CHAPTER IV

Monumentation

4–1. This chapter describes the procedure for monumenting a public land survey. The monumentation is intended to establish a permanent marking of the lines and to fix the corner positions so that the location of the surveyed lands may always be definitely known.

LEGAL SIGNIFICANCE OF THE MONUMENT

4–2. The law provides that the original corners established during the process of the survey shall forever remain fixed in position, even disregarding technical errors which may have passed undetected before acceptance of the survey.

The courts attach major importance to evidence relating to the original position of the corner, such evidence being given far greater weight than the record relating to bearings and lengths of lines. The corner monument is direct evidence of the position of the corner.

Section 57 of the Criminal Code of 1909, as slightly modified in 18 U.S.C. 1858, provides a penalty for the unauthorized alteration or removal of any Government survey monument or marked trees:

> Whoever willfully destroys, defaces, changes, or removes to another place any section corner, quarter-section corner, or meander post, on any Government line of survey, or willfully cuts down any witness tree or any tree blazed to mark the line of a Government survey, or willfully defaces, changes or removes any monument or bench mark of any Government survey, shall be fined not more than $250 or imprisoned not more than six months, or both.

The legal importance of the corner makes mandatory the workmanlike construction of lasting monuments skillfully related to natural objects or improvements so that the greatest practicable permanence is secured.

4–3. If it is necessary to alter the condition of a previously established monument, the utmost regard should be shown for the evidence of the original location. The monument should be carefully reconstructed by such additional means as may be appropriate, *without destroying the evidence which served to identify that position.* A complete record will be kept of the description of the old monument as identified, and all alterations and additions will be specifically noted as such.

GENERAL REQUIREMENTS

4–4. Prescribed monuments are used to mark the position of the quarter-section, section, township, and meander corners; such sixteenth-section corners as the special instructions or exigencies of the survey of fractional sections require; and all angle points and points at intervals of 40 and 80 chains along an irregular boundary. Additionally, when stipulated in the special instructions, monumentation is established as needed down to the corners of 2½-acre aliquot parts as required in the subdivision of sections into units smaller than the regular quarter-quarter section.

When it is necessary or desirable to establish special purpose monuments the regulation post is the first choice under usual conditions.

4–5. The position of a corner monument is evidenced by the best accessories available; if the corner point itself cannot be marked in the usual manner, an appropriate witness corner or

reference monument is established. A witness meander corner is established upon secure ground wherever the true position falls at a point where the monument would be liable to destruction.

4–6. The field notes relating to the establishment of a monument are introduced at the logical place where the true position for the corner is indicated.

The description of the monument will embrace: (1) the signifiance of its position; (2) its type and dimensions, including those of any special monumentation; (3) the depth set in the ground, with mention of any additional support; (4) the markings upon the monument; and (5) the nature of the accessories, including character, size, position, and markings.

CORNER MATERIAL

4–7. The Bureau of Land Management has adopted a regulation post for monumenting the public surveys, which is used generally unless exceptional circumstances warrant the use of other material. Substitutions are permitted only when authorized in the special instructions. In such cases a statement should be given in the field notes explaining why regulation posts were not employed.

The regulation post is made from alloyed iron pipe, zinc-coated, 2½ inches outside diameter, which is cut into lengths of 30 inches. One end of the pipe is split for several inches, and the two halves are spread to form flanges. A brass cap is securely fastened to the top. Brass tablets are supplied for placing in rock outcrop and for imbedding in concrete monuments. The tablet is 3¼ inches in diameter and has a stem 3½ inches long. The top bears the same official inscription as that of the cap of the iron post.

4–8. General departures from the use of the regulation monument may be authorized where there is need for more durable monumentation in important areas, where conditions at the time of survey make it impracticable to procure a sufficient number of regulation monuments within the available time limit, or where difficulties of transportation to the point of use make it more practicable to adopt an approved substitute. Trials of experimental monuments are authorized from time to time where this can be done without risk of losing corner point locations. Limited departures because of site conditions may be made as approved by the officer in administrative charge.

Native stone may be substituted for the iron post, provided it has been authorized, is durable against prolonged weathering, has a volume of at least 1,000 cubic inches, and dimensions suitable for permanent monumentation and appropriate markings. Stone will not be used as a corner monument where its position falls among large quantities of loose surface stone or slide rock.

CONSTRUCTION OF MONUMENTS

4–9. The caps of the iron posts are marked with steel dies at the time when used. The posts are set in the ground about three-fourths of their length, and earth and stone, if the latter is at hand, are tamped into the excavation to give the post a solid anchorage.

4–10. A stone monument is marked with a steel chisel or punch with such letters, figures, grooves, or notches as may be required, and is firmly set in the ground about three-fourths of its length.

4–11. Both iron posts and stone monuments will always be set a depth of three-fourths their length unless it is impossible to complete the excavation, in which case the monument will be planted as deep as conditions will permit, and the necessary support will be secured by a stone mound.

In loose, wind-blown soil, the monument is much more stable if surrounded with stone, the mound being built with a wide base, and up to the height of the post. This will be even more secure if clay soil can be procured for filling the voids. The location may be of enough importance to justify the construction of a concrete base surrounding the iron post to prevent the blowing of the soil.

Underpinning or other special means for supporting the iron post may be required when constructing a stable monument in marshland. Encasement of the post in concrete to prevent corrosion may be necessary in the case of alka-

line soils, salts, salt-water marshes, organic-acid water in swamp areas, or similar situations.

4–12. Where the corner point falls upon surface rock, preventing excavation, a cross (X) is cut at the exact corner point, and, if feasible, the monument is erected in the same position, supported by a large mound of stone with broad base, so well constructed that it will possess thorough stability.

The tablet is used for marking corners which fall upon rock outcrop on slopes where a stable mound would be impracticable. A drill hole is made to receive the stem, and a recess is made for the top so that the tablet may be securely cemented in place and sealed against moisture. To be permanent the cementing must be done with clean first-class materials, carefully proportioned. The tablet is marked in the same manner as the iron-post monument.

On slopes too steep to allow construction of a stable mound, but covered with a thin layer of soil which would hide the tablet if it were set directly in the bedrock, a short length of zinc-coated iron pipe of 1-inch outside diameter is forced into the drill hole. The stem of the tablet is then wedged securely into the top of the pipe in a position above the layer of soil.

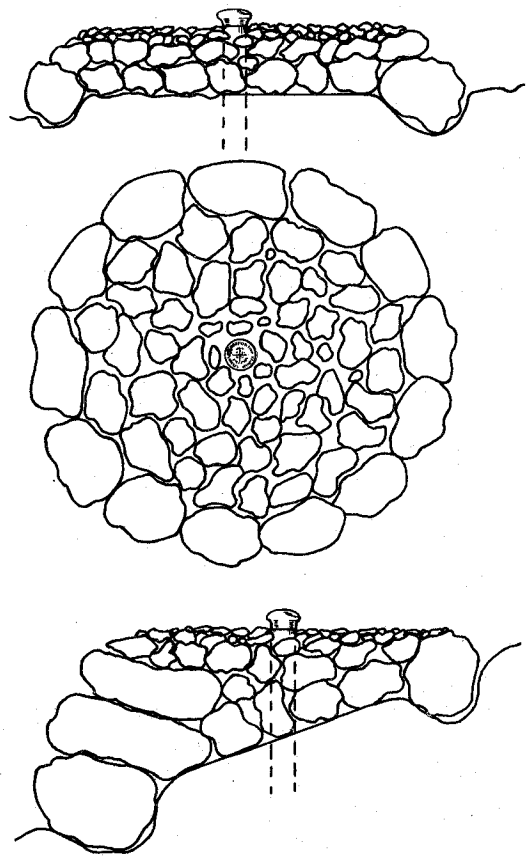


FIGURE 64.—A mound of stone. Base should be not less than 3 ft. diameter.

4–13. Where the corner point falls at the position occupied by a tree, the tree is marked as the corner monument, even if fully matured. The full quota of accessories should be secured, including reference monuments.

A tree too small to receive the usual marks without injury is marked with an "X" only at breast height on the *south* side. The X should be scribed in the bark on smooth-barked trees. On rough-barked trees the X should be made by two axe cuts reaching just into the live wood tissue. It is advantageous to clear out nearby trees of similar size in order that the marked tree will not be smothered by faster growing uninjured trees.

4–14. Monuments marking corners that fall in cultivated fields or meadows are so constructed as to interfere with farming operations as little as possible and conform to the wishes of the owner insofar as practicable.

Generally an iron post, brass tablet in a concrete block, a marked stone, or some suitable article may be buried at the corner point and witnessed by a substantial guard post. Bearing objects or bearing trees within a reasonable distance are employed, and accurate bearings to one or more available distant objects are recorded.

SPECIAL-PURPOSE MONUMENTS

Witness Corners

4–15. A *witness corner* is a monumented point usually on a line of the survey and near a corner. It is established only in situations where it is impracticable to occupy the site of a corner.

When the true point for a corner falls at an inaccessible place, such as within an unmeandered stream, lake, or pond, or in a marsh, or upon a precipitous slope or cliff where the corner cannot be occupied, a witness corner is

established at some suitable point where the monument may be permanently constructed, but preferably on a line of survey.

Usually only one witness corner is established, and it should be located upon one of the lines leading to a corner if a secure place within a distance of 10 chains is available. If there is no place to be found on a surveyed line within that distance, a witness corner may be located in any direction within a distance of 5 chains.

The field notes show the relation of the witness corner to the true point for the corner. The direct connecting course and distance *from* the true point *to* the witness corner are shown on the plat. If there are many witness corners, and in cases of difficult plat lettering, where it may interfere with the other showings of the plat, the data relating to the direction and distance may be indicated by marginal memorandum or tabulation.

Reference Monuments

4–16. A *reference monument* is an accessory and is employed in situations where the site of a corner is such that a regular permanent monument cannot be established or where the monument would be liable to destruction, and bearing trees or a nearby bearing object are not available.

Where the true point for a corner falls within an unimproved roadway in such a place as to interfere with travel, an iron post, a tablet in a concrete block, or a marked (X) stone or some suitable article will be buried in the ground at the true corner point. At least two reference monuments are established at suitable places outside of the roadway, if bearing trees or a nearby bearing object are not available. Allowance should be made for grading, cuts, fills, or other road improvement when placing the reference monuments.

The surface of gravel, macadam, or bituminous-topped roads should not be dug into without the approval of the proper authority. If permission is granted, a deposit may be made at the true corner point. In the case of a hard surface, a tablet, copper bolt, large nail, or cross (X) may be placed at the true point. In any event the corner point can be occupied and may be marked temporarily by paint or scratching. Two reference monuments, established following the practice for highway surveys to the extent that is feasible, ordinarily suffice in public survey practice, but four may be employed if desirable. When two monuments are used, they are usually placed equidistant and in opposite directions; an acceptable alternative is placement of the monuments so that the lines connecting them with the corner point are approximately perpendicular to each other. Four monuments are placed in opposite directions in the four quadrants.

Reference monuments are described with other accessories to the corner in the field notes but are not shown on the plat.

Witness Points

4–17. A *witness point* is a monumented station on a line of the survey that is used to perpetuate an important location more or less remote from and without special relation to any regular corner.

The station may be near a road or stream crossing, valuable improvements, the border of a large cultivated field or meadow, an important unmeandered stream or lake, or the border of a reservoir; at the summit of an important slope, ridge, or mountain; or at end stations of a long triangulation, offset, or traverse that passes over the point for a normal corner, where one or both stations are beyond the limiting distance of 10 chains prescribed for setting witness corners.

The establishment of a witness point is described in the field notes but not usually shown on the plat.

Location Monuments

4–18. A *location monument* is most frequently used as a reference for one or more mineral surveys, and its use is described in detail in sections 10–32 through 10–34. It may also be used in any situation where no corner of an existing survey is available to provide a satisfactory connection for an isolated special survey. The monument is generally established in a conspicuous position with good visibility from every direction. A corner of the special survey

may be designated as a location monument if it meets this qualification.

Control Points

4–19. A *control point* serves a purpose similar to that of a location monument in connection with photogrammetric surveys, electronic surveys, or surveys established by use of airborne control. It may be connected directly to a corner or may be related through coordinates.

SYSTEM OF MARKING

Making the Marks

4–20. Monuments are marked in accordance with a system that furnishes a ready identification of the position of the monument which bears the marks. Capital letters and Arabic figures are used to mark iron posts and tree monuments. The letters and figures relate to the township, range, and section to which the corner belongs. On stone corner monuments marks termed notches and grooves are used to convey the information. The notches and grooves relate, in the case of an exterior corner, to the number of miles from the monument to the adjoining township corners. In the case of a subdivisional corner, they relate to the normal number of miles from the monument to the east and south boundaries of the township.

4–21. The marks should be carefully arranged, neat, distinct, and durable. An assortment of steel dies, stone chisels and punches, and timber scribes, in good condition for use, should always be available.

4–22. An index of the ordinary markings common to all classes of monuments and corner accessories is given below.

Marks	*To indicate—*
A M	Amended monument
A M C	Auxiliary meander corner
A P	Angle point
B O	Bearing object
B T	Bearing tree
C	Center
C C	Closing corner
E	East
E C	Electronic control
L M	Location monument
M	Mile
M C	Meander corner
N	North
NE	Northeast
NW	Northwest
R	Range
R M	Reference monument
S	Section
S	South
S C	Standard corner
SE	Southeast
S M C	Special meander corner
SW	Southwest
T	Township
TR	Tract
W	West
W C	Witness corner
W P	Witness point
1/4	Quarter section
1/16	Sixteenth section

MARKS ON CORNER MONUMENTS

Marks on Iron Post Monuments and Brass Tablets

4–23. The markings on the brass cap of the regular corner monument are always made to be read from the south side of the monument. The year number of the date when established is placed on the south. If the marks or accessories are changed or added to in the course of a resurvey, the new year number is marked above or below the original number without destroying the former marks.

4–24. *Standard township corners* are marked "S C" and the township on the north half, and the ranges and sections in the proper quadrants:

S C

T 25 N

R 17 E	R 18 E
S 36	S 31

1971

4–25. *Closing township corners* are marked "C C" on the half from which the closing line approaches the monument, with the township (or range) on the same half, and the ranges (or townships) and sections in the proper quadrants; also (as far as known at the time) the township, range, and section, or the initials or abbreviation of the reservation, grant, or private claim upon which the township exterior closes. The name of a State is not placed on the

monument of a closing corner even though the monument is intended to be placed on the State boundary. See section 5–19, State Boundary Monuments.

```
T 25 N R 17 E
     S 36
-------------
   S 1 | S 6
R 17 E | R 18 E
   T 24 N
     CC
    1971
```

```
          T 24 N
        | R 17 E
T 24 N  | S 31
 S 36   |------- CC
        | S 6
R 16 E  | T 23 N
        1971
```

```
          T 20 N
        | R 120 W
K 1 R   | S 32
        |------- CC
        | S 5
        | T 19 N
        1971
```

4–26. *Corners common to four townships* are marked with the townships on the north and south halves, the ranges on the east and west halves, and the sections in the four quadrants:

```
          T 23 N
R 17 E  | R 18 E
 S 36   | S 31
-------------
   S 1 | S 6
          T 22 N
          1971
```

4–27. *Corners common to two townships only* are marked with the township (or range) common to both on the proper half, and the ranges (or townships) and sections in the proper quadrants; also (as far as known at the time) the township, range, and section upon the opposite half:

```
T 3 N
R 7 W |
 S 36 | T 2 N
-------| R 6 W
   S 1 | S 6
T 2 N |
    1971
```

```
          T 14 S
R 7 W | R 6 W
 S 36 | S 31
-------------
T 15 S R 7 W S 1
          1971
```

4–28. *Corners referring to one township only* are marked with the township, range, and section in the particular quadrant which is concerned; also (as far as known at the time) the township, range, and section upon the opposite part:

```
T 20 N  R 5 W
-------
T 19 N | S 31
 R 6 W |
   S 1 |
    1971
```

```
T 23 N |
R 19 W |
  S 36 |
-------
T 22 N R 19 W
      S 1
     1971
```

```
          | T 35 N
          | R 44 E
          | S 31
          |-------
T 34 N    R 43 E
          S 1
         1971
```

4–29. *Standard section corners* are marked "S C" and the township and range on the north half, and the sections in the proper quadrants:

```
        S C
T 25 N | R 17 E
  S 35 | S 36
-------------
        1971
```

4–30. *Closing section corners* are marked "C C" and the township and range on the half from which the closing line approaches the monument, and the sections in the proper quadrants; also (as far as known at the time) the township, range, and section, or the initials or abbreviation of the reservation, grant, or private claim, upon which the section line closes, with the exception that in the case of an interior closing section corner, the township and range numbers are not repeated:

```
T 25 N  R 17 E
     S 35
-----------------
  S 2 | S 1
T 24 N | R 17 E
     C C
     1971
```

```
     T R 48
-----------------
  S 26 | S 25
T 12 N | R 5 W
     C C
     1971
```

```
T 14 S | T 14 S
  S 12 |
-------| R 18 E
  S 13 |
R 17 E | S 7
     1971
```

```
T 27 N | R 17 W
  S 31 | S 32
-----------------
T 26 N  R 17 W
     S 6
     1971
```

```
     | T 14 N
     | S 10
S 16 |------- CC
     | S 15
     | R 16 E
     1971
```

```
T 14 S | R 20 W
  S 10 | S 11
-----------------
     S 14
     1971
```

4–31. *Corners common to four sections* are marked: (a) On an exterior, with the township (or range) common to the adjoining townships, the ranges (or townships) upon the opposite sides of exterior, and the sections; and (b) a subdivisional corner, with the township, range, and sections:

```
     T 25 N
R 17 E | R 18 E
  S 12 | S 7
-------------------
  S 13 | S 18
     1971
```

```
T 26 N  R 17 E
  S 35 | S 36
-------------------
  S 2 | S 1
     T 25 N
     1971
```

```
T 25N  R17E
  S 23 | S 24
-------------------
  S 26 | S 25
     1971
```

4–32. *Section corners common to two sections only* are marked with the township and range on the half facing the sections to which the corner belongs, and the sections in the proper quadrants; also (as far as known at the time) the township, range, and section upon the opposite half, except that in the case of an interior corner, the township and range numbers are not repeated:

4–33. *Section corners referring to one section only* are marked with the township, range, and section in the particular quadrant which is concerned; also (if known at the time) the section upon the opposite part:

```
     S 10
-------------
T 84 N |
R 73 W |
  S16 |
     1971
```

```
T 27 N |
R 16 W |
  S 17 |
-------------
     S 20
     1971
```

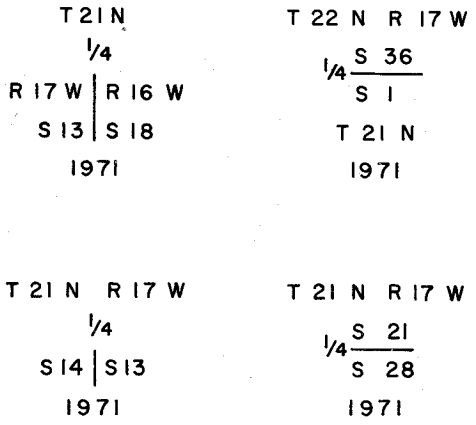
```
S 28
-------------
| T 57 N
| R 63 W
| S 34
1971
```

4–34. *Standard quarter-section corners* are marked with "S C", the township, range, "¼", and the section, all on the north half:

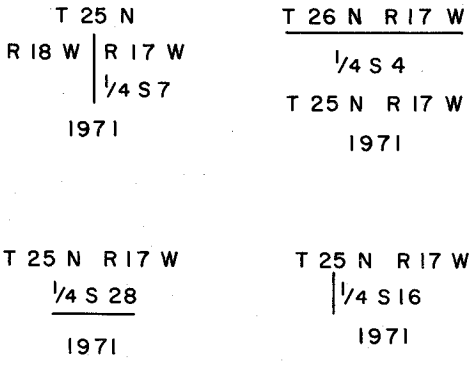
```
     S C
T 21 N  R 17 W
 1/4 S  36
-----------------
     1971
```

4–35. *Quarter-section corners of maximum control* are marked (a) on a meridional exterior, with the township and "¼" on the north,

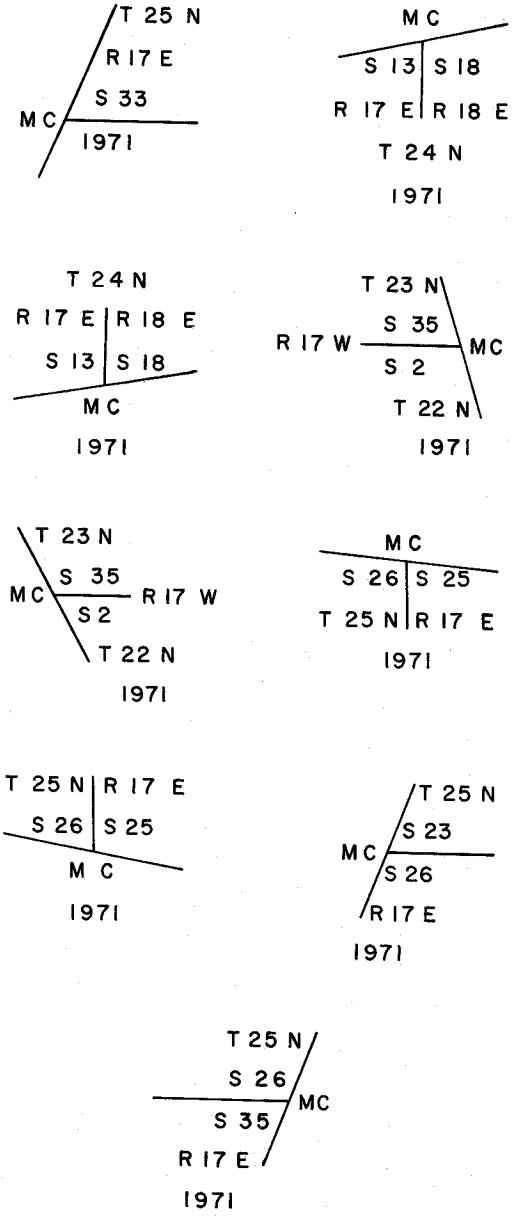
and the ranges and sections on the east and west halves; (b) on a latitudinal exterior, "¼" on the west, the range on the north, and the townships and sections on the north and south halves; (c) on a meridional subdivisional line, with the township and range on the north, "¼" on the north, and the sections on the east and west halves; and, (d) on a latitudinal subdivisional line, with the township and range on the north, "¼" on the west, and the sections on the north and south halves:



4–36. *Quarter-section corners of minimum control* are marked (a) on a meridional exterior with the township on the north, ranges on the east and west, and "¼" and the section on the half toward the particular section which is concerned; (b) on a latitudinal exterior, with the township and range on the north and south halves, and "¼" and the section on the half toward the particular section which is concerned; and, (c) on a subdivisional line, with the township and range on the north, and "¼" and the section on the half toward the particular section which is concerned:



4–37. *Meander corners* are marked "M C" on the half toward the meanderable body of water, and the additional marks (a) on a standard parallel or other line controlling surveys to one side only, with the township, range, and section toward the surveyed land; (b) on an exterior, with the township (or range) common to the adjoining townships, the ranges (or townships) upon the opposite sides of the exterior, and the sections; and, (c) on a subdivisional line, with the township, range and sections:



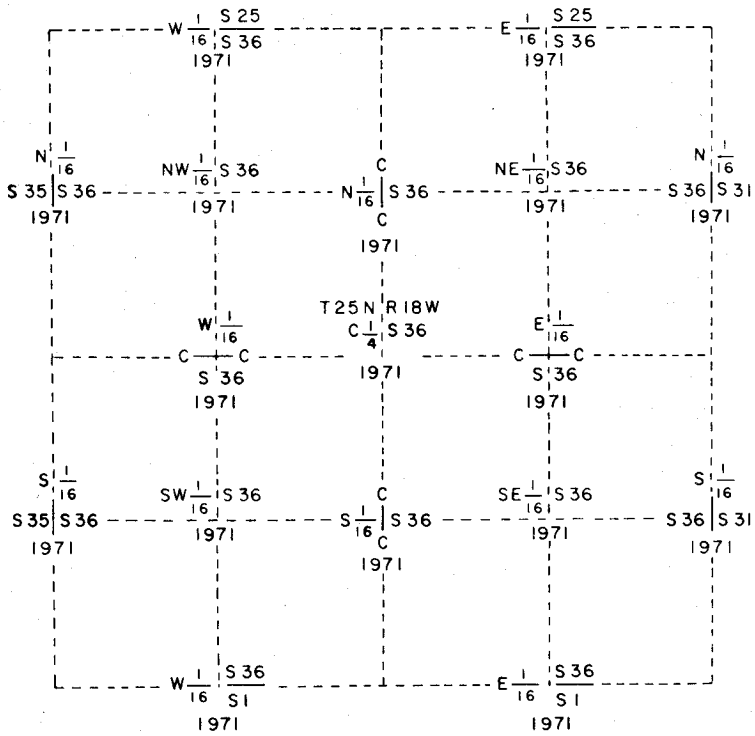


FIGURE 65.—Marks on monuments at interior quarter-section corner and all sixteenth-section corners.

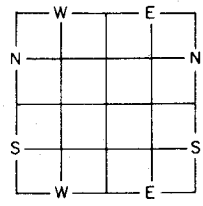
4–38. *Interior quarter-section corner and all sixteenth-section corners,* when required by the special instructions are marked in accordance with the scheme shown in figure 65.

4–39. *Corners of minor subdivisions.* Where a quarter-quarter section is subdivided into quarter-quarter-quarter sections (1/64 or 10-acre units), or aliquot parts as small as 1/256 (2.5 acres), the monuments on the boundaries of the quarter-quarter section, and those needed for the perimeter lines within the quarter-quarter section, are marked on the plan indicated in figure 66.

The diagram shows the marking for the monuments at corners of 2.5-acre units within one regular quarter-quarter section. If those units, or any one of them, are quartered, only the fraction 1/1024 is used for marking whatever monuments may be required of that order, including also the year number.

Markings on monuments at the corners of 1/64 and 1/256 of a section, when subdivided as aliquot parts, for example on the boundaries of and within the SE¼ SE¼ sec. 36 are shown in figure 66.

4–40. *Sixteenth-section corners of minimum control* are marked with a key letter (N, E, S, or W) to indicate the position of the monument, and "1/16" and the section, all on the half toward the particular section which is concerned:



Key

S 1/16
S 36
1971

E 1/16
S 22
1971

4–41. *Corners of Elongated Sections.* Additional monuments are required on section boundaries where the length of the closing line exceeds 85 chains. These are placed at inter-

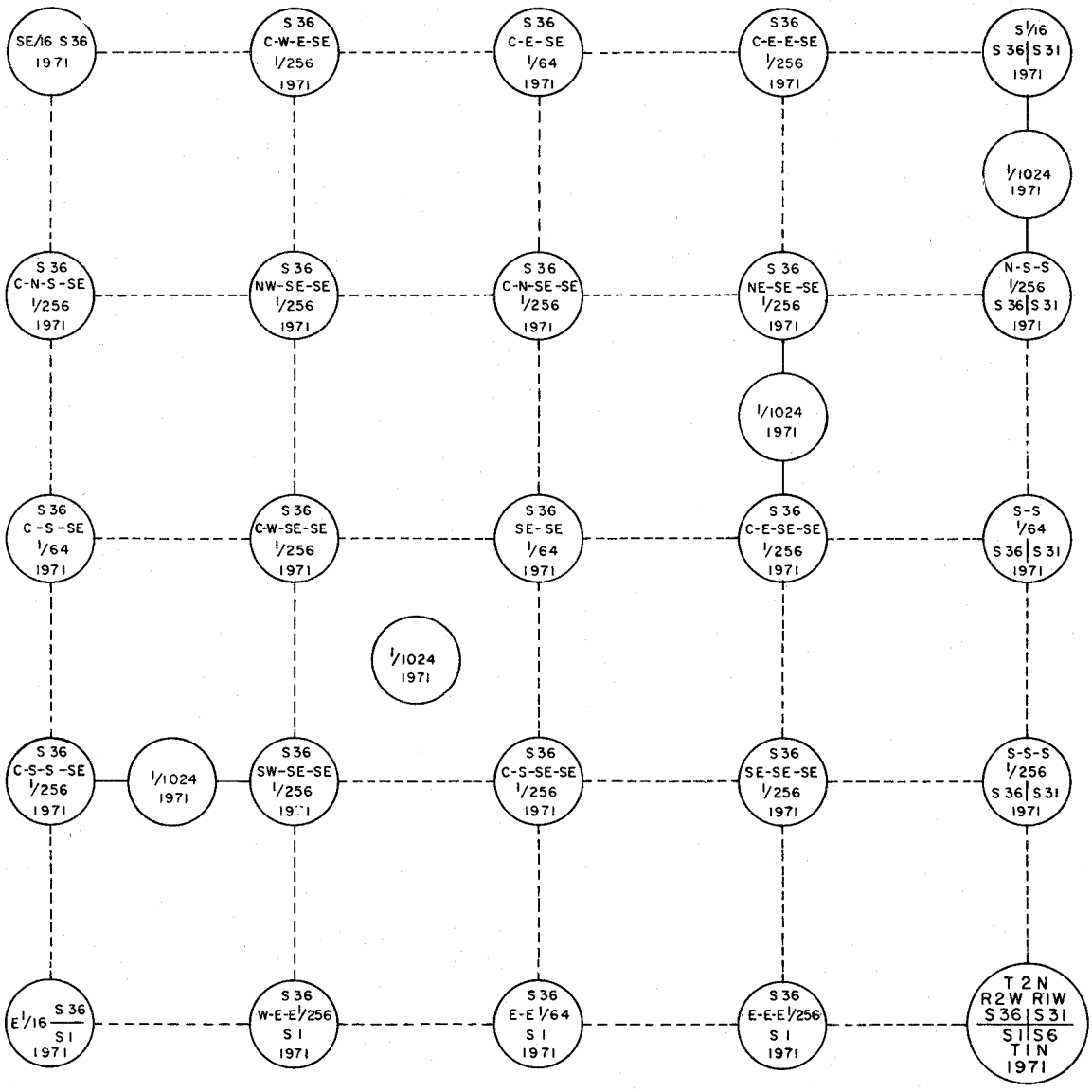
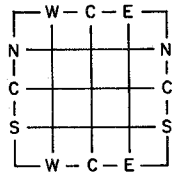


FIGURE 66.—Marks on monuments at corners of minor subdivisions. If 1/1024 section corners are established, only "1/1024" and the date are marked on the brass cap.

vals of 40 chains counting from the regular quarter-section corner. The plan for the special marking is based upon the distance each monument is established from the regular governing boundary, generally the south or east. In cases where special circumstances call for the establishment of corners within the section, the monuments are also marked with reference to the subdivision-of-section lines upon which they are placed. The markings are illustrated by figures 67 and 68. Special attention should be given to whether the markings of monuments on the section boundaries are to show maximum or minimum control.

4–42. *Special meander corners* are marked in accordance with the following scheme:

Key letters (N, E, S, W, or C) are used in pairs to indicate the position of the subdivision-of-section line.



Key

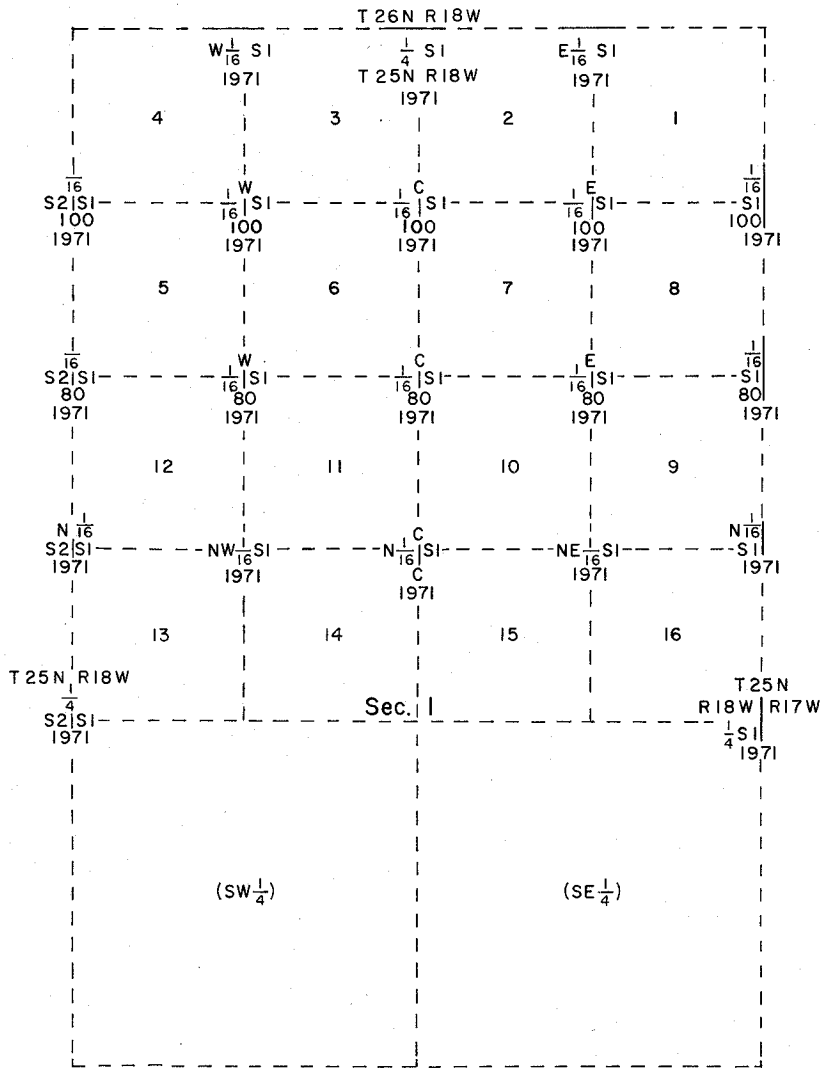
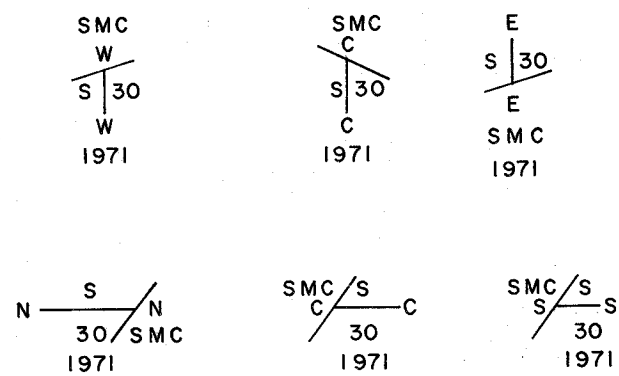


FIGURE 67.—Marks on monuments at corners of an elongated section.

The marks "S M C" are placed on the half toward the meanderable body of water, and the section on the opposite half:



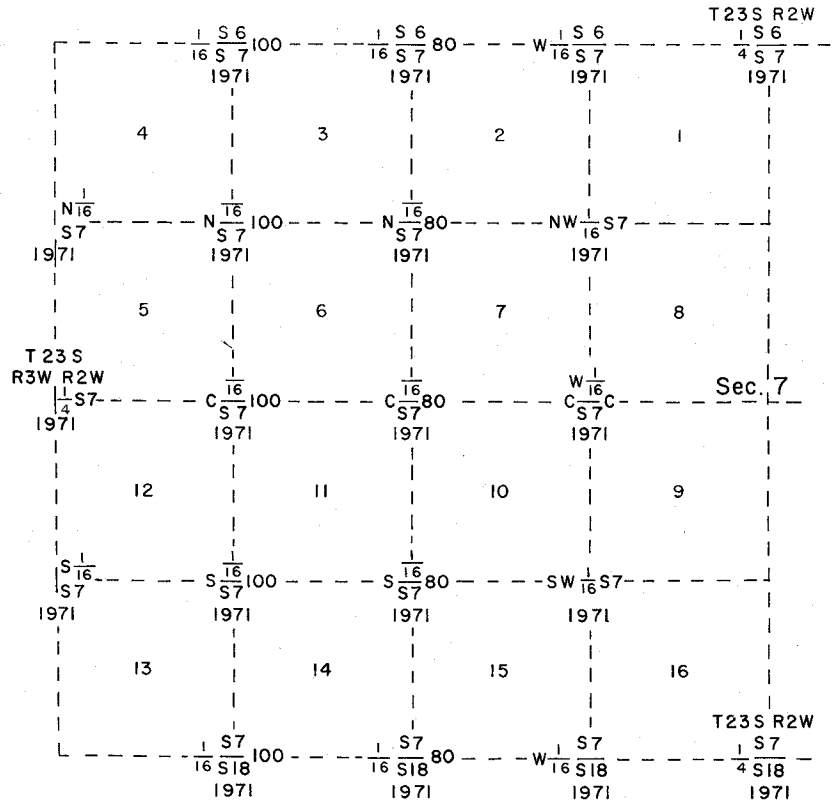


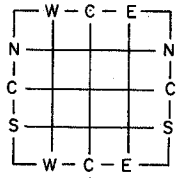
FIGURE 68.—Marks on monuments at corners of an elongated section.

4–43. *Auxiliary meander corners* are marked "A M C" and the township, range, and section:

AMC
T64N R37W
S 29
1971

When *two or more* auxiliary meander corners are required for islands in the same section, they should be identified by lot or tract number, not by serial number.

4–44. *Closing subdivision-of-section corners* are marked in accordance with the following scheme:

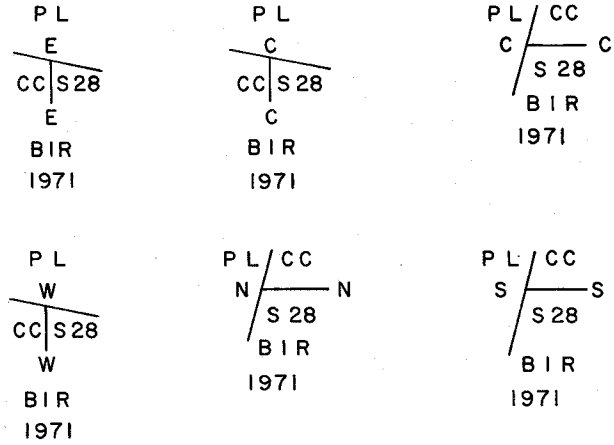


Key

Key letters (N, E, S, W, or C) are used in pairs to indicate the position of the subdivision-of-section line.

The marks "C C" and the section are placed on the half from which the closing line approaches the monument.

(The marks "B I R" indicate "Blackfeet Indian Reservation.")



4–45. Markings for *miscellaneous angle points* on irregular boundaries:

T 27 N
S 13 AP 4
B I R
R 17 W
1971

For "angle point No. 4" on the boundary of the "Blackfeet Indian Reservation," falling on surveyed land.

AP
T 12 S R 90 W
S 33
1971

For "angle point" on the south boundary of section 33, superseding an old standard corner on a defective line, not subject to rectification.

T 16 N R 7 E
S 14 AP 2
TR 37
1971

For "angle point No. 2" on the boundary of a private claim ("Tract No. 37") falling on surveyed land.

AP 12
T 20 N
R 5 W
S 10
1971

For "angle point No. 12" on a reestablished non-riparian meander line; the marks "AP" and the serial number are placed on the half toward the land erroneously omitted from the original survey.

4–46. Markings for *intermediate corners* along boundaries:

139 M
N MEX
TEXAS
1971

For "139th mile corner" on the boundary line between the States of "New Mexico and Texas."

B I R
3 M PL
1971

For "3d mile corner" on the boundary of the "Blackfeet Indian Reservation," falling on unsurveyed land.

B I R
13 M
T 25 N
R 17 W
S 25
1971

For "13th mile corner" on the boundary of the "Blackfeet Indian Reservation," falling on surveyed land.

Marks on Stone Monuments

4–47. Where a stone monument is established, the letters, figures, and grooves are cut on the exposed faces or sides of the stone, but not on its top or end; the notches are cut upon the exposed vertical edges. Grooves are employed where the faces of a stone are oriented to the cardinal; notches where the vertical edges are turned to the cardinal. Letters and figures are made 1 to 1½ inches high. Grooves and notches are of comparable size but are always horizontal to the face or edge on which they are made. All marks should be plainly and permanently chiseled into the stone.

4–48. *Standard township corners* (oriented with the faces to the cardinal) are marked "S C" on the north face, with the township on the same face, and the ranges on the adjoining faces:

S C 25 N on N.,
18 E on E., and
17 E on W. face.

4–49. *Closing township corners* (oriented with the faces to the cardinal are marked "C C" and with six (or fewer) grooves on the face from which the closing line approaches the monument—the grooves to indicate the normal number of miles (or fractional parts) from the monument to the adjoining township corner—with the township (or range) on the same face, and the ranges (or townships) on the adjoining faces; also the initial or abbreviation of the reservation, grant, or private claim, on the face toward such irregular tract as may be closed upon:

20 N on N.,
C C 120 W and 5 grooves (on line between sections 5 and 32) on E., 19 N on S., and
B I R on W. face.

4–50. *Corners common to four townships* (oriented with the edges to the cardinal) are marked with the townships on the northeast and southwest faces, and the ranges on the southeast and northwest faces:

23 N on NE.,
18 E on SE.,
22 N on SW., and
17 E on NW. face.

4–51. *Corners common to two townships only* (oriented with the faces to the cardinal) are marked with the township (or range) common to both on the face toward the townships, and the range (or townships) on the adjoining faces:

3 N on N.,
2 N on S., and
7 W on W. face.

4–52. *Corners referring to one township only* (oriented with the edges to the cardinal)

are marked with the township and range on the face toward the particular township:

23 N 7 W on NW. face.

4–53. *Standard section corners* (oriented with the faces to the cardinal) are marked "S C" on the north face, and with from one to five grooves on the east and west faces, the grooves to indicate, respectively, the number of miles from the monument to the adjoining (regular) township corner:

S C on N.,
1 groove on E., and
5 grooves on W. face (standard corner of sections 35 and 36)

4–54. *Closing section corners* (oriented with the faces to the cardinal) are marked "C C" and with from one to six grooves on the face from which the closing line approaches the monument, and from one to five grooves on each of the adjoining faces—the grooves to indicate the number of miles (or fractional parts) from the monument to each of the three (regular) township boundary lines in the same directions, respectively—also the initials or abbreviation of the reservation, grant, or private claim, on the face toward such irregular tract as may be closed upon:

2 grooves on E.,
C C and 6 grooves on S., and
4 grooves on W. face (on line between sections 2 and 3 closing on a standard parallel).

4–55. *Corners common to four sections* (oriented with the edges to cardinal) are marked (a) on an exterior, with from one to five notches each on two opposite edges, north and south on a meridional line, and east and west on a latitudinal line, each to indicate, respectively, the number of miles from the monument to the adjoining (regular) township corner; and (b) a subdivisional corner, with from one to five notches on the east and south edges, each to indicate, respectively, the number of miles from the monument to the (regular) east and south township boundary lines. The subdivisional section corners of a fractional township are marked with reference to the theoretical position of normal east and south boundaries, whether surveyed or not:

2 notches on N. and 4 notches on S. edge (for corner of sections 7, 12, 13 and 18 on a range line).
2 notches on E. and 4 notches on W. edge (for corner of section 2, 3, 34 and 35 on a township line).
2 notches on E. and 4 notches on S. edge (for corner of sections 10, 11, 14 and 15, of a subdivisional survey).

4–56. *Section corners common to two sections only* (oriented with the edges to the cardinal) are marked with the sections on the faces toward the particular sections to which the corner belongs:

S 13 on SW., and
S 12 on NW. face (for corner of sections 12 and 13 on the east boundary of a township).
S 11 on NE., and
S 10 on NW. face (for corner of sections 10 and 11 of a subdivisional survey running north from monument).

4–57. *Section corners referring to one section only* (oriented with the edges to the cardinal) are marked with the section on the face toward the particular section which is concerned:

S 17 on NW. face (for southeast corner of section 17).

4–58. *Standard quarter-section corners* (oriented with the faces to the cardinal) are marked "S C¼" on the north face.

4–59. *Quarter-section corners of maximum control* (oriented with the faces to the cardinal) are marked (a) on a meridional line, "¼" on the west face; and (b) on a latitudinal line, "¼" on the north face.

4–60. *Quarter-section corners of minimum control* (oriented with the faces to the cardinal) are marked "¼" and the section, all on the face toward the particular section which is concerned:

¼ S on S. face (for quarter-section corner on the north boundary of section 4).

4–61. *Meander corners* (oriented with the faces to the cardinal) are marked "M C" on the face toward the meanderable body of water, and with from one to six grooves on each of the other faces, each to indicate the number of miles (or fractional parts) from the monument

to the (regular) township boundary line in the same direction, respectively:

M C on N.,
6 grooves on E.,
4 grooves on S., and
6 grooves on W. face (for meander corner of fractional sections 13 and 18, on the south side of a meanderable body of water).

4–62. *Special and auxiliary meander corners* (oriented with the faces to the cardinal) are marked "S M C" or "A M C", as the case may be, on the face toward the meanderable body of water, and the section on the opposite face:

S M C on N., and
S 19 on S. face (for special meander corner on a meridional subdivision-of-section line in section 19, on the south side of a meanderable body of water).
S 20 on E., and
A M C on W. face (for auxiliary meander corner in section 20, on the east side of a meanderable body of water).

Marks on Tree Monuments

4-63. Where the true point for a corner is found to fall in the position occupied by a sound living tree, the tree is made the monument. A tree is removed if it is too small to be marked.

4–64. Where a tree is to be made a monument, the species of the tree and its diameter at breast height are noted. The appropriate marks are made upon the trunk of the tree immediately above the root crown. A series of marks to be made upon a particular side of a tree are scribed in a vertical line reading downward.

If the corner point differs significantly from the center of the tree, the field notes will so state. Consideration will be given to using reference monuments to indicate the corner point exactly.

4–65. In the case of certain trees, including the aspen, beech and locust (smooth and thin-barked), the marks may be made preferably by scribing lightly into the bark without blazing; the marks thus made will remain as long as the tree is sound. On the rough-barked trees, the marks should be scribed into a smooth, narrow, vertical blaze, specially prepared by removing just enough of the outer growth to expose a flat surface of the live wood tissue immediately underneath the bark. The marks thus made will remain as long as the tree is sound, but the blaze and marks will be covered by a gradual overgrowth, showing an outward scar for many years. In regions subject to heavy snowfall it is desirable to make a small additional blaze at a height of 6 or 8 feet above the ground, which will serve to attract attention to the tree during the winter season. The ends of the blaze should be smoothed off gradually without making a sharp cut into the live wood tissue. The lower end of the blaze upon which the marks are placed should be about 6 inches above the root crown, and its length should be just sufficient to take the marks.

Trees should always be marked in a way that will cause the least possible injury and enable rapid overgrowth. Placing the marks at the bottom ensures that they will remain on the stump if the tree is cut down.

4–66. The above caution applies equally to the marking of bearing trees, and the surveyor should not remove the overgrowth on a tree monument or bearing tree unless it is absolutely necessary to do so in order to identify the tree. The marks on old bearing trees should not be disturbed or added to. New trees may be marked, which will be recorded in the field notes.

In the case of trees which have been blazed before marking, the number of rings contained in the overgrowth (or its equivalent on the adjoining sections of the tree) furnish count of the number of years (one annual ring for each growing season) from the date of original marking to the date when uncovered. Uncovering an old blaze leaves it subject to decay, and the surveyor should adopt additional means to evidence the position of the corner.

4–67. *Standard township corners* are marked "SC" and the township on the north side, and the ranges and sections on the east and west sides:

SC T25N on N.,
R18E S31 on E., and
R17E S36 on W. side.

4–68. *Closing township corners* are marked "CC" and the township (or range) on the side from which the closing line approaches the

monument, and the ranges (or townships) and sections on the adjoining sides; also the initials or abbreviation of the reservation, grant, or private claim, on the side toward any irregular tract which may be closed upon:

R18E S6 on E.,
CC T24N on S., and
R17E S1 on W. side.

4–69. *Corners common to four townships* are marked with the township and section on the northeast and southwest sides, and the range and section on the southeast and northwest sides:

T23N S31 on NE.,
R18E S6 on SE.,
T22N S1 on SW., and
R17E S36 on NW. side.

4–70. *Corners common to two townships only* are marked with the township, range, and section on the sides toward the particular townships:

T2N R7W S1 on SW., and
T3N R7W S36 on NW. side.

4–71. *Corners referring to one township only* are marked with the township, range, and section on the side toward the particular township which is concerned:

T23N R7W S36 on NW. side.

4–72. *Standard section corners* are marked "SC" and the township and range on the north side, and the sections on the east and west sides:

SC T25N R17E on N.,
S36 on E., and
S35 on W. side.

4–73. *Closing section corners* are marked "CC" and the township and range on the side from which the closing line approaches the monument, and the sections on the adjoining sides; also the initials or abbreviation of the reservation, grant, or private claim on the side toward any irregular tract which may be closed upon:

S1 on E.,
CC T24N R17E on S., and
S2 on W. side.

4–74. *Corners common to four sections* are marked (a) on an exterior, with the township (or townships), ranges (or range) and sections; and (b) a subdivisional corner, with the township, range and section:

(a) T25N S7 on NE.,
R18E S18 on SE.,
R17E S13 on SW., and
S12 on NW. side.
(a) T26N S36 on NE.,
R17E S1 on SE.,
T25N S2 on SW., and
S35 on NW. side.
(b) T25N S24 on NE.,
R17E S25 on SE.,
S26 on SW., and
S23 on NW. side.

4–75. *Section corners common to two sections only* are marked with the township and section, and the range and section, on the sides toward the particular sections to which the corner belongs:

T14S S11 on NE., and
R20W S10 on NW. side.

4–76. *Section corners referring to one section only* are marked with the township, range and section on the side toward the particular section which is concerned:

T27N R16W S17 on NW. side.

4–77. *Standard quarter-section corners* are marked "SC¼" and the section, all on the north side:

SC¼ S36 on N. side.

4–78. *Quarter-section corners of maximum control* are marked (a) on a meridional line, "¼" and the section on the west side, and the section on the east side; and (b) on a latitudinal line, "¼" and the section on the north side, and the section on the south side:

(a) S18 and E., and
¼ S13 on W. side.
(b) ¼ S21 on N., and
S28 on S. side.

4–79. *Quarter-section corners of minimum control* are marked "¼" and the section, all on the side toward the particular section which is concerned:

¼ S7 on E. side (for quarter-section corner on the west boundary of section 7).

4–80. *Meander corners* are marked "MC" on the side toward the meanderable body of water, and the additional marks (a) on a standard parallel or other line controlling surveys to one side only, with the township, range and section on the side toward the surveyed land; (b)

on an exterior, with the township (or range) common to the adjoining townships on the side opposite the meanderable body of water, and the ranges (or townships) and the sections on the adjoining sides; and, (c) on a subdivisional line, with the township and range on the side opposite the meanderable body of water, and the sections on the adjoining sides:

(a) MC on E., and
T25N R17E S33 on NW. side (for meander corner on a standard parallel, on the west side of a meanderable body of water).

(b) T24N on N.,
R18E S18 on E.,
MC on S., and
R17E S13 on W. side (for meander corner on a range line, on the north side of a meanderable body of water).

(b) T23N S35 on N.,
MC on E.,
T22N S2 on S., and
R17W on W. side (for meander corner on a township line, on the west side of a meanderable body of water).

(c) S23 on N.,
T25N R17E on E.,
S26 on S., and
MC on W. side (for meander corner on a latitudinal section line, on the east side of a meanderable body of water).

(c) MC on N.,
S9 on E.,
T4N R7W on S., and
S8 on W. side (for meander corner on a meridional section line, on the south side of a meanderable body of water).

4–81. *Special and auxiliary meander corners* are marked "SMC" or "AMC", as the case may be, on the side toward the meanderable body of water, and the section on the opposite side:

SMC on E., and
S14 on W. side (for special meander corner on a latitudinal subdivision-of-section line in section 14, on the west side of a meanderable body of water).
AMC on N., and
S9 on S. side (for auxiliary meander corner in section 9, on the south side of a meanderable body of water).

MARKS ON SPECIAL-PURPOSE MONUMENTS

4–82. At a witness corner the marks on an iron post monument are arranged as on a regular corner monument with the addition of the letters "W C" on the north and an arrow pointing to the true point for the corner. A stone is marked with the letters "W C" only, on the south face if the true line field notes are to read running north, or on the east face if the notes are to read running west. On a tree, two hacks are made on the north and south sides on a meridional line or two hacks on the east and west sides on a latitudinal line. The marks are the same as on a line tree, which serves the same purpose.

A reference monument normally is marked the same as a bearing tree located in a similar position with the addition of an arrow pointing to the corner point, and the date, and substituting the letters "R M" for "B T". Where reference monuments are established at corners of minimum control, including corners on standard lines, the monument established in the section to which the corner does not refer is marked only with the letters "R M", an arrow pointing to the corner point, and the date. If there is sufficient space on the brass cap or tablet, the distance to the true corner may be stamped beside the arrow.

At a witness point the brass cap is marked "W P" at the top, the date at the bottom, and "S" with the section number on each of the halves appropriate for the line of survey. Monuments at witness points situated on subdivision-of-section lines or at other unusual places are marked as provided for in the special instructions. A stone is marked "W P" only on the face as in marking a witness corner monument. A tree intersected by the true line is marked as a line tree, which has the same function as a witness point.

The markings on a location monument are described in section 10–33.

Control point monuments established by electronic methods are marked "E C", with a serial number, the year date, and the group number or survey number in the course of which they are established.

CORNER ACCESSORIES

4–83. The purpose of an accessory is to evidence the position of the corner monument. A connection is made from the corner monument to fixed natural or artificial objects in its immediate vicinity, whereby the corner may be relocated from the accessory. Thus, if the monument is destroyed or removed, its position may be identified by any remaining evidence of the accessories. One or more kinds of accessory are employed at each corner established in the public-land surveys (except for corners of minor subdivisions and where specifically not required by the Manual, or omitted by the special instructions).

Accessories consist of (1) bearing trees or other natural objects such as notable cliffs and boulders, permanent improvements, reference monuments; (2) mounds of stone; or (3) pits and memorials. Aside from availability, selection is based on their order of permanence.

4–84. The surveyor cannot perform any more important service than that of establishing permanent and accurate evidence of the location of the corners in his survey. Where the accessories cannot be employed, other means should be adopted that will best serve the purpose.

Bearing Trees and Bearing Objects

4–85. Bearing trees are selected for marking when available, ordinarily within a distance of 3 chains of the corner; a greater distance if important. One tree is marked in each section unless a tree in one or more positions may not be available. A full description of each bearing tree is given in the field notes. This includes the species of each tree, its diameter at breast height, the exact direction from the monument, the horizontal distance counting to the center of the tree at its root crown; and, the exact marks scribed for the identification of the corner.

Almost any nearby natural object that can be readily identified should be recorded by description, course, and distance. Such objects may not be of a character that can be marked, excepting in the case of a rock cliff or boulder. These are supplemental to the marking of bearing trees, or to fill out a quota where trees are not available in some sections. The description of the cliff or boulder should provide ready identification, including the marking of a cross (X) plainly and deeply chiseled at the exact point to which the direction and distance are recorded.

Another desirable accessory, especially where the usual types are not available, nor suitable on account of the site conditions, such as at a corner that falls in cultivated land, is to record accurate bearings to two or more prominent landmarks.

4–86. The marks upon a bearing tree are made upon the side facing the monument, scribed in the manner already outlined for marking tree corner monuments. The marks embrace the information suggested in the schedule hereinafter given, with such letters and figures as may be appropriate for a particular corner, and will include the letters "BT". A tree will always be marked to agree with the section in which it stands, and will be marked in a vertical line reading downward, ending in the letters "BT" at the lower end of the blaze approximately 6 inches above the root crown.

4–87. There is a great difference in the longevity of trees, and in their rate of decay; trees should therefore be selected, if possible, with a view to the length of their probable life, their soundness, favorable site conditions and size. Sound trees, not matured, of the most hardy species, favorably located, are preferred for marking. Trees 5 inches or less in diameter should not be selected for marking if larger trees are available, and it is generally better to avoid marking fully matured trees, especially those showing signs of decay. Trees 4 inches in diameter, or less, if no better trees are available, are marked with the letter "BT" only at the base, and an "X" at breast height, facing the monument. The species, size and exact position of the bearing trees are of vital importance,

Marking a bearing tree.

as this data will generally serve to identify a bearing tree without uncovering the marks, or even to identify two or more stumps after all evidence of the marks has disappeared.

4–88. Generally only one tree is marked in each section at a particular corner, but in certain instances two trees are required in a section. In such cases it is better to select trees of different species or of widely different size, direction or distance. If the trees are of the same species, in order that confusion may be avoided in the future identification of a remaining tree where the companion tree has disappeared, one is marked with an "X" only (and "BT" at the base).

4–89. A cross (X) and the letters "BO" are chiseled into a bearing object, if it is a rock cliff or boulder; the record should enable another surveyor to determine just where the marks will be found. The rock bearing object is the most permanent of all accessories; it is used wherever practicable, and within a distance of 5 chains.

4–90. A connection to any permanent artificial object or improvement may be included in this general class of corner accessories. The field notes should be explicit in describing such objects, and should indicate the exact point to which a connection is made, as "southwest corner of foundation of Smith's house," "center of Smith's well," "pipe of Smith's windmill," etc. No marks will be made upon private property without the consent of the owner.

Memorials

4–91. Where there is no tree or other bearing object, as above described, and where a mound of stone or pits are impracticable, a suitable memorial is deposited alongside the monument. A memorial may consist of any durable article which will serve to identify the location in case the monument is destroyed. Such articles as glassware, stoneware, a marked (X) stone, a charred stake, a quart of charcoal, or pieces

of metal constitute a suitable memorial. A full description of such articles is embodied in the field notes wherever they are employed as a memorial. When replacing an old monument with a new one, such as substituting an iron post for an old marked stone, the old marker is preserved as a memorial.

Mound of Stone

4–92. Where native stone is available and the surface of the ground is favorable, a mound of stone is employed as an accessory to a corner monument, or to surround it, even though a full quota of trees or other bearing objects can be utilized. A mound of stone erected as a corner accessory should be built as stable as possible, should consist of not fewer than five stones, and should be not less than 2 feet base and 1½ feet high. Where the ground is suitable, the stone mound is improved by first digging a circular trench, 4 to 6 inches deep, for an outer ring, then placing the base of the larger stones in the trench. In stony ground the size of the mound is sufficiently increased to make it conspicuous. The position of the accessory mound is shown in the schedule following. The nearest point on its base should be about 6 inches distant from the monument. The field notes show the size and position of the mound.

4–93. Where it is necessary to support a monument in a stone mound, and if bearing trees or other objects are not available, a marked (X) stone or other memorial is deposited alongside the monument.

A stone mound accessory, in addition to the mound surrounding a monument, is built wherever this will aid materially in making the location conspicuous.

Pits

4–94. Where the full quota of trees or other bearing objects are unavailable for marking, the position of the monument is, under favorable conditions, evidenced by pits. No pits should be dug in a roadway, or where the ground is overflowed for any considerable period, or upon steep slopes, or where the earth will wash, or in loose or light soil, or where there is no native sod, or where suitable stone for a mound is at hand.

A firm soil covered with a healthy native sod is most favorable for a permanent pit. Under such conditions the pits will gradually fill with a material slightly different from the original soil, and a new species of vegetation will generally take the place of the native grass; these characteristics, under favorable conditions, make it possible to identify the original location of the pits after the lapse of many years.

4–95. All pits should be dug 18 inches square and 12 inches deep, with the nearest side 3 feet distant from the corner monument, oriented with a square side (and not a corner) towards the monument, arranged as shown in the schedule following. The earth removed is scattered in such a way that it will not again fill the pits. A description of the pits is embodied in the field notes, and should include a statement of their size and position.

Accessories to Special-Purpose Monuments

4–96. The accessories to special-purpose monuments are selected and marked as follows:

Witness Corners: Formerly the accessories for witness corners were the same as though the monument had been established at its true point, but the marks upon the bearing trees or other objects were preceded by the letter "WC", and the section number was made to agree with the section in which the tree or object actually stood. The rule now is that bearing objects, if available, are treated as for a regular corner. Bearing trees, with direction and distance from the monument, are marked with an "X" at breast height, on the side facing the monument, and the letters "BT" at the base. Mounds of stone are treated as though the monument were located at the true corner.

Reference Monument: All bearing objects and bearing trees, including marks, refer to the position of the regular corner, as that location will be occupied as an instrument station.

Witness Point: No requirements are set up as to the accessories for a witness point other than to mark a bearing tree or a bearing object, if available, at important locations or to record

bearings to more distant natural objects or improvements.

ARRANGEMENT AND MARKING OF CORNER ACCESSORIES

4–97. *Standard township corners.*
Standard section corners.

Two bearing trees, one in each section north of the standard parallel, each marked "SC" and the township, range and section; as

T25N R18E S31 SC BT.

Mound of stone, north of corner.

Three pits, one each on line north, east and west.

4–98. *Closing township corners.*
Closing section corners.

Two bearing trees, one in each section to the right and left of the closing line, each marked "CC" and the township, range and section; as

T24N R18E S6 CC BT.

Mound of stone, on the closing line.

Three pits, one on the closing line and one each to the right and left on the line closed upon.

4–99. *Corners common to four townships.*

Four bearing trees, one in each section, each marked with the township, range and section; as

T22N R17E S1 BT.

Mound of stone, south of corner.

Four pits, one each on line north, east, south and west.

4–100. *Corners common to two townships only.*

Two bearing trees, one in each section cornering at the monument, each marked with the township, range and section; as

T2N R7W S1 BT.

Mound of stone, on the line between the two townships cornering at the monument.

Three pits, one each on the three lines connecting at the monument.

4–101. *Corners referring to one township only.*

Two bearing trees, both in the township cornering at the monument, each marked with the township, range and section; as

T23N R19W S36 BT.

Mound of stone, in the township cornering at the monument, at 45° from cardinal direction at the monument.

Two pits, one each on the two lines connecting at the monument.

4–102. *Corners common to four sections.*

Four bearing trees, one in each section, each marked with the township, range and section; as

T26N R17E S35 BT.

Mound of stone, west of corner.

Four pits, one in each section northeast, southeast, southwest and northwest.

4–103. *Section corners common to two sections only.*

Two bearing trees, one in each section cornering at the monument, each marked with the township, range and section; as

T14S R17E S12 BT.

Mound of stone, on the line between the two sections cornering at the monument.

Two pits, one in each section at 45° from cardinal direction at the monument.

4–104. *Section corners referring to one section only.*

Two bearing trees, both in the section cornering at the monument, each marked with the township, range and section; as

T27N R16W S17 BT.

Mound of stone, in the section cornering at the monument, at 45° from cardinal direction at the monument.

Two pits, one 3 feet and one 6 feet distant, both in the section cornering at the monument, at 45° from cardinal direction at the monument.

4–105. *Standard quarter-section corners.*

Two bearing trees, both north of the standard parallel, each marked "¼" and "SC" and the section; as

¼ S36 SC BT.

Mound of stone, north of corner.

Two pits, one each on line east and west.

4–106. *Quarter-section corners of maximum control.*

Two bearing trees, one in each section, each marked "¼" and the section; as

¼ S16 BT.

Mound of stone: (a) on a meridional line, west of corner; and, (b) on a latitudinal line, north of corner.

Two pits, one in each direction of the line passing through the monument.

4–107. *Quarter-section corners of minimum control.*

Two bearing trees, both in the particular section which is concerned, each marked "¼" and the section: as

¼ S7 BT.

Mound of stone, in the particular section which is concerned, in a cardinal direction from the monument.

Two pits, one in each direction on the line passing through the monument.

4–108. *Meander corners.*

Two bearing trees: (a) on a standard parallel or other line controlling surveys to one side only, both in the particular section which is concerned; and (b) on all other lines, one in each section to the right and left of the line; all marked "MC" and with the township, range and section; as

T25N R14E S32 MC BT.

Mound of stone, on the surveyed line on the opposite side of the monument from the meanderable body of water.

Two pits, one 3 feet and one 6 feet distant, on the surveyed line on the opposite side of the monument from the meanderable body of water.

4–109. *The interior quarter-section and all sixteenth-section corners,* when required by the written special instructions.

Two bearing trees, marked (with letters and figures ending in "BT") as shown in figure 69.

Mound of stone, in a cardinal direction from the monument, as shown (with symbol) figure 69.

Two pits, in a cardinal direction from the monument, as shown (with symbol □) in figure 69.

4–110. *Sixteenth-section corners of minimum control.*

Two bearing trees, both in the particular section which is concerned, each marked with a key letter (N, E, S or W) to indicate the position of the monument, and "1/16" and the section; as N 1/16 S18 BT.

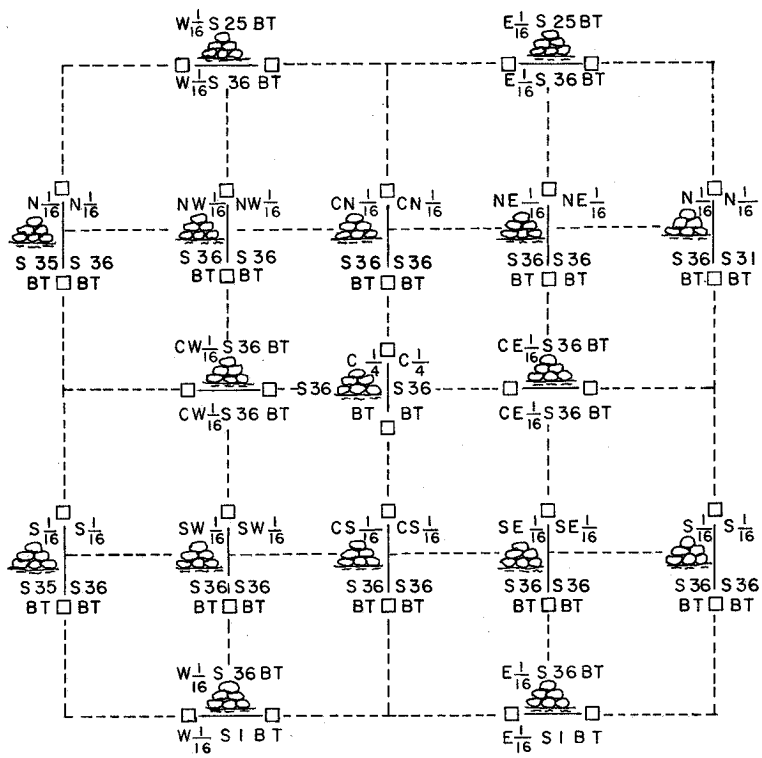
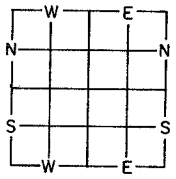


FIGURE 69.—Arrangement and marking of accessories for interior quarter-section and all sixteenth-section corners.



Key

Mound of stone, in the particular section which is concerned, in a cardinal direction from the monument.

Two pits, one in each direction on the section line passing through the monument.

4–111. *Special and auxiliary meander corners.*

Two bearing trees, each marked "SMC" or "AMC", as the case may be, and the section; as

S14 SMC BT or
S14 AMC BT.

Mound of stone, on the opposite side of the monument from the meanderable body of water.

Two pits, one 3 feet and one 6 feet distant, on the opposite side of the monument from the meanderable body of water.

4–112. *Closing subdivision-of-section corners.*

Two bearing trees, both in the particular section which is concerned, each marked "CC" and the section; as

S9 CC BT.

Mound of stone, on the closing line.

Three pits, one on the closing line and one each to the right and left on the line closed upon.

4–113. *Miscellaneous angle points along irregular boundaries.*

(a) Two bearing trees, where the monuments are less than 1 mile apart, one on each side of the boundary; and (b) four bearing trees, where the monuments are 1 mile or more apart, two on each side of the boundary; each marked "AP" and a serial or section number, or both, also the initials or abbreviation of the State, reservation, grant, private claim or public land, as appropriate; as

AP2 TR37 BT, and
AP S14 BT (for "angle point No. 2" on the boundary of a private claim "Tract No. 37" falling on surveyed land).

Mound of stone, on the medial line between the boundary lines intersecting at the monument, and in the direction toward the reservation, grant or private claim.

The placing of a stone mound on a State boundary is *on the line,* north from the monument if the field notes of the survey or retracement are written to read running north; to the east, if running east, etc. In the boundary surveys, where stone is available, it is good practice to build a substantial stone and earth mound surrounding and to the top of the monument; this will usually be conspicuous without an additional stone mound.

Two pits, one in each direction on the lines intersecting at the monument.

4–114. *Intermediate corners along irregular boundaries.*

(a) Two bearing trees, where the monuments are less than 1 mile apart, one on each side of the boundary; and (b) four bearing trees, where the monuments are 1 mile or more apart, two on each side of the boundary; each marked with the number of the mile or half-mile corner and the letter "M" to (indicate "mile corner"), and the initials or abbreviation of the State, reservation, grant, private claim or public land, as appropriate; as

47 M COLO BT, and
47 M OKLA BT (for "47th mile" corner on the boundary line between the States of "Colorado" and "Oklahoma").

Mound of stone, on a line at right angles to the boundary, and in direction toward the reservation, grant, or private claim.

Two pits, one in each direction on the boundary.