north side of the track, at a cast-iron pipe culvert, and on the top of the northbell. An unmarked point. 1306.251
- E-14. In Woodbury County, at Cushing, about 100 feet W of the west end of the Chicago & North Western Railway station, about 35.0 yards northwest of the northwest corner of a grain elevator, 43.2 feet north of the N rail of the south sidetrack, and 17.4 feet south of the south rail of the main track. A standard disc, stamped "E-14, 1933" and set in the top of a concrete monument. 1276.100
- F-14 In Woodbury County, about 3.0 miles west along the Chicago & North Western Railway from Cushing, about 162 yards west of milepost #NW-55; 46.7 feet north of the center line of the track, 34.0 feet east of the center line of a north-and-south dirt road, and 4 feet south of the right-of-way fence. A standard disc, stamped "F-14, 1933" and set in the top of a concrete monument. 1206.097
- G-14 In Woodbury County, at the east edge of Correctionville, about 0.25 mile east of the Chicago & North Western Railway station, 47.2 feet north of the center line of the track, 47.0 feet south of an 18-inch box elder tree, 43.0 feet east of the center line of a street, and 12.0 feet south of a well. A standard disc, stamped "G-14, 1933" and set in the top of a concrete monument. 1142.816
- RV-18 (C. & N.W. Ry.) In Woodbury County, at Correctionville, at the east end of the Chicago & North Western Railway station, at the water tank, and in the top of the east stone pedestal nearest the track. A standard novel-metal rivet. 1131.428
- CORRECTIONVILLE. In Woodbury County, top of the north rail at crossing of the Chicago & North Western Railway and the Illinois Central Railroad, midway between the rails. 1127.7

LEVELING IN IOWA

H-14 In Woodbury County, at the northwest part of Correctionville, on the Chicago & North Western Railway, at the bridge over Little Sioux River, 5.4 feet north of the north edge of the bearing plate, and in center of the top of the southeast concrete pier, 1.9 feet south of the north point. A standard disc, stamped "H-14, 1933".

El. Ft.

1120.601

For descriptions of additional bench marks in this vicinity, see page 126.

RV-19 (C. & N.W. Ry.) In Woodbury County, about 1.8 miles northwest along the Chicago & North Western Railway from Correctionville, about 0.9 mile west of milepost #59, at bridge #1607, and in the top of the north end of the east concrete back wall. A standard monel-metal rivet.

1135.716

J-14 In Woodbury County, about 1.8 miles northwest along the Chicago & North Western Railway from Correctionville, at bridge #1607; 2.8 feet south of the south edge of the bearing plate, in the center of the top of the west concrete pier. A standard disc, stamped "J-14, 1933".

1131.366

K-14 In Woodbury County, about 4.0 miles northwest along the Chicago & North Western Railway from Correctionville, about 50.0 feet north of the center line of an east-and-west county road, 48.7 feet southwest of the center line of the track, 20.0 feet south of pole, and 3.0 feet east of a right-of-way fence corner. A standard disc, stamped "K-14, 1933" and set in the top of a concrete monument.

1195.112

L-14 In Woodbury County, at Pierson, 153.2 feet south east of the south corner of the Chicago & North Western Railway station, 56.0 feet southeast of the center of a crossing, 19.6 feet northeast of the center line of the track, and 12.5 feet southeast of a switch point. A standard disc, stamped "L-14, 1933" and set in the top of a concrete monument.

1269.013

Depot Platform (C. & N.W. Ry.) (808.11) In Woodbury County, at Pierson, at the east end of the Chicago & North Western Railway station platform, and on top of east end of the concrete curb along the platform. The center of a chiseled circle.

1269.942

FORT DODGE to SERGEANT BLUFF, IOWA

- Bridge #1638 (C. & N.W. Ry.) (763.56) In Woodbury County, El. Ft.
about 1.8 miles northwest along the Chicago & North
Western Railway from Pierson, about 0.25 mile west of
milepost #66, at a culvert, and on the top of the north
west corner of the north stone head wall. An unmarked
point. 1330.476
- RV-20 (C. & N.W. Ry.) In Plymouth County, about 2.2 miles
northwest along the Chicago & North Western Railway
from Pierson (Woodbury County), about 0.6 mile west of
milepost #66, at culvert #1640, and in the top of the
south concrete head wall, 2.0 inches east of the west
end. A standard monel-metal rivet. 1336.953
- M-14 In Plymouth County, about 2.8 miles northwest
along the Chicago & North Western Railway from Pier-
son (Woodbury County), at NW $\frac{1}{4}$ of Section 35, T-90-N,
R-43-W, about 175 feet southeast of the south end of
bridge #1643; 45.2 feet east of the center line of
track, 39.0 feet south of the center of a road cross-
ing, and 4.0 feet west of the right-of-way fence line.
A standard disc, stamped "M-14, 1933" and set in the
top of a concrete monument. 1354.666
- Bridge #1644 (C. & N.W. Ry.) (808.11) In Plymouth County,
about 3.4 miles northwest along the Chicago & North
Western Railway from Pierson (Woodbury County), near
milepost #68, at a cast-iron culvert, and on the top
of the north bell. An unmarked point. 1375.010
- Bridge #1649 (C. & N.W. Ry.) (743.04) In Plymouth County,
about 2.1 miles east along the Chicago & North West-
ern Railway from Kingsley, between mileposts #69 and
#70, at a culvert, and on the top of the southeast
corner of the south head wall. An unmarked point. 1309.961
- T.B.M. #98 In Plymouth County, about 2.1 miles east along
the Chicago & North Western Railway from Kingsley,
between mileposts #69 and #70, at culvert #1649, and
in the top of the north stone head wall, 1.0 foot
west of the east end. The top of a 1.0-inch iron
rivet. 1311.096
- RV-21 (C. & N.W. Ry.) In Plymouth County, at Kingsley
on the Chicago & North Western Railway, about 460
feet west of milepost #71, at the water tank, and in
the top of the northwest corner of the west concrete
pedestal nearest the track. A standard monel-metal
rivet. 1238.216

- KINGSLEY. In Plymouth County, in the west part of Kingsley, at the city park, 229.5 feet south of the center line of an east-and-west street, 79.5 feet west of the center line of a north-and-south street, 19.4 feet north of a 10-inch elm tree, 18.4 feet south of a 12-inch elm tree, and in line with the third row of elm trees from the east side of the park. A standard disc, stamped "KINGSLEY-1933" and set in the top of a concrete monument. El. Ft. 1255.237
- RV-22 (C. & N.W. Ry.) In Plymouth County, about 1.75 miles southwest along the Chicago & North Western Railway from Kingsley, about 265 feet east of milepost #73, north of the track, at culvert #1660, and in the top of the east end of the stone head wall. A standard monel-metal rivet. 1219.332
- Bridge #1662 (C. & N.W. Ry.) (639.34) In Plymouth County, about 2.3 miles southwest along the Chicago & North Western Railway from Kingsley, near mileage 73.6, at a culvert, and on the top of the southwest corner of West head (concrete) wall. An unmarked point. 1206.297
- N-14. In Plymouth County, about 3.0 miles southwest along the Chicago & North Western Railway from Kingsley, at culvert #1666, in the top of the southwest corner of the west concrete head wall, and 6.2 feet south east of the southeast rail. A standard disc, stamped "N-14, 1933". 1202.435
- RV-23 (C. & N.W. Ry.) In Plymouth County, about 3.0 miles southwest along the Chicago & North Western Railway from Kingsley, about 760 feet west of milepost #74, at culvert #1666, and in the top of the northeast corner of the north concrete head wall. A standard monel metal rivet. 1202.366
- RV-24 (C. & N.W. Ry.) In Woodbury County, about 4.0 miles southwest along the Chicago & North Western Railway from Kingsley (Plymouth County) about 855 feet west of milepost #75, at culvert #1670, and in the top of the east end of the north concrete head wall. A standard monel-metal rivet. 1181.710
- P-14 In Woodbury County, about 2.0 miles northeast along the Chicago & North Western Railway from Moville, 130 feet northeast of milepost #78; 40.5 feet northwest of the center line of the track, 25.0 feet northeast of the center of a farm road crossing, and 22.5 feet southwest of a pole. A standard disc, stamped "P-14, 1933" and set in top of concrete monument. 1189.250

FORT DODGE TO SERGEANT BLUFF, IOWA

- RV-25 (C. & N.W. Ry.) In Woodbury County at the north part of Moville, on the Chicago & North Western Railway, 280 feet east of milepost #80, at the water tank, and in top of the southwest corner of the concrete footing of west pedestal nearest the track. A standard monel-metal rivet. El. Ft. 1149.620
- Q-14 In Woodbury County, at Moville, 194 feet southwest of the southwest end of the Chicago & North Western Railway station, about 60.0 yards northeast of the middle of the Standard Oil Company's storage tanks, 25.4 feet north west of the center line of the south sidetrack, and 17.2 feet southeast of the center line of the main track. A standard disc, stamped "Q-14, 1933" and set in the top of a concrete monument. 1148.062
- MOVILLE In Woodbury County, at Moville, on Main Street, in the front or south stone wall of the Everhart Building, 1.0 foot west of the southwest corner, 62.4 feet west of the west curb line of Second Street, 10.2 feet north of the north curb line of Main Street, and 3.0 feet above the sidewalk. A standard disc, stamped "MOVILLE, 1933" and set vertically. 1179.784
- RV-26 (C. & N.W. Ry.) In Woodbury County, at the west part of Moville, on the Chicago & North Western Railway, 0.7 mile west of milepost #80, at bridge #1688, and in the top of the south end of the west concrete back wall. A standard monel-metal rivet. 1146.940
- Bridge #1693 (C. & N.W. Ry.) (622.70) In Woodbury County, about 2.0 miles west along the Chicago & North Western Railway from Moville, near milepost #82, at the south end of a concrete pipe culvert, and on the top of the bell. An unmarked point. (Note: The pre-cast concrete pipe and bell is in poor condition.) 1188.679
- R-14 In Woodbury County, about 3.8 miles west along the Chicago & North Western Railway from Moville, about 0.3 mile east of bridge #1701; 76.0 feet north of the center line of the track, 34.0 feet east of the center line of a north-and-south dirt road, 16.0 feet east of fence corner, and 3.0 feet south of the right-of-way fence line. A standard disc, stamped "R-14, 1933" and set in the top of a concrete monument. 1252.514
- Bridge #1701 (C. & N.W. Ry.) In Woodbury County, about 4.1 miles west along the Chicago & North Western Railway from Moville, at milepost #84, at a culvert, and on the top of

LEVELING IN IOWA

- the northwest corner of the north head wall. An unmarked point. El. Ft. 1263.902
- S-14 In Woodbury County, at Lawton, 78.6 feet north of the north end of the Chicago & North Western Railway station, 32.0 feet northeast of the end of the station platform, 98.2 feet southeast of an 18-inch cottonwood tree, and 20.5 feet southeast of the center line of the main track. A standard disc, stamped "S-14, 1933", set in the top of a concrete monument. 1173.206
- T-14 In Woodbury County, about 3.0 miles north along the Chicago & North Western Railway from Bronson, near milepost #90; 64.0 feet north of the center line of an east-and-west road, 52.7 feet north of the north end of an 18-inch concrete culvert, 32.4 feet west of the center line of the track, 18.0 feet east of a fence corner, and 3.0 feet north of the fence. A standard disc, stamped "T-14, 1933" and set in the top of a concrete monument. 1128.200
- Bridge #1725 (C. & N.W. Ry.) (558.13) In Woodbury County, about 2.2 miles north along the Chicago & North Western Railway from Bronson, at milepost #91, at the north end of an 18-inch concrete culvert, and on the top of the bell. An unmarked point. 1124.348
- U-14 In Woodbury County, at Bronson, 101.8 feet west of the northwest corner of the Chicago & North Western Railway station, 86.0 feet south of the center line of a gravel road, 47.6 feet west of a pole, and 40.8 feet north of the center line of the main track. A standard disc, stamped "U-14, 1933" and set in the top of a concrete monument. 1101.937
- RV-27 (C. & N.W. Ry.) In Woodbury County, about 2.6 miles west along the Chicago & North Western Railway, from Bronson, about 620 feet west of milepost #95, at bridge #1742, and in the top of the north end of the east concrete back wall. A standard monel-metal rivet. 1038.364
- Bridge #1722 (C. & N.W. Ry.) (525.03) In Woodbury County, about 2.6 miles west along the Chicago & North Western Railway from Bronson, at the west end of a bridge, in the top of the north steel girder, and on the top of the southwest rivet. The top of the rivet. 1091.592
- RV-28 (C. & N.W. Ry.) In Woodbury County, about 3.5 miles west along the Chicago & North Western Railway from Bronson, about 1940 feet west of milepost #96, at the Chi-

FORT DODGE, IOWA, to SERGEANT BLUFF, IOWA

El. Ft.

ago, Milwaukee, St. Paul & Pacific Railroad westbound distant signal, and in the top of the southwest corner of the concrete base. A standard monel-metal rivet.

1086.336

V-14 In Woodbury County, about 4.2 miles west along the Chicago & North Western Railway from Bronson, 3.0 miles east of Sergeant Bluff, at the crossing of the Chicago, Milwaukee, St. Paul & Pacific Railroad, 80.0 feet east of the center line of the Chicago, Milwaukee St. Paul & Pacific Railroad, 47.6 feet north of center line of the Chicago & North Western Railway, 24.3 feet northeast of a pole. A standard disc, stamped "V-14, 1933" and set in the top of a concrete monument.

1085.519

Top of the N rail at the crossing of the Chicago North Western Railway and the Chicago, Milwaukee, St. Paul & Pacific Railroad, midway between rails, and 3.0 miles east of Sergeant Bluff.

1089.1

W-14 In Woodbury County, about 2.5 miles east along the Chicago & North Western Railway from Sergeant Bluff, 1.0 mile west of the Chicago, Milwaukee, St. Paul & Pacific Railroad, about 300 yards west of bridge #1751, about 145 yards east of milepost #98, across the track from a "Railroad Crossing One Mile" sign, 243.4 feet east of a north-and-south fence line, and 46.9 feet north of the center line of the track. A standard disc, stamped "W-14, 1933" and set in the top of a concrete monument.

1088.046

X-14 In Woodbury County, about 1.25 miles east along the Chicago & North Western Railway from Sergeant Bluff, 56.0 feet east of the center line of U. S. Highway #75, 43.2 feet south of the center line of the track, 23.0 feet east of the right-of-way fence corner, and 6.0 feet north of the right-of-way fence. A standard disc, stamped "X-14, 1933" and set in the top of a concrete monument.

1088.518

Y-14 In Woodbury County, at Sergeant Bluff, about 50.0 yards south of the Chicago & North Western Railway station, at the city water tank, 75.0 feet east of center line of Front Street, 69.0 feet west of the west side track, 66.0 feet south of the center line of the street just south of the station, and in the top of the north east corner of the concrete base around the riser to the tank. A standard disc, stamped "Y-14, 1933".

1092.189

For descriptions of additional bench marks in this vicinity, see page 16.

LINE L-7638. COUNCIL BLUFFS to DES MOINES, IOWA
(First-order Leveling)

This line follows the Chicago, Rock Island & Pacific Railway from Council Bluffs through Atlantic to Des Moines, Iowa. The field work was done during August and September, 1905, by a party in charge of R. L. Libby. Elevations are based on the 1929 General Adjustment of the First-order Level Net. These elevations supersede those previously published.

For additional bench marks in the vicinity of Council Bluffs, see page 7.

El. Ft.

1000 (U.S.G.S.) In Pottawattamie County, at Council Bluffs, in the south wall of the post office, 21.0 feet west of a semi-circular tower, and 3.3 feet above paved court. A United States Geological Survey standard cap, stamped "1000.237" and set vertically.

1000.237

Top of rail opposite the Chicago, Rock Island & Pacific Railway Station at Council Bluffs.

981.5

994 (U.S.G.S.) In Pottawattamie County, 2.5 miles northeast along the Chicago, Rock Island & Pacific Railway from Council Bluffs, in the west pier of the Chicago-Great Western Railroad bridge over the tracks of the Chicago, Rock Island & Pacific Railway, and the Chicago, Milwaukee, St. Paul & Pacific Railroad. Set 5.0 feet above the ground. A United States Geological Survey standard disc. (Note: This bench mark searched for but not recovered in 1934)

994.115

1019 (U.S.G.S.) In Pottawattamie County, about 6.0 miles northeast along the Chicago, Rock Island & Pacific Railway from Council Bluffs, at a wagon-road crossing, southeast of the house owned in 1905 by John Slightam, 6.0 feet north of the road, and midway between the tracks of the Chicago, Rock Island & Pacific Railway and the Chicago, Milwaukee, St. Paul & Pacific Railroad. A United States Geological Survey standard cap, riveted on the top of a 3.5-inch iron pipe. (Note: This bench mark searched for but not recovered in 1934)

1019.329

1021 (U.S.G.S.) In Pottawattamie County, 3.0 miles southwest along the Chicago, Rock Island & Pacific Railway from Weston, about 0.2 mile southwest of milepost #491, just south of trestle #491.2, opposite station #188 on State Highway #7, at an old concrete culvert, and in the

COUNCIL BLUFFS to DES MOINES, IOWA

- El. Ft.
- top of the east head wall, 3.0 feet from the north end.
A United States Geological Survey standard disc, stamped "1020.910".
- 1020.910
- Top of rail opposite the Chicago, Rock Island & Pacific Railway station at Weston.
- 1036.1
- 1037 (U.S.G.S.) In Pottawattamie County, at Weston, 100.0 feet north of the Chicago, Rock Island & Pacific Railway station, and 24.0 feet west of the center line of the main track. A United States Geological Survey standard cap, stamped "1037.025" and riveted on the top of a 3.5-inch iron pipe.
- 1037.025
- 1073 (U.S.G.S.) Destroyed prior to 1934.
- 1073.610
- 1072 (U.S.G.S.) In Pottawattamie County, at Underwood, south of the Chicago, Rock Island & Pacific Railway station, at concrete culvert #C-483.75, in the top of the east head wall, 1.0 foot from the south end, and 26.0 feet east of the center line of the track. A United States Geological Survey standard cap, stamped "ELEV. 1072.173 FT."
- 1072.173
- Top of rail opposite the Chicago, Rock Island & Pacific Railway station at Underwood.
- 1077.1
- 1089 (U.S.G.S.) In Pottawattamie County, at Neola, on the Chicago, Rock Island & Pacific Railway, at bridge #4784, and in the southeast end of the northeast abutment, 5.0 feet lower than the track. A United States Geological Survey standard cap, stamped "ELEV. 1088.541 FT."
- 1088.541
- 1095 (U.S.G.S.) In Pottawattamie County, at Neola, on the Chicago, Milwaukee, St. Paul & Pacific Railroad at the Fourth Street crossing, about 16.0 feet north of northeast corner of the Stokely Lumber Company, (main building), 9.0 feet east of the west building line of Fourth Street, and 29.0 feet south of the center line of main track. A United States Geological Survey standard cap, stamped "1095.470" and riveted on the top of a 3.5-inch iron pipe.
- 1095.470
- Top of rail opposite the Chicago, Rock Island & Pacific Railway station at Neola.
- 1098.3
- For additional descriptions of bench marks in this vicinity, see page 69.

LEVELING IN IOWA

- 1187 (U.S.G.S.) In Pottawattamie County, at Minden,
120.0 feet west of the Chicago, Rock Island & Pacific
Railway station, about 100 feet south of the track, and
6.0 feet south of a road. A United States Geological
Survey standard cap, riveted on the top of a 3.5- inch
iron pipe. (Note: Bench mark searched for but not re-
covered in 1934) 1197.012
- Top of rail opposite the Chicago, Rock Island & Pacific
Railway station at Minden. 1176.5
- 1201 (U.S.G.S.) In Pottawattamie County, about 0.25
mile northeast along the Chicago, Rock Island & Pacific
Railway from Minden, at the bridge over the Chicago
Great Western Railroad, in the top of the southwest
concrete abutment, and 2.0 feet from the outer corner.
A United States Geological Survey standard cap, stamped
"ELEV. 1201.054 FT." 1201.054
- 1289 (U.S.G.S.) Destroyed prior to 1934. 1289.007
Top of rail opposite the Chicago, Rock Island & Pacific
Railway station at Shelby. 1295.7
- 1294 (U.S.G.S.) In Shelby County, at Shelby, 136 feet
north of the north end of the Chicago, Rock Island &
Pacific Railway station, at the south side of a park,
about 150 feet west of the center line of the main track,
3.0 feet northeast of a light pole, and 2.0 feet south
of the south edge of a cement walk. A United States
Geological Survey standard cap, stamped "1294.341" and
riveted on the top of a 3.5-inch iron pipe. 1294.341
- 1193 (U.S.G.S.) Destroyed prior to 1934. 1192.567
- 1158 (U.S.G.S.) In Pottawattamie County, at Avoca,
in the south wall of the Avoca State Bank, 10.0 feet east
of the southwest corner, and about 4.0 feet above side-
walk. A United States Geological Survey standard cap,
stamped "1158.482" and set vertically. 1158.482
- 1165 (City of Avoca) In Pottawattamie County, at Avoca, in
the southwest corner of the city hall lot. A quarter-
inch brass pipe embedded in the top of a 6-inch iron pipe
open at the top and filled with concrete. (NOTE: This
bench mark searched for in 1934, but not recovered) 1164.870
- 1155 (U.S.G.S.) In Pottawattamie County, at Avoca,
134 feet northwest of the northwest corner of the Chi-
cago, Rock Island & Pacific Railway station, 106 feet

COUNCIL BLUFFS to DES MOINES IOWA

- south of the south building line of Walnut Street, and 2.5 feet east of the east sidewalk of Lyons Street. A United States Geological Survey standard cap, riveted on the top of a 3.5-inch iron pipe. (NOTE: It was reported in 1934 that the cap was missing.) El. Ft. 1155.103
- 1171 (U.S.G.S.) In Pottawattamie County, about 2.0 miles east along the Chicago, Rock Island & Pacific Railway from Avoca, at bridge #456.8, and in the top of the north end of the west abutment. A United States Geological Survey standard cap, stamped "1170.769". 1170.769
- 1285 (U.S.G.S.) In Pottawattamie County, at Walnut, 282 feet west of the west end of the Chicago, Rock Island, & Pacific Railway station, about 215 feet south of the center line of the track, and 3.0 feet from a fence corner. A United States Geological Survey standard cap, stamped "1285.034" and riveted on the top of a 3.5-inch iron pipe. 1285.034
- Top of rail opposite the Chicago, Rock Island & Pacific Railway station at Walnut. 1294.5
- 1286 (U.S.G.S.) Destroyed in 1912. 1285.939
- 1184 (U.S.G.S.) In Cass County, at Marne, about 100 feet west of the Chicago, Rock Island & Pacific Railway station, about 75.0 feet south of the center line of track, and 10.0 feet south of the corner post of the yard owned in 1905 by P. C. Meredith. A United States Geological Survey standard cap, riveted on the top of a 3.5-inch iron pipe. (NOTE: This bench mark was searched for but not recovered in 1934.) 1183.872
- Top of rail opposite the Chicago, Rock Island & Pacific Railway station at Marne. 1193.1
- 1211 (RESET) (U.S.G.S.) Destroyed prior to 1934. 1210.9
- 1159 (U.S.G.S.) In Cass County, at Atlantic, 158 feet east of the Chicago, Rock Island & Pacific Railway station, 29.0 feet south of the center line of the track, and 19.0 feet west of a standpipe. A United States Geological Survey standard cap, stamped "1159.115" and riveted on the top of a 3.5-inch iron pipe. 1159.115
- Top of rail opposite the Chicago, Rock Island & Pacific Railway station at Atlantic. 1158.1
- 1215-RESET (U.S.G.S.) Destroyed in 1934. (New) 1205.588

LEVELING IN IOWA

- 1155 (U.S.G.S.) In Cass County, at Atlantic, about 0.6 mile east of the Chicago, Rock Island & Pacific Railway station, about 375 feet east of a street crossing, at bridge #439.4, and in the top of southwest abutment. A United States Geological Survey standard cap, stamped "1154.525". El. Ft. 1154.525
- For descriptions of additional bench marks in this vicinity, see page 71.
- 1199 (U.S.G.S.) In Cass County, at Wiota, about 0.3 mile southwest of the Chicago, Rock Island & Pacific Railway station, 191 feet east of signal tower #4327, and 45.0 feet north of the center line of the main track, 50.0 feet northwest of the north end of a concrete culvert. A United States Geological Survey standard cap stamped "1199.069" and riveted on the top of a 3.5-inch iron pipe. 1199.069
- Top of rail opposite the Chicago, Rock Island & Pacific Railway station at Wiota. 1203.3
- 1232 (U.S.G.S.) In Cass County, about 2.8 miles southwest along the Chicago, Rock Island & Pacific Railway, from Anita, near pole #428 +17', opposite station #483 on U. S. Highway #6, at a concrete culvert, and in the top of the north end. A United States Geological Survey standard cap, stamped "1232.055". 1232.055
- 1243 (U.S.G.S.) In Cass County, about 0.9 mile southwest along the Chicago, Rock Island & Pacific Railway from Anita, near station #584 on U. S. Highway #6, at concrete culvert #C-426 +52', and in the top of the east end of the north head wall. A United States Geological Survey standard cap, stamped "1243.167". 1243.167
- Top of rail opposite the Chicago, Rock Island & Pacific Railway station at Anita. 1256.7
- 1252 (U.S.G.S.) Destroyed prior to 1934. 1252.212
- 1321 (U.S.G.S.) Destroyed prior to 1934. 1320.670
- 1399 (U.S.G.S.) In Adair County, at Adair, 375 feet east of the Chicago, Rock Island & Pacific Railway station, about 300 feet east of the Davenport Elevator Company, and about 150 feet southeast of the track. A United States Geological Survey standard cap, riveted on the top of a 3.5-inch iron pipe. (NOTE: Bench mark searched for, but not recovered in 1934) 1399.233

COUNCIL BLUFFS to DES MOINES, IOWA

	Top of rail opposite the Chicago, Rock Island & Pacific Railway station at Adair.	El. Ft. 1404.1
<u>1273</u>	(U.S.G.S.) Destroyed prior to 1934.	1272.891
<u>1253</u>	(U.S.G.S.) Destroyed prior to 1934.	1253.377
	Top of rail opposite the Chicago, Rock Island & Pacific Railway station at Casey.	1228.8
<u>1249</u>	(U.S.G.S.) In Guthrie County, at Casey, at the north west corner of the intersection of McPherson and Logan Streets, in the stone foundation of a store 40.5 feet west of the southeast corner of the building and 3.0 feet above the sidewalk. A United States Geological Survey standard cap, stamped "1248.882".	1248.882
<u>1224</u>	(U.S.G.S.) Destroyed prior to 1934.	1223.833
<u>1279</u>	(U.S.G.S.) Destroyed prior to 1934.	1278.941
	Top of rail opposite the Chicago, Rock Island & Pacific Railway station at Menlo.	1265.1
<u>1264</u>	(U.S.G.S.) In Guthrie County, at Menlo, 300 feet east of the Chicago, Rock Island & Pacific Railway station, 131 feet southeast of signal tower #4032, 30.0 feet south of the center line of the track and 1.0 foot east of the east line of the first street east of the station. A standard United States Geological Survey cap, stamped "1263.823" and riveted on the top of a 3.5-inch iron pipe.	1263.823
	For descriptions of additional bench marks in this vicinity, see page 90.	
<u>1210</u>	(U.S.G.S.) In Guthrie County, at Stuart, 300 feet west of the Chicago, Rock Island & Pacific Railway station, at the northwest corner of a grass plot, 67.0 feet north of the center line of the main track, 22.0 feet south of the south curb on U. S. Highway #6, and 1.0 foot east of the east line of Division Street. A United States Geological Survey standard cap, stamped "1210.099" and riveted on the top of a 3.5-inch iron pipe.	1210.099
	Top of rail opposite the Chicago, Rock Island & Pacific Railway station at Stuart.	1208.0
<u>1206</u>	(U.S.G.S.) In Guthrie County, at Stuart, about 6.0 feet east of the entrance to the high school, and in the	

LEVELING IN IOWA

- | | El. Ft. |
|---|----------|
| top of the stone water table. A United States Geological Survey standard cap, stamped "1205.995". | 1205.995 |
| Top of rail opposite the Chicago, Rock Island & Pacific Railway station at Dexter. | 1148.3 |
| <u>1152 (U.S.G.S.)</u> In <u>Dallas County</u> , at <u>Dexter</u> , at southwest corner of the intersection of Marshall and Dallas Streets, at an old bank building, and in the top of the north stone water table, 1.0 foot from northeast corner. A United States Geological Survey standard cap, stamped "1152.301". | 1152.301 |
| <u>1144 (U.S G.S.)</u> In <u>Dallas County</u> , at <u>Dexter</u> , about 340 feet east of the Chicago, Rock Island & Pacific Railway station, 142 feet south of the center line of the track, 44.0 feet west of the east line of Lyon Street, 68.0 feet north of the south line of Dilley Street. A United States Geological Survey standard cap, riveted on the top of a 3.5-inch iron pipe. (NOTE: It was reported in 1934 that the cap had been pounded down into the pipe about 3/8 of an inch.) | 1144.017 |
| <u>1104 (U.S.G.S.)</u> In <u>Madison County</u> , at <u>Earlham</u> , about 560 feet east of the Chicago, Rock Island & Pacific Railway station, 103 feet south of signal tower #3874; 196 feet east of the center line of a street, and about 126 feet south of the center line of the track. A United States Geological Survey standard cap, stamped "1104.181" and riveted on the top of a 3.5-inch iron pipe. | 1104.181 |
| Top of rail opposite the Chicago, Rock Island & Pacific Railway station at Earlham. | 1106.1 |
| <u>1066 (U.S.R.S.)</u> In <u>Madison County</u> , about 1.5 miles east along the Chicago, Rock Island & Pacific Railway from <u>Earlham</u> , at concrete culvert #C-385 + 88 feet, and in the top of the west end of the south head wall. A United States Reclamation Service standard disc, stamped "ELE. 1065.575 FT." | 1065.575 |
| <u>921 (U.S.G.S.)</u> In <u>Dallas County</u> , about 1.5 miles southwest along the Chicago, Rock Island & Pacific Railway from <u>De Soto</u> , at bridge #3814, in the northwest corner of the southwest stone abutment, 1.0 foot from the edge. A United States Geological Survey standard cap, stamped "920.608". | 920.608 |

COUNCIL BLUFFS to DES MOINES, IOWA

- 888 (U.S.G.S.) In Dallas County, at De Soto, nearly opposite the Chicago, Rock Island & Pacific Railway station, 146 feet south of the center line of the main track, 59.0 feet east of a gatepost, and 2.0 feet north of a fence. A United States Geological Survey standard cap, stamped "888.286" and riveted on the top of a 3.5 inch iron pipe. El. Ft.
888.286
- Top of rail opposite the Chicago, Rock Island & Pacific Railway station at De Soto. 891.9
- 872 (U.S.G.S.) In Dallas County, at Van Meter, 123 feet northwest of the northwest corner of the Chicago, Rock Island & Pacific Railway station, about 65.0 feet north of the center line of the main track, and 53.0 feet east of a power-transmission line pole. A United States Geological Survey standard cap, stamped "872.436" and riveted on the top of a 3.5-inch iron pipe. 872.436
- Top of rail opposite the Chicago, Rock Island & Pacific Railway station at Van Meter. 873.5
- 862 (U.S.G.S.) Destroyed prior to 1934. 861.934
- P.T.S.-9 (U.S.G.S.) In Dallas County, at Booneville, 500 feet west of the Chicago, Rock Island & Pacific Railway station, 67.0 feet southeast of signal tower #3730; 53.0 feet south of the center line of the main track, 10.0 feet east of a fence corner. A United States Geological Survey standard cap, stamped "PRIM. TRAV. STA. NO. 9- 857.662", and riveted on the top of a 3.5-inch iron pipe. 857.662
- Top of rail opposite the Chicago, Rock Island & Pacific Railway station at Booneville. 856.3
- 845 (U.S.G.S.) In Dallas County, about 2.0 miles east along the Chicago, Rock Island & Pacific Railway from Booneville, at bridge #370.9, and in the south end of west abutment. A United States Geological Survey cap stamped "ELEV. 845.208 FT." 845.208
- 835 (U.S.G.S.) In Dallas County, about 2.5 miles west along the Chicago, Rock Island & Pacific Railway from Commerce (Polk County), near pole #368 27 feet, at a concrete culvert, and in the top of the west end of the north head wall. A United States Geological Survey standard cap, stamped "ELEV. 834.903 FT." 834.903

LEVELING IN IOWA

- 836 (U.S.G.S.) In Polk County, at Commerce, about 59.0 feet southeast of the south end of the first stone culvert west of the Chicago, Rock Island & Pacific Railway station, about 200 feet east of signal tower #3667, at a farm-road crossing, 46.0 feet south of the center line of the main track, and 3.0 feet west of the west post of a gate. A United States Geological Survey standard cap, stamped "836.140" and riveted on the top of a 3.5-inch iron pipe. El. Ft.
- 836.140
- Top of rail opposite the Chicago, Rock Island & Pacific Railway station at Commerce.
- 836.6
- Top of rail opposite the Chicago, Rock Island & Pacific Railway station at West Des Moines.
- 813.0
- 811 (U.S.G.S.) In Polk County, at West Des Moines, 400 feet west of the Chicago, Rock Island & Pacific Railway station, at the southwest corner of the intersection of Railroad and Fourth Streets, and 150 feet north of the track. A United States Geological Survey standard cap, riveted on the top of a 3.5-inch iron pipe. (NOTE: It was reported in 1934 that this mark was buried about 5.0 feet)
- 811.350
- 806 (U.S.G.S.) In Polk County, about 1.0 mile east along the Chicago, Rock Island & Pacific Railway from West Des Moines, about 100 feet east of a gate in the right-of-way fence, and about 70.0 feet south of the track. A United States Geological Survey standard cap, riveted on the top of a 3.5-inch iron pipe. (NOTE: This bench mark was searched for, but not recovered, in 1934)
- 806.006
- For descriptions of additional bench marks in this vicinity, see page 27.

LINE 6034. SAC CITY to CARROLL, IOWA
(Second-order Leveling)

This Line follows the Chicago & North Western Railway from Sac City through the town of Wall Lake to Carroll. The field work was done during 1935, by party in charge of E. E. Stohsner.

For descriptions of additional bench marks in this vicinity, see page 33.

Top of E rail opposite the Chicago & North Western Railway station at Sac City.	El. Ft. 1274.9
<u>RV-1</u> (C. & N.W. Ry.) In <u>Sac County</u> , 0.5 mile southwest of depot at <u>Sac City</u> , along the Chicago & North Western Railway at U.S. Highway #71 crossing, at culvert #1436, set on the southwest corner of the west headwall. A monel-metal rivet.	1276.494
<u>C-93</u> In <u>Sac County</u> , 1.8 miles southwest of depot at <u>Sac City</u> , along the Chicago & North Western Railway at the road crossing, 54.0 feet south of center line of road, 48.0 feet east of center line of tracks, and 12.0 feet south of fence corner, 1.0 foot west of fence line and about 4.0 feet below level of tracks. A standard disc, stamped "C-93, 1935" and set in a concrete monument.	1284.469
<u>D-93</u> In <u>Sac County</u> , 3.6 miles southwest of depot at <u>Sac City</u> , along the Chicago & North Western Railway at road crossing, culvert #1425; 54.0 feet north of the center line of tracks, 36.0 feet west of center line of road, and about 3.0 feet below track level. A standard disc stamped "D-93, 1935" and set in a concrete monument.	1289.328
Top of E rail opposite the Chicago & North Western Railway MP 10.	1290.0
<u>E-93</u> In <u>Sac County</u> , 3.8 miles north of the depot at <u>Lake View</u> , along the Chicago & North Western Railway, at the road crossing, 200 feet west of culvert #1420; 45.0 feet north of center line of tracks, 45.0 feet west of center line of road and 12.0 feet southwest of fence corner, 2.0 feet above track level. A standard disc, stamped "E-93, 1935" and set in a concrete monument.	1276.644
Top of E rail opposite the Chicago & North Western Railway MP 8.	1271.0

SAC CITY TO CARROLL, IOWA

- F-93 In Sac County, 1.3 miles north of the depot at Lake View, along the Chicago & North Western Railway at the road crossing, 54.0 feet south of center line of road, 30.0 feet east of center line of the tracks, 16.0 feet southwest of fence corner and about level with tracks. A standard disc, stamped "F-93, 1935" and set in a concrete monument. El. Ft. 1255.470
- Top of E rail opposite the Chicago & North Western Railway MP 5. 1232.1
- G-93 In Sac County, at Lake View, along the Chicago North Western Railway at the northeast corner of railway park, about 400 feet north of the depot, 18.0 feet west of the center line of main tracks and 40.0 feet south of center line of road. A standard disc, stamped "G-93, 1935" and set in a concrete monument. 1244.689
- RV-2 (C. & N.W. Ry.) In Sac County, at Lake View, along the Chicago & North Western Railway at culvert #1407 $\frac{1}{2}$, 500 feet north of the depot, on the north end of the east headwall. A monel-metal rivet. 1242.228
- H-93 In Sac County, at Lake View, at the City Water Tank, set on the east corner of the northeast concrete block foundation of tank. A standard disc, stamped "H-93, 1935". 1288.337
- Top of W rail opposite the Chicago & North Western Railway station at Lake View. 1243.3
- J-93 In Sac County, 1.5 miles west of the depot at Sac Junction, along the Chicago & North Western Railway at crossing of County Road "H". Set in the center of the east headwall of road culvert, opposite railroad culvert #1405; 70.0 feet west of center line of track. A standard disc, stamped "J-93, 1935". 1237.202
- K-93 In Sac County, at Sac Junction, along the Chicago & North Western Railway at the railway water tank, 140 feet east of station, set on the north end of the east concrete foundation of tank nearest to tracks. A standard disc, stamped "K-93, 1935". 1232.708
- Top of N rail opposite the Chicago & North Western Railway MP 16. 1231.1
- For descriptions of additional bench marks in this vicinity, see page 117.

LEVELING IN IOWA

- L-93 In Sac County, at Wall Lake, along the Chicago & North Western Railway at street crossing, 200 feet west of depot, set in post, 54.0 feet east of center line of street, 45.0 feet south of center line of the main track and 3.0 feet north of fence corner, about 1.0 foot below level of tracks. A standard disc, stamped "L-93, 1935" and set in a concrete monument. El. Ft. 1232.333
- Top of N rail opposite the Chicago & North Western Railway station at Wall Lake. 1234.1
- RV-3 (C. & N.W. Ry.) In Sac County, at Wall Lake, along the Chicago & North Western Railway at culvert #1211, on the south end of the west wingwall. A monel-metal rivet. 1233.360
- Top of S rail opposite the Chicago & North Western Railway station at Sacton. 1231.6
- M-93 In Sac County, 0.7 mile northwest of depot at Carnarvon, along the Chicago & North Western Railway at road crossing, culvert #1204-3/4, about 400 feet north west of railroad crossing, 39.0 feet southwest of center line of the tracks, 30.0 feet east of center line of road and 12.0 feet north of fence corner, along the north-south fence line. A standard disc, stamped "M - 93, 1935" and set in a concrete monument. 1243.610
- Top of rail opposite the Chicago & North Western Railway MP 14. 1241.5
- RV-4 (C. & N.W. Ry.) In Sac County, 0.4 mile northwest of depot at Carnarvon, along the Chicago & North Western Railway at culvert #1203, on the east end of the north headwall. A Monel-metal rivet. 1245.791
- N-93 In Sac County, at Carnarvon, along the Chicago & North Western Railway at road crossing 4 poles south east of the depot, 24.0 feet north of the center line of the road, 14.0 feet northeast of the center line of the tracks, 4.0 feet west of telephone pole, and at the rail level. A standard disc, stamped "N-93, 1935" and set in a concrete monument. 1255.293
- Top of NE rail opposite the Chicago & North Western Railway station at Carnarvon. 1253.5
- P-93 In Sac County, 2.4 miles south of depot at Carnarvon, along the Chicago & North Western Railway at a

SAC CITY to CARROLL, IOWA

road crossing, at culvert #1192 $\frac{1}{2}$; 39.0 feet north of the center line of the road, 22.0 feet east of the center line of the tracks, and set 4.0 feet above the rail level. A standard disc, stamped "P-93, 1935" and set in a concrete monument.	El. Ft. 1303.990
Top of E rail opposite the Chicago & North Western Railway MP 11.	1288.6
<u>RV-5 (C. & N.W. Ry.)</u> In <u>Sac County</u> , 2.5 miles south of the depot at <u>Carnarvon</u> , along the Chicago & North Western Railway at culvert #1191, on the south end of the east headwall. A monel-metal rivet.	1302.068
Top of E rail Opposite the Chicago & North Western Railway MP 10.	1309.3
<u>RV-6 (C. & N.W. Ry.)</u> In <u>Carroll County</u> , 1.6 miles north of the depot at <u>Breda</u> , along the Chicago & North Western Railway at bridge #1183. A monel-metal rivet, set on the south end of the east headwall.	1338.291
<u>RV-7 (C. & N.W. Ry.)</u> In <u>Carroll County</u> , 1.2 miles north of the depot at <u>Breda</u> , along the Chicago & North Western Railway at bridge #1181. A monel-metal rivet on the south end of the east concrete headwall.	1349.935
<u>Q-93</u> In <u>Carroll County</u> , 1.0 mile north of the depot at <u>Breda</u> , along the Chicago & North Western Railway at road crossing, 39.0 feet north of the center line of the tracks, set 4.0 feet above rail level. A standard disc stamped "Q-93, 1935" and set in a concrete monument, 22.0 feet east of the center line of the tracks.	1360.775
Top of E rail opposite the Chicago & North Western Railway MP 8.	1358.9
<u>RV-8 (C. & N.W. Ry.)</u> In <u>Carroll County</u> , at <u>Breda</u> , along the Chicago & North Western Railway at the depot, in a concrete curb, opposite the bay window, depot platform. A monel-metal rivet.	1367.366
<u>R-93</u> In <u>Carroll County</u> , at <u>Breda</u> , along the Chicago & North Western Railway at the crossing of State Highway #217; 2 poles south of the depot, 90.0 feet south of the center line of the highway, 18.0 feet west of the center line of the tracks and 4.0 feet southeast of a pole. A standard disc, stamped "R-93, 1935" and set in a concrete monument.	1367.215

LEVELING IN IOWA

610

	El. Ft.
<u>S-93</u> In <u>Carroll County</u> , 2.4 miles south of the depot at <u>Breda</u> , along the Chicago & North Western railway at road crossing at culvert #1166; 36.0 feet south of the center line of the road, 28.0 feet east of the center line of the tracks, and about 2.0 feet above the rail level. A standard disc, stamped "S-93, 1935" and set in a concrete monument.	1316.411
<u>RV-9</u> (C. & N.W. Ry.) In <u>Carroll County</u> , 4.0 miles south of the depot at <u>Breda</u> , along the Chicago & North Western Railway at bridge #1159. A monel-metal rivet set on the west end of the north concrete abutment.	1289.400
<u>T-93</u> In <u>Carroll County</u> , 4.0 miles northwest of the depot at <u>Maple River</u> , along the Chicago & North Western Railway at road crossing, 45.0 feet west of the center line of the tracks, 33.0 feet south of the center line of the road, 9.0 feet southeast of fence corner, and 2.0 feet east of fence line, 4.0 feet below rail level. A standard disc, stamped "T-93, 1935" and set in a concrete monument.	1276.595
Top of N Rail opposite the Chicago & North Western Railway MP 3.	1285.2
Top of N Rail opposite the Chicago & North Western Railway MP 2.	1275.2
<u>RV-10</u> (C. & N.W. Ry.) In <u>Carroll County</u> , 1.8 miles northwest of the depot at <u>Maple River</u> , along the Chicago & North Western Railway at bridge #1153. A monel-metal rivet, set on the south end of the west concrete head-wall.	1267.130
<u>U-93</u> In <u>Carroll County</u> , 1.8 miles northwest of depot at <u>Maple River</u> , along the Chicago & North Western Railway at road crossing, 200 feet southeast of milepost #1; 48.0 feet north of the center line of the tracks, at intersection of crossing, 42.0 feet northwest of a fence corner and 2.0 feet southwest of the fence line. A standard disc, stamped "U-93, 1935" and set in a concrete monument.	1268.869
<u>RV-11</u> (C. & N.W. Ry.) In <u>Carroll County</u> , at <u>Maple River</u> , along the Chicago & North Western Railway, 200 feet east of the depot. A monel-metal rivet set in northeast corner of battery well.	1265.109
Top of S Rail opposite the Chicago & North Western Railway station at Maple River.	1264.3

SAC CITY TO CARROLL, IOWA

- V-93 In Carroll County, at Maple River, along the Chicago & North Western Railway at road crossing, 4 poles east of depot, 27.0 feet south of the center line of south main tracks, 63.0 feet east of the center line of road and 3.0 feet northeast of pole. A standard disc, stamped "V-93, 1935" and set in a concrete monument. El. Ft. 1264.892
- W-93. In Carroll County, 1.2 miles east of Maple River depot, along the Chicago & North Western Railway at bridge #801; 300 feet east of road crossing. A standard disc, stamped "W-93, 1935" and set on the south end of west stone abutment, 1.0 foot below rail level. 1251.976
- X-93 In Carroll County, 1.7 miles west of the depot at Carroll, along the Chicago & North Western Railway at bridge 8 poles west of U. S. Highway #30 crossing, an overpass, 1.0 foot below rail level. A standard disc, stamped "X-93, 1935" and set in the south end of the east stone abutment. 1249.541

For descriptions of additional bench marks in this vicinity, see page 99.

68

LINE 6037. MANILLA to NEOLA, IOWA
(Second-order Leveling)

This line follows the Chicago, Milwaukee, St. Paul & Pacific Railroad from Manilla to Neola, Iowa. The field work was done during 1935, by a party in charge of E. E. Stohsner.

For descriptions of additional bench marks in this vicinity, see pages 103.

X-95 In Crawford County, at Manilla, along the Chicago, Milwaukee, St. Paul & Pacific Railroad at the depot, in line with the southwest end of the depot, 57.0 feet northwest of the west corner, 17.0 feet southeast of the right-of-way fence, 5.0 feet north of telegraph pole, at rail level. A standard disc, stamped "X-95, 1935" and set in a concrete monument. El. Ft. 1316.434

24-33 (U.S.C. & G.S. & S.S.) In Crawford County, at Manilla, in the southeast corner of the High School yard, 4.0 feet south of the sidewalk, 3.0 feet west of curb, lot 6, block 31. A bronze disc, stamped "24-33" and set in a concrete monument. 1392.120

Y-95 In Crawford County, 3.1 miles southwest of the depot at Manilla, along the Chicago, Milwaukee, St. Paul & Pacific Railroad 5-2/3 poles west of milepost #425 at the north-south road crossing at Astor, 390 feet east of the station, 30.0 feet west of the center line of the crossing, 42.0 feet south of the center line of track, 5.0 feet west and 3.0 feet north of the right-of-way fence corner, and 2.5 feet below rail level. A standard disc, stamped "Y-95, 1935" and set in a concrete monument. 1299.686

Top of SE Rail of the Chicago, Milwaukee, St. Paul & Pacific Railroad MP 424. 1318.9

Top of N Rail of the Chicago, Milwaukee, St. Paul & Pacific Railroad station at Astor. 1302.8

Z-95 In Crawford County, 4.2 miles southwest of the depot at Manilla, along the Chicago, Milwaukee, St. Paul & Pacific Railroad 7 1/2 poles west of milepost #426 at north-south road crossing, 27.0 feet west of the center line of the crossing, 42.0 feet north of the center line of the tracks, 7.0 feet west and 3.0 feet south of right-

MANILLA to NEOLA, IOWA

- of-way fence corner, and 3.0 feet below rail level. A standard disc, stamped "Z-95, 1935" and set in a concrete monument. El. Ft. 1290.411
- Top of S rail opposite the Chicago, Milwaukee, St. Paul & Pacific Railroad MP 426. 1294.1
- Top of S rail opposite the Chicago, Milwaukee, St. Paul & Pacific Railroad MP 427. 1288.3
- A-96 In Shelby County, 1.8 miles northeast of the depot at Defiance, along the Chicago, Milwaukee, St. Paul & Pacific Railroad 14 poles northeast of milepost #429, at a 6- by 7-foot R C B culvert #1402; 10 poles southwest of east-west road crossing, in center of northwest headwall, 2.5 feet southwest of the northeast end, 9.0 feet northwest of the center line of the track, and 2.5 feet below rail level. A standard disc, stamped "A-96, 1935". 1279.604
- 83-81 (U.S.C. & G.S. & S.S.) In Shelby County, at Defiance, at the Catholic School Grounds, 37.6 feet northeast of and in line with the northeast corner of building, 17.0 feet west of the west edge of U.S. Highway #59 pavement, 2.3 feet east of the east edge of sidewalk, and 2.0 inches below the ground level. A bronze disc, stamped "83-81" and set in a concrete monument. 1309.715
- Top of SE rail opposite the Chicago, Milwaukee, St. Paul & Pacific Railroad MP 429. 1284.9
- Top of NW rail opposite the Chicago, Milwaukee, St. Paul & Pacific Railroad station at Defiance. 1278.2
- B-96 In Shelby County, at Defiance, along the Chicago, Milwaukee, St. Paul & Pacific Railroad, 8.5 poles northeast of milepost #431 at overpass #1408 over U.S. Highway #59, in the northeast end of the northwest headwall, 15.0 feet northwest of the center line of track, and 3.0 feet below rail level. A standard disc, stamped "B-96, 1935". 1282.494
- C-96 In Shelby County, 3.7 miles northeast of Earling, along the Chicago, Milwaukee, St. Paul & Pacific Railway 12 $\frac{1}{2}$ poles southwest of milepost #432, at a 30-foot concrete overpass #Z-1416 over east-west road, in the west end of the south abutment, 9.0 feet west of center line of the track, 1.5 feet below rail level. A standard disc, stamped "C-96, 1935". 1335.119

LEVELING IN IOWA

- Top of SE rail opposite Chicago, Milwaukee, St. Paul & Pacific Railway MP 432. El. Ft. 1526.8
- Top of SE rail opposite Chicago, Milwaukee, St. Paul & Pacific Railway MP 433. 1361.6
- D-96 In Shelby County, 2.0 miles northeast of the depot at Earling, along the Chicago, Milwaukee, St. Paul & Pacific Railway, 4 poles northeast of milepost #434 at a 45-foot concrete overpass #Z-1420 over the east west road, in the northwest end of the northeast abutment, 8.0 feet northwest of the center line of the track and 1.0 foot below rail level. A standard disc, stamped "D-96, 1935". 1353.701
- Top of SE rail opposite Chicago, Milwaukee, St. Paul & Pacific Railway MP 435. 1326.4
- E-96 In Shelby County, at Earling, along the Chicago, Milwaukee, St. Paul & Pacific Railway, 11.0 feet southwest of depot, 17.0 feet northwest of the center line of the main track, 6.5 feet south of telegraph conveyor pole, at rail level. A standard disc, stamped "E-96, 1935" and set in a concrete monument. 1305.952
- Top of SE rail at center line of crossing of the Chicago, Milwaukee, St. Paul & Pacific Railway with State Highway #37 at Earling. 1311.0
- Top of NW rail opposite the Chicago, Milwaukee, St. Paul & Pacific Railway station at Earling. 1305.3
- F-96 In Shelby County, 1.8 miles southwest of the depot at Earling, along the Chicago, Milwaukee, St. Paul & Pacific Railway 12 $\frac{1}{2}$ poles northeast of milepost #438 at a 2-foot cast-iron pipe culvert, at an east-west crossing, in the northeast end of the southeast headwall, 48.0 feet southwest of the center line of the crossing, 10.0 feet southeast of the center line of the track, and 0.5 foot below rail level. A standard disc, stamped "F-96, 1935". 1280.460
- Top of SE rail opposite the Chicago, Milwaukee, St. Paul & Pacific Railway MP 437. 1288.5
- G-96 In Shelby County, 2.8 miles southwest of the depot at Earling, along the Chicago, Milwaukee, St. Paul & Pacific Railway 13 poles northeast of milepost #439, at 150-foot steel bridge #Z-1450; 10 poles southwest of north-south road crossing, in the south corner of southwest abutment, 9.0 feet southeast of the center line of

MANILLA to NEOLA, IOWA

- the track, and 3.0 feet below rail level. A standard disc, stamped "G-96, 1935". El. Ft.
1263.026
- Top of E rail opposite the Chicago, Milwaukee, St. Paul & Pacific Railway MP 440. 1250.8
- H-96 In Shelby County, at Panama, along the Chicago, Milwaukee, St. Paul & Pacific Railway 260 feet northwest of the depot, 153 feet northwest of milepost #441, in line with the southeast end of the coal shed, 28.0 feet southwest of the center line of the main track, 23.0 feet northeast of the center line of siding, 93.0 feet northwest of the north corner of grain elevator foundation, 3.0 feet northeast of line of guard posts, and at rail level. A standard disc, stamped "H-96, 1935" and set in a concrete monument. 1247.662
- Top of SW rail opposite the Chicago, Milwaukee, St. Paul & Pacific station at Panama. 1247.5
- Top of E rail at crossing of Chicago, Milwaukee, St. Paul & Pacific Railway and center line of County Road "D", 0.6 mile south of Panama. 1239.6
- Top of E rail opposite the Chicago, Milwaukee, St. Paul & Pacific Railway MP 442. 1239.6
- J-96 In Shelby County, 1.9 miles southwest of the depot at Panama, along the Chicago, Milwaukee, St. Paul & Pacific Railway, 2 poles northeast of milepost #443, at an east-west road crossing, 36.0 feet south of center line of road, 45.0 feet northwest of the center line of the tracks, 6.0 feet southeast of right-of-way fence corner, and 3.5 feet below rail level. A standard disc stamped "J-96, 1935" and set in a concrete monument. 1225.332
- Top of SE rail opposite the Chicago, Milwaukee, St. Paul & Pacific Railway MP 444. 1220.6
- K-96 In Shelby County, 4.7 miles southwest of the depot at Panama, along the Chicago, Milwaukee, St. Paul & Pacific Railway, 9-2/3 poles northeast of milepost #446, at east-west road crossing, 18.0 feet south of center line of crossing, 57.0 feet north of a 6-foot culvert #Z-1474; 15.0 feet west of a 110-foot steel girder road bridge over a creek; 8.0 feet south then 3.0 west of right-of-way fence corner, and 5.5 feet below rail level. A standard disc, stamped "K-96, 1935" and set in a concrete monument, 47.0 feet east of the center line of railroad track. 1203.666

LEVELING IN IOWA

- Top of SE rail opposite Chicago, Milwaukee, St. Paul & Pacific Railway MP 446. El. Ft 1209.1
- L-96. In Shelby County, at Portsmouth, along the Chicago, Milwaukee, St. Paul & Pacific Railway, $7\frac{1}{2}$ poles south of the depot, at a 3- by 3-foot R C B culvert under junction of State Highway #39 with County Road "S", 80.0 feet west of the center line of the tracks, in the southeast end of northeast concrete headwall, 60.0 feet northeast of the center line of road crossing, 3.0 feet below rail level. A standard disc, stamped "L-96, 1935". 1192.025
- Top of W rail opposite Chicago, Milwaukee, St. Paul & Pacific Railway station at Portsmouth. 1196.6
- Top of rail at crossing of Chicago, Milwaukee, St. Paul & Pacific Railway with State Highway #39 at Portsmouth. 1194.2
- M-96 In Shelby County, 2.5 miles southwest of Portsmouth, along the Chicago, Milwaukee, St. Paul & Pacific Railway $27\frac{1}{2}$ poles southwest of milepost #449, at a 50-foot concrete deck bridge #Z-1486, in the northeast end of the northwest headwall, 6.0 feet northwest of the center line of the track, and 1.0 foot below rail level. A standard disc, stamped "M-96, 1935". 1178.121
- 83-68 (U.S.C. & G.S. & S.S.) In Shelby County, about 3.1 miles southwest of the depot at Portsmouth, along the Chicago, Milwaukee, St. Paul & Pacific Railway, $11\frac{1}{2}$ poles southwest of milepost #450; 525 feet northeast of the center line of T-road east, and 39.0 rail lengths northeast of railroad bridge #1488; 50.0 feet northwest of the center line of track, 42.0 feet southeast of the center line of State Highway #191; 2.0 feet northwest of right-of-way fence, 5.5 feet below rail level, and set flush with the surface. A bronze disc stamped "83-68" and set in a concrete monument. 1171.359
- N-96 In Harrison County, 0.45 mile northeast of depot at Persia, along the Chicago, Milwaukee, St. Paul & Pacific Railway, $16\frac{2}{3}$ poles south of milepost #452, at a 6- by 6-foot R C B highway culvert, in the center of the east headwall, 75.0 feet west of the center line of the track, 18.0 feet east of the center line of the highway, at rail level. A standard disc, stamped "N-96, 1935" and set in concrete headwall. 1162.294

- P-96 In Harrison County, at Persia, along the Chicago, Milwaukee, St. Paul & Pacific Railway, 410 feet south of the depot, at railroad water tank, in the southwest corner of the southwest leg foundation, 60.0 feet east of the center line of the main track, and 6.5 feet below rail level. A standard disc, stamped "P-96, 1935". El. Ft. 1157.471
- Top of W rail opposite Chicago, Milwaukee, St. Paul & Pacific Railway station at Persia. 1166.0
- Q-96 In Harrison County, 2.0 miles south of the depot at Persia, along the Chicago, Milwaukee, St. Paul & Pacific Railway, $6\frac{1}{2}$ poles north of milepost #455, at a 90-foot steel bridge #Z-1500, at the northeast corner of south abutment, 9.0 feet east of the center line of the track and 1.0 foot below rail level. A standard disc, stamped "Q-96, 1935". 1146.553
- R-96 In Harrison County, 3.7 miles south of the depot at Persia, along the Chicago, Milwaukee, St. Paul & Pacific Railway $20\frac{1}{2}$ poles north of milepost #457; 15 poles north of station at Yorkshire Siding, at a 70-foot steel bridge #Z-1506, in the east end of the north abutment, 8.0 feet east of the center line of the track and 3.0 feet below rail level. A standard disc, stamped "R-96, 1935". 1132.695
- Top of E rail opposite the Chicago, Milwaukee, St. Paul & Pacific Railway MP 456. 1138.6
- Top of W rail opposite the Chicago, Milwaukee, St. Paul & Pacific Railway station at Yorkshire. 1132.4
- Top of E rail opposite the Chicago, Milwaukee, St. Paul & Pacific Railway MP 457. 1131.6
- S-96 In Pottawattamie County, 4.7 miles north of depot at Neola, along the Chicago, Milwaukee, St. Paul & Pacific Railway 9 poles south of milepost #458; at a 45-foot concrete deck bridge #Z-1514, in the north end of the west headwall, 6.0 feet west of the center line of the track, and at rail level. A standard disc, stamped "S-96, 1935". 1121.750
- T-96 In Pottawattamie County, 3.8 miles north of depot at Neola, along the Chicago, Milwaukee, St. Paul & Pacific Railway $5\frac{1}{2}$ poles south of milepost #459, at a 200-foot steel bridge #Z-1518; 2 poles north of the east-west road crossing, in the west end of the south abutment, 8.0 feet west of the center line of the track, and 1.5 feet below rail level. A standard disc, stamped "T-96, 1935". 1118.485

U-96 In Pottawattamie County, 1.5 miles north of depot at Neola, along the Chicago, Milwaukee, St. Paul & Pacific Railway, 17 poles south of milepost #461, at the State Highway #7 overpass, in the east face of a north leg of west pier, 10.0 feet west of the center line of the track, and 4.0 feet above rail level. A standard disc, stamped "U-96, 1935" and set vertically. El. Ft. 1105.208

Top of E rail opposite the Chicago, Milwaukee, St. Paul & Pacific Railway MP 461. 1105.7

78-74 (U.S.C. & G.S. & S.S.) In Pottawattamie County, at Neola, along Main Street (State Highway #7), at the Dawson Grain Company elevator, in concrete post 27.0 feet south of the south edge of pavement, 25.0 feet west of the west edge of scale foundation, $8\frac{1}{2}$ feet west of the end of the sidewalk, 5.0 feet south of the line of telephone pole and set flush with the ground. A standard disc, stamped "78-74". 1092.632

For descriptions of other bench marks in this vicinity see page 48.

LINE 6046. ATLANTIC TO MANNING, IOWA
(Second-order Leveling)

This Line follows the Chicago, Rock Island & Pacific Railway from Atlantic to Audubon, Iowa, then continues along the Chicago, North Western Railway to Manning.

The field work was done during 1935, by party in charge of E. E. Stohsner.

For descriptions of additional bench marks in this vicinity, see page 51.

- Q-99 In Cass County, at Atlantic, along the Chicago, Rock Island & Pacific Railroad at the depot, set vertically in the north side of the building, 2.0 feet east of the east waiting-room door, and 4.0 feet above the platform. A standard disc, stamped "Q-99, 1935". El. Ft. 1163.088
- Top of S rail opposite the Chicago, Rock Island & Pacific Railway station at Atlantic. 1158.5
- R-99 In Cass County, 5.0 miles west of the depot at Lorah, along the Chicago, Rock Island & Pacific Railway 5 poles southwest of milepost #442, at the north - south road crossing, 24.0 feet east of the center line of the road, 42.0 feet northwest of the center line of tracks, 3.0 feet east of the right-of-way fence corner post, at rail level. A standard disc, stamped "R-99, 1935" and set in a concrete monument. 1154.030
- S-99 In Cass County, 3.7 miles west of the depot at Lorah, along the Chicago, Rock Island & Pacific Railway, $3\frac{1}{2}$ poles east of milepost #443, at the north-south road crossing, in the center of south headwall of a 2-foot, cast-iron pipe culvert under the railroad, 24.0 feet east of the center line of the crossing, 7.0 feet south of the center line of the tracks, and 1.0 foot below rail level. A standard disc, stamped "S-99, 1935". 1155.788
- Top of SE rail opposite the Chicago, Rock Island & Pacific Railway MP 444. 1166.2
- T-99 In Cass County, 2.1 miles west of the depot at Lorah, along the Chicago, Rock Island & Pacific Railway, 21.0 poles east of milepost #444, at a 40-inch cast-iron pipe culvert, 4 poles east of the north-south road crossing, in the east end of the north headwall, 9.0 feet north of the center line of the track, and set 1.0 foot below rail level. A standard disc, stamped "T-99, 1935". 1187.983

- U-99 In Cass County, at Lorah, along the Chicago, Rock Island & Pacific Railroad 265 feet south of the depot, at the east-west road crossing, 26.0 feet south of the center line of crossing, 38.0 feet west of the center line of the track, 4.0 feet east of power line pole in a line of poles, and set 2.5 feet below rail level. A standard disc, stamped "U-99, 1935" and set in a concrete monument. El. Ft. 1196.786
- Top of SE rail opposite the Chicago, Rock Island & Pacific Railway MP 446. 1192.4
- Top of W rail opposite the Chicago, Rock Island & Pacific Railway Station at Lorah. 1197.9
- V-99 In Cass County, 1.4 miles northeast of the depot at Lorah, along the Chicago, Rock Island & Pacific Railway $5\frac{1}{2}$ poles north of milepost #448 at a 5- by 5-foot R C B highway culvert, in the north end of the west head wall, 48.0 feet east of the center line of the tracks, 510 feet south of the center line of crossing, 18.0 feet west of the center line of the highway and 4.0 feet below rail level. A standard disc, stamped "V-99, 1935" 1196.133
- Top of E rail at center line of crossing of the Chicago, Rock Island & Pacific Railway with U. S. Highway 71, 1.5 miles north of Lorah. 1201.5
- Top of E rail opposite the Chicago, Rock Island & Pacific Railway MP 449. 1211.8
- 5-325 (U.S.C. & G.S. & S.S.) In Cass County, 3.3 miles northeast of the depot at Lorah, along the Chicago, Rock Island & Pacific Railway $2\frac{1}{3}$ poles north of milepost #450 at a private road crossing, 32.0 feet west of the center line of the track, 36.0 feet east of the east edge of the paving of U. S. Highway #71; 33.0 feet north of the center line of a private road crossing, 17.0 feet northeast of railroad iron, and 2.0 feet below the rail level. A bronze disc, stamped "5-325" and set in a concrete monument. 1194.138
- 5-324 (U.S.C. & G.S. & S.S.) In Cass County, 3.8 miles northeast of the depot at Lorah, along the Chicago, Rock Island & Pacific Railway, 18 poles north of milepost #450, at a public road crossing, 19.0 feet north of the center line of the crossing, 6.0 feet north of road line fence on west side of road, 47.8 feet east of the east edge of U. S. Highway #71; 25.0 feet northeast of the railroad iron marker, 22.0 feet west of the center line of the tracks, 2.0 feet below rail level, and set flush

- with, the surface. A bronze disc, stamped "5-324" and set in a concrete monument. El. Ft. 1196.510
- 5-323 (U.S.C. & G.S. & S.S.) In Audubon County, at Brayton, at the intersection of Main Street and U.S. Highway #71; 8.0 feet east of the east edge of the highway paving, 1.2 feet south of the south edge of walk on the south side of Main Street, 92.0 feet southeast of southeast corner of building on the southwest corner of the intersection, 4.0 inches below the ground level. A bronze disc, stamped "5-323" and set in a concrete monument. 1210.411
- W-99 In Audubon County, 2.2 miles northeast of Brayton, at the junction of Main Street and U. S. Highway #71, along the Chicago, Rock Island & Pacific Railway, 4 poles northeast of milepost #454, at a public road crossing, 45.0 feet southeast of the center line of the tracks in line with the right-of-way fence, 18.0 feet north of center line of the road, 2.0 feet south of the right-of-way fence corner, and 1.0 foot below rail level. A standard disc, stamped "W-99, 1935" and set in a concrete monument. 1216.526
- X-99 In Audubon County, at Exira, along the Chicago, Rock Island & Pacific Railway 8 poles south of the depot, 16 poles north of milepost #455, at highway bridge over David's Creek, in the east end of the north pier, 60.0 feet west of the center line of the track, 14.0 feet east of the center line of the highway, and at rail level. A standard disc, stamped "X-99, 1935" 1225.096
- Top of E rail at center line of crossing of the Chicago, Rock Island & Pacific Railway with County Road "J" at Exira. 1225.1
- Top of E rail opposite the Chicago, Rock Island & Pacific Railway station at Exira. 1224.9
- Top of W rail at center line of crossing of the Chicago, Rock Island & Pacific Railway with U. S. Highway #71 at Exira. 1226.5
- Y-99 In Audubon County, 1.5 miles north of the depot at Exira, along the Chicago, Rock Island & Pacific Railway 10 poles north of milepost #457 at a 3- by 5- foot R C B highway culvert, at railroad piling bridge #457.3 in the south end of the west headwall, 55.0 feet east of the center line of track, 12.0 feet west of center line of highway, 2.0 feet above road level, and 3.0 feet above rail level. A standard disc, stamped "Y-99, 1935". 1239.656

ATLANTIC TO MANNING, IOWA

	El. Ft.
Top of rail opposite the Chicago, Rock Island & Pacific Railway MP 457.	1237.0
<u>Z-99</u> In Audubon County, 1.5 miles south of the depot at Hamlin, along the Chicago, Rock Island & Pacific Railway, 19-2/3 poles north of milepost #459, at the east-west road crossing, 30.0 feet south of the center line of the crossing, 33.0 feet east of the center line of the track in a line of telegraph poles, 7.0 feet west of right-of-way fence line, and 1.5 feet below rail level. A standard disc, stamped "Z-99, 1935" and set in a concrete monument.	1243.147
Top of E rail opposite Chicago, Rock Island & Pacific Railway MP 460.	1247.3
<u>A-100</u> In Audubon County, at Hamlin, at a 70-foot steel highway bridge on State Highway #7; 384 feet east of highway crossing over the railroad, 300 feet east of center line of the crossing of U.S. Highway #71, in the southwest end of the southwest wingwall, 14.0 feet south of the center line of the highway, and at road level. A standard disc, stamped "A-100, 1935".	1264.594
<u>U-100</u> In Audubon County, at Hamlin, along the Chicago & North Western Railroad 205 feet north of the depot to the second telegraph pole north of the depot, 28.0 feet west of the center line of the main track, 10.0 feet east of the center line of the side track and 2.0 feet west of the pole, at rail level. A standard disc, stamped "U-100, 1935" and set in a concrete monument.	1257.422
Top of W rail opposite the Chicago, Rock Island & Pacific Railway station at Hamlin.	1257.6
Top of E rail at center line of crossing of Chicago, Rock Island & Pacific Railway and State Highway #7 at Hamlin.	1259.3
<u>T-100</u> In Audubon County, at Hamlin, along U.S. Highway #71 to a 100-foot bridge about 350 feet north of an intersection of the Guthrie Center Road (State Highway #7), in the east end of the south backwall, and 6.0 inches above road level. A standard disc, stamped "T-100, 1935".	1265.591
Top of E rail at center line of crossing of Chicago, Rock Island & Pacific Railway with U. S. Highway #71, 0.25 mile north of Hamlin.	1261.7

LEVELING IN IOWA

For additional descriptions of bench marks in this vicinity, see pages 79. El. Ft.

- B-100 In Audubon County, 1.9 miles south of Audubon, at junction of Main Street, and U. S. Highway #71, along the Chicago, Rock Island & Pacific Railway $9\frac{1}{2}$ poles north of milepost #463, at an 8- by 4-foot R C B Highway culvert at road leading west through gate to Audubon County Home, in the northeast end of the southeast skewed headwall, at the junction of the northeast wing wall, 48.0 feet west of the center line of the track, 26.0 feet east of the center line of the highway, 33.0 feet south of the center line of the County Home entrance and at rail level. A standard disc, stamped "B-100, 1935". 1283.856
- Top of NE rail at center line of crossing of the Chicago, Rock Island & Pacific Railway and U. S. Highway #71, 0.75 mile south of Audubon. 1292.9
- AUDUBON-1934 In Audubon County, at Audubon, set vertically in the south side of the Memorial Building, 16.0 inches east of the northwest corner of the building, 4.0 feet above the ground. A standard disc, stamped "AUDUBON-1934". 1350.165
- 5-14 (U.S.C. & G.S. & S.S.) In Audubon County, at Audubon, in Section 21, T-80-N, R-35-W, 2.6 feet north of the south line of the cemetery, 24.0 feet east of a 30-inch elm tree (first tree on the west), 10.2 feet south of the south edge of the sidewalk, 1.0 inch above the ground level. A bronze disc, stamped "5-14" and set in a concrete monument. 1372.888
- 5-15 (U.S.C. & G.S. & S.S.) In Audubon County, at Audubon, between Sections 16 and 21, T-80-N, R-35-W, 312 feet east of the east side of the street running north and south in Bradleyville, 2.9 feet north of the fence on the south side of the road. A bronze disc, stamped "5-15" and set in a concrete monument. 1425.148
- C-100 In Audubon County, 2.5 miles south of the depot at Ross, along the Chicago & North Western Railroad to a 50-foot concrete highway bridge, 375 feet north of a crossing, in the southeast end of the southeast wing-wall, about 150 feet northwest of the center line of the track, 13.0 feet east of the center line of highway, 2.5 feet above the road level, and at rail level. A standard disc, stamped "C-100, 1935". 1331.464

ATLANTIC TO MANNING, IOWA

- Top of SE rail at center line of crossing of the Chicago & North Western Railroad and U. S. Highway #71, 1.75 miles southwest of Ross. El. Ft. 1332.0
- Top of NW rail opposite Chicago & North Western Railway MP C-31. 1343.3
- 5-101 (U.S.C. & G.S. & S.S.) In Audubon County, at Ross, along the east-west road crossing the Chicago & North Western Railroad about $7\frac{1}{2}$ poles north of the depot, at the southeast corner of Section 33; 0.25 mile east of the crossing, 56.0 feet west of corner fence line of the southeast corner, 2.4 feet south of the north road fence, and set flush with the surface. A bronze disc, stamped "5-101" and set in a concrete monument. 1394.190
- Top of E rail opposite the Chicago & North - Western Railroad station at Ross.- 1355.7
- 5-102 (U.S.C. & G.S. & S.S.) In Audubon County, at Ross, along the east-west road, County Road "D", crossing the Chicago & North Western Railroad about $7\frac{1}{2}$ poles north of the depot, at the summit of hill, 0.17 mile west of the crossing, between Sections 33 and 4, T-80-N, R-35-W, 3.0 feet north of the south road line fence, 59.0 feet west of fence line on the south, about 0.5 mile east of U. S. Highway #71, and flush with the surface. A bronze disc, stamped "5-102" and set in a concrete monument. 1418.714
- D-100 In Audubon County, 3.6 miles southeast of the depot at Gray, along the Chicago & North Western Railroad at U. S. Highway #71 crossing, at a 2- by 3-foot R. C. B. highway culvert, in the center of the west headwall, 24.0 feet southwest of the center line of the track, 12.0 feet west of the center line of the highway, and at rail level. A standard disc, stamped "D-100, 1935". 1396.031
- Top of SW rail opposite the Chicago & North Western Railroad MP C-29. 1401.0
- E-100 In Audubon County, 1.6 miles southeast of the depot at Gray, along the Chicago & North Western Railroad at east-west road crossing, 25.0 feet southeast of center line of the crossing, 14.0 feet northeast of the center line of track, 13.0 feet south of the center line of road, 5.0 feet south of railroad warning sign, 9.0 feet north of the east-west line of telephone poles, and at

LEVELING IN IOWA

- rail, level. A standard disc, stamped "E-100, 1935" and set in a concrete monument. El. Ft. 1355.256
- Top of SW rail opposite Chicago & North Western Railroad MP C-27. 1354.2
- Top of SW rail opposite Chicago & North Western Railroad MP C-26. 1341.4
- 5-134 (U.S.C. & G.S. & S.S.) In Audubon County, at Gray, along the Chicago & North Western Railroad at the east-west road crossing 400 feet north of the depot, 150 feet east of the center line of crossing, 26.0 feet south of the center line of the road, 3.5 feet north of south fence line, 1.5 feet north of the east-west line of telephone poles, and set flush with the ground. A bronze disc, stamped "5-134" and set in a concrete monument. 1357.576
- Top of E rail opposite Chicago & North Western Railroad at Gray. 1352.5
- Top of W rail opposite Chicago & North Western Railroad MP C-24. 1366.6
- F-100 In Audubon County, 2.0 miles northwest of Gray at the depot, along the Chicago & North Western Railroad 6 poles north of milepost #12 at the east-west road crossing (Audubon-Carroll County line), 48.0 feet east of the center line of the track, 32.0 feet south of the center line of the crossing, 3.5 feet south, thence 2.0 feet west of right-of-way fence corner, and at rail level. A standard disc, stamped "F-100, 1935" and set in concrete monument. 1391.116
- Top of SW rail opposite Chicago & North Western Railroad MP C-22. 1416.3
- G-100 In Audubon County, 4.6 miles northwest of depot at Gray, along the Chicago & North Western Railroad, 9 poles southeast of milepost #15, at the east-west road crossing, 47.0 feet southwest of the center line of the tracks, 22.0 feet south of the center line of the road, 9.0 feet southeast, then 47.0 feet southwest of a 12-foot railroad culvert #2510; 4.0 feet east of right-of-way fence corner in line of the south road fence, at rail level. A standard disc, stamped "G-100, 1935" and set in a concrete monument. 1356.900
- Top of SW rail opposite the Chicago & North Western Railroad MP C-20. 1354.4

ATLANTIC to MANNING, IOWA

14-25 (U.S.C. & G.S. & S.S.) In Carroll County, 3.2 miles El. Ft.
southeast of the depot at Manning, between Sections 21
and 22, R-36-W, T-82-N, 0.32 mile north of the cross-
ing of the Chicago & North Western Railroad, 2.0 feet
west of the east road line fence, at summit of hill,
455.5 feet north of fence on the east on the north side
of grove, and set flush with the surface. A bronze
disc, stamped "14-25" and set in a concrete monument. 1374.026

14-27 (U.S.C. & G.S. & S.S.) In Carroll County, at Mann-
ing, set 2.5 blocks east of Main Street along Sixth
Street (State Highway #46) in parking of yard of #512;
12.5 feet south of the center line of the paving, 14.9
feet east of the center line of the alley, 2.5 feet
southeast of the junction of curbing and driveway, and
set flush with the surface. A bronze disc, stamped
"14-27" and set in a concrete monument. 1333.587

Top of rail at center line of crossing of the Chicago
& North Western Railroad and State Highway #46 at Man-
ning. 1323.0

H-100 In Carroll County, at Manning, along the Chicago
& North Western Railroad at the railroad water tank
110 feet northeast of the depot, in the southwest cor-
ner of the southwest pedestal stone, 11.0 feet south-
east of the center line of the main tracks, 0.5 foot
above the rail level. A standard disc, stamped "H-
100, 1935". 1326.726

Top of SE rail opposite Chicago & North Western Rail-
road Station at Manning. 1325.3

For descriptions of additional bench marks in this vi-
cinity, see page 101.

LINE 6049. HAMLIN to GUTHRIE CENTER, IOWA
(Second-order Leveling)

This Line follows the "Hamlin to Guthrie Center Road" (State Highway #7) from Hamlin to Guthrie Center, Iowa. The field work was done during 1935, by a party in charge of E. E. Stohsner.

For descriptions of additional bench marks in this vicinity, see pages 75.

- V-100 In Audubon County, 1.5 miles east of Hamlin depot, along the Guthrie Center Road (State Highway #7) to a 5-foot concrete bridge about 400 feet west of the crossroad, school and church, in the north guard wall, and 2.5 feet above the road. A standard disc, stamped "V-100, 1935". El. Ft. 1321.759
- W-100 In Audubon County, 3.3 miles east of Hamlin depot, along the Guthrie Center Road (State Highway #7) to a 2-foot concrete pipe culvert at a private T-road south on the east slope of a long hill, in the junction of the south headwall and the retaining wall, and at the road level. A standard disc, stamped "W-100, 1935". 1406.562
- X-100 In Audubon County, 5.3 miles east of the Hamlin depot, along the Guthrie Center Road (State Highway #7) to a 100-foot steel-concrete bridge about 1000 feet west of a cross road and school, in the west end of the south felloe guard, 6.0 inches above the road. A standard disc stamped "X-100, 1935". 1289.322
- Y-100 In Audubon County, 7.0 miles east of Hamlin Road, (State Highway #7) to a 6-foot concrete culvert on the east slope of a long hill, in the south headwall, set 2.0 feet below road level. A standard disc, stamped "Y-100, 1935". 1365.020
- Z-100 In Audubon County, 8.7 miles east of Hamlin along the Guthrie Center-Hamlin Road (State Highway #7) to a 3-foot concrete culvert on a flat between two low hills, in the south headwall, and at road level. A standard disc, stamped "Z-100, 1935". 1386.690
- A-101 In Audubon County, 10.8 miles east of depot at Hamlin, along the Guthrie Center-Hamlin Road (State Highway #7) to a 2-foot concrete pipe culvert on a flat halfway down the west slope of a long hill, in the south headwall, and 2.0 feet below road level. A standard disc, stamped "A-101, 1935". 1407.920

HAMLIN to GUTHRIE CENTER, IOWA

- B-101 In Guthrie County, 8.4 miles west of Guthrie Center at the intersection of State Highways #7 and #25, along the Hamlin Road (State Highway #7) to a 3-foot culvert in a slight dip between two low hills just west of a curve, in the south headwall, and 5.5 feet below road level. A standard disc, stamped "B-101, 1935". El. Ft. 1348.774
- C-101 In Guthrie County, 6.8 miles west of Guthrie Center at intersection of State Highways #7 and #25, along the Hamlin-Road (State Highway #7) to a 5-foot culvert on the west slope of a hill, just east of a curve, in the south headwall, and at road level. A standard disc, stamped "C-101, 1935". 1322.911
- D-101 In Guthrie County, 5.1 miles west of Guthrie Center, at intersection of State Highways #7 and #25, along the Hamlin Road (State Highway #7) to a 50-foot steel concrete bridge, in the northeast end of the northwest backwall, 10.0 feet northeast of the center line of the road, and 6.0 inches above road level. A standard disc, stamped "D-101, 1935". 1151.861
- E-101 In Guthrie County, 3.5 miles west of Guthrie Center, along the Hamlin Road (State Highway #7) at an intersection of State Highways #7 and #25, to a 4-foot culvert about 700 feet east of a school in the south head wall, and 1.0 foot above road level. A standard disc, stamped "E-101, 1935". 1130.313
- F-101 In Guthrie County, 1.4 miles west of Guthrie Center, at the intersection of State Highways #7 and #25 along the Hamlin Road (State Highway #7) to a 2-foot culvert 100 feet west of a T-road south, on a curve and the west slope of a hill, in the north headwall, and 3.0 feet below road level. A standard disc, stamped "F-101, 1935" 1228.787
- 39-45 (U.S.C. & G.S. & S.S.) In Guthrie County, at Guthrie Center, at the intersection of State Highways #7 & #25, in the northwest corner of the intersection, 25.0 feet west of the center line of State Highway #25; 35.0 feet north of the center line of State Highway #7; 13.0 feet east of the east side of a brick store building on the corner, 1.0 foot west of the west curb, and 2.0 inches above the curb. A bronze disc, stamped "39-45" and set in a concrete monument. 1116.704
- 39-46 (U.S.C. & G.S. & S.S.) In Guthrie County, at Guthrie Center, along State Highway #25 to a street intersection immediately south of the Old Ladies' Home, 31.0 feet

northeast of the center of the intersection, 17.0 feet southwest of a water cut-off, 63.0 feet northeast of a 30-inch ash tree, and 1.0 foot above the level of the street. A bronze disc, stamped "39-46" and set in a concrete monument.

El. Ft.

1115.674

For descriptions of additional bench marks in this vicinity, see pages 88, 89.

LINE 6052. JEFFERSON to GUTHRIE CENTER, IOWA
(Second-order Leveling)

This Line follows the Chicago, Milwaukee, St. Paul & Pacific Railroad from Jefferson to Panorama, then continues along the Guthrie Center Road (State Highway #7) to Guthrie Center.

The field work was done during 1935 by a party in charge of E. E. Stohsner.

For descriptions of additional bench marks in this vicinity, see pages 94, 137.

	El. Ft.
Reset 1939	
<u>C-102</u> ^ In <u>Greene County</u> , at <u>Jefferson</u> , in the north-east corner of depot yard of the Chicago, Milwaukee, St. Paul & Pacific Railroad, 54.6 feet northeast of the northwest corner of depot, 59.6 feet west of the northwest corner of a coal shed, 12.4 feet southeast of fire hydrant, 21.8 feet southwest of flashing danger signal, 2.8 feet south of iron fence, 2.8 feet west of iron fence, set flush with the surface. A standard disc, stamped "C-102, 1939" and set in a concrete monument.	1060.510
Top of W rail opposite Chicago, Milwaukee, St. Paul & Pacific Railroad station at Jefferson.	1060.8
Top of E rail opposite Chicago, Milwaukee, St. Paul & Pacific Railroad MP 66.	1058.8
<u>D-102</u> In <u>Greene County</u> , 2.0 miles south of the depot at <u>Jefferson</u> , along the Chicago, Milwaukee, St. Paul & Pacific Railroad to State Highway #150 underpass, railroad bridge #Y-138, in the southwest end of the northwest backwall, 8.0 feet southwest of the center line of the track, and set 1.0 foot below rails. A standard disc, stamped "D-102, 1935".	1047.383
Top of E rail opposite Chicago, Milwaukee, St. Paul & Pacific Railroad MP 65.	1033.4
<u>E-102</u> In <u>Greene County</u> , 3.7 miles north of the depot at <u>Cooper</u> , along the Chicago, Milwaukee, St. Paul & Pacific Railroad to a public crossing 8 poles south of milepost #63; 1.0 pole south of the crossing, 27.0 feet east of the center line of the track, 2.0 feet east of the telegraph pole, at rail level. A standard disc, stamped "E-102, 1935"- set in concrete monument.	1053.154

JEFFERSON to GUTHRIE CENTER, IOWA

El. Ft.

Top of W rail opposite Chicago, Milwaukee, St. Paul & Pacific Railroad station at Winkelmans. 1056.3

F-102 In Greene County, 1.2 miles north of the depot at Cooper, along the Chicago, Milwaukee, St. Paul & Pacific Railroad to a public crossing between culverts #Y-245 and Y-243; 46.0 feet east of the center line of the track, 30.0 feet north of the center line of road, 4.0 feet west of the corner fence post, and set about 4.0 feet below the rails. A standard disc, stamped "F-102, 1935" and set in a concrete monument. 1066.218

Top of E rail opposite Chicago, Milwaukee, St. Paul & Pacific Railroad MP 61. 1063.5

G-102 In Greene County, at Cooper, at the street crossing immediately south of the depot, 40.0 feet south of the center line of the street, 18.0 feet east of center line of the track, 2.0 feet west of the corner fence post, and set 2.0 feet below the rails. A standard disc, stamped "G-102, 1935" and set in a concrete monument. 1078.994

Top of E rail opposite Chicago, Milwaukee, St. Paul & Pacific Railroad station at Cooper. 1079.9

H-102 In Greene County, 2.0 miles south of the depot at Cooper, along the Chicago, Milwaukee, St. Paul & Pacific Railroad to a public crossing on the line between Sections 21 and 28, T-82-N, R-30-W, in the line of poles, 35.0 feet east of the center line of the track, 26.0 feet south of the center line of the road, 15.0 feet west of the corner fence post, and set 1.5 feet below the rails. A standard disc, stamped "H-102, 1935" and set in a concrete monument. 1073.978

Top of E rail opposite Chicago, Milwaukee, St. Paul & Pacific Railroad MP 58. 1067.4

J-102 In Guthrie County, 1.3 miles north of Herndon, along the Chicago, Milwaukee, St. Paul & Pacific Railroad to a public crossing on the Greene-Guthrie County Line just north of the "Station One Mile" sign, 48.0 feet east of the center line of the track, 25.0 feet north of the center line of the road, 2.0 feet west of corner fence post, and 2.0 feet above the rails. A standard disc, stamped "J-102, 1935" and set in a concrete monument. 1054.391

LEVELING IN IOWA

- Top of E rail opposite Chicago, Milwaukee, St. Paul & Pacific Railroad MP 56. El. Ft. 1084.9
- Top of E rail opposite Chicago, Milwaukee, St. Paul & Pacific Railroad MP 55. 1045.4
- 39-144 (U.S.C. & G.S. & S.S.) In Guthrie County, about 0.3 mile north of the depot at Herndon, along the Chicago, Milwaukee, St. Paul & Pacific Railroad to the crossing of the Jamaica Road (State Highway #46), 95.0 feet east of the center line of the track, 37.0 feet north of the center line of the highway, midway between two telephone poles, 1.5 feet south of the north road right-of-way fence, and set 3.0 feet below the rails. A bronze disc, stamped "39-144" and set in a concrete monument. 1054.552
- K-102 In Guthrie County, at Herndon, along the Chicago Milwaukee, St. Paul & Pacific Railroad south 400 feet to a street crossing at milepost #54, then east along the street 175 feet to a 3-foot culvert at a street intersection, in the west headwall, and set at street level. A standard disc, stamped "K-102, 1935". 1057.760
- Top of W rail at center line of crossing of the north-and-south with east-and-west Chicago, Milwaukee, St. Paul & Pacific Railroad tracks at Herndon. 1061.3
- L-102 In Guthrie County, 1.5 miles south of the depot at Herndon, along the Chicago, Milwaukee, St. Paul & Pacific Railroad to bridge #Y-126; 2 poles south of the "One Mile to Station" sign, in the southwest wingwall, 9.0 feet west of the center line of the track, and set 1.5 feet below the rails. A standard disc, stamped "L-102, 1935". 1069.824
- M-102 In Guthrie County, 2.5 miles north of Yale, along the Chicago, Milwaukee, St. Paul & Pacific Railroad to a public crossing on the line between Sections 21 and 28, T-81-N, R-30-W, in a line of poles, 40.0 feet east of the center line of the track, 30.0 feet north of the center line of the road, 32.0 feet south of a telephone pole, and set 4.0 feet below the rails. A standard disc, stamped "M-102, 1935" and set in concrete monument. 1090.060
- Top of E rail opposite Chicago, Milwaukee, St. Paul & Pacific Railroad MP 51. 1104.5

JEFFERSON to GUTHRIE CENTER, IOWA

- N-102 In Guthrie County, at Yale, at the city water tank, in the northwest pedestal stone, and 1.0 foot above the ground. A standard disc, stamped "N-102, 1935". El. Ft. 1125.168
- Top of W rail opposite Chicago, Milwaukee, St. Paul & Pacific Railroad station at Yale. 1125.9
- P-102 In Guthrie County, 1.6 miles south of the depot at Yale, along the Chicago, Milwaukee, St. Paul & Pacific Railroad to a public crossing on the east-west quarter line in Section 9, T-80-N, R-30-W, 43.0 feet west of the center line of the track, 35.0 feet south of center line of the road, 7.0 feet east of the corner fence post, and 3.5 feet above the rails. A standard disc, stamped "P-102, 1935" and set in a concrete monument. 1145.237
- Top of E rail opposite Chicago, Milwaukee, St. Paul & Pacific Railroad MP 47. 1135.4
- Q-102 In Guthrie County, 2.9 miles north of the depot at Panora, along the Chicago, Milwaukee, St. Paul & Pacific Railroad to a public crossing, 5 poles north of mile post #46; 40.0 feet east of the center line of track, 40.0 feet north of the center line of the road, 2.0 feet east of a telegraph pole, and set 2.0 feet above the rails. A standard disc, stamped "Q-102, 1935", and set in a concrete monument. 1153.738
- 39-65 (U.S.C. & G.S. & S.S.) In Guthrie County, at Panora, along the Chicago, Milwaukee, St. Paul & Pacific Railroad to the crossing of State Highway #7, then west along the highway 100 feet to the intersection of Stuart Road, in the southwest quarter of the intersection, 1.5 feet southwest of the northeast face of an arc of curb, 6.5 feet northwest of a power-line pole, and set 3.0 inches below the top of the curb. A standard disc, stamped "39-65" and set in a concrete monument. 1051.569
- 39-66 (U.S.C. & G.S. & S.S.) In Guthrie County, at Panora, at the flagpole at southwest corner of the town square, 10.0 feet southeast of the flagpole, 6.5 feet south of a lamp post, 2.0 feet north of the north curb, and set 3.0 inches below the surface of the ground. A bronze disc, stamped "39-66" and set in a concrete monument. 1088.498
- Top of W rail opposite Chicago, Milwaukee, St. Paul & Pacific Railroad station at Panora. 1056.2

LEVELING IN IOWA

- PANORA-1934 In Guthrie County, at Panora, set vertically in the south wall at the southeast corner of the Panora High School Building, just above the corner stone. A standard disc, stamped "Panora, 1934". El. Ft. 1096.199
- R-102 In Guthrie County, 2.0 miles west of Panora City Park, along the Guthrie Center Road (State Highway 7) to a 4-foot culvert 50.0 feet east of slab station #986; 200 feet east of a curve south in the north head wall, at road level. A standard disc, stamped "R-102 1935". 1094.781
- S-102 In Guthrie County, 3.9 miles west of the Panora City Park, along the Guthrie Center-Panora Road (State Highway #7) to a 5-foot culvert 30.0 feet east of slab station #883, in the north headwall, and at road level. A standard disc, stamped "S-102, 1935". 1196.530
- 39-71 (U.S.C. & G.S. & S.S.) In Guthrie County, 2.5 miles east of Guthrie Center, at intersection of State Highways #7 and #25, along the Panora Road (State Highway #7) to slab station #804; 36.5 feet west of the slab station, 12.5 feet south of the south edge of the pavement, 2.0 feet above the pavement. A bronze disc, stamped "39-71" and set in a concrete monument. 1141.835
- 39-72 (U.S.C. & G.S. & S.S.) In Guthrie County, 2.2 miles east of Guthrie Center, at intersection of State Highways #7 and #25, along the Panora Road (State Highway #7) to a private T-Road south at slab station #787, 25.0 feet south of the center line of the highway, 30.0 feet east of the center line of the private road, and 1.0 foot above the pavement. A bronze disc, stamped "39-72" and set in a concrete monument. 1145.575
- 39-46 (U.S.C. & G.S. & S.S.) In Guthrie County, at Guthrie Center, along State Highway #25 to a street intersection immediately south of the Old Ladies' Home, 31.0 feet northeast of the center of the intersection, 17.0 feet southwest of a water cut-off, 63.0 feet northeast of a 30-inch ash tree, and set 1.0 foot above the level of the street. A bronze disc, stamped "39-46" and set in a concrete monument. 1115.674
- 39-45 (U.S.C. & G.S. & S.S.) In Guthrie County, at Guthrie Center, at intersection of State Highways #7 and #25, in the northwest corner of the intersection, 25.0 feet west of the center line of State Highway #25; 35.0 feet

JEFFERSON to GUTHRIE CENTER, IOWA

north of the center line of State Highway #7; 13.0 feet El. Ft.
 east of the east side of a brick store building on the
 corner, 1.0 foot west of the west curb, and set 2.0 in-
 ches above the curb. A bronze disc, stamped "39-45"
 and set in a concrete monument. 1116.704

For descriptions of additional bench marks in this vi-
 cinity, see pages 81, 89.

1117.000

1118.000

1119.000

1120.000

1121.000

1122.000

1123.000

1124.000

1125.000

1126.000

LINE 6055. GUTHRIE CENTER to MENLO, IOWA
(Second-order Leveling)

89

This Line follows the Chicago, Rock Island & Pacific Railroad from Guthrie Center to Menlo, Iowa.

The field work was done in 1935 by a party in charge of E. E. Stohsner.

For descriptions of additional bench marks in this vicinity, see pages 81, 88.

Top of N rail opposite Chicago, Rock Island & Pacific Railroad station at Guthrie Center. El. Ft. 1075.2

T-102 In Guthrie County, 2.2 miles south of the depot at Guthrie Center, along the Chicago, Rock Island, & Pacific Railroad to a public crossing 27 $\frac{1}{2}$ poles north west of mile post #415, at first pole southeast of the crossing, 2.0 feet southwest of the pole, 35.0 feet northeast of the center line of the track, and set 3.0 feet below the rails. A standard disc, stamped "T-102, 1935" and set in a concrete monument. 1049.030

U-102 In Guthrie County, 1.8 miles north of the depot at Monteith, along the Chicago, Rock Island & Pacific Railroad to bridge #4143, then southwest 70.0 feet to a 5-foot road culvert, in the top of the north east guard wall, 3.5 feet above road level, and set at rail level. A standard disc, stamped "U-102, 1935". 1042.580

V-102 In Guthrie County, at Monteith, at the Chicago, Rock Island & Pacific Railroad depot, at a telegraph pole directly across the track from the south end of the depot, 1.5 feet west of the pole, 35.0 feet east of the center line of the track, and set 2.0 feet below the rails. A standard disc, stamped "V-102, 1935" and set in a concrete monument. 1037.459

Top of W rail opposite Chicago, Rock Island & Pacific Railroad station at Monteith. 1039.1

W-102 In Guthrie County, 1.6 miles north of Glendon, along the Chicago, Rock Island & Pacific Railroad to a public crossing 6 poles north of mile pole #411; 25.0 feet west of the center line of the track, 21.0 feet south of the center line of the road, 33.0 feet northeast of the corner fence post, and set 2.0 feet above the rails. A standard disc, stamped "W-102, 1935" and set in a concrete monument. 1121.586

GUTHRIE CENTER to MENLO, IOWA

- X-102 In Guthrie County, at Glendon, at the Chicago, Rock Island & Pacific Railroad depot, directly across the track from the depot, on the center line of the depot, 48.0 feet west of the center line of the track, 8.0 feet north of the north end of a farm gate, and set 1.0 foot below the rails. A standard disc, stamped "X-102, 1935" and set in a concrete monument. El. Ft. 1037.278
- Top of E rail opposite Chicago, Rock Island & Pacific Railroad station at Glendon. 1039.4
- Top of E rail opposite Chicago, Rock Island & Pacific Railroad MP 409. 1032.8
- Y-102 In Guthrie County, 1.9 miles south of the depot at Glendon, along the Chicago, Rock Island & Pacific Railroad to a private crossing $24\frac{1}{2}$ poles north of milepost #407; 63.0 feet south of a telegraph pole, 48.0 feet east of the center line of the track, 15.0 feet north of the north end of a farm gate, and set 2.0 feet below the rails. A standard disc, stamped "Y-102, 1935" and set in a concrete monument. 1060.677
- Z-102 In Guthrie County, 2.9 miles northwest of the depot at Menlo, along the Chicago, Rock Island & Pacific Railroad to a point $2\frac{1}{2}$ poles south of milepost #406, on a flat between a cut north and a fill south, across track from and midway between two telegraph poles, 48.0 feet west of the center line of the track, and set 1.0 foot below the rails. A standard disc, stamped "Z-102, 1935" and set in a concrete monument. 1131.399
- A-103 In Guthrie County, at Menlo, along the Chicago, Rock Island & Pacific Railroad to a public crossing in the north part of town, 4 poles southeast of milepost #404, at a telegraph pole, 2.0 feet southwest of the pole, 33.0 feet east of the center line of the track, 28.0 feet north of the center line of the road, and set 6.0 inches above the rails. A standard disc, stamped "A-103, 1935" and set in a concrete monument. 1266.133

For descriptions of additional bench marks in this vicinity, see page 52.

LINE 6375. OGDEN to SMITHLAND, IOWA
(Second-order Leveling)

This Line follows the Chicago & North Western Railroad from Ogden to Manning, Iowa, then continues along the Chicago, Milwaukee, St. Paul & Pacific Railroad northwest to Smithland, Iowa.

The original field work was done during 1935 by a party in charge of E. E. Stohsner. The line was re-run from Ute to Smithland during September and October of 1935 by a party in charge of George Havens, and several sections of the line were re-run in May, 1939, by a party in charge of Glen Powers, of the Iowa- Geodetic Survey.

For descriptions of additional bench marks in this vicinity, see page 22.

- S-88 In Boone County, at Ogden, along the Chicago & North Western Railroad at street crossing, 300 feet west of the depot, opposite pole, 60.0 feet west of center line of the street, 15.0 feet south of center line of the south main track, on top of fill, set level with the track. A standard disc, stamped "S-88, 1935" and set in a concrete monument. 1091.330
- T-88 In Boone County, 0.4 miles west of depot at Ogden, along the Chicago & North Western Railroad at a road crossing, 150 feet east of milepost #CL-215; 36.0 feet east of center line of the road, 16.0 feet south of the center line of tracks, 14.0 feet north of milepost and 4.0 feet east of the north-south fence line, 1.0 foot below level of the tracks. A standard disc, stamped "T-88, 1935" and set in a concrete monument. 1083.932
- Top of N rail opposite Chicago & North Western Railroad MP 216. 1071.2
- U-88 In Boone County, 2.5 miles west of the depot at Ogden, along the Chicago & North Western Railroad at the road crossing, about 200 feet west of bridge #708; 44.0 feet west of center line of road, 28.0 feet south of the center line of the south tracks, 10.0 feet northwest of fence corner and 8.0 feet northeast of pole, 1.0 foot below track level. A standard disc, stamped "U-88, 1935" and set in a concrete monument. 1044.106
- Top of N rail opposite Chicago & North Western Railroad MP 218. 1034.3

OGDEN TO SMITHLAND, IOWA

- 8-62 (U.S.C. & G.S. & S.S.) In Boone County, about 2.5 miles west of the depot at Ogden, along U. S. Highway #30 in Section 3, T-83-N, R-28-W, 38.0 feet west of the northeast corner, 26.0 feet 7.0 inches south of center line of highway slab. A bronze disc, set in a concrete monument. El. Ft. 1039.191
- V-88 In Boone County, 0.8 mile east of the depot at Beaver, along the Chicago & North Western Railroad at road crossing, 100.0 feet east of milepost #CB-133; 45.0 feet west of the center line of the road, and 8.0 feet west then 3.0 feet south of the fence corner, and set 1.0 foot below track level. A standard disc, stamped "V-88, 1935", and set in a concrete monument, 45.0 feet north of center line of north tracks. 1021.911
- W-88 In Boone County, at Beaver, along the Chicago & North Western Railroad, one pole west of depot, 30.0 feet north of center line of the north track, 3.0 feet south of pole and set level with the tracks. A standard disc, stamped "W-88, 1935" and set in a concrete monument. 1024.604
- 8-59 (U.S.C. & G.S. & S.S.) In Boone County, at Beaver, along U. S. Highway #30, opposite the first road crossing west of depot, 90.0 feet east of the center line of the north-south road and 30.0 feet south of the center line of U. S. Highway #30. A bronze disc, set in concrete monument. 1016.277
- RR BM-1 (C. & N.W. RR.) In Boone County, 0.2 mile west of the depot at Beaver, along the Chicago & North Western Railroad at bridge #713, and set in the north end of the east abutment. A monel-metal rivet. 1018.043
- Top of N rail opposite Chicago & North Western Railroad MP 221. 1022.0
- X-88 In Boone County, 2.2 miles west of the depot at Beaver, along the Chicago & North Western Railroad at road crossing, 100 feet west of culvert #717, in the center of the west headwall of cross-road culvert; 60.0 feet north of the center line of the north track, 3.0 feet below track level. A standard disc, stamped "X-88, 1935". 1028.646
- RR BM-2 (C. & N.W. R.R.) In Boone County, 2.2 miles west of the depot at Beaver, along the Chicago & North Western Railroad at bridge #717, set in the east end of the north headwall. A monel-metal rivet. 1030.687

LEVELING IN IOWA

- RR BM-3 (C. & N.W. R.R.) In Greene County, 1.9 miles east of, railroad crossing at Grand Junction, along the Chicago & North Western Railroad at bridge #718, and set in the east end of the north headwall. A monel-metal rivet. El. Ft. 1029.798
- Top of N rail opposite Chicago & North Western Railroad MP 223. 1032.4
- Y-88 In Greene County, 1.0 mile east of railroad crossing at Grand Junction, along the Chicago & North Western Railroad at a stone culvert #720; 3.0 feet west of the east end of the south headwall, about 1.0 foot below level of the track. A standard disc, stamped "Y-88, 1935". 1028.712
- Z-88 In Greene County, at Grand Junction, along Chicago & North Western Railroad at the Minneapolis & St. Louis Railroad crossing, 32.0 feet south of center line of the south Chicago & North Western Railroad tracks, 15.0 feet west of center line of the Minneapolis & St. Louis Railroad tracks and 3.0 feet northeast of pole. A standard disc, stamped "Z-88, 1935" and set in a concrete monument. 1040.106
- A-89 In Greene County, at Grand Junction, at the City Water Tank, on the east corner of the southeast concrete block foundation of tank. A standard disc, stamped "A-89, 1935". 1033.466
- B-89 In Greene County, 1.8 miles west of railroad crossing at Grand Junction, along the Chicago & North Western Railroad at a stone bridge #724; 1.0 foot northeast of the southwest corner of the south headwall and about 2.0 feet below track level. A standard disc, -- stamped "B-89, 1935". 1031.258
- Top of N rail opposite Chicago & North Western Railroad MP 226. 1034.0
- RR BM-4 (C. & N.W. R.R.) In Greene County, 2.7 miles west of railroad crossing at Grand Junction, along the Chicago & North Western Railroad at bridge #726. A monel metal rivet, set in a railroad bridge. 1012.255
- Top of N rail opposite Chicago & North Western Railroad MP 227. 1026.3
- C-89 In Greene County, 3.6 miles west of railroad crossing at Grand Junction, along the Chicago & North West-

OGDEN to SMITHLAND, IOWA

- ern Railroad at stone-steel bridge #728 $\frac{1}{2}$, on top step at the south end of the west abutment, level with base of rails. A standard disc, stamped "C-89, 1935". El. Ft. 1037.803
- Top of N rail opposite Chicago & North Western Railroad MP 228. 1024.9
- Top of N rail opposite Chicago & North Western Railroad MP 229. 1040.7
- D-89 In Greene County, 1.8 miles east of railroad - crossing tower at Jefferson, along the Chicago & North Western Railroad at road crossing, 18.0 feet east of the center line of the road and 12.0 feet south of center line of the south tracks, on top of fill and about level with the track. A standard disc, stamped "D-89, 1935" and set in a concrete monument. 1035.552
- Top of N rail opposite Chicago & North Western Railroad MP 230. 1035.0
- RR BM-5 (C. & N.W. R.R.) In Greene County, 1.0 mile east of railroad crossing tower at Jefferson, along the Chicago & North Western Railroad at bridge #732, in north end of the east abutment. A monel-metal rivet set in a railroad bridge abutment. 1026.382
- E-89 In Greene County, at Jefferson, along the Chicago & North Western Railroad at road crossing, 300 feet west of tower at Chicago, Milwaukee, St. Paul & Pacific Railroad crossing, 54.0 feet east of center line of road, 42.0 feet south of center line of the south tracks and 3.0 feet southeast of pole; about 4.0 feet below the track level. A standard disc, stamped "E-89, 1935" and set in a concrete monument. 1050.293
- Top of N rail opposite Chicago & North Western Railroad MP 231. 1042.1
- For descriptions of additional bench marks in this vicinity, see pages 83, 137.
- JEFFERSON-1934 In Greene County, at Jefferson, at the County Court House, in the stone foundation of building, at corner, 28.0 feet west of center line of south entrance. A standard disc, stamped "Jefferson-1934". 1077.708
- F-89 In Greene County, at Jefferson, along the Chicago & North Western Railroad at street crossing, west

LEVELING IN IOWA

- of depot, 80.0 feet west of west end of depot, 45 feet south of center line of the south tracks, 36.0 feet east of center line of street and 3.0 feet northeast of pole. A standard disc, stamped "F-89, 1935" and set in concrete monument. El. Ft. 1055.303
- G-89 In Greene County, 1.7 miles west of the depot at Jefferson, along the Chicago & North Western Railroad, at road crossing, 30.0 feet west of the center line of road, 11.0 feet west then 2.0 feet north of fence corner and about 3.0 feet below level of tracks. A standard disc, stamped "G-89, 1935" and set in a concrete monument, 45 feet south of center line of south tracks. 1066.245
Top of N rail opposite Chicago & North Western Railroad MP 233. 1064.7
- H-89 In Greene County, 4.3 miles west of the depot at Jefferson, along the Chicago & North Western Railroad at road crossing at milepost #CL-236, at the bottom of cut, level with tracks, 48.0 feet west of the center line of road and 12.0 feet south of center line of the south tracks. A standard disc, stamped "H-89, 1935" and set in a concrete monument. 1088.994
- J-89 In Greene County, 3.7 miles east of the railroad water tank at Scranton, along the Chicago & North Western Railroad at road crossing, 30.0 feet east of signal box #271; 27.0 feet west of center line of road, 12.0 feet south of center line of the tracks and 2.0 feet below tracks on slope of dump. A standard disc, stamped "J-89, 1935" and set in a concrete monument. 1116.514
Top of N rail opposite Chicago & North Western Railroad MP 238. 1129.9
- K-89 In Greene County, 1.2 miles east of the railroad water tank at Scranton, along the Chicago & North Western Railroad at road crossing, 45.0 feet north of center line of the tracks, 30.0 feet west of center line of road, 3.0 feet southeast of fence junction and 3.0 feet southwest of telephone pole; set 2.0 feet below the track level. A standard disc, stamped "K-89, 1935" and set in a concrete monument. 1155.831
Top of N rail opposite Chicago & North Western Railroad MP 239. 1139.0
- L-89 In Greene County, at Scranton, along the Chica-

- go & North Western Railroad at railroad water tank, El. Ft.
 about 500 feet west of the depot, on the east corner of
 the southeast concrete block foundation of tank, 60.0
 feet north of center line of the north tracks. A
 standard disc, stamped "L-89, 1935". 1180.247
- Top of N rail opposite Chicago & North Western Rail-
 road MP 242. 1193.7
- M-89 In Greene County, at Scranton, at the City Water
 Tank, on the south corner of the southwest concrete
 block foundation of tank. A standard disc, stamped -
 "M-89, 1935". 1181.894
- N-89 In Greene County, 2.4 miles west of the railroad/wa-
 ter tank at Scranton, along the Chicago & North West-
 ern Railroad at road crossing, 50.0 feet east of cul-
 vert #774, on top of dump, 25.0 feet west of the cen-
 ter line of road, 12.0 feet north of center line of the
 north tracks and 1.0 foot below level of the track. A
 standard disc, stamped "N-89, 1935" and set in a con-
 crete monument. 1176.169
- Top of N rail opposite Chicago & North Western Rail-
 road MP 243. 1194.2
- Top of N rail opposite Chicago & North Western Rail-
 road MP 244. 1157.8
- P-89 In Carroll County, 1.3 miles east of the depot at
Ralston, along the Chicago & North Western Railroad at
 road crossing, 150 feet west of milepost #78; 30.0 feet
 west of center line of road, 18.0 feet north of center
 line of the north tracks, on slope of cut and about 1.0
 foot above level of tracks. A standard disc, stamped
 "P-89, 1935" and set in a concrete monument. 1144.463
- Top of N rail opposite Chicago & North Western Rail-
 road MP 245. 1128.3
- Q-89 In Carroll County, at Ralston, two poles west of the
 depot, 30.0 feet north of center line of the north main
 tracks and 3.0 feet south of pole. A standard disc,
 stamped "Q-89, 1935" and set in a concrete monument. 1124.683
- R-89 In Carroll County, 0.7 miles west of the depot at
Ralston, along the Chicago & North Western Railroad at
 road crossing, 48.0 feet north of the center line of the
 north tracks, 40.0 feet west of center line of road,
 and 4.0 feet southwest of fence corner; 1.0 foot south

LEVELING IN IOWA

- of fence line and about 3.0 feet below track level. A standard disc, stamped "R-89, 1935" and set in a concrete monument. 11. Ft. 1134.716
- Top of N rail opposite Chicago & North Western Railroad MP 247. 1149.4
- S-89 In Carroll County, 1.8 miles west of the depot, at Ralston, along the Chicago & North Western Railroad at bridge #780; 200 feet east of road crossing, on the top step at north end of the west abutment; 7.0 feet north of center line of the north tracks and about 1.0 foot below top of rails. A standard disc, stamped "S-89, 1935". 1173.042
- T-89 In Carroll County, 2.2 miles east of the depot at Glidden, along the Chicago & North Western Railroad at road crossing overpass #782, on top concrete step at the north end of the west abutment, 8.0 feet north of center line of the north tracks and about 1.0 foot below level of the rails. A standard disc, stamped "T-89, 1935". 1176.779
- Top of N rail opposite Chicago & North Western Railroad MP 248. 1176.8
- Top of N rail opposite Chicago & North Western Railroad MP 249. 1190.8
- U-89 In Carroll County, at Glidden, along the Chicago & North Western Railroad at highway crossing, 400 feet east of the depot, 33.0 feet east of center line of the road, 24.0 feet south of center line of the south track, 7.0 feet east of the north pole of double poles and 1.0 foot below level of rails. A standard disc, stamped "U-89, 1935" and set in a concrete monument. 1224.968
- Top of N rail opposite Chicago & North Western Railroad MP 250. 1214.4
- V-89 In Carroll County, 0.9 miles west of the depot at Glidden, along the Chicago & North Western Railroad at road crossing, 36.0 feet east of center line of the road, 30.0 feet north of center line of the north tracks and 11.0 feet south of pole; about 2.0 feet above the track level. A standard disc, stamped "V-89, 1935" and set in a concrete monument. 1224.952
- Top of N rail opposite Chicago & North Western Railroad MP 252. 1214.7

OGDEN to SMITHLAND, IOWA

- W-89 In Carroll County, 2.9 miles west of the depot at Glidden, along the Chicago & North Western Railroad at road crossing, 52.0 feet north of center line of north tracks, 36.0 feet east of center line of road, 6.0 feet east and 1.0 foot south of fence corner, and about 4.0 feet below track level. A standard disc, stamped "W - 89, 1935" and set in a concrete monument. El. Ft. 1200.559
- Top of N rail opposite Chicago & North Western Railroad MP 253. 1200.0
- Top of N rail opposite Chicago & North Western Railroad MP 254. 1208.9
- X-89 In Carroll County, 2.6 miles east of the depot at Carroll, along the Chicago & North Western Railroad at road crossing, 47.0 feet north of center line of north tracks, 32.0 feet west of center line of road, 9.0 feet northeast of pole and 6.0 feet south of fence corner, about 5.0 feet below track level. A standard disc, stamped "X-89, 1935" and set in a concrete monument. 1213.036
- Top of N rail opposite Chicago & North Western Railroad MP 255. 1215.6
- Top of N rail opposite Chicago & North Western Railroad MP 256. 1220.2
- ZZ-89 In Carroll County, at Carroll, at the Carroll cemetery, in the center on west side of bottom step of a stone monument in center of cemetery grounds. A standard disc, stamped "ZZ-89, 1935". 1288.544
- CARROLL-1934 - U.S.G.S. B.M. In Carroll County, at Carroll, on north side of County Court House grounds, 30.0 feet east of sidewalk to north entrance, 60.0 ft. south of sidewalk along the street and set flush with the surface. A bronze disc, set in concrete monument. 1283.357
- Z-89 In Carroll County, at Carroll, at the City Water Tank, at north end of Main Street, in the concrete foundation of the tank, on west side, 2.0 feet from tank. A standard disc, stamped "Z-89, 1935". 1329.013
- Y-89 In Carroll County, at Carroll, along the Chicago & North Western Railroad, 10.0 feet east of northeast corner of the Express Office building, 115 feet east of depot and 54.0 feet north of center line of north main tracks, 2.0 feet southeast of pole. A standard disc,

LEVELING IN IOWA

stamped "Y-89, 1935" and set in a concrete monument. El. Ft. 1258.301

For descriptions of additional bench marks in this vicinity, see page 62.

A-90 In Carroll County, 1.5 miles west of the depot at Carroll, along the Chicago & North Western Railroad at road crossing, 22.0 feet west of the center line of the road, 18.0 feet south of center line of tracks, 11.0 feet northwest of northwest corner of road bridge and 3.0 feet southwest of crossing sign post, about 2.0 feet below level of tracks. A standard disc, stamped "A-90, 1935" and set in a concrete monument. 1240.378

Top of S rail opposite Chicago & North Western Railroad MP 1. 1242.1

Top of SE rail opposite Chicago & North Western Railroad MP A-33-2. 1246.0

B-90 In Carroll County, 3.6 miles southwest of depot at Carroll, along the Chicago & North Western Railroad at road crossing, 400 feet north of bridge #2311; 34.0 feet north of center line of road, 19.0 feet southwest of the center line of tracks and about 2.0 feet below level of rails. A standard disc, stamped "B-90, 1935" and set in a concrete monument. 1312.389

Top of SE rail opposite Chicago & North Western Railroad MP A-32-3. 1292.9

C-90 In Carroll County, 3.2 miles northeast of the depot at Halbur, along the Chicago & North Western Railroad at road crossing, at culvert #2319, about 500 feet southwest of underpass, 27.0 feet west of center line of road, 18.0 feet southeast of center line of tracks and southwest of power-line pole, about 2.0 feet below level of tracks. A standard disc, stamped "C-90, 1935" and set in a concrete monument. 1375.460

Top of SE rail opposite Chicago & North Western Railroad MP 5. 1360.3

Top of SE rail opposite Chicago & North Western Railroad MP 6. 1370.4

D-90 In Carroll County, 1.8 miles northeast of depot at Halbur, along the Chicago & North Western Railroad at road crossing, 45.0 feet east of center line of tracks,

OGDEN to SMITHLAND, IOWA

39.0 feet south of center line of road, 6.0 feet south west of fence corner and about level with tracks. A standard disc, stamped "D-90, 1935" and set in a concrete monument. El. Ft. 1340.539

E-90 In Carroll County, at Halbur, along the Chicago & North Western Railroad at road crossing, 100 feet SW of the depot, 25.0 feet northwest of center line of the tracks, 30.0 feet southwest of center line of road and 7.0 feet southwest of pole. A standard disc, stamped "E-90, 1935" and set in a concrete monument. 1337.409

Top of N rail opposite Chicago & North Western Railroad MP 8. 1323.4

Top of NW rail opposite Chicago & North Western Railroad MP 9. 1344.7

F-90 In Carroll County, 1.4 miles southwest of depot at Halbur, along the Chicago & North Western Railroad at road crossing overpass #2338, on top of dump, 34.0 feet east of east end of bridge, 10.0 feet north of the center line of tracks and 1.0 foot below level of the tracks. A standard disc, stamped "F-90, 1935" and set in a concrete monument. 1383.258

Top of N rail opposite Chicago & North Western Railroad MP 11. 1398.2

G-90 In Carroll County, 4.5 miles northeast of railroad water tank at Manning, along the Chicago & North Western Railroad at road crossing, at culvert #2351, 45.0 feet east of center line of tracks, 42.0 feet south of center line of road and 8.0 feet southwest of fence corner, about 1.0 foot below level of tracks. A standard disc, stamped "G-90, 1935" and set in a concrete monument. 1354.292

Top of N rail opposite Chicago & North Western Railroad MP 12. 1374.7

Top of NW rail opposite Chicago & North Western Railroad MP 14. 1349.4

H-90 In Carroll County, 2.0 miles northeast of railroad water tank at Manning, along the Chicago & North Western Railroad at road crossing, at bridge #2359; 50.0 feet northeast of center line of road, 46.0 feet southeast of center line of tracks, 12.0 feet northeast

- of fence corner and 1.0 foot northwest of fence line. A standard disc, stamped "H-90, 1935" and set in concrete monument. El. Ft. 1337.405
- Top of NW rail opposite Chicago & North Western Railroad MP 15. 1341.7
- For descriptions of additional bench marks in this vicinity, see page 78.
- Top of NW rail opposite Chicago & North Western Railroad MP 16. 1332.4
- H-100 In Carroll County, at Manning, along the Chicago & North Western Railroad at the railroad water tank 110 feet northeast of the depot, in the southwest corner of the southwest pedestal stone, 11.0 feet southeast of the center line of the main tracks, and 0.5 foot above the rail level. A standard disc, stamped "H - 100, 1935". 1326.726
- Top of NW rail opposite Chicago & North Western Railroad MP 17. 1327.1
- MANNING-1934 In Carroll County, at Manning, at northeast corner of City Park, on northeast side of small circular plot. A standard disc, stamped "Manning- 1934" and set in a concrete monument. 1354.853
- J-90 In Carroll County, at Manning, along the Chicago, Milwaukee, St. Paul & Pacific Railroad at overpass, at the Chicago & North Western and Chicago-Great Western Railway crossing, 7.0 poles northwest of depot, 4.5 feet northwest of southeast end of the southwest headwall, 6.0 feet southwest of center line of southwest tracks. A standard disc, stamped "J-90, 1935". 1361.497
- K-90 In Carroll County, 0.5 mile west of railway overpass at Manning, along the Chicago, Milwaukee, St. Paul & Pacific Railroad at first street crossing west of the town, at overpass #1336; 5.0 feet west of the east end of north headwall, about 2.0 feet below level of the tracks. A standard disc, stamped "K-90, 1935". 1365.122
- L-90 In Carroll County, 2.7 miles northwest of railroad overpass at Manning, along the Chicago, Milwaukee, St. Paul & Pacific Railroad at road crossing, milepost #415 and overpass #Z-1338 $\frac{1}{2}$, in concrete cross brace between piers, 4.0 feet southeast of the northwest pier at northeast side of tracks, and about 18.0

OGDEN to SMITHLAND, IOWA

El.Ft.

inches above rails. A standard disc, stamped "L-90, 1935". 1407.760

M-90 In Crawford County, at Aspinwall, along the Chicago, Milwaukee, St. Paul & Pacific Railroad at a road crossing, milepost #416, overpass #1350; 8 poles east of the depot, on the south end of the west concrete abutment, 8.0 feet south of center line of south tracks and 1.0 foot below rails. A standard disc, stamped "M-90, 1935". 1380.670

N-90 In Crawford County, 1.0 mile west of overpass #1350, at Aspinwall, along the Chicago, Milwaukee, St. Paul & Pacific Railroad at road crossing, 2 poles west of milepost #417 at overpass #1352 $\frac{1}{2}$; 3.0 feet east of the west end of the north headwall, 6.0 feet north of the center line of north tracks and 10.0 inches below top of rails. A standard disc, stamped "N-90, 1935". 1398.002

Top of S rail opposite Chicago, Milwaukee, St. Paul & Pacific Railroad MP 418. 1423.7

P-90 In Crawford County, 3.2 miles west of overpass #1350 at Aspinwall, along the Chicago, Milwaukee, St. Paul & Pacific Railroad at road crossing, 9 poles west of milepost #419, at overpass #Z-1356; 1.0 foot east of the west abutment on north headwall, about 1.0 foot below rails. A standard disc, stamped "P-90, 1935". 1406.621

Top of S rail opposite Chicago, Milwaukee, St. Paul & Pacific Railroad MP 419. 1413.7

Q-90 In Crawford County, 2.6 miles northeast of depot at Manilla, along the Chicago, Milwaukee, St. Paul & Pacific Railroad at road crossing, 9 poles west of milepost #420, at overpass #Z-1358; 6.0 feet west of the east end of the north headwall, about 1.0 foot below level of the tracks. A standard disc, stamped "Q-90, 1935". 1378.793

Top of S rail opposite Chicago, Milwaukee, St. Paul & Pacific Railroad MP 420. 1387.6

R-90 In Crawford County, 1.2 miles north of the depot at Manilla, along the Chicago, Milwaukee, St. Paul & Pacific Railroad at State Highway #46 underpass #Z-1362, 2.5 feet north of the south end of the west headwall, 6.0 feet west of center line of the west tracks, about level with base of rails. A standard disc, stamped "R-90, 1935". 1346.011

Top of SE rail opposite Chicago, Milwaukee, St. Paul & Pacific Railroad MP 421. El. Ft. 1363.4

For descriptions of additional bench marks in this vicinity, see page 63.

X-95 In Crawford County, at Manilla, along the Chicago Milwaukee, St. Paul & Pacific Railroad at the depot, in line with the southwest end of the depot, 57.0 feet northwest of the west corner, 17.0 feet southeast of the right-of-way fence, 5.0 feet north of telegraph pole, and at rail level. A standard disc, stamped "X-95, 1935" and set in a concrete monument. 1316.454

RR-90 In Crawford County, 2.0 miles west of the depot at Manilla, along the Chicago, Milwaukee, St. Paul & Pacific Railroad at road crossing of milepost #2; 30.0 feet west of center line of road, 18.0 feet south of center line of tracks, and 3.0 feet below rails. A standard disc, stamped "RR-90, 1935" and set in a concrete monument. 1401.329

Top of N rail opposite Chicago, Milwaukee, St. Paul & Pacific Railroad MP 1. 1353.3

S-90 In Crawford County, 4.1 miles west of the depot at Manilla, along the Chicago, Milwaukee, St. Paul & Pacific Railroad at road crossing, 3 poles west of milepost #4; 36.0 feet north of center line of tracks, 36.0 feet west of center line of road and 4.0 feet below the level of track. A standard disc, stamped "S-90, 1935" and set in a concrete monument. 1415.647

Top of N rail opposite Chicago, Milwaukee, St. Paul & Pacific Railroad MP 3. 1456.1

Top of NE rail opposite Chicago, Milwaukee, St. Paul & Pacific Railroad MP 5. 1405.2

T-90 In Crawford County, 3.0 miles east of the depot at Buck Grove, along the Chicago, Milwaukee, St. Paul, & Pacific Railroad at U.S. Highway #59 overpass, 4.0 feet above tracks in the southwest pier, and set vertically. A standard disc, stamped "T-90, 1935". 1390.270

Top of NE rail opposite Chicago, Milwaukee, St. Paul, & Pacific Railroad MP 6. 1414.9

Top of NE rail opposite Chicago, Milwaukee, St. Paul & Pacific Railroad MP 7. 1360.9

OGDEN to SMITHLAND, IOWA

		El. Ft.
<u>U-90</u>	In <u>Crawford County</u> , 1.9 miles east of the depot at <u>Buck Grove</u> , along the Chicago, Milwaukee, St. Paul & Pacific Railroad at road crossing, 42.0 feet east of the center line of road, 25.0 feet north of center line of tracks and about same level as tracks. A standard disc, stamped "U-90, 1935" and set in a concrete monument.	1324.321
	Top of N rail opposite Chicago, Milwaukee, St. Paul & Pacific Railroad MP 8.	1304.5
<u>V-90</u>	In <u>Crawford County</u> , 1.0 mile east of the depot at <u>Buck Grove</u> , along the Chicago, Milwaukee, St. Paul & Pacific Railroad at road crossing, 33.0 feet west of the center line of road, 33.0 feet north of center line of tracks and about 2.0 feet above level of rails. A standard disc, stamped "V-90, 1935" and set in a concrete monument.	1279.374
<u>W-90</u>	In <u>Crawford County</u> , at <u>Buck Grove</u> , along the Chicago, Milwaukee, St. Paul & Pacific Railroad at the road crossing, 7 poles east of depot, 36.0 feet north of the center line of tracks, 30.0 feet east of center line of road and 4.0 feet southeast of pole. A standard disc, stamped "W-90, 1935" and set in a concrete monument.	1233.547
	Top of N rail opposite Chicago, Milwaukee, St. Paul & Pacific Railroad MP 9.	1252.7
<u>X-90</u>	In <u>Crawford County</u> , 0.7 mile northwest of the depot at <u>Buck Grove</u> , along the Chicago, Milwaukee, St. Paul & Pacific Railroad at road crossing, at culvert #T-37; 105.0 feet southeast then 32.0 feet northeast of center line of tracks, at intersection of crossing, 27.0 feet northeast of culvert and 3.0 feet southwest of pole, about level with the tracks. A standard disc, stamped "X-90, 1935" and set in a concrete monument.	1210.824
	Top of NE rail opposite Chicago, Milwaukee, St. Paul & Pacific Railroad MP 10.	1214.7
	Top of NE rail opposite Chicago, Milwaukee, St. Paul & Pacific Railroad MP 11.	1190.3
<u>Y-90</u>	In <u>Crawford County</u> , 1.1 miles east of the crossing of railroads at <u>Arion</u> , along the Chicago, Milwaukee, St. Paul & Pacific Railroad at bridge #38; 4 poles west of road crossing, on the south end of the east concrete abutment, 8.0 feet south of center line of tracks, and 1.0 foot below top of rails. A standard disc, stamped "Y-90, 1935".	1152.143

LEVELING IN IOWA

- Top of NE rail opposite Chicago, Milwaukee, St. Paul & Pacific Railroad MP 12. El. Ft. 1168.9
- Top of N rail opposite Chicago, Milwaukee, St. Paul & Pacific Railroad MP 13. 1152.3
- Z-90 In Crawford County, at Arion, at the Chicago & North Western Railroad and the Chicago, Milwaukee, St. Paul & Pacific Railroad crossing, at the Chicago-North Western Railroad stone culvert #885; 150.0 feet south west of crossing, 3.0 feet southwest of the northeast end of the northwest headwall. A standard disc, stamped "Z-90, 1935". 1138.991
- A-91 In Crawford County, at Arion, at the north corner of triangular park between railroads and business district. A standard disc, stamped "A-91, 1935" and set in a concrete monument. 1140.572
- B-91 In Crawford County, 1.6 miles west of the depot, at Arion, along the Chicago, Milwaukee, St. Paul & Pacific Railroad, $14\frac{1}{2}$ poles northwest of milepost #15 at County Road "P" crossing and junction of County Road "T" southeast, parallelling railroad, 18.0 feet northeast of center line of track, 27.0 feet east of center line of highway, 51.0 feet southwest of center line of County Road "T" southeast, 9.0 feet southwest of power line pole and 1.5 feet below rail level. A standard disc, stamped "B-91, 1935" and set in a concrete monument. 1170.756
- Top of N rail opposite Chicago, Milwaukee, St. Paul & Pacific Railroad MP 15. 1180.3
- Top of rail at center line of crossing of County Road "D" with Chicago, Milwaukee, St. Paul & Pacific Railroad 1.6 miles west of Arion. 1172.0
- Top of E rail opposite Chicago, Milwaukee, St. Paul & Pacific Railroad MP 16. 1157.0
- C-91 In Crawford County, 3.8 miles northwest of depot at Arion, along the Chicago, Milwaukee, St. Paul & Pacific Railroad at east-west road crossing, 7.5 poles south of milepost #18; 23.0 feet north of center line of crossing, 47.0 feet east of center line of track, 4.0 feet northwest of right-of-way fence corner and 1.5 feet below rail level. A standard disc, stamped "C - 91, 1935" and set in a concrete monument. 1172.691

- D-91 In Crawford County, 4.8 miles northwest of the depot at Arion, along the Chicago, Milwaukee, St. Paul & Pacific Railroad, 9 poles southeast of milepost #19 at a 3- by 3-foot R C B road culvert at junction of County "T" road North at an angle-crossing of the east-west road, at northwest end of southwest headwall, 150 feet northeast of center line of track, 18.0 feet southwest of center line of road, 60.0 feet south of the junction of County "T" road north and 3.0 feet below rail level. A standard disc, stamped "D-91, 1935". El. Ft. 1194.243
- Top of NE rail opposite Chicago, Milwaukee, St. Paul & Pacific Railroad MP 19. 1208.0
- E-91 In Crawford County, 6.3 miles southeast of the First National Bank Building at Charter Oak, along the Chicago, Milwaukee, St. Paul & Pacific Railroad, 9-1/3 poles northwest of depot at Kenwood Siding, at a 4- by 4-foot R C B County "D" road culvert, 5-2/3 poles southeast of northwest side track switch block, in the northwest end of southwest headwall, 65.0 feet northeast of center line of the track, 9.0 feet below road level, and 5.0 feet below rail level. A standard disc, stamped "E-91, 1935". 1243.016
- Top of NE rail opposite Chicago, Milwaukee, St. Paul & Pacific Railroad station at Kenwood. 1242.4
- Top of NE rail opposite Chicago, Milwaukee, St. Paul & Pacific Railroad MP 21. 1270.3
- F-91 In Crawford County, 3.7 miles southeast of the First National Bank Building at Charter Oak, along the Chicago, Milwaukee, St. Paul & Pacific Railroad at the north-south road crossing, 255 feet northwest of milepost #23; 48.0 feet southwest of center line of track, 27.0 feet east of center line of road, 3.0 feet east of right-of-way fence corner and 1.5 feet below rail level. A standard disc, stamped "F-91, 1935" and set in a concrete monument. 1322.274
- G-91 In Crawford County, 2.5 miles southeast of the First National Bank Building at Charter Oak, along the Chicago, Milwaukee, St. Paul & Pacific Railroad at a 105-ft. concrete deck State Highway (#141) bridge across from the 115-foot piling railroad bridge, in southwest wingwall at the junction with west abutment, 75.0 feet north of center line of track, 12.0 feet south of center line of highway and 1.0 foot below rail level. A standard disc stamped "G-91, 1935". 1268.734

- H-91 In Crawford County, 0.8 mile east of the First National Bank Building at Charter Oak, along the Chicago, Milwaukee, St. Paul & Pacific Railroad at a 135 foot concrete deck State Highway (#141) bridge across from a 100-foot wood piling railroad bridge, 4 poles east of milepost #26, at a junction of southwest wing wall and west abutment, 120.0 feet north of the center line of track and 12.0 feet south of center line of highway, 6.0 inches above road level and 1.5 feet above rail level. A standard disc, stamped "H-91, 1935". El. Ft. 1239.656
- J-91 In Crawford County, at Charter Oak, at the First National Bank Building, in the center of the west face of the south archway post of west (main) door, and 4.0 feet above the sidewalk. A standard disc, stamped "J-91, 1935" and set vertically. 1264.299
- K-91 In Crawford County, 1.9 miles west of the First National Bank Building at Charter Oak, along the Chicago, Milwaukee, St. Paul & Pacific Railroad at a 6-by 5-foot R C B State Highway (#141) culvert, 6 poles west of milepost #28, in center of south headwall, 60.0 feet north of center line of track, 18.0 feet S. of center line of highway and 1.5 feet above rail level. A standard disc, stamped "K-91, 1935". 1208.705
- L-91 In Monona County, 2.7 miles east of the depot at Ute, along the Chicago, Milwaukee, St. Paul & Pacific Railroad, 3 poles west of milepost #30, at the 4-by 10-foot double R C B State Highway (#141) culvert, at the railroad culvert #T-95; 4.5 feet east of west end of south headwall, 60.0 feet north of center line of track, 18.0 feet south of center line of highway, and at rail level. A standard disc, stamped "L-91, 1935". 1189.958
- Top of N rail opposite Chicago, Milwaukee, St. Paul & Pacific Railroad MP 32. 1176.0
- RR BM-21 In Monona County, 0.8 mile northeast of the Chicago, Milwaukee, St. Paul & Pacific Railroad Crossing, at Ute, along the Chicago & North Western Railroad at the Chicago, Milwaukee, St. Paul & Pacific Railroad crossing, in southeast corner of the northeast crossing gate foundation, and at rail level. A monel-metal rivet. 1178.659
- Top of rail at center line of crossing of the Chicago, Milwaukee, St. Paul & Pacific Railroad with the Chicago & North Western Railroad 1.2 miles east of Ute. 1178.5

- M-91 In Monona County, at Ute, along the Chicago, Milwaukee, St. Paul & Pacific Railroad at the north-south street crossing, 11 poles west of milepost #32; 45.0 feet south of center line of track, 26.0 feet east of center line of road and 6.0 feet northeast of power line pole, 7.0 feet northwest of right-of-way fence corner and 2.0 feet above rail level. A standard disc, stamped "M-91, 1935" and set in a concrete monument. El. Ft. 1184.952
- Top of N rail at center line of crossing of the Chicago, Milwaukee, St. Paul & Pacific Railroad with State Highway #183 0.3 mile east of Ute. 1194.9
- For descriptions of additional bench marks in this vicinity, see pages 122, 127.
- N-91 In Monona County, at Ute, along the Chicago, Milwaukee, St. Paul & Pacific Railroad, 190 feet north of the depot and 69.0 feet north of milepost #33; 18.0 feet east of center line of main track, 16.0 feet west of center line of siding track, 5.0 feet west of telegraph pole, and at rail level. A standard disc, stamped "N-91, 1935" and set in a concrete monument. 1201.553
- Top of N rail opposite ticket window of the Chicago, Milwaukee, St. Paul & Pacific Railroad station at Ute. 1201.2
- Top of E rail opposite Chicago, Milwaukee, St. Paul & Pacific Railroad MP 34. 1174.3
- P-91 In Monona County, 2.1 miles north of the depot at Ute, along the Chicago, Milwaukee, St. Paul & Pacific Railroad at east-west road crossing, 5.5 poles north of milepost #35; 47.0 feet east of center line of the track and 35.0 feet north of center line of crossing, 5.0 feet north and 3.0 feet west of right-of-way fence corner, 1.5 feet below rail level. A standard disc, stamped "P-91, 1935" and set in a concrete monument. 1176.750
- Top of E rail opposite Chicago, Milwaukee, St. Paul & Pacific Railroad MP 36. 1187.0
- Q-91 In Monona County, 3.9 miles northwest of the depot at Ute, along the Chicago, Milwaukee, St. Paul & Pacific Railroad at the east-west road crossing, 99.0 feet north of milepost #37, in line of telegraph poles and in line with south fence of road, 39.0 feet east of center line of track, 35.0 feet south of the center line of crossing, 11.0 feet west of right-of-way fence corner and 1.0 foot above rail level. A stand-

LEVELING IN IOWA

- ard disc, stamped "Q-91, 1935" and set in a concrete monument. El. Ft. 1236.018
- Top of NE rail opposite Chicago, Milwaukee, St. Paul & Pacific Railroad MP 38. 1287.5
- R-91 In Monona County, 1.5 miles southeast of depot at Mapleton, along the Chicago, Milwaukee, St. Paul & Pacific Railroad at the north-south road crossing at Smith's Siding, 33.0 feet northwest of milepost #39, 47.0 feet southwest of center line of main track, 23.0 feet west of center line of road, 7.0 feet northwest and 3.0 feet northeast of right-of-way fence corner, and 1.0 foot below rail level. A standard disc, stamped "R-91, 1935" and set in a concrete monument. 1321.264
- Top of SW rail opposite Chicago, Milwaukee, St. Paul & Pacific Railroad at Smith's Siding. 1307.0
- Top of NE rail opposite Chicago, Milwaukee, St. Paul & Pacific Railroad MP 40. 1268.1
- Top of NE rail opposite Chicago, Milwaukee, St. Paul & Pacific Railroad MP 41. 1215.3
- S-91 In Monona County, 0.9 mile southeast of the depot at Mapleton, along the Chicago, Milwaukee, St. Paul & Pacific Railroad, 11 poles southeast of milepost #42, 37.0 feet northeast of center line of track, 9.0 feet southeast of twelfth pole in line of poles and 13.0 feet southwest of right-of-way fence, 69.0 feet southeast of a 2-foot C I P culvert #147 $\frac{1}{2}$; 126.0 feet northwest of the "60-car capacity" sign and 2.5 feet above rail level. A standard disc, stamped "S-91, 1935" and set in a concrete monument. 1184.919
- Top of NE rail opposite Chicago, Milwaukee, St. Paul & Pacific Railroad MP 42. 1162.8
- MAPLETON-1934 In Monona County, at Mapleton, at the center of the city park, in center of north face of the World War Memorial concrete pyramid supporting a 75-mm gun barrel, 2.0 feet above the ground and about 30° from vertical. A standard disc, stamped "Mapleton-1934". 1157.278
- T-91 In Monona County, at Mapleton, along the Chicago, Milwaukee, St. Paul & Pacific Railroad, 6 poles northwest of depot at a 330-foot steel overpass over the Chicago, & North Western Railroad and State Highway #35,

OGDEN TO SMITHLAND, IOWA

	in southwest end of the southeast abutment, 9.0 feet southwest of center line of track, and 1.0 foot below rail level. A standard disc, stamped "T-91, 1935".	El. Ft. 1133.574
	Top of NE rail opposite ticket window of the Chicago, Milwaukee, St. Paul & Pacific Railroad station at Mapleton.	1135.8
	Top of NE rail opposite Chicago, Milwaukee, St. Paul & Pacific Railroad MP 43.	1117.5
<u>U-91</u>	In <u>Monona County</u> , 1.3 miles northwest of depot at <u>Mapleton</u> , along the Chicago, Milwaukee, St. Paul & Pacific Railroad, $6\frac{1}{2}$ poles southeast of milepost #44, at a 2- by 4-foot R C B highway culvert at railroad culvert #151-2/3; 25.0 yards northwest of point of paralleling of highway and railroad, in center of southwest headwall, 75.0 feet northeast of center line of the track and 12.0 feet southwest of center line of highway, 5.0 feet below rail level. A standard disc, stamped "U-91, 1935".	1126.996
	Top of NE rail opposite Chicago, Milwaukee, St. Paul & Pacific Railroad MP 44.	1140.7
	Top of NE rail opposite Chicago, Milwaukee, St. Paul & Pacific Railroad MP 45.	1193.1
<u>V-91</u>	In <u>Monona County</u> , 3.0 miles northwest of depot at <u>Mapleton</u> , along the Chicago, Milwaukee, St. Paul & Pacific Railroad at a private road crossing at the north end of a 200-yard fill, 13.0 poles southeast of milepost #46, in a line of poles, 6.0 feet north of the center line of crossing, 34.0 feet east of center line of tracks and 43.0 feet west of the right-of-way fence, 6.0 feet north of telegraph pole and 5.0 feet below the rail level. A standard disc, stamped "V-91, 1935" and set in a concrete monument.	1217.724
	Top of NE rail opposite Chicago, Milwaukee, St. Paul & Pacific Railroad MP 46.	1243.5
<u>W-91</u>	In <u>Monona County</u> , 5.6 miles northwest of depot at <u>Mapleton</u> , along the Chicago, Milwaukee, St. Paul & Pacific Railroad at a public road crossing, 4 poles west of milepost #48; 18.0 feet west of the center line of crossing, 47.0 feet south of center line of the track, 4.0 feet northwest of right-of-way fence corner and 1.5 feet below rail level. A standard disc, stamped "W-91, 1935" and set in a concrete monument.	1229.804

Top of rail opposite the Chicago, Milwaukee, St. Paul & Pacific Railroad MP 47.	El. Ft. 1291.1
Top of NE rail opposite Chicago, Milwaukee, St. Paul & Pacific Railroad MP 49.	1185.6
<u>X-91</u> In <u>Woodbury County</u> , 1.0 mile east of the Illinois Central Railway Crossing at <u>Smithland</u> , along the Chicago, Milwaukee, St. Paul & Pacific Railroad at State Highway #141 overpass, 10 poles east of milepost #51; 69.0 feet southwest of center line of overpass, 50 feet southeast of center line of track in line of right-of-way fence, 4.5 feet southwest of power line pole, 4.0 feet northwest of right-of-way fence corner and 2.5 feet below rail level. A standard disc, stamped "X-91, 1935" and set in a concrete monument.	1107.865
Top of N rail opposite Chicago, Milwaukee, St. Paul & Pacific Railroad MP 50.	1141.8
Top of N rail opposite Chicago, Milwaukee, St. Paul & Pacific Railroad MP 51.	1092.1
<u>Y-91</u> In <u>Woodbury County</u> , at the Illinois Central Railway crossing at <u>Smithland</u> , along the Chicago, Milwaukee, St. Paul & Pacific Railroad, 58.0 feet south of the tracks and 46.0 feet east of center line of Illinois Central Railroad track, 65.5 feet southeast of the center line of junction and 6.0 feet below the level of rails. A standard disc, stamped "Y-91, 1935" and set in a concrete monument.	1069.808
For descriptions of additional bench marks in this vicinity, see pages 115, 123.	

ONAWA to SMITHLAND, IOWA

- Illinois Central Railroad and the Chicago & North Western Railroad crossing at Onawa, along the Illinois Central Railroad at a public road crossing, 5.5 poles southwest of Kennebec Station and 11 poles southwest of milepost #52; 105.0 feet northeast of center line of crossing, 48.0 feet northwest of the center line of track, 60.0 feet northeast of the right-of-way fence corner and 5.0 feet below rail level. A standard disc, stamped "C-92, 1935" and set in a concrete monument. El. Ft. 1049.086
- Top of W rail opposite the Illinois Central Railroad MP 53. 1052.6
- D-92 In Monona County, 7.4 miles northeast of the Illinois Central Railroad and the Chicago & North Western Railroad crossing at Onawa, along the Illinois Central Railroad at a steel girder bridge over the Little Sioux River, 130 feet southwest of milepost #51, in the center of the northwest end of the northeast limestone block pier, 6.0 inches from end of top step, 10.0 feet northwest of center line of track and 5.0 feet below the rail level. A standard disc, stamped "D-92, 1935". 1059.988
- E-92 In Monona County, 8.8 miles northeast of the Illinois Central Railroad and the Chicago & North Western Railroad crossing at Onawa, along the Illinois Central Railroad at the east-west road crossing, 14.0 poles southwest of milepost #49; 51.0 feet northeast of the center line of crossing, 47.0 feet southeast of the center line of track, and 26.0 feet north of the center line of the road, 4.0 feet north of right-of-way fence corner and 2.5 feet below rail level. A standard disc, stamped "E-92, 1935" and set in a concrete monument. 1058.144
- Top of S rail opposite the Illinois Central Railroad MP 49. 1060.1
- F-92 In Woodbury County, 4.2 miles southwest of the Illinois Central Railroad and the Chicago, Milwaukee, St. Paul & Pacific Railroad crossing at Smithland, along the Illinois Central Railroad at a private road crossing, 14-2/3 poles southwest of milepost #47; 48.0 feet northwest of the center of the track, 10.0 feet northeast of the center line of gate and 1.5 feet below rail level. A standard disc, stamped "F-92, 1935" and set in a concrete monument. 1062.659
- G-92 In Monona County, 3.2 miles southwest of the Illinois Central Railroad and the Chicago, Milwaukee, St.

LEVELING IN IOWA

Paul & Pacific Railroad crossing at Smithland, along the Illinois Central Railroad at Ticonic Siding, 9.0 poles southwest of milepost #46; 12.0 feet north of the center line of a public road crossing, 39.0 feet east of the road paralleling railroad, 43.0 feet west of the center line of the main track, 4.0 feet east of power-line pole in a line of poles and 1.5 feet below rail level. A standard disc, stamped "G-92, 1935" and set in a concrete monument. El. Ft. 1086.071

Top of S rail opposite the Illinois Central Railroad MP 46. 1079.7

H-92 In Woodbury County, 1.2 miles southwest of the Illinois Central Railroad and the Chicago, Milwaukee, St. Paul & Pacific Railroad crossing at Smithland, along the Illinois Central Railroad, 4 poles south of milepost #44, and 286 feet north of the center line of a public road crossing, 17.0 feet south of south end of a 210-foot wood piling railroad bridge, 48.0 feet west of the center line of track, 2.0 feet east of right-of-way fence and 5.5 feet below rail level. A standard disc, stamped "H-92, 1935" and set in a concrete monument. 1066.389

For descriptions of additional bench marks in this vicinity, see pages 111, 123.

This line follows the Chicago & North Western Railroad from Sac Junction (Wall Lake) to Ute, Iowa.

The field work was done in 1935, by a party in charge of E. E. Stohsner.

For descriptions of additional bench marks in this vicinity, see page 58.

- Z-93 In Sac County, at Wall Lake, along the Chicago & North Western Railroad at the freight house, 5 poles west of the depot, 26.0 feet north of the center line of the "Onawa Line" track, 25.0 feet east of freight house, 5.0 feet southeast of telegraph pole, and 1.0 foot above the track level. A standard disc, stamped "Z-93, 1935" and set in a concrete monument. El. Ft. 1234.919
- A-94 In Sac County, 3.5 miles southwest of the depot at Wall Lake, along the Chicago & North Western Railroad at a public road crossing, 13 poles northeast of milepost #3, in line with the northeast end of a 45-foot wood piling bridge #4; 65.0 feet northeast of the center line of track, 4.0 feet north of right-of-way fence corner, and 4.5 feet below rail level. A standard disc, stamped "A-94, 1935" and set in a concrete monument. 1226.736
- B-94 In Sac County, at Herring, along the Chicago & North Western Railroad, in line with northeast end of the depot, 75.0 feet southwest of the center line of a public road crossing, 30.0 feet southeast of the center line of the main track, 18.0 feet north of center line of switch track, and at rail level. A standard disc, stamped "B-94, 1935" and set in a concrete monument. 1229.505
- RR BM-12 (C. & N.W. R.R.) In Sac County, 1.0 mile southwest of the depot at Herring, along the Chicago & North Western Railroad at railroad culvert #15; 8 poles northeast of milepost #6, in the northeast end of the southwest headwall, 1.0 foot below rail level. A monel-metal rivet. 1233.006
- C-94 In Sac County, 2.1 miles southwest of the depot at Herring, along the Chicago & North Western Railroad at an east-west road crossing (Sac-Crawford County Line), 75.0 feet north of wood piling culvert

SAC JUNCTION to UTE, IOWA

- #20; 51.0 feet north of center line of crossing, 45.0 feet east of center line of track, 11.0 feet north and 5.0 feet west of right-of-way fence, and 5.0 feet below rail level. A standard disc, stamped "C-94, 1935" and set in a concrete monument. El. Ft. 1228.652
- D-94 In Crawford County, 1.2 miles northeast of the depot at Boyer, along the Chicago & North Western Railroad at highway crossing, $9\frac{1}{2}$ poles northeast of milepost #9, 36.0 feet southwest of center line of crossing, 52.0 feet northeast of center line of track, 16.0 feet south of center line of road at a point of curve, 2.0 feet northwest and 3.0 feet southwest of right-of-way fence corner, and 3.0 feet above rail level. A standard disc stamped "D-94, 1935" and set in a concrete monument. 1237.078
- RR BM-13 (C. & N.W. RR.) In Crawford County, 0.9 mile northeast of the depot at Boyer, along the Chicago & North Western Railroad at railroad culvert #34; 300 feet west of milepost #9, in the west end of the south headwall, and 1.0 foot below rail level. A monel-metal rivet. 1227.425
- E-94 In Crawford County, at Boyer, along the Chicago & North Western Railroad, 110 feet west of the depot, 34.0 feet north of center line of main track, 12.0 feet west of center line of road crossing, 6.0 feet north of crossing sign, 4.0 feet northeast of telegraph pole, at rail level. A standard disc, stamped "E-94, 1935" and set in a concrete monument. 1218.606
- Top of S rail opposite Chicago & North Western Railroad at Boyer, opposite east end of station. 1218.1
- RR BM-14 (C. & N.W. R R.) In Crawford County, 1.3 miles north of the depot at Boyer, along the Chicago & North Western Railroad at a 5- by 5-foot R C B culvert #108; $3\frac{1}{2}$ poles north of overpass #107 over the east-west road; in center of east headwall, 11.0 feet east of the center line of track, and 1.5 feet below rail level. A monel-metal rivet. 1281.329
- RR BM-15 In Crawford County, 2.4 miles west of the depot at Boyer, along the Chicago & North Western Railroad at bridge #115, in the east end of the north headwall. A monel-metal rivet. 1342.281
- F-94 In Crawford County, 2.7 miles northwest of the depot at Boyer, along the Chicago & North Western Railroad at

LEVELING IN IOWA

a private road crossing, 480 feet east of railroad overpass #120 over the north-south road, 10.0 feet of center line of gate, 48.0 feet south of center line of the track, and at rail level. A standard disc, stamped "F-94, 1935" and set in a concrete monument.	El. Ft.
	1367.569
<p><u>G-94</u> In Crawford County, 1.1 miles east of the railroad water tank at Kiron, along the Chicago & North Western Railroad at north-south road crossing, 10$\frac{1}{2}$ poles west of milepost #15; 47.0 feet north of the center line of track, 27.0 feet east of center line of crossing, 4.0 feet south then 1.0 foot west of right-of-way fence corner and 1.5 feet below rail level. A standard disc, stamped "G-94, 1935" and set in a concrete monument.</p>	
Top of N rail opposite Chicago & North Western Railroad MP 15.	1343.4
Top of N rail opposite Chicago & North Western Railroad MP 16.	1316.7
Top of N rail opposite east end of the Chicago & North Western Railroad station at Kiron.	1308.3
<p><u>H-94</u> In Crawford County, at Kiron, at the Kiron State Bank Building, 2.0 feet east of the front (south) entrance and 3.5 feet above sidewalk. A standard disc, stamped "H-94, 1935" and set vertically in the brick wall.</p>	
	1340.742
<p><u>RR BM-16 (C. & N.W. RR.)</u> In Crawford County, 2.0 miles west of railroad water tank at Kiron, along the Chicago & North Western Railroad at a 6- by 6-foot R C B cattle pass #143; 3.0 poles west of north-south road crossing, in the west end of the south headwall, 9.0 feet south of center line of track, and 1.0 foot below rail level. A monel-metal rivet.</p>	
	1386.802
<p><u>J-94</u> In Crawford County, 2.8 miles west of railroad water tank at Kiron, along the Chicago & North Western Railroad at the north-south road crossing, 33.0 feet east of center line of crossing, in line with the east road line fence, 45.0 feet north of center line of the track, 9.0 feet southwest of right-of-way fence corner and at rail level. A standard disc, stamped "J-94, 1935" and set in a concrete monument.</p>	
Top of SE rail opposite Chicago & North Western Railroad MP 20.	1422.107
	1404.9

LINE 6378. ONAWA to SMITHLAND, IOWA
(Second-order Leveling)

This Line follows the Illinois Central Railroad from Onawa to Smithland, Iowa. The original field work was done during 1935 by a party in charge of E. E. Stohsner. The line was re-run during July, 1939, by a party of the Iowa Geodetic Survey in charge of Glen Powers.

For descriptions of additional bench marks in this vicinity, see page 14.

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- Z-91 In Monona County, at Onawa, at the Illinois Central Railroad and the Chicago, North Western Railroad crossing, 44.0 feet north of the center line of the Illinois Central Railroad track and 42.0 feet east of the center line of the Chicago & North Western track, 3.0 feet west of a telephone pole and 3.0 feet below the track level. A standard disc, stamped "Z-91, 1935" and set in a concrete monument. El. Ft. 1047.901
- Top of N rail at the junction of the Illinois Central Railroad and the Chicago & North Western Railroad at Onawa. 1051.5
- A-92 In Monona County, 2.4 miles northeast of the Illinois Central Railroad and the Chicago & North Western Railroad crossing at Onawa, along the Illinois Central Railroad at the east-west road crossing, 4.5 poles south west of milepost #56; 45.0 feet southeast of the center line of track, 31.0 feet south of the center line of the road, 8.0 feet west then 4.0 feet south of the right-of-way fence corner and 5.5 feet below track level. A standard disc, stamped "A-92, 1935" and set in a concrete monument. 1045.877
- B-92 In Monona County, 4.4 miles northeast of the Illinois Central Railroad and the Chicago & North Western Railway crossing at Onawa, along the Illinois Central Railroad at a 135-foot steel girder bridge over the river ditch, 5.0 poles southwest of milepost #54, in the northwest end of the southwest abutment, 6.0 feet north west of the center line of track and 1.0 foot below the rail level. A standard disc, stamped "B-92, 1935". 1053.072
- Top of W rail opposite the Illinois Central Railroad MP 55. 1052.2
- C-92 In Monona County, 6.2 miles northeast of the Il-

SAC JUNCTION to UTE, IOWA

- RR BM-17 (C. & N.W. R.R.) In Crawford County, 1.6 miles northeast of the depot at Schleswig, along the Chicago & North Western Railroad at a 6- by 6-foot R C B cattle pass #150; 7.0 poles southwest of milepost #21, in the southwest end of the southeast headwall, 11.0 feet south east of the center line of track, and 1.0 foot below rail level. A monel-metal rivet. El. Ft. 1458.987
- K-94 In Crawford County, 1.4 miles northeast of the depot at Schleswig, along the Chicago & North Western Railroad at a 6- by 6-foot R C B cattle pass #152; 12 poles southwest of milepost #21, in center of southeast headwall, 10.0 feet southeast of center line of track, and 1.0 foot below rail level. A standard disc, stamped "K-94, 1935". 1466.716
- Top of SE rail opposite Chicago & North Western Railroad MP 22. 1493.2
- L-94 In Crawford County, at Schleswig, along the Chicago & North Western Railroad, 147 feet south of depot and 108 feet south of milepost #23; 40.0 feet west of center line of the track, 6.0 feet north of a telegraph pole in line of poles, and at rail level. A standard disc, stamped "L-94, 1935" and set in a concrete monument. 1495.883
- M-94 In Crawford County, 1.0 mile southwest of the depot at Schleswig, along the Chicago & North Western Railroad at a private road crossing, 6 poles west of milepost #24; 8 poles east of highway overpass, 325 feet east of wood piling cattle pass #163; 48.0 feet north of the center line of track, 11.0 feet east of center line of gate and 3.0 feet below rail level. A standard disc, stamped "M-94, 1935" and set in a concrete monument. 1495.565
- RR BM-19 (C. & N.W. RR.) In Crawford County, 2.1 miles west of the depot at Schleswig, along the Chicago & North Western Railroad at a 6- by 6-foot R C B cattle pass #166; 2000 feet west of milepost #25, in the west end of the south headwall, 10.0 feet south of the center line of track, and 1.0 foot below rail level. A monel-metal rivet. 1479.446
- RR BM-20 (C. & N.W. R.R.) In Crawford County, 2.3 miles southwest of the depot at Schleswig, along the Chicago & North Western Railroad at bridge #167, in the west end of the south headwall. A monel-metal rivet. 1477.838

LEVELING IN IOWA

- N-94 , In Crawford County, 3.1 miles west of the depot at Schleswig, along the Chicago & North Western Railroad, 258 feet west of a railroad overpass #171 over the north-south road, on the east slope of a cut, in line of poles, 44.0 feet north of center line of track, 6.0 feet south of right-of-way fence and 1.0 foot below rail level. A standard disc, stamped "N-94, 1935" and set in a concrete monument. 1473.445
- Top of SE rail opposite Chicago & North Western Railroad MP 27. 1461.1
- P-94 In Crawford County, 2.4 miles northeast of the depot at Ricketts, along the Chicago & North Western Railroad at a north-south road crossing, 36.0 feet west of the crossing then 47.0 feet south of center line of track, 24.0 feet west of railroad culvert #182-3/4; 4.0 feet northwest of right-of-way fence corner and 2.5 feet below rail level. A standard disc, stamped "P-94, 1935", and set in a concrete monument. 1379.610
- Top of SE rail opposite Chicago & North Western Railroad MP 30. 1342.9
- Q-94 In Crawford County, at Ricketts, along the Chicago & North Western Railroad at the Main Street crossing, 156 feet west of the depot, 35.0 feet east of the center line of crossing, 24.0 feet north of center line of track, 3.0 feet west of west edge of sidewalk, 3.0 feet east of telegraph pole and at rail level. A standard disc, stamped "Q-94, 1935" and set in a concrete monument. 1304.679
- R-94 In Crawford County, 0.4 mile southwest of depot at Ricketts, along the Chicago & North Western Railroad, 36.0 feet southwest of milepost #32, at a 3- by 3-foot highway culvert across from a 40-foot wood piling railroad bridge #192, in the center of the southeast headwall, 65.0 feet northeast of center line of the track and 3.5 feet below rail level. A standard disc, stamped "R-94, 1935". 1288.213
- S-94 In Crawford County, 2.2 miles southwest of depot at Ricketts, along the Chicago & North Western Railroad at the east-west road crossing, 345 feet southwest of milepost #34; 81.0 feet southwest of center line of crossing, 47.0 feet northwest of center line of the track, 26.0 feet south of center line of road, 4.0 feet south of right-of-way fence corner, and 6.0 inches above

SAC JUNCTION to UTE, IOWA

- rail level. A standard disc, stamped "S-94, 1935" and set in a concrete monument. El. Ft. 1258.144
- T-94 In Crawford County, 3.7 miles southwest of depot at Ricketts, along the Chicago & North Western Railroad at the east-west road crossing, 45.0 feet northwest of center line of crossing, 33.0 feet north of center line of road, 7.0 feet east and 3.0 feet north of right-of-way fence corner and 3.0 feet below rail level. A standard disc, stamped "T-94, 1935" and set in a concrete monument. 1230.509
- U-94 In Monona County, 3.5 miles northeast of the Chicago, Milwaukee, St. Paul & Pacific Railroad crossing at Ute, along the Chicago & North Western Railroad at Berne Siding, 4 poles northeast of milepost #37; 135 feet southwest of northeast switch block and 46.0 feet southeast of center line of main track, 37.0 feet north of center line of road, 4.0 feet north and 2.0 feet west of right-of-way fence corner, 6.0 inches below rail level. A standard disc, stamped "U-94, 1935" and set in a concrete monument. 1214.784
- V-94 In Monona County, 1.4 miles northeast of the Chicago, Milwaukee, St. Paul & Pacific Railroad Crossing at Ute, along the Chicago & North Western Railroad at State Highway #141; 47.0 feet northwest of center line of track, 36.0 feet north of center line of highway, 7.0 feet east then 5.0 feet north of right-of-way fence corner and 1.0 foot above rail level. A standard disc, stamped "V-94, 1935" and set in a concrete monument. 1184.568
- RR BM-21 (C. & N.W. R.R.) In Monona County, 0.8 mile northeast of the Chicago, Milwaukee, St. Paul & Pacific Railroad Crossing at Ute, along the Chicago & North Western Railroad at the Chicago, Milwaukee, St. Paul & Pacific Railway crossing, in southeast corner of northeast crossing gate foundation, at rail level. A monel-metal rivet. 1178.659
- Top of rail at center line of crossing of the Chicago, Milwaukee St. Paul & Pacific Railroad with Chicago & North Western Railroad 1.5 miles east of Ute. 1178.5

For descriptions of additional bench marks in this vicinity, see pages 108, 127.

LINE 6384. SMITHLAND to CORRECTIONVILLE, IOWA
(Second-order Leveling)

This Line follows the Illinois Central Railroad from Smithland to Correctionville. The original field work was done during 1935 by a party in charge of E. E. Stohsner. The line was re-run in June, 1939, by a party in charge of Glen C. Powers of the Iowa Geodetic Survey.

For descriptions of additional bench marks in this vicinity, see pages 111, 115.

Top of E rail of the Illinois Central Railroad track at the crossing with the Chicago, Milwaukee, St. Paul & Pacific Railroad 1.1 miles south of Smithland. El. Ft. 1076.0

J-92 In Woodbury County, 0.5 mile southeast of the depot at Smithland, along the Illinois Central Railroad at the steel girder bridge #T-42.1 over the Little Sioux River, 3 poles southeast of milepost #42, in the center of the southwest end of the northwest pier, 10.0 feet southwest of the center line of the track and 4.5 feet below rail level. A standard disc, stamped "J-92, 1935" 1075.910

Top of E rail opposite the Illinois Central Railroad MP 42. 1078.5

K-92 In Woodbury County, at Smithland, along the Illinois Central Railroad, 210 feet north of the depot, 24.0 feet north of the center line of State Highway #141; 13.0 feet west of the center line of the track, 5.0 feet east of the telegraph pole, and at rail level. A standard disc, stamped "K-92, 1935" and set in the top of concrete monument. 1076.100

L-92 In Woodbury County, 1.6 miles northeast of the depot at Smithland, along the Illinois Central Railroad, 7.5 poles north of milepost #40, at a 2- by 3-foot RCB State Highway #31 culvert across from a 36-inch railroad (CIP) culvert, in the center of the east headwall, 60.0 feet west of the center line of the track, 18.0 feet east of the center line of the highway, 1.0 foot below the road level and 2.5 feet above rail level. A standard disc, stamped "L-92, 1935". 1096.084

Top of E rail opposite the Illinois Central Railroad MP 40. 1081.1

SMITHLAND to CORRECTIONVILLE, IOWA

- M-92 In Woodbury County, 1.5 miles south of the depot at Oto, along the Illinois Central Railroad, 11 poles southwest of milepost #38, at a 4- by 6-foot R C B cattle pass under State Highway #31, across from a 40-foot piling railroad bridge #T-38.4, in the center of the southeast head wall, 65.0 feet northwest of the center line of the track, 25.0 feet southeast of the center line of the road, 8.0 feet below road level and 3.0 feet below rail level. A standard disc stamped "M-92, 1935". El. Ft. 1088.722
- N-92 In Woodbury County, at Oto, along the Illinois Central Railroad, 27.0 feet northwest of the depot in line with the front, 19.0 feet northeast of the center line of main track, 35.0 feet southwest of center line of side track and 105 feet southeast of center line of public road crossing, 7.0 feet northwest of telegraph lead pole and 6.0 inches above rail level. A standard disc, stamped "N-92, 1935" and set in a concrete monument. 1092.550
- Top of E rail opposite the Illinois Central Railroad MP 36. 1094.2
- P-92 In Woodbury County, 2.0 miles north of the depot at Oto, along the Illinois Central Railroad at a private road crossing, about $15\frac{1}{2}$ poles north of milepost #35; 29.0 feet north of a 12-foot wood-piling culvert #T-34.5; 48.5 feet west of the center line of the track and 10.0 feet north of the center line of a gate, 14.0 feet south of the junction of "T" fence west with right-of-way fence, and at rail level. A standard disc stamped "P-92, 1935" and set in a concrete monument. 1095.309
- Top of E rail opposite the Illinois Central Railroad MP 34. 1093.3
- Q-92 In Woodbury County, 3.3 miles north of the depot at Oto, along the Illinois Central Railroad at a steel girder bridge over the Little Sioux River, 2 poles south of milepost #33, in the center of the west end of the north pier, 10.0 feet west of the center line of track and 4.5 feet below rail level. A standard disc, stamped "Q-92, 1935". 1096.038
- R-92 In Woodbury County, 2.1 miles south of the depot at Anthon, along the Illinois Central Railroad at steel girder bridge #T-31.6 over the Little Sioux River, 18 poles south of milepost #31, in the center of the east end of the north pier, 1.0 foot west of the east circular end, 12.0 feet east of the center line of the

LEVELING IN IOWA

	El. Ft.
track and 4.5 feet below rail level. A standard disk, stamped "R-92, 1935".	1098.804
Top of E rail opposite the Illinois Central Railroad MP 32.	1097.9
Top of E rail opposite the Illinois Central Railroad MP 31.	1104.8
Top of E rail opposite the Illinois Central Railroad MP 30.	1115.2
S-92 In <u>Woodbury County</u> , at <u>Anthon</u> , along the Illinois Central Railroad at the depot, in the northwest corner of a small park in the rear of the depot, 6.0 feet north of the north end line, 4.0 feet south of the south edge of the sidewalk, 26.0 feet east of the center line of the switch track and 4.0 feet southeast of the corner formed by the guard rail. A standard disc, stamped "S-92, 1935" and set in a concrete monument.	1118.190
T-92 In <u>Woodbury County</u> , 2.2 miles north of the depot at <u>Anthon</u> , along the Illinois Central Railroad and 9 poles north of milepost #27, at a 65-foot concrete deck highway bridge, across from a 150-foot piling railroad bridge T-36.77, at the junction of the south east wing wall and the south abutment, 65.0 feet west of the center line of the track, 12.0 feet east of the center line of the road and at road level, 2.0 feet below rail level. A standard disc, stamped "T-92, 1935".	1105.857
U-92 In <u>Woodbury County</u> , 2.6 miles south of the depot at <u>Correctionville</u> , along the Illinois Central Railroad at a 40-foot concrete-deck State Highway #31 bridge, $12\frac{1}{2}$ poles northeast of milepost #25, in the center of the south wingwall, 65.0 feet northwest of the center line of the track, 14.0 feet southeast of the center line of road, 3.0 feet above road level and 2.0 feet below rail level. A standard disc, stamped "U-92, 1935".	1126.769
V-92 In <u>Woodbury County</u> , 1.5 miles south of the depot at <u>Correctionville</u> , along the Illinois Central Railroad at a twin 5- by 2-foot R C B State Highway #31 culvert at a point of curve north where the highway leaves the railroad, in the center of the east head wall, 80.0 feet northwest of the center line of	

SMITHLAND to CORRECTIONVILLE, IOWA

El. Ft.

track, 110 feet southwest of the center line of crossing of "T" road south from the highway, 1.0 foot below road level and 2.5 feet below rail level. A standard disc, stamped "V-92, 1935".

1139.502

Reference Mark #1 (U.S.G.S. Gaging Station). In Woodbury County, 0.5 mile south of the depot at Correctionville, along the Illinois Central Railroad at a steel girder bridge over the Sioux River, at the north corner of the northwest end of the southwest pier, 9.0 feet northwest of the center line of the track and 4.5 feet below the rail level. A U.S.G.S. Gaging Station Reference Mark disc.

1119.086

Reference Mark #2. (U.S.G.S. Gaging Station). In Woodbury County, 0.5 mile southwest of the depot at Correctionville, along the Illinois Central Railroad at a steel girder bridge over the Sioux River, set in the center of the northwest end of the northeast pier, 9.0 feet northwest of the center line of the track and 4.5 feet below rail level. A U. S. G. S. Gaging Station Reference Mark disc.

1119.115

W-92 In Woodbury County, at Correctionville, along the Illinois Central Railroad, 145 feet south of depot and at the Main Street crossing, set 26.0 feet south of the south edge of the pavement, 18.0 feet west of center line of the main track, 5.0 feet north of the telegraph pole in a line of poles and at rail level. A standard disc, stamped "W-92, 1935" and set in a concrete monument.

1125.739

For descriptions of additional bench marks in this vicinity, see page 41.

LINE 6387. UTE TO MONDAMIN, IOWA
(Second-order Leveling)

This Line follows the Chicago & North Western Railroad from Ute to Mondamin, Iowa. The field work was done in 1935 by a party in charge of E. E. Stohsner.

For descriptions of additional bench marks in this vicinity, see page 108.

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- B-95 In Monona County, 0.7 mile southwest of the Chicago & North Western depot at Ute, along the Chicago & North Western Railroad at a private road crossing, 125 feet southwest of bridge #219; 45.0 feet northwest of the center line of the tracks, 15.0 feet northeast of the center line of the gateway and 2.0 feet southeast of fence line, 4.0 feet below rail level. A standard disc, stamped "B-95, 1935" and set in a concrete monument. El. Ft. 1160.710
- C-95 In Monona County, 2.1 miles southwest of the Chicago & North Western depot at Ute, along the Chicago & North Western Railroad at road crossing at bridge #221; 30.0 feet north of the center line of the road, 15.0 feet west of the center line of the tracks, 16.0 feet southwest of bridge, and 2.0 feet below rail level. A standard disc, stamped "C-95, 1935" and set in a concrete monument. 1155.083
- D-95 In Monona County, 1.5 miles north of the depot at Soldier, along the Chicago & North Western Railroad at road crossing, at bridge #227; 30.0 feet south of the center line of road, 24.0 feet west of the center line of the tracks, and at rail level. A standard disc stamped "D-95, 1935" and set in a concrete monument. 1141.176
- E-95 In Monona County, at Soldier, along the Chicago & North Western Railroad at State Highway #37; 1 pole south of the depot, 45.0 feet north of the center line of the highway, 41.0 feet west of the center line of the tracks and 2.0 feet east of pole. A standard disc, stamped "E-95, 1935" and set in a concrete monument. 1135.378
- Top of W rail at crossing of the Chicago & North Western Railroad and State Highway #37 at Soldier. 1134.6
- F-95 In Monona County, 1.2 miles southwest of the depot at Soldier, along the Chicago & North Western Railroad at State Highway #183 bridge opposite the railroad bridge

UTE to MONDAMIN, IOWA

- #233, on the east end of the south headwall about 0.5 foot above the surface of the road, 75.0 feet north of the center line of the tracks. A standard disc, stamped "F-95, 1935". El. Ft. 1129.240
- G-95 In Monona County, 2.6 miles southwest of the depot at Soldier, along the Chicago & North Western Railroad to bridge #235, in the center of the east headwall of highway bridge opposite bridge #235, about 75.0 feet west of the center line of the tracks. 1125.982
- H-95 In Monona County, 2.6 miles northeast of the depot at Moorhead, along the Chicago & North Western Railroad to bridge #238, in the center of the southeast headwall of highway culvert opposite culvert #238, about 75.0 feet northwest of the center line of the track. A standard disc, stamped "H-95, 1935". 1119.565
- J-95 In Monona County, 1.1 miles northeast of the depot at Moorhead, along the Chicago & North Western Railroad bridge #243 at bridge on State Highway #183 opposite the railroad bridge, in the center of the southeast headwall, about 75.0 feet northwest of the center line of the tracks. A standard disc, stamped "J-95, 1935". 1119.283
- K-95 In Monona County, at Moorhead, along the Chicago & North Western Railroad at the depot, 1 pole northeast of the depot, 31.0 feet northwest of the center line of the tracks, and 2.0 feet south of the pole. A standard disc, stamped "K-95, 1935" and set in a concrete monument. 1102.248
- Top of NW rail opposite ticket window in the Chicago & North Western Railroad station at Moorhead. 1102.9
- L-95 In Monona County, 1.3 miles west of the depot at Moorehead, along the Chicago & North Western Railroad at a private road crossing, at bridge #247 $\frac{1}{2}$; 47.0 feet north of the center line of the tracks, 15.0 feet east of the center line of the gateway and 2.0 feet south of fence line, at rail level. A standard disc, stamped "L-95, 1935" and set in a concrete monument. 1098.692
- Top of NW rail opposite the Chicago & North Western Railroad MP 54. 1095.2
- Top of NW rail opposite the Chicago & North Western Railroad MP 55. 1090.9

LEVELING IN IOWA

- M-95 , In Monona County, 3.2 miles west of the depot at Moorhead, along the Chicago & North Western Railroad at road crossing, 33.0 feet west of the center line of the tracks and 36.0 feet south of the center line of the road and at rail level. A standard disc, stamped "M-95, 1935" and set in a concrete monument. El. Ft. 1085.805
- Top of W rail opposite the Chicago & North Western Railroad MP 57. 1079.9
- N-95 In Harrison County, 2.3 miles northeast of the depot at Pisgah, along the Chicago & North Western Railroad at a crossroad, 45.0 feet east of the center line of the tracks, 33.0 feet north of the center line of the road and 8.0 feet north of fence corner, about 3.0 feet below rail level. A standard disc, stamped "N-95, 1935" and set in a concrete monument. 1066.596
- Top of W rail opposite the Chicago & North Western Railroad MP 59. 1070.3
- 43-90 (U.S.C. & G.S. & S.S.) In Harrison County, at Pisgah, at the northwest corner of the Public School Grounds, 5.0 feet south of the east-west sidewalk, 80.6 feet west then 25.5 feet north of the northwest corner of the school. A bronze disc, stamped "43-90" and set in a concrete monument. 1062.957
- P-95 In Harrison County, at Pisgah, along the Chicago & North Western Railroad at road crossing, 1 pole south east of the depot, 24.0 feet northeast of the center line of the tracks, 18.0 feet northwest of the center line of the road, and 10.0 feet west of telephone pole. A standard disc, stamped "P-95, 1935" and set in a concrete monument. 1059.365
- Top of NE rail opposite ticket window in station of the Chicago & North Western Railroad at Pisgah. 1061.3
- Q-95 In Harrison County, 1.1 miles southwest of depot at Pisgah, along the Chicago & North Western Railroad at road crossing, at bridge #262; 22.0 feet west of the center line of the road, 18.0 feet south of center line of the tracks, 2.0 feet east of pole, and 2.0 feet below rail level. A standard disc, stamped "Q-95, 1935" and set in a concrete monument. 1057.481
- Top of N rail opposite the Chicago & North Western Railroad MP 62. 1055.9

- R-95 In Harrison County, 2.0 miles north of the depot at Orson, along the Chicago & North Western Railroad at a road crossing, at milepost #64; 45.0 feet northeast of the center line of the tracks, 35.0 feet northwest of the center line of the road, 15.0 feet northwest of the fence corner and 2.0 feet southwest of fence line. A standard disc, stamped "R-95, 1935" and set in a concrete monument. El. Ft. 1049.040
- S-95 In Harrison County, at Orson, along the Chicago & North Western Railroad at the depot, one pole east of depot, 45.0 feet north of the center line of the tracks, 3.0 feet northeast of pole, and about 5.0 feet below the rail level. A standard disc, stamped "S-95, 1935" and set in a concrete monument. 1037.974
- Top of N rail opposite the ticket window in the Chicago & North Western Railroad station at Orson. 1037.7
- Top of W rail opposite the Chicago & North Western Railroad MP 65. 1038.4
- T-95 In Harrison County, 1.5 miles southwest of the depot at Orson, along the Chicago & North Western Railroad at road crossing, about 500 feet southwest of a culvert #272; 48.0 feet northwest of the center line of the tracks; 42.0 feet northeast of the center line of the road, 12.0 feet northeast of fence corner and 2.0 feet southeast of fence line. A standard disc, stamped "T-95, 1935" and set in a concrete monument. 1025.421
- Top of NW rail opposite the Chicago & North Western Railroad MP 67. 1031.7
- U-95 In Harrison County, 3.0 miles northeast of the depot at Mondamin, along the Chicago & North Western Railroad at road crossing, at culvert #274; 34.0 feet northwest of the center line of the tracks, 30.0 feet east of the center line of the road and 3.0 feet southeast of power-line pole. A standard disc, stamped "U-95, 1935" and set in a concrete monument. 1024.529
- V-95 In Harrison County, 2.0 miles northeast of the depot at Mondamin, along the Chicago & North Western Railroad at road crossing, at culvert #276 $\frac{1}{2}$; 45.0 feet northwest of the center line of the tracks at the intersection with the crossing, 25.0 feet west of the center line of the road, 3.0 feet south of the fence corner and 3.0 feet below rail level. A standard disc, stamped "V-95, 1935" and set in a concrete monument. 1024.355

LEVELING IN IOWA

Top of NW rail opposite the Chicago & North Western Railroad MP 69. El. Ft.
1027.2

43-73 (U.S.C. & G.S. & S.S.) In Harrison County, at Monda-
min, at the northeast corner of the City Park, 47.2 feet
south of the center line of the East-West street, 35.2 feet
west of the center line of street to the south. A bronze
disc, stamped "43-73" and set in a concrete monument. 1020.615

For further descriptions of bench marks in this vicinity,
see page 11.

Top of NW rail opposite the Chicago & North Western 411-
road NW 63.

43-73 (U.S.C. & G.S. & S.E.) In Section Twenty, as laid
out at the northeast corner of the City Park, 47.3 feet
south of the center line of the East-West street, 5.3 feet
west of the center line of street to the south. A frame
disc, stamped "43-73" and set in a concrete monument.

For further descriptions of bench marks in this vicinity
see page 11.

LINE 6390. ROCKWELL CITY to JEFFERSON, IOWA
(Second-order Leveling)

This Line follows the Chicago, Milwaukee, St. Paul & Pacific Railroad from Rockwell City to Jefferson, Iowa, The original field work was done in 1935 by a party in charge of E. E. Stohsner.

For descriptions of additional bench marks in this vicinity, see page 31.

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|---|--|----------|
| <u>Rockwell City, 1934</u> (Reference Mark #1) | In <u>Calhoun County</u> | El. Ft. |
| at <u>Rockwell City</u> , at the Calhoun County Courthouse in Rockwell City, 61.0 feet east of the east door of Courthouse, and 1.0 foot north of walk on Courthouse yard. A triangulation disc set in a concrete monument. | | 1233.354 |
| Top of W rail at the center line of crossing of Chicago, Milwaukee, St. Paul & Pacific Railway with the Illinois Central Railroad at Rockwell City. | | 1217.3 |
| <u>H-101</u> | In <u>Calhoun County</u> , 0.7 mile southeast of the Illinois Central Railroad and the Chicago, Milwaukee, St. Paul & Pacific Railway crossing at <u>Rockwell City</u> , along the Chicago, Milwaukee, St. Paul & Pacific Railroad, at road crossing, at milepost #Y-182; 45.0 feet west of the center line of the tracks, 34.0 feet south of the center line of the road, and 2.0 feet east of the fence line. A standard disc, stamped "H-101, 1935" and set in a concrete monument. | 1212.658 |
| Top of E rail opposite the Illinois Central Railroad MP 95. | | 1188.5 |
| <u>J-101</u> | In <u>Calhoun County</u> , 3.1 miles southeast of the Illinois Central Railroad and the Chicago, Milwaukee, St. Paul & Pacific Railway crossing at <u>Rockwell City</u> , along the Chicago, Milwaukee, St. Paul & Pacific Railroad at road crossing, 45.0 feet east of the center line of the tracks, 36.0 feet south of the center line of the road, 4.0 feet south of fence corner and 1.0 foot south west of fence line, and at rail level. A standard disc, stamped "J-101, 1935" and set in a concrete monument. | 1199.263 |
| <u>K-101</u> | In <u>Calhoun County</u> , at <u>Rands</u> , along the Chicago, Milwaukee, St. Paul & Pacific Railroad, opposite the southeast end of the depot, 45.0 feet northeast of the center line of the tracks, and 3.0 feet north- | |

ROCKWELL CITY to JEFFERSON, IOWA

east of pole with wires to the station. A standard disc, stamped "K-101, 1935" and set in a concrete monument.	El. Ft.	1177.986
Top of E rail opposite the Chicago, Milwaukee, St. Paul & Pacific Railway MP 92.		1184.5
Top of SW rail opposite the Chicago, Milwaukee, St. Paul & Pacific Railway station at Rands.		1181.2
Top of E rail opposite the Chicago, Milwaukee, St. Paul & Pacific Railway MP 91.		1171.2
Top of E rail opposite the Chicago, Milwaukee, St. Paul & Pacific Railway MP 90.		1163.4
<u>L-101</u> In Calhoun County, 1.7 miles northwest of depot at Lohrville, along the Chicago, Milwaukee, St. Paul & Pacific Railroad, at road crossing, 45.0 feet northeast of the center line of the tracks, 33.0 feet west of the center line of the road and 5.0 feet west of the fence corner, 2.0 feet below rail level. A standard disc, stamped "L-101, 1935" and set in a concrete monument.		1154.650
Top of E rail opposite the Chicago, Milwaukee, St. Paul & Pacific Railway MP 88.		1150.0
<u>M-101</u> In Calhoun County, at Lohrville, along the Chicago, Milwaukee, St. Paul & Pacific Railroad, 5 poles southeast of the crossing of the Chicago & Great Western Railroad, 1 pole northwest of the depot, 42.0 feet northeast of the center line of the tracks, and 4.0 feet west of pole carrying cable to block signal. A standard disc, stamped "M-101, 1935" and set in a concrete monument.		1141.451
Top of NE rail at the center line of crossing of the Chicago, Milwaukee, St. Paul & Pacific Railway with the Chicago & North Western Railway at Lohrville.		1141.3
Top of NE rail opposite the Chicago, Milwaukee, St. Paul & Pacific Railway station at Lohrville.		1143.2
<u>N-101</u> In Calhoun County, 2.3 miles southeast of depot at Lohrville, along the Chicago, Milwaukee, St. Paul & Pacific Railroad at road crossing, 46.0 feet east of the center line of the tracks, 40.0 feet south of the center line of the road, 9.0 feet south of the fence		

LEVELING IN IOWA

- corner and 1.0 foot west of the fence line. A standard disc, stamped "N-101, 1935" and set in a concrete monument. El. Ft. 1133.055
- Top of E rail opposite the Chicago, Milwaukee, St. Paul & Pacific Railroad MP 84. 1126.7
- P-101 In Greene County, 1.1 miles north of the depot at Adaza, and 4.4 miles southeast of the depot at Lohrville, along the Chicago, Milwaukee, St. Paul & Pacific Railroad at road crossing, 45.0 feet east of center line of the tracks, 30.0 feet south of the center line of the road, 5.0 feet south of fence corner and 2.0 feet west of fence line, at rail level. A standard disc, stamped "P-101, 1935" and set in a concrete monument. 1119.880
- Q-101 In Greene County, at Adaza, along the Chicago, Milwaukee, St. Paul & Pacific Railroad, at the crossing of State Highway #17; 100 feet north of the depot, 54.0 feet west of the center line of the main tracks, 42.0 feet south of the center line of the highway and 10.0 feet south of fence corner. A standard disc, stamped "Q-101, 1935" and set in a concrete monument. 1121.769
- Top of E rail opposite the Chicago, Milwaukee, St. Paul & Pacific Railroad MP 82. 1120.1
- Top of W rail opposite the Chicago, Milwaukee, St. Paul & Pacific Railroad station at Adaza. 1122.9
- R-101 In Greene County, 1.1 miles southeast of the depot at Adaza, along the Chicago, Milwaukee, St. Paul & Pacific Railroad, one-half pole northwest of the "Adaza One Mile" sign, 45.0 feet northeast of the center line of the tracks, 4.0 feet northeast of pole and 4.0 feet southwest of fence line, 4.0 feet below rail level. A standard disc, stamped "R-101, 1935" and set in a concrete monument. 1110.710
- Top of E rail opposite the Chicago, Milwaukee, St. Paul & Pacific Railroad MP 81. 1117.3
- S-101 In Greene County, at Churdan, along the Chicago, Milwaukee, St. Paul & Pacific Railroad at street crossing, 100 feet south of the depot, 17.0 feet east of the center line of the main tracks and 1.0 foot east of the brick station platform. A standard disc, stamped "S-101, 1935" and set in a concrete monument. 1119.676

ROCKWELL CITY to JEFFERSON, IOWA

- Top of E rail opposite the Chicago, Milwaukee, St. Paul & Pacific Railroad station at Churdan. El. Ft. 1119.6
- T-101 In Greene County, 2.3 miles southeast of the depot at Churdan, along the Chicago, Milwaukee, St. Paul & Pacific Railroad at road crossing, 84.0 feet southeast of the center line of the cross-road, 40.0 feet northeast of the center line of the tracks and 6.0 feet northwest of the pole. A standard disc, stamped "T-101, 1935" and set in a concrete monument. 1138.984
- Top of E rail opposite the Chicago, Milwaukee, St. Paul & Pacific Railroad MP 77. 1121.8
- U-101 In Greene County, 1.7 miles northwest of the depot at Farlin, along the Chicago, Milwaukee, St. Paul & Pacific Railroad at road crossing, 48.0 feet west of the center line of the tracks, 30.0 feet north of the center line of the road, 10.0 feet north of the fence corner and 2.0 feet east of the fence line. A standard disc, stamped "U-101, 1935" and set in a concrete monument. 1103.256
- Top of E rail opposite the Chicago, Milwaukee, St. Paul & Pacific Railroad MP 75. 1113.7
- 101 In Greene County, at Farlin, along the Chicago, Milwaukee, St. Paul & Pacific Railroad at road crossing at station, 45.0 feet east of the center line of the tracks, 45.0 feet south of the center line of the road and 5.0 feet southwest of the fence corner. A standard disc, stamped "V-101, 1935" and set in a concrete monument. 1070.109
- Top of SW rail opposite the Chicago, Milwaukee, St. Paul & Pacific Railroad station at Farlin. 1071.5
- W-101 In Greene County, at Farlin, along the Chicago, Milwaukee, St. Paul & Pacific Railroad at a county road culvert, 5 poles southeast of the depot, in the center of the northeast headwall, 66.0 feet southwest of the center line of the tracks. A standard disc, stamped "W-101, 1935". 1071.881
- X-101 In Greene County, 1.8 miles southeast of the depot at Farlin, along the Chicago, Milwaukee, St. Paul & Pacific Railroad at road crossing, 45.0 feet southwest of the center line of the track, 42.0 feet west of the center line of the road, 14.0 feet northwest of fence

LEVELING IN IOWA

- corner and 1.0 foot northeast of fence line. A standard disc, stamped "X-101, 1935" and set in a concrete monument. El. Ft. 1059.027
- Top of NE rail opposite the Chicago, Milwaukee, St. Paul & Pacific Railroad MP 71. 1064.0
- Y-101 In Greene County, 2.8 miles northwest of the depot at Jefferson, along the Chicago, Milwaukee, St. Paul & Pacific Railroad at road crossing, 45.0 feet southwest of the center line of the tracks, 39.0 feet west of the center line of the road, and 15.0 feet northwest of fence corner. A standard disc, stamped "Y-101, 1935" and set in a concrete monument. 1050.880
- Z-101 In Greene County, 1.4 miles northwest of the depot at Jefferson, along the Chicago, Milwaukee, St. Paul & Pacific Railroad at the crossing of State Highway #17; 45.0 feet southwest of the center line of the tracks, 39.0 feet east of the center line of the highway and 6.0 feet east of fence corner, 4.0 feet below rail level. A standard disc, stamped "Z-101, 1935" and set in a concrete monument. 1052.773

For descriptions of additional bench marks in this vicinity, see pages 84, 93.

corner and 1.0 foot radius of base 1.00 1.00
and base diameter 1.00 1.00 and in a square
position.

top of 16 rail opposite the Chicago, Milwaukee,
and St. Paul's Railroad No. 11.

Y-101 is Green County, 1.4 miles northwest of the
top of 16 rail, along the Chicago, Milwaukee,
and St. Paul's Railroad at road crossing, 1.00 foot
northwest of the center line of the track, 1.00 foot
west of the center line of the road, and 1.00 foot
northwest of base center. A standard disc, stamped
"Y-101, 1924" and set in a concrete foundation.

Y-102 is Green County, 1.4 miles northwest of the
top of 16 rail, along the Chicago, Milwaukee,
and St. Paul's Railroad at the crossing of State
Highway 100, 1.00 foot northwest of the center line of
the track, 1.00 foot west of the center line of the
road, and 1.00 foot east of base center, 1.00 foot below
rail level. A standard disc, stamped "Y-102, 1924"
and set in a concrete foundation.

For description of additional bench marks in this
listing, see page 11, 12.

INDEX

(All cities and towns, unless otherwise stated, are in Iowa)

	Page		Page
Adair	51	Farlin	136
Adaza	135	Fort Dodge	17, 18, 29
Angus	23	Galva	38
Anita	51	Glendon	89, 90
Anthon	124, 125	Gliddon	97, 98
Arion	104, 105, 106	Grand Junction	93
Ashawa	27	Gray	76, 77
Aspinwall	102	Guthrie Center	80, 87, 89
Atlantic	50, 51, 71	Halbur	99, 100
Audubon	75	Hamlin	74, 79
Avoca	49, 50	Herndon	84, 85
Beaver	92	Herring	117
Berkley	22, 23	Holstein	38, 39
Blencoe	12, 13	Honey Creek	9
Booneville	54	Jefferson	83, 94, 95, 137
Boyer	118	Kingsley	42, 43
Brayton	73	Kiron	119
Breda	60, 61	Knierim	30
Bronson	45, 46	Lake View	57, 58
Buck Grove	103, 104	Lawton	45
Burnside	18, 19	Lohrville	134
California Junction	10	Lorah	71, 72
Carnarvon	59, 60	Loveland	9
Carroll	62, 98, 99	Lytton	32
Casey	52	Manilla	63, 102, 103
Charter Oak	106, 107	Manning	78, 100, 101
Churdan	135, 136	Maple River	61, 62
Commerce	54, 55	Mapleton	109, 110
Cooper	83, 84	Marne	50
Correctionville,	40, 41, 125, 126	Menlo	52, 90
Council Bluffs	7, 8, 47	Minburn	24, 25
Crescent	9	Minden	49
Cushing	39, 40	Missouri Valley	10
Dallas Center	25, 26	Modale	11
Dayton	19	Mondamin	11, 12, 130, 131
Defiance	64	Monteith	89
De Soto	53, 54	Moorhead	128, 129
Dexter	53	Moville	43, 44
Earlham	53	Neola	48, 68, 69
Earling	64, 65	Ogden	21, 22, 91, 92
Early	35, 36	Omaha (Nebr.)	7, 8
Exira	73	Onawa	13, 14, 113, 114

	Page
Orson	130
Otho	18
Oto	124
Panama	66
Panora	86, 87
Perry	23, 24
Persia	67, 68
Pierson	41, 42
Pilot Mound	20
Pisgah	129
Portsmouth	67
Ralston	96, 97
Rands	133
Richards	30
Ricketts	121, 122
River Sioux	12
Rockwell City	31, 133
Ross	75, 76
Sac City	32, 33, 34, 35, 57
Sac Junction	58
Salix	15, 16
Scranton	95, 96
Sergeant Bluff	16
Schaller	36, 37
Schleswig	120, 121
Shelby	49
Sloan	15
Smithland	111, 114, 115, 123
Soldier	127, 128
South Dayton	19, 20
Stuart	52
Tara	29, 30
Underwood	48
Ute	107, 108, 122, 127
Van Meter	54
Wall Lake	59, 117
Walnut	50
Waukee	26, 27
West Des Moines	27, 55
Weston	47, 48
Whiting	14, 15
Wiota	51
Wolf	21
Yale	85, 86

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