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WAR DEPARTMENT :: CORPS OF ENGINEERS, UNITED STATES ARMY  
BULLETIN No. 3

DESCRIPTIONS AND ELEVATIONS  
OF  
**Bench Marks on the Missouri River**

ELEVATIONS REFERRED TO  
ST. LOUIS CITY DIRECTRIX

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UNITED STATES ENGINEER OFFICE  
KANSAS CITY, MO.

1912



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1912

## BENCH MARKS.

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[NOTE.—List of Bench Marks Bulletin No. 1 was issued 1881-2; Bulletin No. 2 May, 1888. This list is Bulletin No. 3. It is corrected to date to conform to precise level elevations as determined by the Missouri River Commission from mouth to Sioux City, Iowa, in 1892-3.]

The following list of bench marks includes all the published bench marks of the Missouri River Commission leveled to in the years 1881 to 1893 inclusive, from the mouth of the Missouri River to the Big Sioux River at Sioux City, Iowa, from Sioux City to Ft. Benton and from Ft. Benton, Mont., to Three Forks, Mont.

The bench marks are arranged in the table in the order of their position from the mouth of river as measured along the general central line of the river valley.

The level notes over all stone lines from mouth of river to Sioux City and from Ft. Benton to Three Forks, Mont., were recomputed; and the bench marks of these stone lines and those of former surveys that were connected with at time stone lines were put in, were adjusted to the precise levels.

The degree of accuracy or reliability of these bench marks will be denoted by classes.

The first class includes all the precise bench marks, and these are marked as P. B. M.'s and T. B. M.'s and some as Gauge B. M.'s, except the Gauge B. M.'s in small type.

The second class includes all bench marks of stone lines and those benches of 1881 and 1882 that were leveled to at time stone lines were put in, not included in first class, also those established in 1890 from Ft. Benton to Three Forks, Mont.

The bench marks in this class, below Sioux City, Iowa, are numbered from the mouth of the river up; the stone lines are in the form of a fraction—the numerator being the number of the line reckoning from the mouth up and the denominator of stone on the line reckoning from right bank. Those above Ft. Benton are numbered from 1 at Three Forks to 53 just above Ft. Benton.

The third class includes those benches of 1881 and 1882 not included in second class, and is in small type. No corrections have been applied to this class nor has it been recomputed.

All elevations refer to the St. Louis Directrix as zero, which is 413.77 feet above mean gulf tide at Biloxi, Miss., as given by the Mississippi River Commission.

Bench marks above Ft. Benton depend on elevations of bench 1-2 at Ft. Benton, which is 2215.517 feet above St. Louis Directrix as determined from P. B. M. 396 at Sioux City, Iowa, by survey parties under Captains C. F. Powell and H. F. Hodges, Corps of Engineers, and the Missouri River Commission.

P. B. M. 391=<sup>1</sup>/<sub>4</sub><sup>2</sup>: Is on L. B., in Sargents Bluff, Iowa, in lot 1, block 2, 10 feet from the southwest corner of E. T. Berry's house, 52 feet from the northwest corner of Tenth and Walnut streets; being copper bolt in B. M. stone.

Elev., 678.152; top of cap, 682.142.

P. B. M. 392: Is on L. B., about 3 miles north of Sargents Bluff, Iowa, 47 feet east of the Sioux City and Pacific Ry. track, 1,476 feet south of a road crossing, and about 2 feet west of east right-of-way fence: being copper bolt in B. M. stone.

Elev., 680.929; top of cap, 684.944.

T. B. M. 961: Is on L. B.,  $1\frac{1}{4}$  miles below the Chicago, St. Paul, Minneapolis and Omaha Ry. bridge at Sioux City, Iowa, about 656 feet south of railway bridge No. 56, 558 feet from a farm house, in woods 60 feet west of the Sioux City and Pacific Ry. track; being a spike in root of a 15-inch elm tree.

Elev., 689.982.

P. B. M. 393: Is on L. B., in Sioux City, Ia., 558 feet south of the Chicago, St. Paul, Minneapolis and Omaha Ry. bridge at Sioux City, Iowa, 148 feet north of railway bridge No. 60, 20 feet east of the Sioux City and Pacific Ry. track; being copper bolt in B. M. stone.

Elev., 685.933; top of cap, 689.958.

P. B. M. 394: Is on L. B., at Sioux City, Iowa, in the northwest corner of the east pier of the Chicago, St. Paul, Minneapolis and Omaha Ry. bridge, 2 feet above ground; being center of copper bolt leaded horizontally into the seventeenth course of masonry below the coping stone.

Elev., 693.570.

P. B. M. 395=Gauge B. M.: Is on L. B., at Sioux City, Iowa, 103 feet west of the west side of the eastern or shore pier of the Chicago, St. Paul, Minneapolis and Omaha Ry. bridge, and almost vertically under the north truss of the east span, 69 feet west of the Sioux City and Pacific Ry. track; being top of cap.

Elev., 682.015; copper bolt (not precise), 677.990.

B. M. <sup>1</sup>/<sub>4</sub><sup>3</sup>, South Sioux City, Nebr.: Is on R. B., in dooryard of N. H. Emery, in northeast corner of lot 2, block 27, in Moon's addition.

Elev., 686.607; top of cap, 690.665.

P. B. M. 396=<sup>1</sup>/<sub>4</sub><sup>3</sup>: Is in Sioux City, Iowa, in the southwest corner of court house yard 72 feet from the southwest corner of the court house and 135 feet from the southeast corner of same; being copper bolt in B. M. stone.

Elev., 694.113; top of cap, 698.132.

T. B. M. 966: Is in Sioux City, Iowa, about 39 feet north of the northeast corner of Fifth and Pierce streets; being top of ring bolt set vertically in sidewalk stone.

Elev., 696.417.

466="1" of 1879: Is on R. B., at Covington, Nebr., on east side of Hamilton street, half way between Second and Third streets, on 30-inch red-elm.

Elev., 686.227.

"1" of Sioux City Construction Party: Is on L. B., at Sioux City, Iowa, just below U. S. Gauge, on 3-foot cottonwood.

Elev., 689.150.

"A" Precise Bench: Is at Sioux City, Ia., center of outside edge of sill of false window of basement, west side near southwest corner of court house.

Elev., 699.076.

466 "A" a=Gauge B. M.: Is at Sioux City, Iowa, southeast corner of Sanborn and Folletts' brick building at southwest corner of Third and Water streets, under side of marked brick in water table.

Elev., 694.019.

467: Is on R. B., at Sioux City, Iowa, about 500 feet from river, 400 feet back from 466 on Hamilton street, Covington, Nebr., on 30-inch elm.

Elev., 685.033.

T. B. M. 970: Is on L. B., 108 feet west of P. B. M. 397, and 39 feet west of Chicago, Milwaukee and St. Paul Ry. track; being railroad spike in root of a 12-inch ash tree.

Elev., 690.435.

P. B. M. 397: Is on L. B., 3 miles above Sioux City, Iowa, and about  $\frac{1}{4}$  mile north of the Electric Ry. power house at Riverside Park, 121 feet north of north head block, at foot of bluff, and 52 feet east of the Chicago, Milwaukee and St. Paul Ry. track; being copper bolt in B. M. stone.

Elev., 688.258; top of cap, 692.269.

T. B. M. 971: Is on L. B.,  $3\frac{1}{4}$  miles above Sioux City, Iowa, 174 feet north of north head block at siding, 69 feet west of the Chicago, Milwaukee and St. Paul Ry. track and 10 feet east of the Electric Ry. track; being spike in root of a 15-inch post oak tree.

Elev., 691.169.

P. B. M. 398: Is on L. B., about 6 miles above Sioux City, Iowa, 515 feet south of the south end of the railway bridge over Big Sioux River and 3 feet east of the west right-of-way fence; being copper bolt in B. M. stone.

Elev., 690.796; top of cap, 694.805.

T. B. M. 973: Is on L. B., about 246 feet south of the Chicago, Milwaukee & St. Paul Ry. bridge over Big Sioux River and 30 feet east of track; being railroad spike in root of a 12-inch maple.

Elev., 695.851.

P. B. M. 399: Is on L. B., about 6 miles above Sioux City, Iowa, on land of Mrs. Rose Pacquette, 50 feet west of Chicago, Milwaukee and St. Paul Ry. track, 190 feet south of the south end of railway bridge over the Big Sioux River and about 5 feet west of the right-of-way fence; being copper bolt in B. M. stone.

Elev., 686.287; top of cap, 690.292.

- M. R. C. 14<sup>2</sup>: In southwest corner of court-house yard, Sioux City, Iowa.  
Elev., 694.113.
- B. M. 22<sup>0</sup>: Left bank, about 400 feet south from depot at McCook, 130 feet back of schoolhouse.  
Elev., 692.947.
- B. M. 24<sup>0</sup>: Right bank, opposite upper end of cut-off forming McCook Lake, where river turns east, about 1 mile from river, in southeast corner of school yard, on west side of road straight out from river. David Clark lives about 1,200 feet south of B. M.  
Elev., 693.889.
- B. M. 25<sup>2</sup>: Left bank, about 4 miles south of Jefferson, on north side of road, opposite house of A. P. Keendy. John Gibson owns land. Section line is 75 feet south of B. M. about one-quarter mile from river, at end of big willow bar in bend.  
Elev., 695.737.
- B. M. 25<sup>3</sup>: Northwest corner school yard at Jefferson. Blacksmith shop across street.  
Elev., 697.127.
- B. M. 25<sup>4</sup>: Left bank, about 2½ miles below B. M. 25<sup>2</sup>, on north side of road, 200 feet west of bridge across slough, 400 feet from river. Yellow house and grove three-quarter mile above B. M.  
Elev., 696.873.
- B. M. 25<sup>7</sup>: Left bank, 6 miles by river, 2 miles across from B. M. 25<sup>4</sup>, near fence corner, 30 feet west of road along river bank. House 800 feet above B. M.  
Elev., 696.407.
- B. M. 25<sup>8</sup>: Three miles due north of B. M. 25<sup>6</sup>, about 3 miles west of Jefferson, 50 feet northwest from schoolhouse at crossroads.  
Elev., 704.851.
- B. M. 25<sup>9</sup>: Left bank, opposite B. M. 25<sup>8</sup>, 1 mile from river, on west side of river.  
Elev., 708.194.
- W. R. McKinsey lives on opposite side of road.
- B. M. 25<sup>6</sup>: Right bank, 3½ miles below Ponca landing, in creek valley, 1,200 feet from river where it strikes the bluffs. George Barben lives near B. M.  
Elev., 719.232.
- B. M. 25<sup>7</sup>: Left bank, one-half mile north from Ponca Ferry, 1,000 feet east of main road to Elk Point, and on the Stough farm, 200 feet south of the farm buildings, Clarence Cheeny, tenant.  
Elev., 708.097.
- B. M. 25<sup>2</sup>: Right bank, at foot of bluffs, about one-half mile below Ponca Landing. Is in farm yard of John Austin, about 300 feet southwest from his dwelling house, and 250 feet south of road between Ponca and Ponca Landing.  
Elev., 705.867.
- B. M. 25<sup>4</sup>: Left bank, about 4 and one-half miles south of Elk Point, on road to Ponca Ferry, in southwest corner of Pleasant Grove district No. 20, schoolyard. A. S. Bland lives opposite B. M.  
Elev., 707.665.
- B. M. 25<sup>3</sup>: Southeast corner of court-house yard at Elk Point, S. D.  
Elev., 710.925.
- B. M. 25<sup>3</sup>: Left bank, about one and one-quarter miles west from Elk Point, 200 feet north from house of D. W. Carter, about 2 miles from river.  
Elev., 701.703.
- B. M. 25<sup>2</sup>: About one-fourth mile back of B. M. 25<sup>2</sup>. Frame house 150 feet north-west of B. M.  
Elev., 716.032.
- B. M. 25<sup>2</sup>: Left bank, about 3 miles below B. M. 25<sup>1</sup>, about one-fourth mile from river, in edge of cornfield south side of road, 180 feet southeast of house of Gude Djorlasis (pronounced De Jella).  
Elev., 716.697.
- B. M. 25<sup>1</sup>: Left bank, three-fourth mile north from house of James McGonnagle, and about one-half mile northeast of J. W. Hammond's white house and grove. Donnelly school, district No. 12, is about one-half mile south-east, in N. E. one-quarter section 7, T. 91, R. 50, on flat bottom; no fence near B. M.  
Elev., 716.091.
- B. M. 25<sup>0</sup>: About one-third mile back of B. M. 25<sup>0</sup>, just west of main road north from Burbank, on southwest corner of first grove along road.  
Elev., 719.939.
- B. M. 25<sup>0</sup>: Left bank, 25 feet west of schoolhouse at Burbank, about 1,000 feet north of railway.  
Elev., 721.536.
- B. M. 25<sup>0</sup>: Left bank, 3 miles below B. M. 25<sup>8</sup>, 1,600 feet from river, just back of timber. House 800 ft. southwest; wagon road from B. M. straight north to railway; schoolhouse one mile north of B. M.  
Elev., 724.268.
- B. M. 25<sup>2</sup>: Left bank, about one-half mile from river, just below mouth of old cut-off slough, a white house 1,800 feet south and another 800 ft. southwest, in pasture land.  
Elev., 724.794.
- B. M. 25<sup>7</sup>: Left bank, in northwest corner court-house yard at Vermilion, S. D.  
Elev., 810.759.
- B. M. 24<sup>7</sup>: Right bank, in Line Creek Valley, 30 feet northwest from schoolhouse, about one and one-quarter miles below ferry at Mulberry Point, about 1,600 feet from river.  
Elev., 740.825.
- B. M. 24<sup>6</sup>: Left bank, 3 miles above Vermilion, 300 ft. east of house of Ole Temple, 1,300 feet north of main road from Vermilion.  
Elev., 734.015.
- B. M. 24<sup>6</sup>: Right bank, in bottom 3 miles below B. M. 24<sup>4</sup>, 3,200 feet below end of timber, 2,300 feet from river, near fence around farm yard of F. W. Reifenmath.  
Elev., 738.952.

- B. M.  $345$ : One-fourth mile back of B. M.  $343$ , in pasture east of road, opposite house of Chris Larson, 1000 feet south of main road to Vermilion. Elev., 740.115.
- B. M.  $345$ : Left bank, about seven and one-half miles above Vermilion, about one-fourth mile from river, above beginning of timber, about 400 feet back of sawmill, 20 feet east of road to river, one mile above high sand hills on river bank. Elev., 737.246.
- B. M.  $344$ : Right bank, 2 miles below St. James Landing, in timber bottom, 150 feet northeast from log house of Theodore Witthouse, near road to river, about 1,000 feet from river. Elev., 737.433.
- B. M.  $343$ : Left bank, about 1,500 feet from river, opposite foot of St. Helena Island, just east of county line, Clay and Yankton counties, three-fourth mile south of brick house of Peter Smith and one-half mile southeast of white frame house of H. Smith. Elev., 744.856.
- B. M.  $342$ : 1,000 feet back of B. M.  $342$ , 15 feet north of road to St. Helena Ferry, about 400 feet east of small board shack, one-half mile west of frame house of Markeen Nelson, two and three-quarters miles due west of large brick house of Peter Smith. Elev., 748.327.
- B. M.  $342$ : Left bank, opposite a point one-half mile below head of St. Helena Island, on flat bottom, about 1,000 feet from river. House and grove about 700 feet southeast. Elev., 746.976.
- B. M.  $341$ : Right bank, about a mile above St. Helena, Nebr., near fence below creek on slope, into creek valley, down which a wagon road leads across bridge over creek. Elev., 837.366.
- B. M.  $340$ : One-fourth mile due north of B. M.  $340$ , near fence corner. Elev., 748.769.
- B. M.  $340$ : Left bank, 350 feet below mouth of James River, about 1,000 feet from river. House and grove of Mr. Walker is one-half mile north. William Esmay lives one-half mile east of B. M. B. M. is on land of Dougherty. Main road to Yankton is 600 feet north of B. M. Elev., 748.784.
- B. M.  $339$ : Right bank, at Campbell's Point, on slope of grassy knoll. Elev., 811.233.
- B. M.  $338$ : About 1,000 feet back of B. M.  $338$ , just south of fence around cornfield. Mr. Frazier's house is 800 feet back of B. M. Elev., 758.448.
- B. M.  $338$ : Left bank, about 3 miles below Yankton, 8 ft. south of main road from Yankton to the lower bridge across James River, at a point about one-half mile west of where road leaves old grade, in first clear strip of bottom below Yankton. Elev., 756.989.
- B. M.  $337$ : Left bank, in southwest corner court-house yard, Fifth St. and Douglass Ave., Yankton, S. D. Elev., 784.581.
- B. M.  $336$ : About one-half mile back of B. M.  $336$ , 4 feet south of east and west fence, 500 feet west of east corner of fence. Cement works at foot of bluffs one-fourth mile back of B. M. Elev., 774.749.
- B. M.  $335$ : Left bank, about four and one-half miles above Yankton. Yankton Cement Works are about three-quarters mile back from B. M. Timber to river 300 feet above B. M. Elev., 767.133.
- B. M.  $335$ : About one-fourth mile back of B. M.  $335$ , at foot of bluffs on slope, 50 feet above main wagon road, on Ulrich's land. Elev., 862.334.
- B. M.  $335$ : Left bank, about 4 miles below B. M.  $334$ , on first bench 300 feet from river, 1,000 feet below creek, at beginning of bottom. Land belongs to Mr. Ulrich. Elev., 791.587.
- B. M.  $334$ : Right bank, opposite Antelope Point, on sloping nose between two small coulées, 100 feet back from edge of low sliding bluffs. House 900 feet southwest of B. M. Elev., 714.170.
- B. M.  $333$ : Left bank, three-fourths mile below Mennonite village. On slope to bottom just above third coulée below village, 100 feet south of road at foot of bluffs. Elev., 792.735.
- B. M.  $333$ : Right bank, opposite foot of Bon Homme Island just above large coulée, on bench land 200 ft. from river. Elev., 818.715.
- B. M.  $332$ : About 800 feet back of B. M.  $332$ , on slope of lower side of creek, in pasture. Elev., 798.499.
- B. M.  $332$ : Left bank, one and one-quarter mile below Bon Homme, back from ferry landing, 100 feet back of J. M. Cordle's house. Bridge across coulée 100 feet northwest of B. M. Elev., 788.510.
- B. M.  $331$ : Right bank, two and one-quarter miles below Santee Agency, 400 feet from river, just where it strikes bluffs, 100 feet above creek. White house about 800 feet back of B. M. Elev., 837.481.
- B. M.  $330$ : Left bank, about three and one-half miles below Springfield, S. D. on bench land, just at upper side of mouth of Silver Creek Valley. Road leads out of bottom into valley 15 feet east of B. M. Elev., 794.637.

- B. M.  $2\frac{3}{4}^B$ : Southwest corner of high school yard, at Springfield, S. D.  
Elev., 859.556.
- B. M.  $2\frac{3}{4}^B$ : Right bank, about two and one-half miles above Springfield, S. D. About one and one-half miles below head of bottoms, in mouth of large coulée, 50 feet west from shack.  
Elev., 810.874.
- B. M.  $2\frac{3}{4}^B$ : Left bank, 75 feet from edge of cut bluff bank, about 500 feet south from Indian school, at Springfield, S. D., just east of fence.  
Elev., 869.658.
- B. M.  $2\frac{3}{4}^B$ : Left bank, on little bench in bottom about two and one-quarter miles below Running Water, about one-half mile from river. Several houses in coulée straight back from B. M.  
Elev., 798.958.
- B. M.  $2\frac{3}{4}^B$ : Left bank, 75 feet east from southeast corner of Henry Brook's store, in Running Water.  
Elev., 841.367.
- B. M.  $2\frac{3}{4}^B$ : Left bank, on low bluff above coulée, opposite ferry landing, 100 feet northwest from freight house, at Running Water, S. D.  
Elev., 831.766.
- B. M.  $2\frac{3}{4}^B$ : Right bank, at Niobrara, Nebr., southeast corner high school yard. Is marked by  $\Delta$  pipe.  
Elev., 835.963.
- B. M.  $2\frac{3}{4}^B$ : Straight back from B. M.  $2\frac{3}{4}^A$ , at foot of bluffs, 65 feet back of road along bluffs.  
Elev., 816.796.
- B. M.  $2\frac{3}{4}^B$ : Left bank, one mile below head of bottom, about 700 feet from river. Grove 1,000 feet south, also grove 600 feet east of B. M.  
Elev., 806.756.
- B. M.  $2\frac{3}{4}^B$ : Left bank, about three miles below B. M.  $2\frac{3}{4}^B$ , about 1,000 feet above where river strikes bluffs, on nose from bluffs above small creek.  
Elev., 850.358.
- B. M.  $2\frac{3}{4}^B$ : On bench land, one-fourth mile back of B. M.  $2\frac{3}{4}^B$ , 1,000 feet from Chouteau Creek, where road crosses it. Two shacks about 700 feet back of B. M.  
Elev., 842.168.
- B. M.  $2\frac{3}{4}^B$ : Left bank, about 400 feet above Chouteau Creek, on long mound or ridge in old slough bed. Indian shack on mound 400 feet above B. M.  
Elev., 827.554.
- B. M.  $2\frac{3}{4}^B$ : Left bank, about 3 miles below B. M.  $2\frac{3}{4}^B$ , on ridge in bottom about 900 feet from river, just below where heavy timber leaves river and goes back toward bluffs.  
Elev., 814.951.
- B. M.  $2\frac{3}{4}^B$ : Left bank, near edge of old slough bed, which runs out to river bank 1,000 feet above B. M. Shack with grove one-half mile above beginning of timber.  
Elev., 817.636.
- B. M.  $2\frac{3}{4}^B$ : Left bank, about three miles below B. M.  $2\frac{3}{4}^B$ , on bottom about 400 feet from river, about 1,000 feet above where timber begins (probably in the river).  
Elev., 818.332.
- B. M.  $2\frac{3}{4}^B$ : Left bank, about two and three-quarters miles below B. M.  $2\frac{3}{4}^B$ , on low bench in bottom, 500 feet from river, 20 feet above road to river. Shack and grove about 1,800 feet back of B. M., three large trees near B. M.  
Elev., 818.891.
- B. M.  $2\frac{3}{4}^B$ : About 800 feet back of B. M.  $2\frac{3}{4}^B$ , old slough bed 300 feet back of B. M., wagon road 300 feet south of B. M., which crosses slough about 600 feet above B. M.  
Elev., 823.835.
- B. M.  $2\frac{3}{4}^B$ : Left bank, about two and three-quarters miles below Yankton Agency, on low bench about 800 feet from river.  
Elev., 822.594.
- B. M.  $2\frac{3}{4}^B$ : Left bank, at Yankton Agency, in southeast of main office yard. Flag-staff stands 100 feet south of B. M.  
Elev., 849.789.
- B. M.  $2\frac{3}{4}^B$ : Left bank, about one and one-quarter miles above Yankton Indian Agency, on bluffs, at lower end of bottom just above where road leads up to the hill from bottom.  
Elev., 874.051.
- B. M.  $2\frac{3}{4}^B$ : Left bank, about three miles below B. M.  $2\frac{3}{4}^B$ , on first bench back of timber, about 300 feet above two Indian shacks, road to river from B. M., large timber runs back toward bluffs 1,000 feet above and below B. M., three-fourths mile from river.  
Elev., 829.297.
- B. M.  $2\frac{3}{4}^B$ : About 2,000 feet back of B. M.  $2\frac{3}{4}^B$ , on long narrow ridge, like railway grade; road along top of ridge; two shacks and grove on ridge about 700 feet above B. M.  
Elev., 835.221.
- B. M.  $2\frac{3}{4}^B$ : Left bank, about three miles below B. M.  $2\frac{3}{4}^B$ , 300 feet from river, on level bottom about 500 feet above where timber begins.  
Elev., 831.192.
- B. M.  $2\frac{3}{4}^B$ : Left bank, about two and one-half miles below White Swan, one-half mile below beginning of "Dugway," or head of bottom, on knoll in mouth of small creek; valley 300 feet back of road up bottom, 700 feet from river.  
Elev., 850.908.
- B. M.  $2\frac{3}{4}^B$ : Right bank, at Fort Randall, 25 feet west of road to river, on first bench, at northeast corner of fort.  
Elev., 869.958.
- B. M.  $2\frac{3}{4}^B$ : Right bank, at White Swan, 400 feet from river, 25 feet west of southwest corner of store, on small mound.  
Elev., 837.237.
- B. M.  $2\frac{3}{4}^B$ : Left bank, about two miles below, B. M.  $2\frac{3}{4}^B$ , on flat bottom two and one-half miles above White Swan, opposite head of small island. Large grove of trees

2,000 feet below B. M., and a church on bench land one-half mile back of B. M. B. M. is 350 feet from river and 25 feet south of road. Elev., 838.123.

B. M.  $2\frac{1}{2}^0$ : About three-fourths mile back of B. M.  $2\frac{1}{2}^0$ , on first bench. Several Indian shacks on low bluffs one-half mile back of B. M. Elev., 846.274.

B. M.  $2\frac{1}{2}^0$ : Left bank, about 300 feet from river, about one mile below upper end of Yankton Indian Reservation. Elev., 839.072.

B. M.  $2\frac{1}{2}^2$ : Left bank, 3 miles below B. M.  $2\frac{1}{2}^2$ , opposite head of Chicot Island, on low foothills 100 feet from river, just above head of bottom. Elev., 865.655.

B. M.  $2\frac{1}{2}^2$ : Left bank, about 3 miles below B. M.  $2\frac{1}{2}^2$ , at the end of bottom, one mile below Pease Creek, 200 feet from river on foothills. Small graveyard 400 ft. back of B. M. B. M. is regulation stone set three and one-half feet in ground, with 3-inch ash pole 4 feet high set for surface mark. Pipe is gone. Elev., 875.199.

B. M.  $2\frac{1}{2}^7$ : About one-half mile back of B. M.  $2\frac{1}{2}^7$ , on gentle slope from bluffs, on south side of road and about one-half mile east of house of Matthew Biggins. Elev., 872.352.

B. M.  $2\frac{1}{2}^7$ : Left bank, about 3 miles below Wheeler, on first bench, about 300 feet from river, about 100 feet above where timber begins. Sod shack 1,000 feet north-west and log shack 600 feet above B. M. Elev., 856.436.

B. M.  $2\frac{1}{2}^2$ : In northeast corner of court-house yard at Wheeler, S. D. Elev., 898.104.

B. M.  $2\frac{1}{2}^2$ : Left bank, on first bench, 400 feet from river, 25 feet north of road from Wheeler to river, 7 feet west of north and south wire fence. Elev., 857.271.

B. M.  $2\frac{1}{2}^2$ : Left bank, about 3 miles below B. M.  $2\frac{1}{2}^2$ , on broken foothills 100 feet from river, just above small coulée above head of bottom, about a mile above the Wheeler Ferry. Elev., 876.319.

B. M.  $2\frac{1}{2}^4$ : About three and three-quarters miles below B. M.  $2\frac{1}{2}^4$ , about one-half mile above where river strikes bluffs on narrow nose between two small coulées. Large chalk rock house at foot of bluffs just above B. M. Road from house straight out to river. Elev., 898.316.

B. M.  $2\frac{1}{2}^3$ : About 700 feet back of B. M.  $2\frac{1}{2}^3$ , on edge of first bench. Elev., 893.840.

B. M.  $2\frac{1}{2}^2$ : Left bank, on bottom opposite beginning of timber, about 2,000 feet below head of bottom, 200 feet from river. Warehouse on river bank one-half mile below B. M. Senator Jones lives on Cedar Creek one mile above B. M. Elev., 867.231.

B. M.  $2\frac{1}{2}^2$ : Left bank, about three miles below B. M.  $2\frac{1}{2}^1$ , on low bench 350 feet below small creek, 200 feet from river, just above end of bottom. Log shack 100 feet below B. M. Road along bluffs back of B. M. Elev., 875.730.

B. M.  $2\frac{1}{2}^1$ : 1,000 feet back of B. M.  $2\frac{1}{2}^1$ , in first bench above creek 300 feet west of log shack below creek, one-fourth mile below yellow frame house of Oldham. Elev., 899.246.

B. M.  $2\frac{1}{2}^1$ : Left bank, about three miles below B. M.  $2\frac{1}{2}^2$ , on small ridge 200 feet from river, one-fourth mile above where timber begins. Elev., 869.584.

B. M.  $2\frac{1}{2}^0$ : Left bank, about three and one-half miles below  $2\frac{1}{2}^2$ , 75 feet above small creek, 125 feet from river bank, on small mound at head of bottom. Elev., 892.123.

B. M.  $2\frac{1}{2}^2$ : About 500 feet back of B. M.  $2\frac{1}{2}^2$ , on edge of bench land, one-half mile below red frame house of Turgeon. Elev., 902.400.

B. M.  $2\frac{1}{2}^2$ : Left bank, one-fourth mile above foot of bottom opposite head of Island No. 1, in bottom 100 feet from river just back of single elm tree. Elev., 877.208.

B. M.  $2\frac{1}{2}^2$ : Left bank, about 3 miles below B. M.  $2\frac{1}{2}^7$ , 100 ft. from small creek, 25 feet from edge of cut bank of river, one-fourth mile above head of bottom, opposite foot of island No. 3. Philip Turgeon lives in coulée about 1,000 feet back of B. M. Elev., 893.400.

B. M.  $2\frac{1}{2}^7$ : Left bank, about one and one-half miles below end of bottom, on small mound 200 feet west of creek and 600 feet west of house at Rhode's horse ranch. Road to river 100 feet east of B. M. Elev., 907.418.

B. M.  $2\frac{1}{2}^2$ : Left bank, about 2 miles below B. M.  $2\frac{1}{2}^2$ , about 1,000 feet west of house of J. Ham, 200 feet west of narrow lane, 10 feet south of wagon road, about 400 feet from river. Elev., 889.356.

B. M.  $2\frac{1}{2}^2$ : One-fourth mile back of B. M.  $2\frac{1}{2}^2$  on gentle slope, 500 feet from foot of abrupt slope of high bluffs, 200 feet west of fence line. Elev., 972.155.

B. M.  $2\frac{1}{2}^2$ : Left bank, about 3 miles below B. M.  $2\frac{1}{2}^4$ , on level plateau about 130 feet from edge of abrupt slope to river, opposite foot of Durex Island, one-fourth mile above head of bottom. Upper house of Rhode's ranch is about one mile below B. M. Elev., 935.633.

B. M.  $2\frac{1}{2}^1$ : Left bank, about 3 miles below B. M.  $2\frac{1}{2}^2$ , on lower side of small coulée where level bench land begins, about 125 feet from river and 150 feet south of old foundation of old shack. Elev., 922.083

B. M. 232: Left bank, about two and one-half miles below B. M. 232, about one and one-half miles below end of bottom, above Bijou Hills, about one-fourth mile below small creek, twenty feet north of road up bottom just back of brush and timber line.

Elev., 907.275.

B. M. 232: About 1,000 feet back of B. M. 232, 100 feet south of house at horse ranch, about 300 feet below creek. Just inside of fence around barnyard.

Elev., 940.033.

B. M. 232: Left bank, about two and one-half miles below B. M. 231, about 400 feet below Elm Creek, on high bench land, about 150 feet from river. House and barn of La Follette's horse ranch about 1,000 feet north of B. M.

Elev., 927.163.

B. M. 231: Left bank, about 3 miles below B. M. 232, and about 100 feet from river on nose of bluffs below small steep coulée, near foot of Sonora Id.

Elev., 950.967.

B. M. 232: Left bank, at end of bottom, opposite head of Gen. Brooks Island, on lower side of small coulée with single large elm at mouth. On bench land 250 feet from river.

Elev., 949.961.

B. M. 232: Left bank, about 3 miles below B. M. 232, about 400 feet from foot of steep bluffs on gentle slope and near corner of wire fence, just outside of inclosure. Log shack about 800 ft. southeast.

Elev., 940.357.

B. M. 232: About one-fourth mile back of B. M. 232, on flat prairie. Wagon road is 300 feet south of B. M. David Forbes' house is about 800 feet south of B. M.

Elev., 916.110.

B. M. 232: Left bank, about 2 miles below B. M. 231. On first bench, about 800 feet from river. House of David Forbes is about 900 feet northeast of B. M.

Elev., 917.890.

B. M. 231: Left bank, about 2,000 feet below head of bottom, one and one-half miles below White River, on edge of low broken bench land, 200 feet from foot of bluffs, about 650 feet from river.

Elev., 926.639.

B. M. 232: Left bank, about one-fourth mile above end of Peterson Bottom and 350 feet from river on nose of bluffs below small wooded coulée.

Elev., 950.931.

B. M. 232: About one-fourth mile back of B. M. 232, about 400 feet above Peterson Creek, on south side of young grove or timber claim.

Elev., 935.553.

B. M. 232: Left bank, on first bench, 700 feet from river and about 150 feet above Peterson Creek, 100 feet back from edge of bank.

Elev., 937.255.

B. M. 231: Right bank, 135 feet west and 55 feet south of southwest corner of agent's office at Brule Indian Agency, in southwest corner of yard.

Elev., 956.483.

B. M. 232: Left bank, opposite mouth of American Creek just below small creek. House of George Linbeck is 100 feet back of B. M.

Elev., 948.461.

B. M. 232: Left bank, two miles below Chamberlain, one-fourth mile above foot of American Island, 250 feet below frame house 100 feet from river.

Elev., 941.984.

B. M. 232: At Chamberlain, S. D., in high school yard. It is 90 feet west and 18 feet north from the southwest corner south wing of this building. On chart 165. Top of B. M. stone.

Elev., 1,041.449.

B. M.: Chamberlain, S. D., on water table of High School, close up to the brick work of the northwest corner of building. It is about 4 feet above ground. The beveled edge of the water table on the north side is painted white and marked '1,468.22 feet above sea level.'

Elev., 1,056.116.

B. M.: Chamberlain, S. D., on brick water table at the northeast corner of Taft House.

Elev., 1,002.332.

B. M.: Chamberlain, S. D., hydrant at southwest corner of Main and Clemens streets.

Elev., 983.094.

City B. M.: Chamberlain, S. D., an iron monument at the intersection of Main and Clemens streets. The monument is 2.5 feet long, of cast iron, and is set about one foot below surface of the street.

Elev., 979.831.

B. M.: Chamberlain, S. D., at Chicago, Milwaukee and St. Paul Railway water tank. Top of rail nearest tank in front of water spout.

Elev., 943.214.

B. M.: Chamberlain, S. D., at Chicago, Milwaukee and St. Paul Railway depot. Top of rail nearest the depot, on the main track in front of signal board.

Elev., 947.510.

B. M. 231: Right bank, about one and one-half miles below B. M. 230, on low bench land back from the end of timber along the river. Four large trees are in the prairie below and a strip of brush is along the foot of bench. A small two-story house is on the second bench a little below B. M. On chart 165.

Elev., 933.562.

B. M. 230: Right bank, about three and one-half miles below B. M. 230, on spur of hills just below a coulée, a small shack 200 feet above, and a frame house about 700 feet below. On chart 164.

Elev., 948.897.

B. M. 232: Right bank, about three and one-half miles below B. M. 232, about 400 feet above where river strikes the bluffs and just above first coulée back from where river strikes bluffs. It is on a spur from high bluffs about 20 feet from the edge of the cut bluff bank. On chart 164.

Elev., 962.092.



B. M. 277: Right bank, about 3 miles below B. M. 277, on top of a high broken plateau. It is about 200 feet below a coulée up which runs a wagon road from the bottom. Frame house in bottom directly in front of it, and a Indian shack on the plateau about 300 feet north and west. It is about 100 feet from the corner of a fence. On chart 164. Elev., 982.931.

B. M. 277: Right bank, about three and one-half miles below B. M. 277, at site of old Fort Hale. It is on low foot hills about 150 feet below an old excavation, and is directly back from a grove of large trees in the bottom. Brush is along the foot of the bluffs, and in coulée just below. On chart 163. Elev., 953.657.

B. M. 277: Right bank, about 3 miles below B. M. 277, on a spur of broken plateau just above small creek. It is 300 feet from river and a little below the lower end of heavy timber on left bank. On chart 162. Elev., 980.752.

B. M. 277: Right bank, about 2 miles below B. M. 277, and opposite Crow Creek Agency. It is on a small ridge, on the upper side of a small creek valley. Brush and trees are along the creek, and a patch of brush is just above the B. M. On chart 162. Elev., 962.675.

B. M. 277: Right bank, about 3 miles below B. M. 277, and about 20 feet back from the edge of a cut bluff bank. A deep coulée is above it, with a high rock bank on the upper side, and a low bank on the other side. A small deep coulée is also below the B. M. The sides of the bluffs back and a little below are covered with cedar trees. On chart 162. Elev., 968.404.

B. M. 277: Right bank, about 3 miles below B. M. 277, about 500 feet from river bank. It is just below a creek and about one mile from where the high bluffs commence to strike the river. It is about 150 feet west from a small knoll. Two shacks are about one-third of a mile back where William Smith lives, and "Good Roads" lives just above the B. M. by the creek. On chart 161. Elev., 959.990.

B. M. 277: Right bank, about one-third of a mile back of B. M. 277. It is 70 feet north and 25 feet east from the northeast corner of William Smith's shack. Good Road's shack is across the creek and nearly north of B. M. On chart 161. Elev., 989.167.

B. M. 277: Right bank, about 4 miles below B. M. 277, on bench land about 50 feet from edge and 150 feet above small coulée, with two large trees near mouth and small trees for 500 feet back. An old shack is about 150 feet above, and another about 500 feet back. The gate of the Government fence is back of the brush line a little above B. M. On chart 161. Elev., 972.913.

B. M. 277: Right bank, about 4 miles below B. M. 277, on low bench land about 700 feet from river and opposite lower end of timber on left bank. It is about 500 feet from where higher bench starts out. A single large cottonwood tree is 100 feet below and 3 or 4 small ones are 50 feet above. On chart 160. Elev., 956.385.

B. M. 277: Right bank, about 3 miles below B. M. 277, on a long sand ridge, just at the lower end of timber along river. A low bottom is back of it, with scattering small brush and few large trees. On chart 160. Elev., 965.352.

B. M. 277: Right bank, about 3 miles below B. M. 277 and about one-third of a mile from the river. It is on a sand hill just back of timber, and one-fourth mile above an old shack. On chart 159. Elev., 970.992.

B. M. 277: Right bank, about 800 feet back of B. M. 277, on flat bottom land. On chart 159. Elev., 960.363.

B. M. 277: Right bank, on a spur of broken rolling bench land, where it turns and the bottom land begins. It is on a point of Big Bend, just at the end of a narrow belt of large timber along river bank opposite foot of St. John Island. On chart 159. Elev., 993.354.

B. M. 277: Right bank, about three and one-half miles below B. M. 277, 100 feet from river. It is on a small broken ridge running parallel with the river, opposite center of timber on Devil's Island, and just at the upper end of a row of large trees. On chart 159. Elev., 990.288.

B. M. 277: Left bank, about one and three-quarters miles below B. M. 277. It is on the edge of the first bench land, back of the timber and one-fourth mile above the end of it. On chart 158. Elev., 978.215.

B. M. 277: Right bank, on the neck of the Big Bend. It is opposite a point on the left bank about 1,000 feet above the lower end of timber, and is on spur from the foot of hills; 40 feet is abrupt slope up. Brush is scattered along the side hills below. On chart 158. Elev., 1,011.637.

B. M. 277: Left bank, about 3 miles below B. M. 277, is on a sand hill about 400 feet back of timber line. A bunch of choke cherry brushes is about 25 feet back, and a well defined bench about 12 feet high is about 600 feet back. On chart 158. Elev., 979.710.

B. M.  $2\frac{6}{8}^4$ : Left bank, about three and one-half miles below B. M.  $2\frac{3}{8}^3$ , 600 feet back of B. M.  $2\frac{3}{8}^4$ , on gentle slope toward small coulée, which heads just back and below B. M. On chart 158. Elev., 1,035.148.

B. M.  $2\frac{6}{8}^4$ : Left bank, about three and one-half miles below B. M.  $2\frac{3}{8}^3$  and 400 feet from river. It is on the slope of a hill about 1,000 feet below where timber begins along river, and just above third small coulée below the timber. On chart 158. Elev., 1,014.738.

B. M.  $2\frac{6}{8}^3$ : Left bank, about three and one-quarter miles below B. M.  $2\frac{3}{8}^2$ , on slope of hill between two small coulées. It is just above where the rough country begins near river bank, and about 70 feet back from where slope is abrupt to cut bank of river. On chart 157. Elev., 1,011.899.

B. M.  $2\frac{6}{8}^2$ : Left bank, three and one-half miles below B. M.  $2\frac{6}{8}^1$  and 1,000 feet from river. It is on the slope of the hills just back from end of timber. Brush about 300 feet below along coulée, and large trees at foot of high hills about 700 feet back. On chart 157. Elev., 1,031.923.

B. M.  $2\frac{6}{8}^2$ : Left bank, about three and one-half miles below B. M.  $2\frac{6}{8}^1$  and 300 feet from river. It is below the end of timber, on a low bench, 20 feet from edge of slope to narrow point of bottom. On chart 157. Elev., 990.419.

B. M.  $2\frac{6}{8}^1$ : Left bank, about 2 miles below B. M.  $2\frac{6}{8}^0$ , and about 700 feet from river. Timber commences about 1,000 feet below along river bank. Ruins of old shack on edge of low brush land about 600 feet back. There is also a shack one-half mile below. On chart 156. Elev., 983.163.

B. M.  $2\frac{6}{8}^0$ : Left bank, about 3 miles below B. M.  $2\frac{6}{8}^2$  and one-half mile from river. It is on the slope from the bottom to high bench land, and about 360 feet below coulée. On chart 156. Elev., 1,013.314.

B. M.  $2\frac{6}{8}^0$ : Left bank, about 3 miles below B. M.  $2\frac{6}{8}^0$ , on sand ridge which forms a well defined bench, meeting river bank about 500 feet below. A few scattering trees and brush are on lower bottom. On chart 156. Elev., 990.819.

B. M.  $2\frac{5}{8}^2$ : Left bank, 3 and one-quarter miles below B. M.  $2\frac{3}{8}^2$  and about one-half mile below the head of Dorion Island No. 1. It is on a high plateau, about 350 feet from river and 150 ft. from edge of slope of the plateau. It is in NE. corner of NE.  $\frac{1}{4}$  of sec. 13, R. 75, T. 108. The az. from B. M. to sec. cor. is  $176^\circ 11'$ , distance 382 ft. On chart 155. Elev., 1,031.268.

B. M.  $2\frac{5}{8}^2$ : Left bank, on top of plateau, 530 feet east and 470 feet south of B. M. On chart 155. Elev., 1,044.397.

B. M.  $2\frac{5}{8}^2$ : Left bank, about 3 miles below B. M.  $2\frac{3}{8}^2$ , one-quarter mile below head of bottom and one-half mile above head of Dorion Island No. 2. It is on the edge of first bench land, 20 feet from edge of abrupt slope. On chart 155. Elev., 1,026.999.

B. M.  $2\frac{5}{8}^1$ : Left bank, about 3 miles below Chapelle Creek. It is opposite the end of willows of shore bar, on the slope of hills, 75 feet from the edge of an abrupt slope to river, coulée just below. On chart 155. Elev., 1,036.149.

B. M.  $2\frac{5}{8}^1$ : Left bank, 3 miles below B. M.  $2\frac{3}{8}^1$ , about one-third mile back of B. M.  $2\frac{3}{8}^1$ . It is on bench land about 200 feet from edge of slope and 900 feet below small shack. On chart 154. Elev., 1,012.207.

B. M.  $2\frac{5}{8}^1$ : Left bank, about 3 miles below B. M.  $2\frac{3}{8}^1$  and 600 feet from river bank. It is about one-half mile above Chapelle Creek, and about 20 feet from edge of slope into low bottom covered with willows and brush. It is about 340 feet below the corner of fence. On chart 154. Elev., 996.227.

B. M.  $2\frac{5}{8}^1$ : Left bank, about 3 miles below B. M.  $2\frac{3}{8}^1$  and 700 feet from river. It is on the top of a high rolling plateau, 180 feet below the slope into a wide coulée, in which are large trees near the mouth, also two shacks, one above and one below the creek bed. On chart 154. Elev., 1,049.285.

B. M.  $2\frac{5}{8}^1$ : Left bank, about 3 miles below B. M.  $2\frac{3}{8}^1$  and about 80 feet from edge of cut bank, just where there is an old trail leading to the water. It is on a spur between two small draws, and is about 400 feet below the mouth of a creek where there are several large trees. On chart 154. Elev., 1,019.334.

B. M.  $2\frac{5}{8}^1$ : Left bank, about 3 miles below Rousseau and three-fourths mile from river. It is on a gentle slope of bluffs, about 150 feet back from slope to timbered bottom. On chart 154. Elev., 1,035.818.

B. M.  $2\frac{5}{8}^1$ : Left bank, at Rousseau, S. D., on side hill just on corner of bluffs bounding the creek valley and the Missouri River valley. About 1,000 feet above the section house. A black cross is in the graveyard about 1,000 feet northwest. Railroad is 100 feet from the foot of hill. On chart 153. Elev., 1,022.576.

B. M.  $2\frac{5}{8}^1$ : Left bank, at Rousseau, S. D., straight out from B. M.  $2\frac{3}{8}^1$  one-fourth mile. It is just back of brush along river bank. A small patch of cultivated land is 15 feet west. On chart 153. Elev., 1,002.417.

B. M.  $2\frac{5}{8}$ : Left bank, in flat gumbo bottom about 240 feet back from Chicago and North-Western Railway track at a point 40 feet above milepost No. 271, and 270 feet above road crossing. On chart 153. Elev., 1,012.978.

B. M.  $2\frac{5}{8}$ : Left bank, about two and three-fourths miles below B. M.  $2\frac{3}{4}$ , 200 feet from river, where prairie bottom slopes up and gets higher along the river. It is just above the line of fence that runs to the river bank. Shack one-fourth mile above and another one-fourth mile below. On chart 153. Elev., 1,009.215.

B. M.  $2\frac{5}{8}$ : Left bank, about two and three-quarters miles below B. M.  $2\frac{3}{4}$  and 1,000 feet from river bank. It is on low bench land, just above fence line which runs to river bank and above a grove of small cottonwood trees. On chart 152. Elev., 1,010.194.

B. M.  $2\frac{5}{8}$ : Left bank, about one-fourth mile back of B. M.  $2\frac{5}{8}$  in coulée. House on top of hill directly back about one-half mile. Secondary triangulation station Borth is on a high knoll just below. On chart 152. Elev., 1,057.664.

B. M.  $2\frac{5}{8}$ : Left bank, about three and one-half miles below B. M.  $2\frac{3}{4}$ , on small gumbo knoll opposite about the middle of Farm Island, 150 feet from river bank and 225 feet from Chicago and North-Western Railway, at a point 90 feet below bridge No. 283. On chart 152. Elev., 1,028.343.

B. M.: East Base. Elev., 1,018.948.

B. M.  $2\frac{3}{4}$ : Left bank, just inside of fence around the Pierre Indian Training School. It is 100 feet north and 150 feet west of the northwest corner of the main building, 2 feet south of 6th fence post south of gate at entrance to grounds. On chart 152. Elev., 1,444.124.

B. M.: West Base. Elev., 1,015.662.

B. M.: Weather Bureau B. M. on the doorstep at the entrance to the National Bank of Commerce building. Pierre, S. D. On chart 152. Elev., 1,028.729.

B. M.: Pierre, S. D., at top of rail, Chicago and North-Western Railway track in front of depot. Elev., 1,021.602.

B. M.: Pierre, S. D., at corner of Pierre street and Sioux avenue. Top of cap on hydrant. Elev., 1,025.144.

B. M.: Pierre, S. D., Gauge B. M. Elev., 1,020.274.

B. M.  $2\frac{3}{4}$ : Left bank, at Pierre, S. D., in court-house yard, on west side. On chart 152. Elev., 1,078.527.

B. M.  $2\frac{3}{4}$ : Right bank, at Ft. Pierre, S. D., about 700 feet back from river and the same distance above Bad River, on a gumbo hill just back of houses on Deadwood street. On chart 152. Elev., 1,038.836.

B. M.  $2\frac{3}{4}$ : Left bank, about two and one-half miles below B. M.  $2\frac{3}{4}$ , just above mouth of small creek and 30 feet back from abrupt slope to river, 50 ft. north of small shack in side of hill, near river bank. Is little above town of Stanley, which is on opposite bank. On chart 151. Elev., 1,038.350.

B. M.  $2\frac{3}{4}$ : Left bank, about two and one-half miles below B. M.  $2\frac{3}{4}$ , and a little above the lower end of willows on small island. It is about 60 feet back from the edge of abrupt slope, on second high grassy knoll above high cut gumbo hill. On chart 150. Elev., 1,073.327.

B. M.  $2\frac{3}{4}$ : Left bank, about two and one-half miles below B. M.  $2\frac{3}{4}$ , and one-half mile from river, on first bench, 250 feet from edge of slope. Wagon road at foot of bench. It is opposite a point about one-fourth mile below the head of the island. Secondary triangulation station Stony Hill is about one-third mile east. On chart 150. Elev., 1,057.986.

B. M.  $2\frac{3}{4}$ : Left bank, about two and one-half miles below B. M.  $2\frac{3}{4}$ , 200 feet from river. Bluff strikes river about three-fourths mile below. It is about three-fourths mile southwest of Secondary triangulation station Stony Hill, and opposite a point 1,000 feet below head of willows on an island. On chart 150. Elev., 1,023.608.

B. M.  $2\frac{3}{4}$ : Left bank, about 4 miles below B. M.  $2\frac{3}{4}$ , on edge of first bench just back of timber and brush. One-fourth mile from foot of bluffs, one-third mile below white schoolhouse at foot of bluffs, 100 feet upstream from bench line. On chart 150. Elev., 1,026.002.

B. M.  $2\frac{3}{4}$ : Left bank, about two and one-half miles below B. M.  $2\frac{3}{4}$ , and one mile back of B. M.  $2\frac{3}{4}$ , and 150 feet from foot of abrupt slope, three-fourths mile back of Oahe Mission. Just above coulée in which is an old trail 15 feet north of B. M. Graveyard on top of hill about 700 feet above. On chart 149. Elev., 1,066.377.

B. M.  $2\frac{3}{4}$ : Left bank, about 2 and one-half miles below B. M.  $2\frac{3}{4}$ , just below end of timber, one-fourth mile from river, about 1,000 ft. southeast of Oahe Mission on low bench, about 75 ft. from edge of slope. On chart 149. Elev., 1,034.337.

B. M.  $2\frac{3}{4}$ : Left bank, about two and one-half miles below B. M.  $2\frac{3}{4}$ , and 300 or 400 feet below where clear prairie bottom begins, on high plateau about 100 feet back from the edge of abrupt slope to bottom. Plateau is rolling above, but nearly level below. On chart 148. Elev., 1,111.244.

B. M.  $2\frac{1}{2}^1$ : Left bank, about 800 feet back of B. M.  $2\frac{1}{2}^1$ , on gentle slope. Deep coulée above about 150 feet. Rolling plateau below. On chart 148. Elev., 1,112.615.

B. M.  $2\frac{1}{2}^1$ : Left bank, about three and one-half miles below B. M.  $2\frac{3}{4}^2$ , and 150 feet from river, on high plateau, 75 feet from the edge of slope and just below deep narrow ravine. On chart 148. Elev., 1,083.103.

B. M.  $2\frac{3}{4}^2$ : Left bank, about three and one-half miles below B. M.  $2\frac{3}{4}^2$  and 1 mile from river, on first bench near edge of slope 450 feet above Spring Creek. On chart 148. Elev., 1,060.690.

B. M.  $2\frac{3}{4}^2$ : Left bank, about 3 miles below Fort Sully, S. D., about three-fourths mile from river. It is on a gentle slope from bench land to river, 400 feet back from main wagon road and 200 feet towards river from foot of abrupt slope up to first bench. It is just below a coulée. On chart 147. Elev., 1,057.179.

B. M.  $2\frac{3}{4}^2$ : Left bank, about three miles below B. M.  $2\frac{3}{4}^2$ , and 400 feet from river. Fifteen feet south of old wagon road, 225 feet north of another road, and 550 feet below where roads join. Is about one-fourth mile above the "Lower Sully Landing." On chart 147. Elev., 1,044.240.

B. M.  $2\frac{3}{4}^2$ : Left bank, about one-fourth mile back of B. M.  $2\frac{3}{4}^2$ , in coulée just below Fort Sully, on little spur over which a wagon road passes 20 feet south. On chart 147. Elev., 1,087.768.

B. M.  $2\frac{3}{4}^2$ : Left bank, just below first coulée below Ft. Sully, on high bench 60 feet from edge of slope to creek, and 80 feet from edge of slope to river bottom. On chart 147. Elev., 1,079.940.

B. M.: Fort Sully, S. D., on north corner of south brick window sill on east side of waterworks pump house, it is a mark cut into the brick and marked U. S. B. M. Elev., 1,048.093.

B. M.  $2\frac{3}{4}^2$ : Left bank, about 3 miles below B. M.  $2\frac{3}{4}^2$ , about three-fourths mile from river, on spur at foot of bluffs just above coulée. Wagon road 50 feet from foot of bluffs. Opposite a point about one mile from head of Whiskey Island. On chart 146. Elev., 1,056.481.

B. M.  $2\frac{3}{4}^2$ : Left bank, about one-fourth mile back of B. M.  $2\frac{3}{4}^2$ , on slope at foot of bluffs, at head of coulée, 320 feet back of log shack covered with barrel staves. On chart 146. Elev., 1,124.800.

B. M.  $2\frac{3}{4}^2$ : Left bank, about 5 miles below B. M.  $2\frac{3}{4}^2$ , opposite point a little above Old Fort Bennett, about 200 feet from river and just above coulée. Old shack covered with barrel staves 1,000 feet back. On chart 146. Elev., 1,077.102.

B. M.  $2\frac{3}{4}^2$ : Left bank, about 4 miles below B. M.  $2\frac{3}{4}^2$ , three-fourths mile from river, on first bench. Brush along foot of bluffs back of B. M., but clear in front. Log shack in bottom about 100 feet above and the same distance towards the river. On chart 145. Elev., 1,080.304.

B. M.  $2\frac{3}{4}^2$ : Left bank, about 4 miles below B. M.  $2\frac{3}{4}^2$ , one-fourth mile from river, on a ridge in clear ground back of timber. Another strip of timber and brush back about 40 feet where trail comes out of brush. About 20 feet from gate at entrance of an inclosed field. On chart 145. Elev., 1,058.384.

B. M.  $2\frac{3}{4}^2$ : Left bank, about three and one-fourth miles below B. M.  $2\frac{3}{4}^2$ , and three-fourths mile from river, on a flat knoll on slope of foot hills, just above where heavy timber begins, 100 feet west of north and south line of wire fence, along which is a wagon road. Is about one-fourth mile to foot of bluffs. On chart 144. Elev., 1,118.824.

B. M.  $2\frac{3}{4}^2$ : Left bank, about three and one-fourth miles below B. M.  $2\frac{3}{4}^2$ , and 600 feet from river on knoll in the bottom, about one-fourth mile above point of timber. On chart 144. Elev., 1,071.658.

B. M.  $2\frac{3}{4}^2$ : Left bank, about three miles below B. M.  $2\frac{3}{4}^2$ , and about 300 feet from river bank on slope of grassy hill just below large coulée which has three branches. This hill is the only hill in the vicinity, one-third mile above the lower end of "bad lands" along the river. On chart 143. Elev., 1,118.304.

B. M.  $2\frac{3}{4}^2$ : Left bank, just a little below willows at foot of Devil's Island, on slope of hill between two coulées, 150 feet from the edge of cut river bank. On chart 143. Elev., 1,109.856.

B. M.  $2\frac{3}{4}^2$ : Right bank, about one-third mile from river and on first bench land, about 110 feet from the edge of slope. Opposite a point a little below foot of Devil's Island. It is located in a draw which develops into a coulée at edge of bench. On chart 142. Elev., 1,099.351.

B. M.  $2\frac{3}{4}^2$ : Left bank, Fairbank, S. D., about one-fourth mile back of store and hotel and on top of flat mound about 30 feet back from edge of abrupt slope. About three-fourths mile from river, opposite foot of Plum Island. On chart 142. Elev., 1,152.821.

B. M.  $2\frac{3}{4}^2$ : Left bank, at Fairbank, S. D., 700 feet from river on first bench land, 30 feet from the edge of slope into the bottom, small coulée just above. Is just opposite lower end of Plum Island. On chart 142. Elev., 1,090.195.

B. M.  $2\frac{3}{4}^0$ : Left bank, about four and one-half miles below B. M.  $2\frac{3}{4}^2$ , and 250 feet from river on rolling prairie, one-fourth mile below where high bluffs leave river. A short broad coulée is just back of B. M. Wagon road about 125 feet back. On chart 141. Elev., 1,101.490.

B. M.  $2\frac{3}{4}^2$ : Left bank, about three-fourths mile back of B. M.  $2\frac{3}{4}^2$ , 300 feet back from edge of first bench and 400 feet from foot of bluffs, one-third mile above house of S. C. Leppelmann, 200 feet above cultivated field. On chart 141. Elev., 1,093.505.

B. M.  $2\frac{3}{4}^2$ : Left bank, about five and one-half miles below B. M.  $2\frac{3}{4}^2$ , and 400 feet from river, on mound in bottom. Scattering brush in bottom, but clear in the vicinity of B. M. Wagon road 25 feet above leads to river, about 2 miles below where river strikes bluffs. On chart 141. Elev., 1,086.195.

B. M.  $2\frac{3}{4}^2$ : Left bank, about one-half mile back of B. M.  $2\frac{3}{4}^2$  and one-quarter mile below house of C. B. Ross, just outside of fence line on gentle slope at foot of bluffs. On chart 140. Elev., 1,127.885.

B. M.  $2\frac{3}{4}^2$ : Left bank, about 3 miles below B. M.  $2\frac{3}{4}^2$  and 500 feet from river bank in bottom. Wagon road to river about 50 feet above. About one-fourth mile above mouth of Pascal Creek, on right bank. On chart 140. Elev., 1,087.851.

B. M.  $2\frac{3}{4}^2$ : Left bank, about one-third mile back of B. M.  $2\frac{3}{4}^2$ , on gentle slope at foot of bluffs, about 700 feet below coulée, with log shack in mouth. About 500 feet above spur running out from bluffs into flat. On chart 139. Elev., 1,133.493.

B. M.  $2\frac{3}{4}^2$ : Left bank, about four and one-half miles below Forest City and 600 feet from river bank, on high prairie bench which slopes gradually just below. At lower end where there is open prairie to river for one-quarter mile. On chart 139. Elev., 1,105.810.

B. M.  $2\frac{3}{4}^2$ : Left bank, at Forest City, 20 feet from river bank, 60 feet above mouth of coulée and 140 below Hotel Hathaway. On chart 138. Elev., 1,113.017.

B. M.  $2\frac{3}{4}^2$ : Right bank, at Cheyenne River Agency, opposite Forest City, S. D., on bench land 30 feet from slope into bottom. It is about 50 feet from the fence at the fifth post from the northeast corner. On chart 138. Elev., 1,114.602.

B. M.  $2\frac{3}{4}^2$ : Left bank, at Old Forest City, 550 feet east and 300 feet south of corner of school house and about 300 feet from foot of bluffs. On chart 138. Elev., 1,108.423.

B. M.  $2\frac{3}{4}^4$ : Left bank, about 2 miles above Old Forest City, S. D. About one-half mile from river, on low bench land about 500 feet from edge of slope to bottom and same distance to the foot of bluffs. White frame house in bottom about a mile above and log shack about 1,500 feet below B. M. On chart 138. Elev., 1,106.795.

B. M.  $2\frac{3}{4}^2$ : Left bank, about one-half mile back from river, on gentle slope of bluffs, just above coulée, which runs back into high bluffs. Red frame house about one-half mile south. On chart 137. Elev., 1,216.468.

B. M.  $2\frac{3}{4}^2$ : Left bank, about 5 miles below B. M.  $2\frac{3}{4}^2$  and opposite large valley on right bank. About one-fourth mile from river and 50 feet back from edge of high cut bluffs. About 100 feet above high butte, standing alone 100 feet from edge of cut bluff. On chart 137. Elev., 1,168.971.

B. M.  $2\frac{3}{4}^2$ : Left bank, about one-third mile back of B. M.  $2\frac{3}{4}^2$ . About 400 feet above creek and 100 feet above old trail up creek valley. On chart 136. Elev., 1,157.262.

B. M.  $2\frac{3}{4}^2$ : Left bank, about 4 miles below B. M.  $2\frac{3}{4}^1$  and just above mouth of creek at head of narrow bottom, about 200 feet from river. On chart 136. Elev., 1,146.207.

B. M.  $2\frac{3}{4}^1$ : Left bank, about one-fourth mile back from river at mouth of small creek, on flat spur from high bluffs on upper side of valley. On chart 136. Elev., 1,170.375.

B. M.  $2\frac{3}{4}^1$ : Left bank, about two and one-half miles below Scranton and 200 feet from river, at end of willow bar, just above mouth of creek. On chart 136. Elev., 1,127.979.

B. M.  $2\frac{3}{4}^0$ : Left bank, at Scranton, S. D., about one-half mile from river, 100 feet south of bridge across coulée and 40 feet from wagon road, 280 feet south of corner of store and post-office. On chart 135. Elev., 1,135.377.

B. M.  $2\frac{3}{4}^2$ : Left bank at Le Beau, 90 feet west of post-office building, in valley of Swan Lake Creek, about one-half mile back from B. M.  $2\frac{3}{4}^2$ . On chart 135. Elev., 1,130.879.

B. M.  $2\frac{3}{4}^2$ : Left bank, at Le Beau, S. D., on spur at end of high plateau just north of Swan Lake Creek Valley, 600 feet east of timber in Missouri River Valley, and 50 feet from slope into creek valley. On chart 135. Elev., 1,138.578.

B. M.  $2\frac{3}{4}^1$ : Left bank, about one-half mile back of B. M.  $2\frac{3}{4}^1$  on flat-topped spur from high bluffs back. Head of coulée just back of B. M., one on each side, joining in front. Wagon road in coulée. On chart 134. Elev., 1,235.400.

B. M.  $2\frac{3}{4}^1$ : Left bank, about four and one-half miles below B. M.  $2\frac{3}{4}^1$  and one-fourth mile from river, just at end of small brush along river bank, on first bench about 60 feet from edge of abrupt slope to bottom and just below coulée in which there is a wagon road. On chart 134. Elev., 1,175.949.

B. M.  $2\frac{1}{2}^1$ : Left bank, about one-half mile from river on spur between two draws at head of small coulée. One log and one sod shack about 1,500 feet south. On chart 133. Elev., 1,191.460.

B. M.  $2\frac{1}{2}^2$ : Left bank, about one mile below foot of Blue Blanket Island. About 800 feet below coulée and 500 feet back from edge of high bluff bank, on level plateau. On chart 133. Elev., 1,193.173.

B. M.  $2\frac{1}{2}^3$ : Left bank, about three miles below B. M.  $2\frac{1}{2}^2$  and one-fourth mile from river, on first bench. It is about 60 feet south and 50 feet west of Paul Carlson's house. On chart 132. Elev., 1,140.040.

B. M.  $2\frac{1}{2}^4$ : Right bank, on gentle slope, lower side of small creek valley. About 125 feet west of stable and nearly in line of south side of same, 250 feet north of shack. On chart 132. Elev., 1,146.935.

B. M.  $2\frac{1}{2}^5$ : Left bank, one-fourth mile below mouth of Grand River, on a slope of foot hills, at head of bottom, in cultivated field. About 50 feet south of deserted shack and two feet east of west side produced. On chart 131. Elev., 1,155.817.

B. M.  $2\frac{1}{2}^6$ : Right bank, about 700 feet from river and one-half mile below Grand River, on spur from high knoll running out northwest from B. M. A large granite boulder buried in hillside about 80 feet northwest of B. M. On chart 131. Elev., 1,160.200.

B. M.  $2\frac{1}{2}^7$ : Left bank, about one-half mile east of B. M.  $2\frac{1}{2}^6$  on second bench, about 60 feet from slope to first bench. Four feet south of east and west line of fence. On chart 131. Elev., 1,202.808.

B. M.  $2\frac{1}{2}^8$ : Left bank, opposite a point about 1,000 feet below head of Ashley Island, just back from where first bench strikes river. Small coulée 1,000 feet below. On chart 131. Elev., 1,152.266.

B. M.  $2\frac{1}{2}^9$ : Left bank, about four miles below B. M.  $2\frac{1}{2}^8$  and 400 feet from river, one-half mile below where river leaves cut bluffs and timber begins, 150 feet upstream from red warehouse. On chart 130. Elev., 1,160.768.

B. M.  $2\frac{1}{2}^{10}$ : Right bank, about three miles below B. M.  $2\frac{1}{2}^9$  and 200 feet from river, at head of bottom. It is on a small knoll just below coulée, on east side depression, 15 feet from edge of abrupt slope to bottom. On chart 130. Elev., 1,172.524.

B. M.  $2\frac{1}{2}^{11}$ : Left bank, about one-quarter mile back of B. M.  $2\frac{1}{2}^{10}$  and about 200 feet south of Olson Creek, 200 feet west of where road crosses creek. Wagon road runs along foot of hill north of B. M. On chart 129. Elev., 1,194.173.

B. M.  $2\frac{1}{2}^{12}$ : Left bank, about five and one-half miles below B. M.  $2\frac{1}{2}^{11}$  and 200 feet from river. Narrow strips of bottom between river and B. M. about 225 ft. southwest of Anon Olson's house. On chart 129. Elev., 1,181.000.

B. M.  $2\frac{1}{2}^{13}$ : Left bank, about one-third mile back from B. M.  $2\frac{1}{2}^{12}$ . On lower side of creek valley about 25 feet from edge of abrupt slope to creek. Directly across valley is a sharp-pointed knoll covered with boulders. Old cattle trail is 25 feet further up the hill. On chart 128. Elev., 1,201.548.

B. M.  $2\frac{1}{2}^{14}$ : Left bank, about 7 miles below La Grace and 300 feet from river, just below mouth of creek, on first bench about 75 feet from edge to bottom. Near ranch known as Twiggs Place. On chart 128. Elev., 1,174.625.

B. M.  $2\frac{1}{2}^{15}$ : Left bank, about 4 miles below B. M.  $2\frac{1}{2}^{14}$  and one-fourth mile from river on small spur from foot of first bench. Wagon road 30 feet distant towards hill. Stage road about 700 feet towards river. On chart 128. Elev., 1,154.622.

B. M.  $2\frac{1}{2}^{16}$ : Left bank, about one and one-fourth miles from river and directly back of La Grace on first spur projecting into Spring Creek Valley. Wagon road at foot of knoll. On chart 128. Elev., 1,227.861.

B. M.  $2\frac{1}{2}^{17}$ : Left bank, about one-half mile back of B. M.  $2\frac{1}{2}^{16}$  just inside of fence at northwest corner of cultivated field. On chart 127. Elev., 1,242.052.

B. M.  $2\frac{1}{2}^{18}$ : Left bank, about 600 feet from river at a point where bottom begins, directly back of Andrew Marsh's house, Vanderbilt, S. D. On chart 127. Elev., 1,220.027.

B. M.  $2\frac{1}{2}^{19}$ : Left bank, about one mile back of B. M.  $2\frac{1}{2}^{18}$ . Just back is a round-topped knoll, and 1,200 feet south is a shack near creek. Northeast corner of fence is about 800 feet south. On chart 126. Elev., 1,284.314.

B. M.  $2\frac{1}{2}^{20}$ : Left bank, about 4 miles below B. M.  $2\frac{1}{2}^{19}$  and one mile from river. Road along foot of bluffs. A schoolhouse on plateau below and distance 980 feet. On chart 126. Elev., 1,227.887.

B. M.  $2\frac{1}{2}^{21}$ : Left bank, about 5 miles below Winona and 800 feet from river, where brush and willow end and river strikes clear bank. Stage road back about 600 feet. It is on the downstream side of little ridge on second bench just where the slope begins. On chart 125. Elev., 1,190.052.

B. M.  $2\frac{1}{2}^{22}$ : Left bank, at Winona, N. D., about 800 feet from river on high plateau, 300 feet west of houses on street running north and south, and just above road leading to river. On chart 124. Elev., 1,209.685.