

CHAPTER 2

TOPOGRAPHIC SYMBOLS

8. Scope

This chapter illustrates and explains the topographic symbols used on military maps of all scales. The symbols are in general the same for all categories, but because of differences in use and scales, certain symbols are modified or omitted on medium- and small-scale maps.

9. Drainage Features

a. A perennial feature contains water during most of the year.

b. An intermittent feature contains water during only part of the year. The shoreline of an intermittent lake or pond is represented as indefinite and approximate.

c. A dry or cyclical feature or a *wash* is usually dry. The limits of such features are represented as indefinite.

d. Symbols. The following pages contain the approved symbols for drainage features:

Figure 1. Shoreline. The mean high or normal water line is the shoreline.
(a) Definite. (b) Indefinite or unsurveyed.

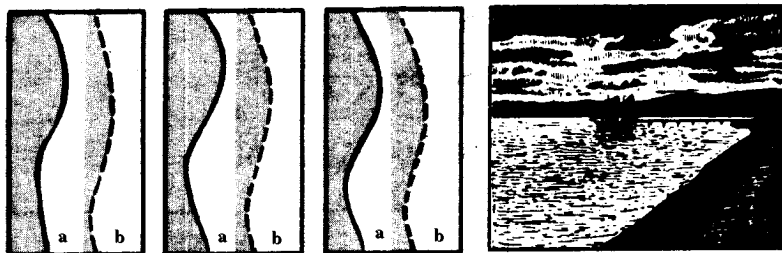


Figure 2. Perennial Lake or Pond.
(a) Definite shoreline. (b) Indefinite or unsurveyed shoreline.

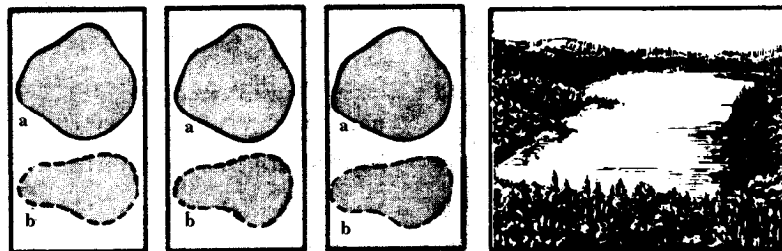


Figure 3. Intermittent Lake or Pond.

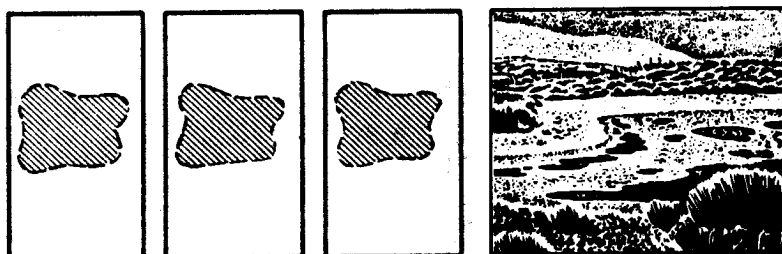


Figure 4. Dry or Cyclical Lake or Pond.

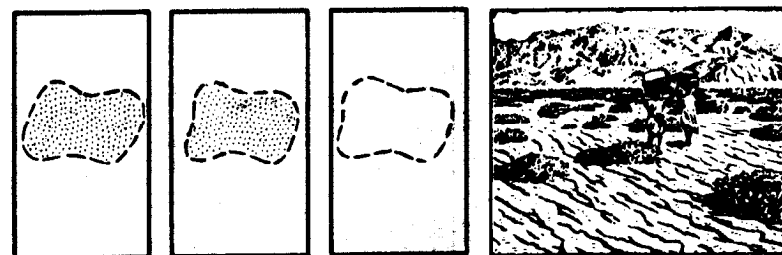


Figure 5. Reservoir with Natural Shoreline. The shoreline is controlled by the height of the dam.

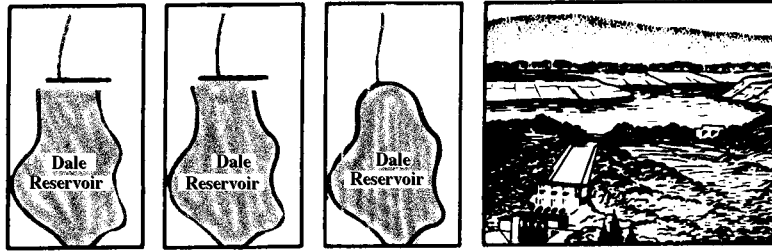


Figure 6. Narrow Perennial Stream.
(a) Surveyed. (b) Unsurveyed.

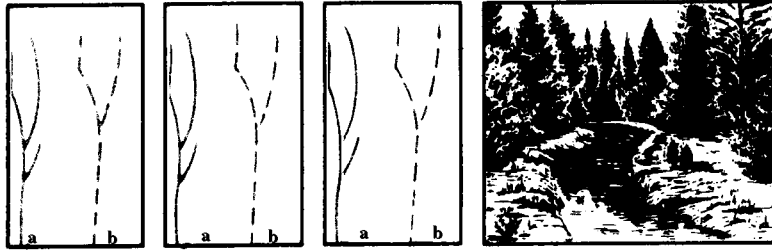


Figure 7. Wide Perennial Stream.
(a) Surveyed. (b) Unsurveyed.

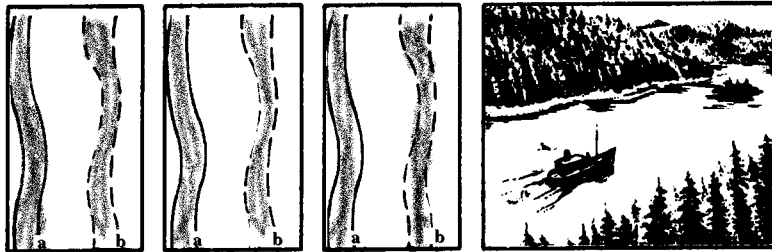


Figure 8. Intermittent Stream.

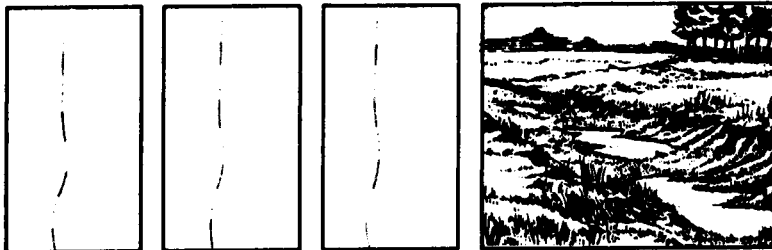
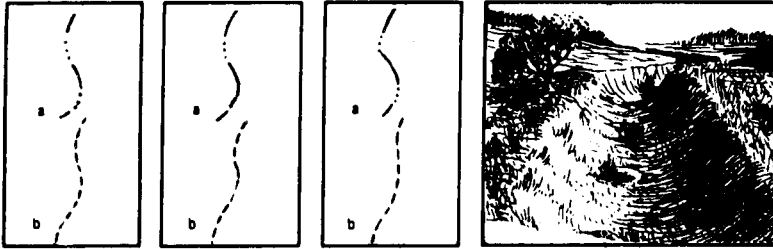


Figure 9. Narrow Wash or Dry Stream.

(a) United States or foreign. (b) Foreign (in certain arid areas).

**Figure 10. Wide Wash or Dry River Bed.**

(a) United States or foreign. (b) Foreign (in certain arid areas).

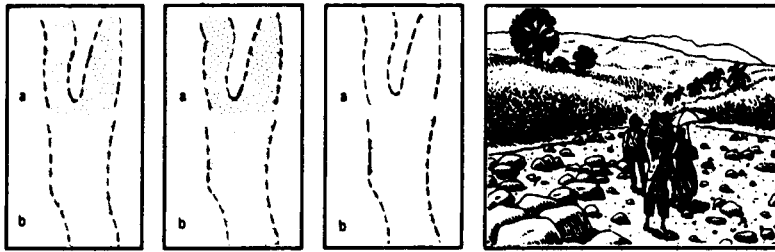
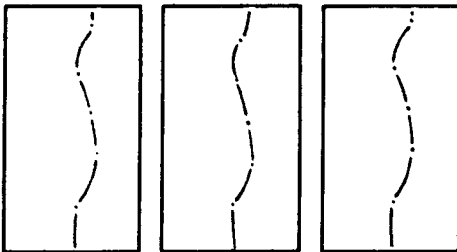
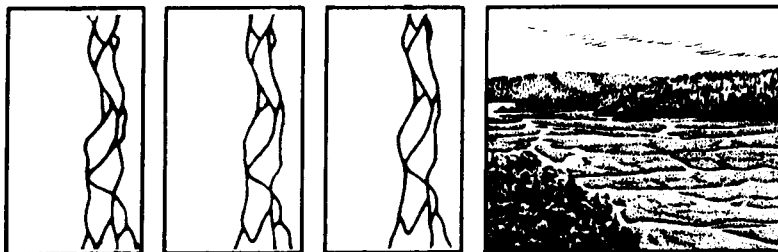
**Figure 11. Unclassified Stream.** This symbol is used when a stream cannot be determined to be either perennial or intermittent.**Figure 12. Braided Stream.**

Figure 13. Disappearing Stream.

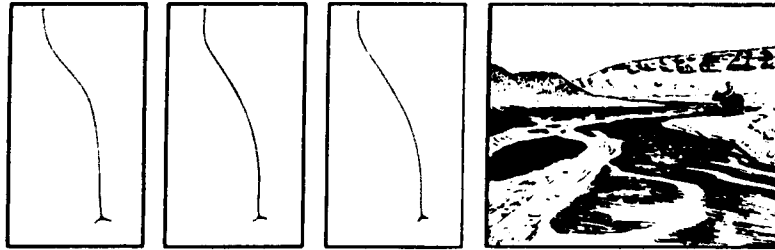


Figure 14. Large Rapids.

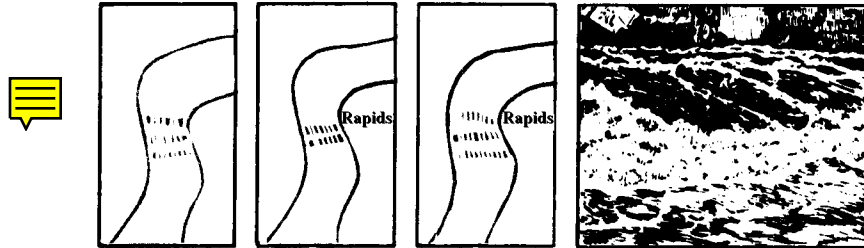


Figure 15. Large Falls.

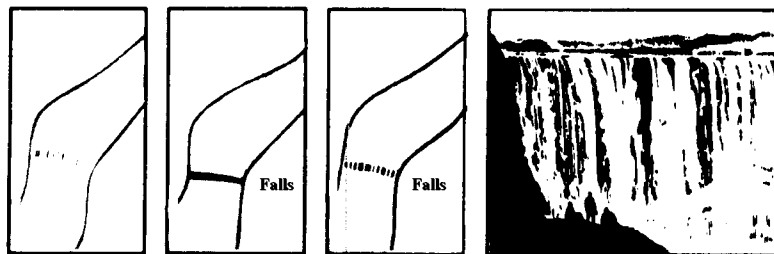


Figure 16. Small Rapids.

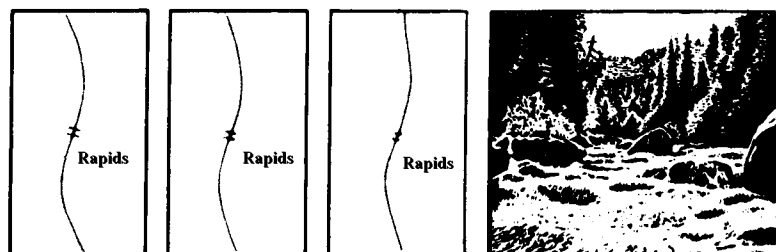


Figure 17. Small Falls.

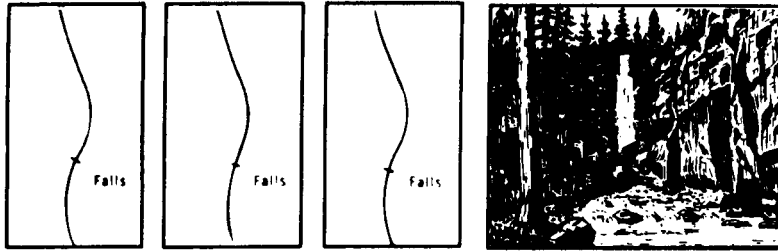


Figure 18. Navigable Canal, in Operation.

(a) Narrow. (b) Medium-width. (c) Wide.

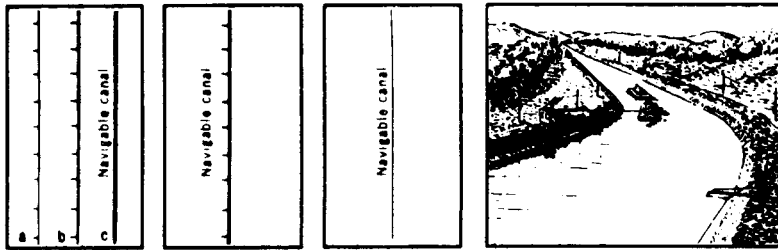


Figure 19. Abandoned Canal, Containing Water.

(a) Narrow. (b) Medium-width. (c) Wide.

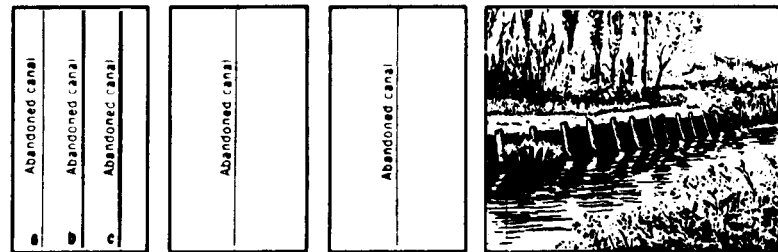


Figure 20. Abandoned Canal, Generally Dry.

(a) Narrow. (b) Medium-width. (c) Wide.

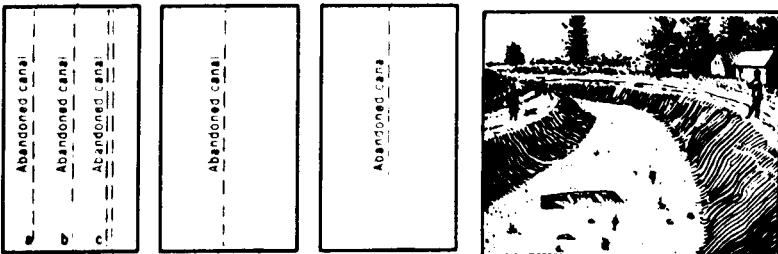


Figure 21. Perennial Ditch.

(a) Narrow. (b) Medium-width. (c) Wide.

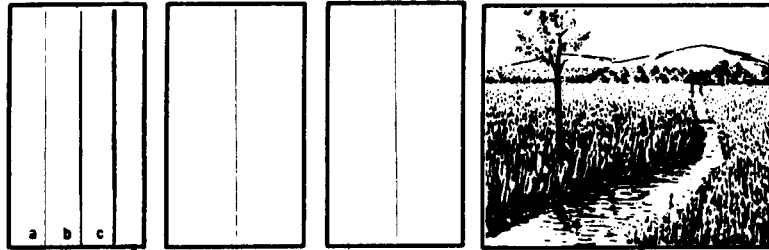
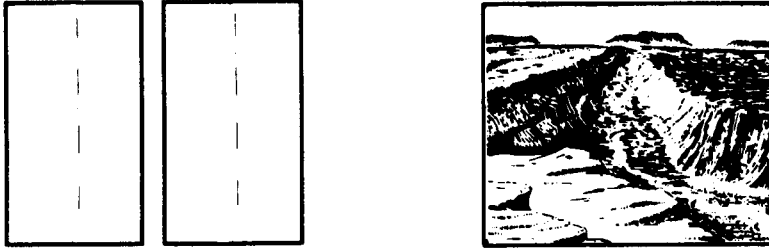
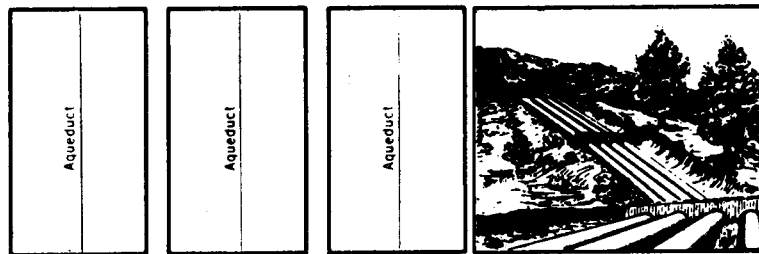
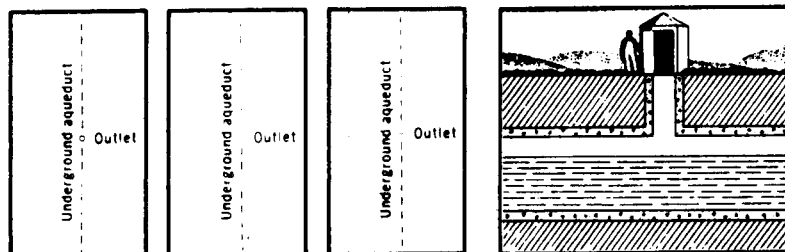
**Figure 22. Intermittent Ditch.****Figure 23. Aqueduct.** The symbol represents a conduit used for carrying water. It may be either an open or closed canal. Water pipelines are symbolized by the aqueduct symbol.**Figure 24. Underground Aqueduct, with Outlet.**

Figure 25. Aqueduct Tunnel.

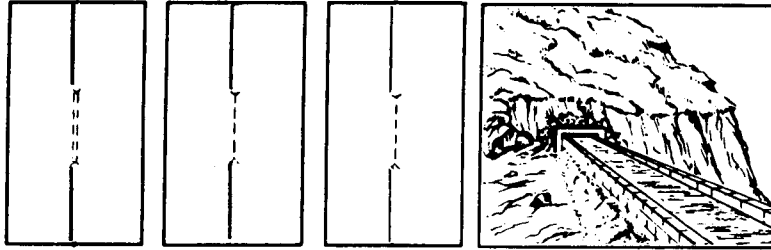


Figure 26. Elevated Conduit of Any Type.

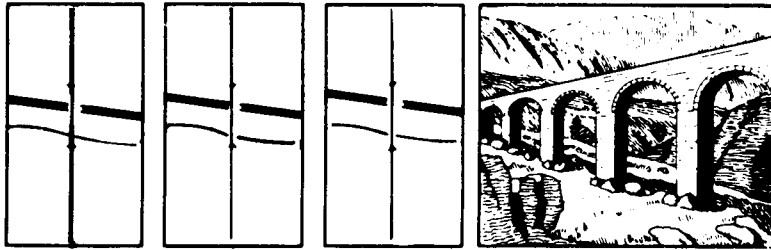


Figure 27. Flume, Penstock, and Similar Features.

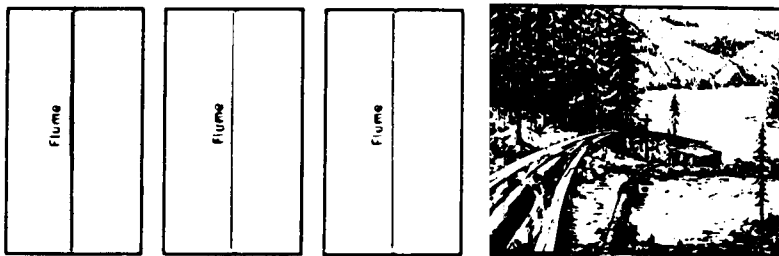


Figure 28. Salt Evaporator. Only major separations are shown; minor ditches and levees are omitted.

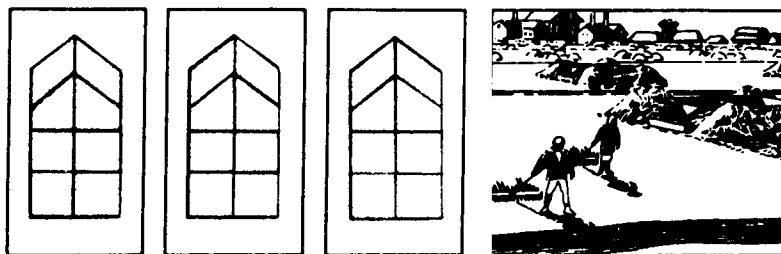


Figure 29. Marsh or Swamp. No distinction is made between fresh and salt marshes.

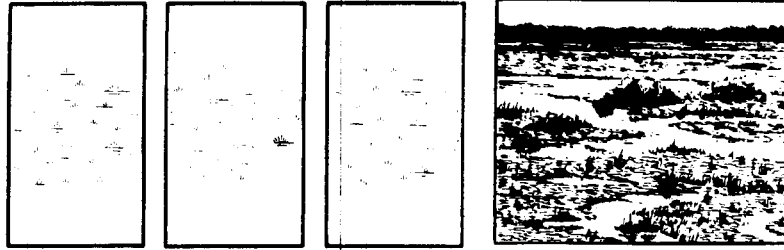


Figure 30. Coastal Marsh in Tidal Waters. The shoreline is drawn as the water side limits of the marsh.

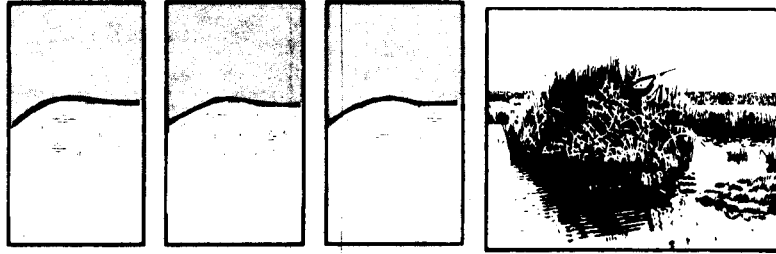


Figure 31. Coastal Marsh in Nontidal Waters. The shoreline is drawn as the true shoreline.



Figure 32. Hummocks and Ridges in Swamps or Marshes.

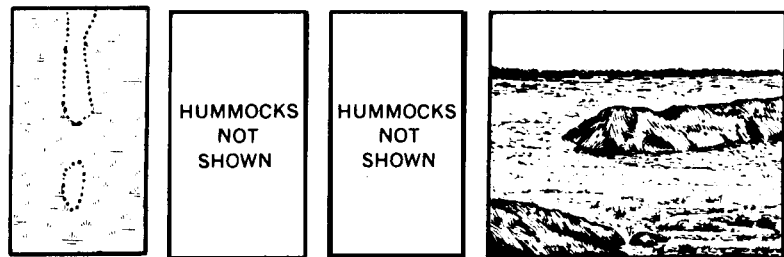


Figure 33. Peat Bogs, Peat Cuttings. The symbol is representative and does not show the actual shape or the number of cuttings.

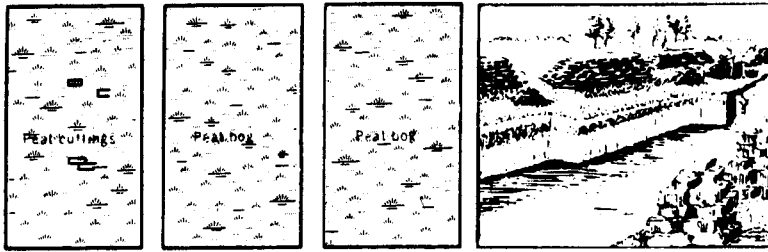


Figure 34. Cranberry Bog. Only major separations are shown. The inundation is controlled.

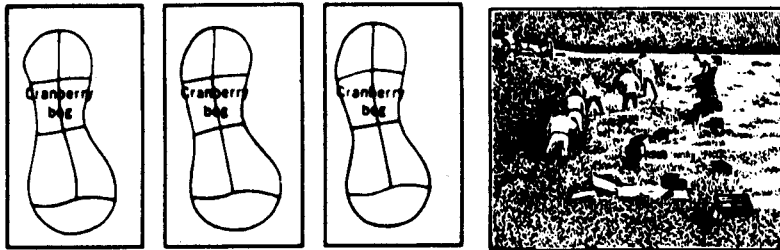


Figure 35. Fish Ponds. Features of this type are usually shown only on maps of foreign areas. Only major separations are shown.

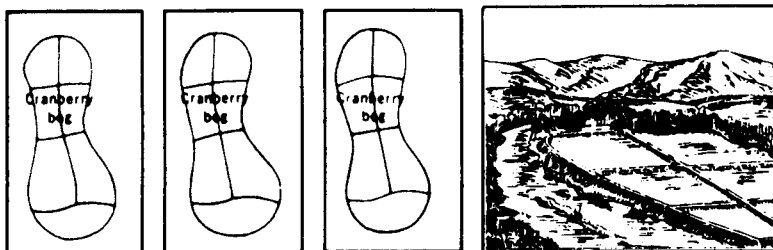


Figure 36. Rice Paddy. Only fields subject to inundation, either controlled or natural, are shown. Minor ditches and levees are omitted.

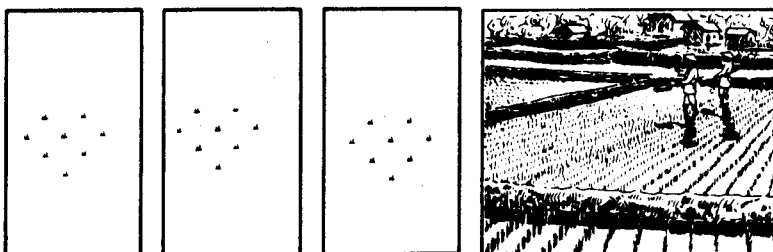


Figure 37. Land Subject to Inundation. In the United States only those areas subject to controlled inundation are shown. In foreign areas the inundation may be either controlled or natural. Areas subject to temporary natural inundation are not symbolized.

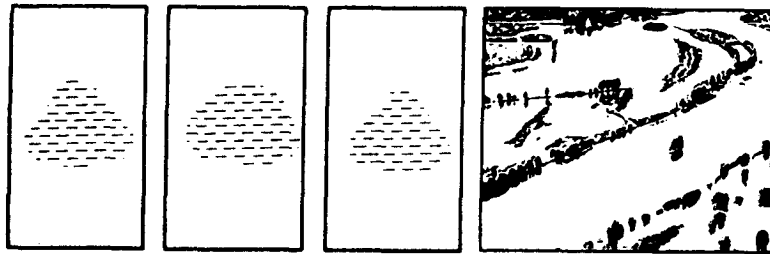


Figure 38. Spring. Springs are shown only in arid areas or where they are important landmark features. When the feature is intermittent, mineral, alkaline, undrinkable, or hot, it will be so labeled.

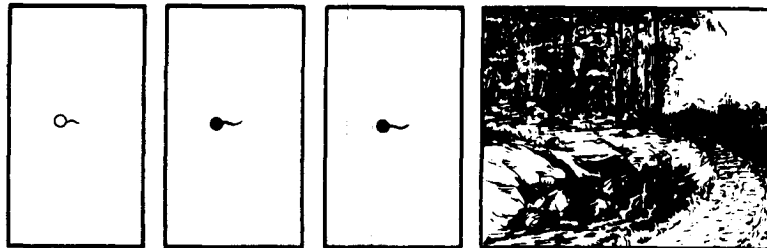
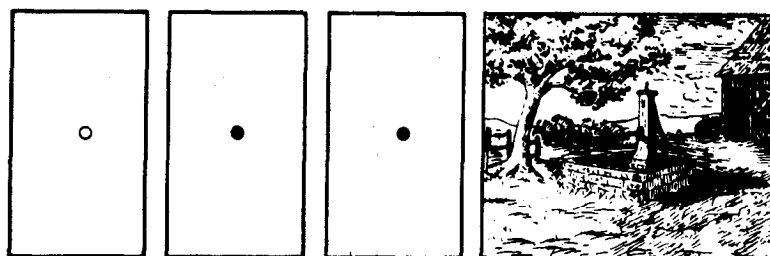


Figure 39. Well. Wells are shown only in arid areas or when they are landmark features. Walled-in springs, cisterns, and underground water tanks are shown as wells. Artesian or intermittent wells will be so labeled.



10. Relief Features

a. *Methods of Showing Relief.* Depending upon the accuracy of information, the shapes of the terrain are shown on a map by lines representing *contours*, *approximate contours*, and *form lines*. Any one or all of these methods may be used on a single map. On medium- and small-scale maps, significant relief features may be shown by *hachures* when available data are insufficient to warrant the use of contours. On large- and medium-scale maps, the lines usually are printed in brown. Also, on medium-scale maps, *hill shading* usually is added over the brown lines, to print gray. This creates a three-dimensional effect and permits a ready appreciation of the terrain, since the hills and ridges stand out much as they would on a relief map. On small-scale maps the contour lines usually are printed in gray. Normally, on small-scale maps, the contours are supplemented by layer tints. A key box on each map indicates the elevation bands and their corresponding tints.

b. *Units of Measure.* Except in the United States and a few other countries where the *foot* is the standard unit of measure, the elevations on military maps are in terms of the *meter* (39.37 inches or 3.28 feet).

c. *Contours.* Relief normally is shown by contour lines. A contour line on a map represents an imaginary line on the earth's surface, all points of which, within permissible tolerances, are of the same elevation above a fixed datum, usually mean sea level. To aid the map user, every fifth contour is a heavier line. These are commonly referred to as *index* contours. The remaining contours are called *intermediate* contours. In certain areas on a map, the normal contour interval is sometimes too large to present significant topographic formations correctly and *supplementary* half-interval contours are added. On small-scale maps, index contours are shown by using layer tints.

d. *Approximate Contours.* Whenever there is any question as to the reliability of the source material or of the survey, *approximate* contours are substituted for normal contours. An approximate contour on a map represents an imaginary line on the earth's surface, all points of which are estimated to be of the same elevation. As with normal contours, a distinc-

tion is made between index, intermediate, and supplementary contours.

e. *Contour Intervals.* Contour lines are drawn on a map at definite elevation intervals. Using a given contour interval, the lines are far apart in flat areas and close together in hilly areas. Consequently, to present the best picture, the size of the contour interval used varies with the nature of the terrain, although normally a contour interval is constant in a series of map sheets. On sheets where the relief is generally flat or gently rolling, a smaller contour interval is used than on sheets where the relief is generally hilly. Scale also affects the contour interval; if the contour interval on a 1:25,000 scale map were 5 meters, for example, the interval used on a 1:50,000 map covering the same area would be 10 meters.

f. *Form Lines.* When available information is insufficient to warrant the use of either normal or approximate contours, form lines are used. Normally, form lines are used only in areas outside the United States. Form lines collectively portray the general shapes of topographic features, but with little or no reference to a datum plane. They do not present an accurate representation of the terrain, but merely illustrate the general topographic shapes of an area. Since the lines are based on little or no control, their intervals cannot be used to estimate differences in elevations.

g. *Hachures.* Hachures are used on medium- and small-scale maps to indicate promontories, where available data are insufficient to warrant the use of normal or approximate contours, but are sufficient to determine the location of the promontories. Hachures also are used in conjunction with normal or approximate contours to indicate important promontories which would not be properly depicted otherwise, because of the contour interval and the nature of the terrain.

h. *Marginal Notes.* Before reading relief from the map, the user should determine the contour interval and the nature of any other methods used to show relief. This information is found in the margin of the map either in the *contour interval note* or the *layer tint box*. Other special notes pertaining to relief are sometimes found in the lower margin. The user should also study the *coverage* diagram or re-

liability diagram in the margin to obtain additional evaluation of contour accuracy.

i. Symbols. The following pages contain the approved symbols for relief features.

Large Scale

Medium Scale

Small Scale

Illustration

Figure 40. Contours.

(a) Index. (b) Intermediate. (c) Supplementary.



Figure 41. Approximate Contours.

(a) Index. (b) Intermediate.



Figure 42. Form Lines.

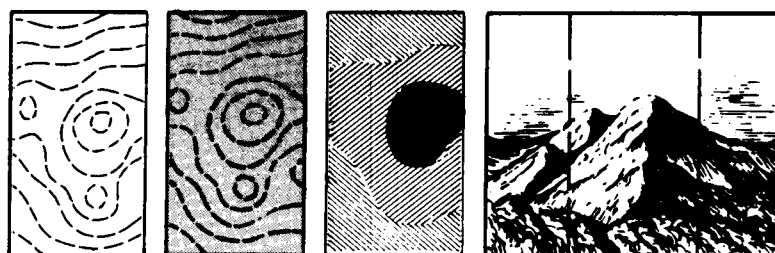


Figure 43. Hachures. This symbol is used to indicate significant formations not revealed by contours.

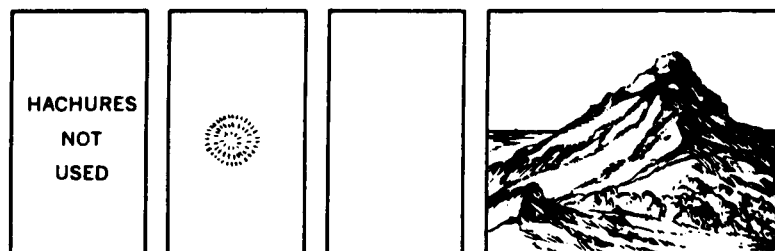


Figure 44. High Cliff, with Height Equal to or Greater than Contour Interval.

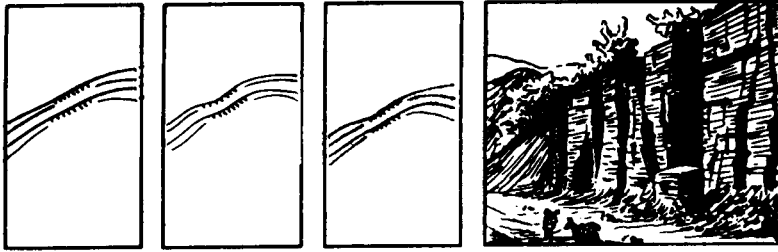


Figure 45. Abrupt Slope or Scarp, With Height Less Than the Contour Interval.
Features of this type are usually shown only on maps of foreign areas.
The tick marks always point downgrade.

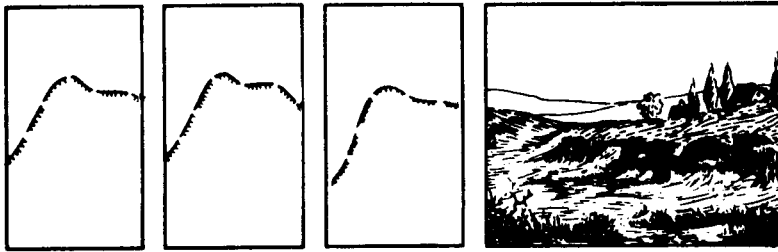


Figure 46. Depression, With Depth Less Than Contour Interval. The tick marks always point downgrade.

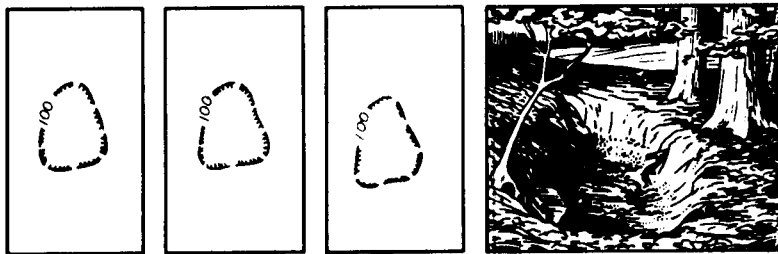


Figure 47. Depression, With Depth Greater Than Contour Interval. The tick marks always point downgrade.

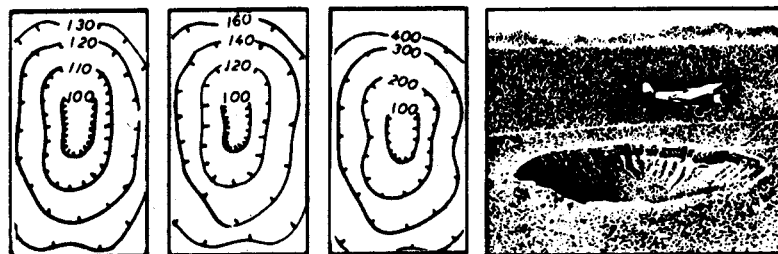


Figure 48. Crevice. (See also fig. 70, crevasse.)

(a) Large. (b) Small

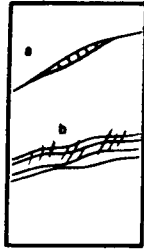


Figure 49. Cut. Cuts less in depth than the contour interval are usually omitted.

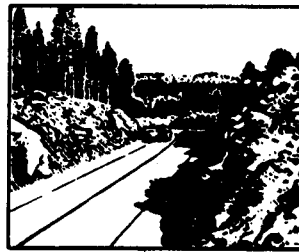
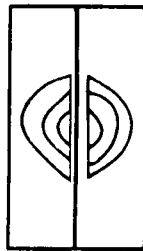
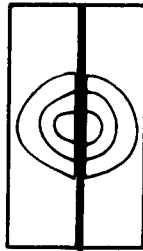


Figure 50. Fill. Fills less in height than the contour interval are usually omitted, except in extremely flat areas.

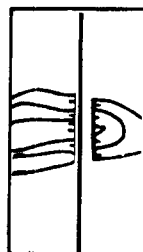
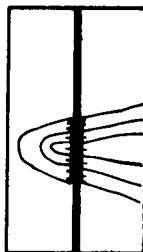
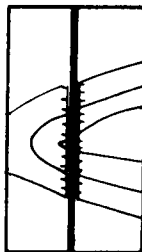


Figure 51. Small Levee. Large levees are shown by contours, except in extremely flat areas.

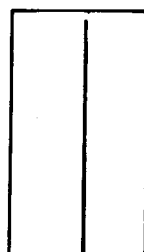
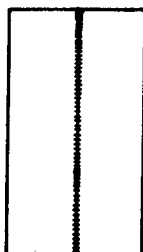


Figure 52. Small Levee Carrying Road.

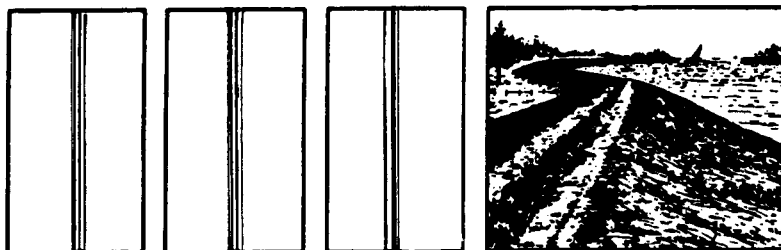


Figure 53. Small Levee Carrying Railroad.

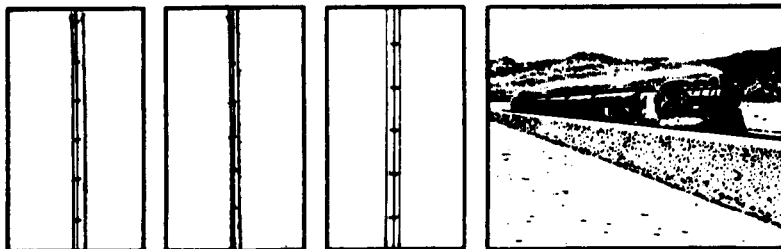


Figure 54. Sand.



Figure 55. Sand. Alternate of symbol 54; used in certain foreign areas.

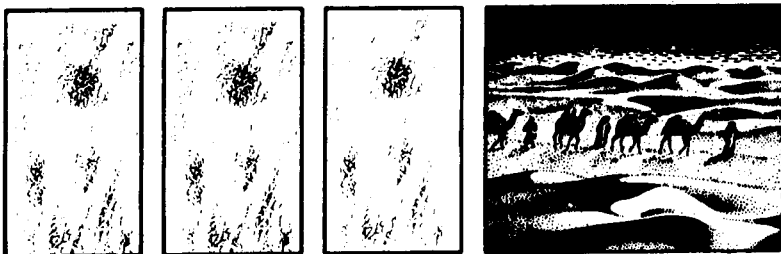


Figure 56. Crescent Dunes.



Figure 57. Lateral Dunes.

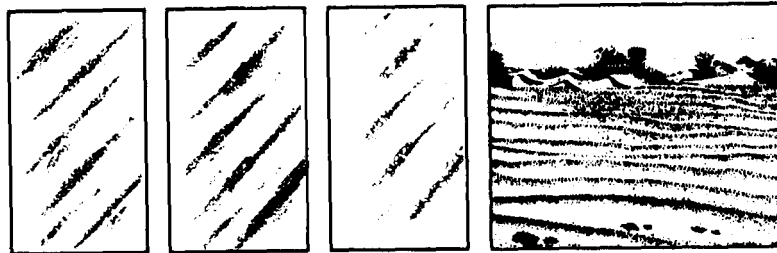


Figure 58. Wet Sand.

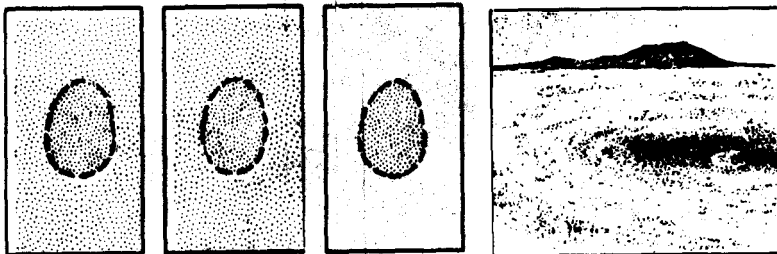


Figure 59. Sand Beach.

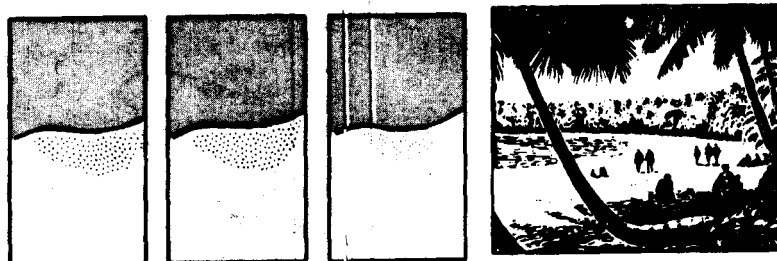


Figure 60. Gravel Beach. Gravel is defined as aggregate predominantly .2-10 inches in diameter.

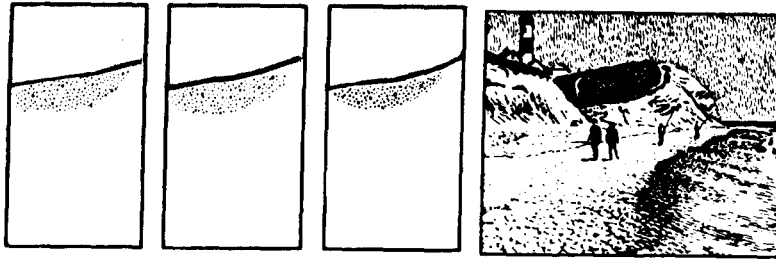


Figure 61. Boulder-Strewn Beach. Boulders are defined as aggregate predominantly over 10 inches in diameter.

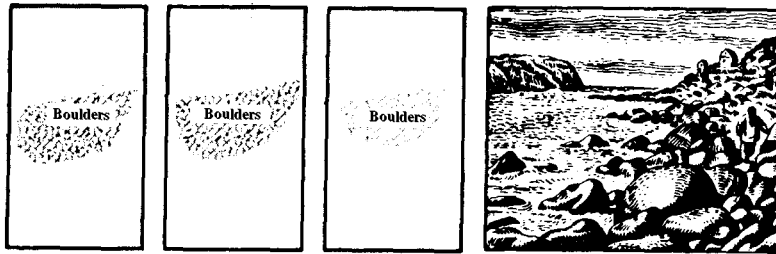


Figure 62. Distorted Surface Area. The symbol represents such features as gas or oil blisters or bumps found in the midwest United States, rock- or boulder-covered areas, rock outcrops, lava- covered areas, and areas of a similar nature. Labeling indicates nature.

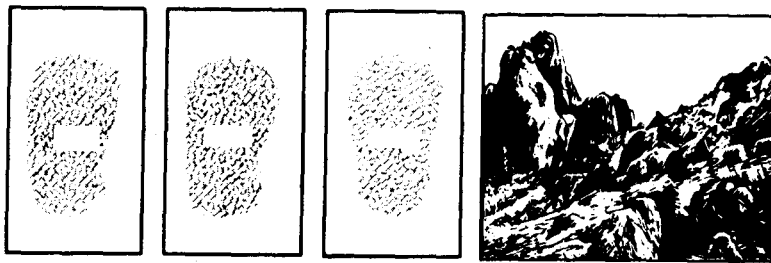


Figure 63. Isolated Boulder. Isolated boulder is shown only if of enough size or prominence to serve as a landmark.

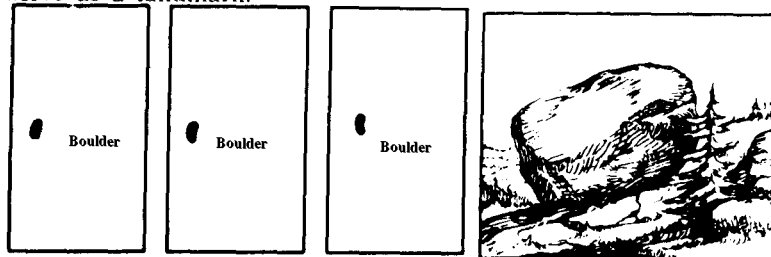


Figure 64. Strip Mine, Tailings Pile, Mine Dump.

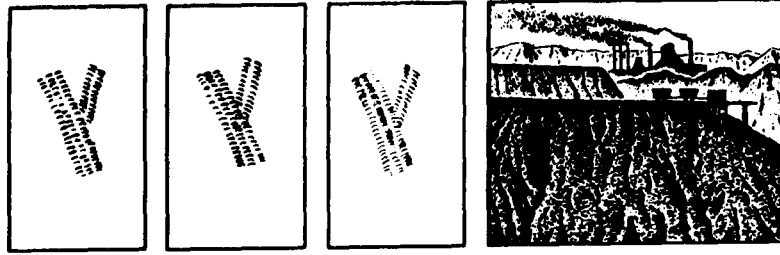


Figure 65. Icefield or Snowfield. Depending on the available information, formations are shown as:
(a) Contoured. (b) Approximate contours. (c) Form lines.

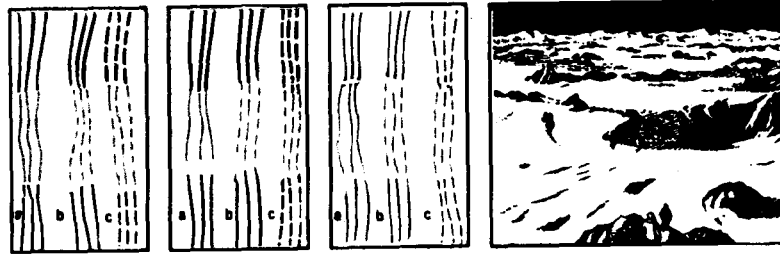


Figure 66. Glacier. Depending upon available information, shapes within the glacial area are shown as:
(a) Approximate contours. (b) Form lines.

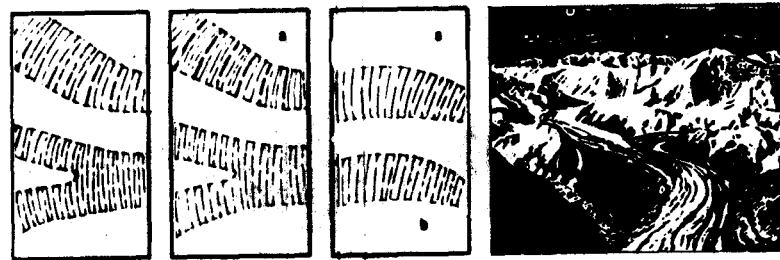


Figure 67. Glacial Moraine.

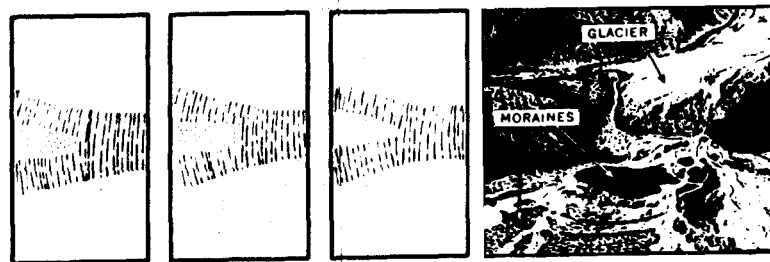


Figure 68. High Ice Cliff, With Height Equal to or Greater Than Contour Interval.



Figure 69. Low Ice Cliff, With Height Less Than Contour Interval. Only those of landmark nature are shown. The tick marks always point downgrade.



Figure 70. Crevasse. (See also fig. 48, crevice.) Crevasses are constantly forming and disappearing; the symbols indicate areas in which crevasses exist.
(a) Large. (b) Small.

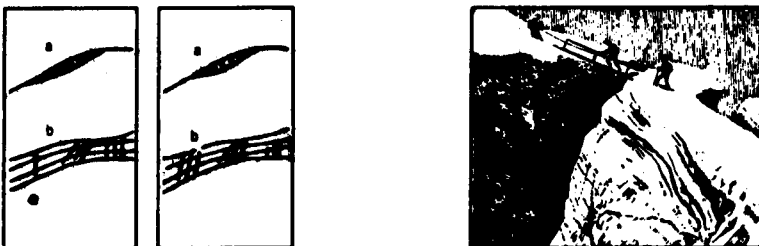


Figure 71. Cave. Only important caves and those of a landmark nature are shown. The "V" marks the location of the entrance and the shaft marks the general direction of the cave.
(a) Land cave. (b) Ice cave.

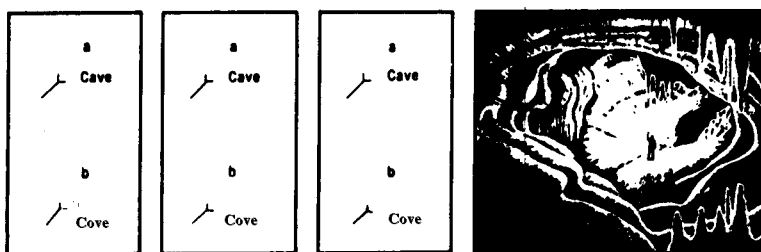


Figure 72. Asphalt Lake.

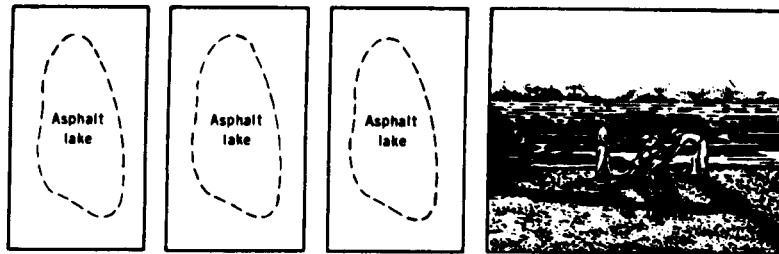
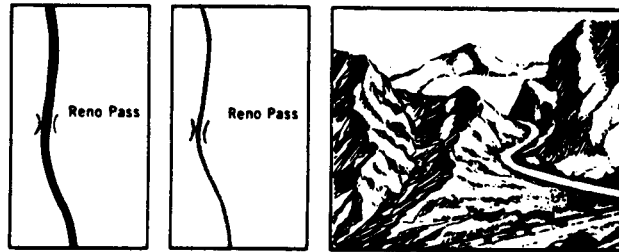


Figure 73. Mountain Pass.



11. Vegetation Features

a. General. Although special care is taken in mapping woodland cover, vegetation in many areas is subject to rapid growth or to elimination by cutting or burning. Before using the map, the user should determine the last date of information of the map (found in the notes in the lower left margin) and gauge the reliability of the woodland information accordingly. The symbols used indicate such features as cover suitable for the concealment of troops, obstacles to free passage, and landmarks in areas bearing little vegetation. On small-scale maps, particularly the 1:1,000,000 scale, the vegetation is usually omitted entirely.

b. Growths Shown. Only perennial types of growth are mapped. Isolated trees and low scattered growths usually are omitted. Small clumps of growths are usually omitted, except

where they serve as landmarks in areas of little woodland cover. Small clearings usually are also omitted. In certain areas, the limits and types of growth are fairly constant. In such cases, a distinction may have been made on the map between deciduous, coniferous, and brushwood growths. In many other cases, lack of information and the changing nature of growths make it impractical to make such a distinction.

c. Continuous Cover. The presence of a vegetation symbol does not necessarily mean that the area is completely covered. Depending upon the area, growth having as little as 20 to 35 percent canopy cover is symbolized as continuous.

d. Symbols. The following pages contain the approved symbols for vegetation features.

Figure 74. Woods or Brushwood. Any perennial vegetation of enough stand or height to conceal troops, or which is thick enough to be a serious obstacle to free passage is classified as woods or brushwood. No distinction is made between woods and brushwood or between different types of vegetation.

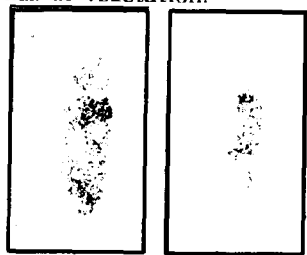


Figure 75. Scrub. Scrub growth includes cactus, stunted shrubs, sagebrush, mesquite, and similar plants of low growth which present an obstacle to free passage or which serve as landmarks in desert areas.



Figure 76. Orchard or Plantation. An area of orchards or plantations usually consists of rows of evenly spaced trees, showing evidence of planned planting. The type of growth is indicated except when it is of the common fruit variety, such as apple, orange, pear, or the like.

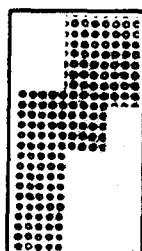


Figure 77. Vineyard. Vine growths which are not perennial are omitted. No indication as to the type of growth is given.

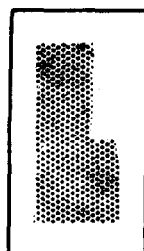
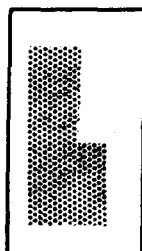


Figure 78. Tropical Grass. The symbol represents a dense growth of tall grass found in tropical or semitropical regions.

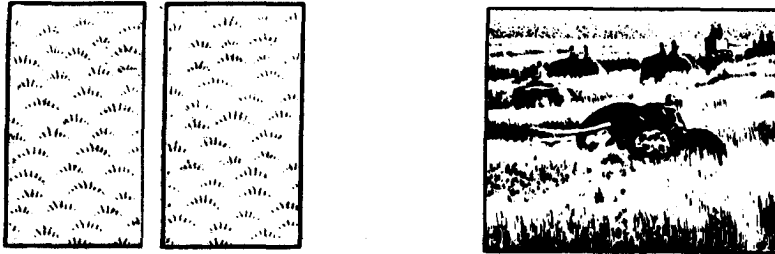


Figure 79. Mangrove. Mangrove is an impenetrable growth existing in tidal waters of tropical and semitropical areas. The shoreline shown on the seaside indicates the outer limits of mangrove and does not represent the mean high water line. Channels through mangrove are shown.



Figure 80. Nipa. Nipa is a stemless palm growing in tidal or brackish waters in tropical climates adjacent to coast lines. The shoreline as shown is the outer limits and is not the mean high water line.

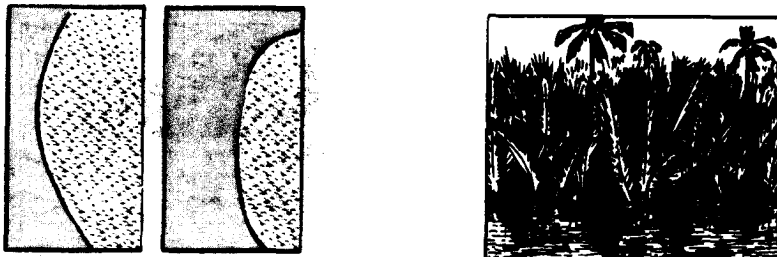


Figure 81. Marshy Areas in Northern Latitudes. This symbol represents features such as tundra in the USSR, muskeg in Canada, etc. The nature of the feature will be indicated in the legend.



12. Coastal Hydrography

a. *General.* Coastal hydrographic features and notes pertinent to those features usually are shown on all sheets showing navigable waters. Sheets showing land areas bordering on inland bodies of water, such as lakes, contain only offshore data. Sheets showing land areas bordering on oceans, seas, bays, or similar bodies of water contain both offshore and foreshore data.

b. *Definition of Coastal Terms* (fig. 82).

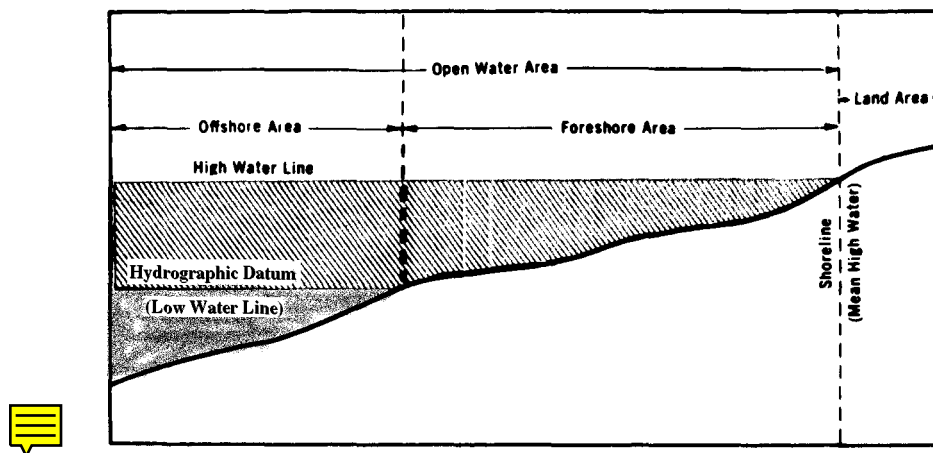
(1) *Coastal hydrographic features.* All features within the foreshore and off-

shore areas, including permanent cultural and natural features which affect the navigability of the area.

(2) *Foreshore area.* That area which is bare or awash at the hydrographic datum (low water) but which is covered at mean high water.

(3) *Offshore area.* That area which is covered at the hydrographic datum.

(4) *Hydrographic datum.* That stage of low tide to which depths are referred. This varies somewhat in different parts of the world.



c. *Symbols.* The following pages contain the approved symbols for coastal hydrographic features.

Figure 83. Foreshore Flat. A foreshore flat occurs only in tidal waters. It is generally devoid of vegetation and is composed of sand, gravel, boulders, mud, clay, or any combination of such materials. Labeling indicates the type of composition. Labeling is omitted if the feature is small or its composition indefinable.

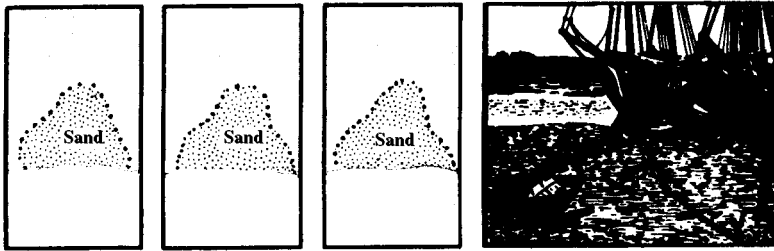


Figure 84. Reef or Ledge. Labeling indicates whether the reef is of rock or coral.
(a) Large. (b) Small.

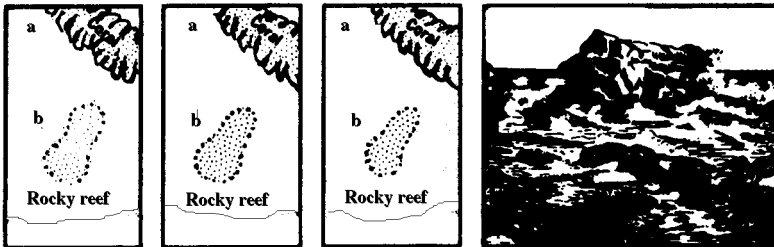


Figure 85. Sunken Rock. Rock covered at all stages of the tide. Only rocks which are actual dangers to navigation are shown on medium- and small-scale maps.
(a) Potential danger to navigation. (b) Actual danger to navigation.

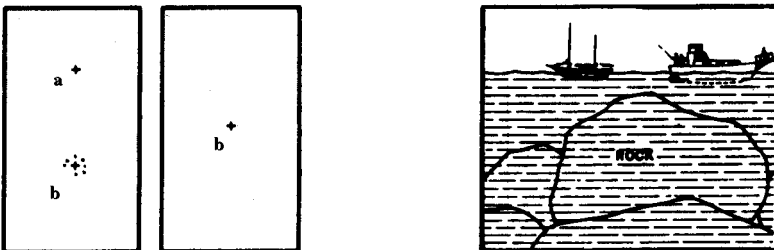


Figure 86. Rock, Bare, or Awash. This symbol represents rocks exposed or awash at the hydrographic datum. Only rocks which are actual dangers to navigation are shown on medium and small-scale maps.
(a) Potential danger to navigation. (b) Actual danger to navigation.

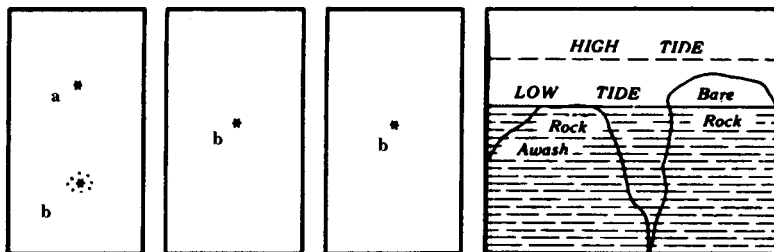


Figure 87. Exposed Wreck. A wreck is exposed when any portion of its hull is above water at the hydrographic datum plane. The circle of the symbol marks the location of the wreck.

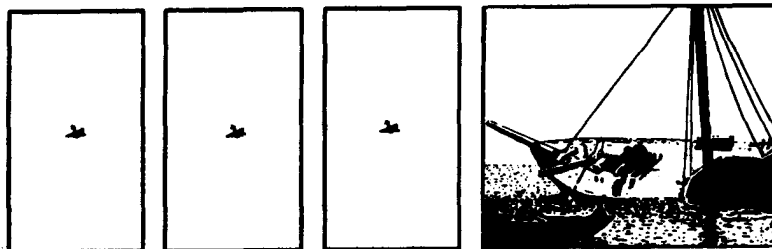


Figure 88. Sunken Wreck. The symbol represents wrecks which are less than 10 fathoms (60 feet) deep, with no part of the hull above water at the hydrographic datum. Masts may or may not be above water. The center of the symbol marks the location of the wreck. Only actual dangers are shown on medium-scale maps.

(a) Potential danger to navigation. (b) Actual danger to navigation.

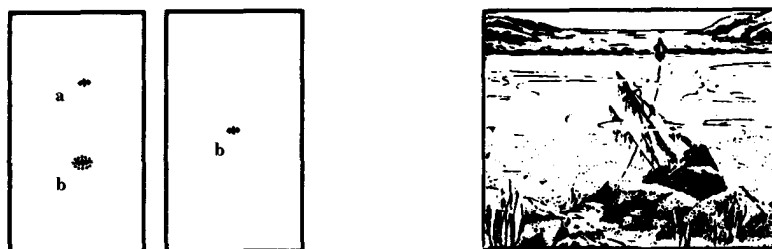


Figure 89. Sunken Danger or Obstruction. Labeling indicates the nature of the feature.

(a) Least depth indicated. (b) Depth determined by wire drag.

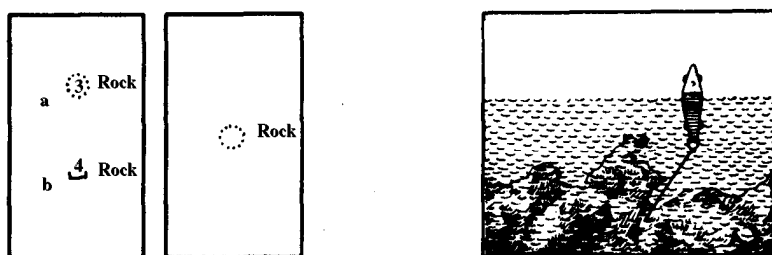


Figure 90. Limit of Danger Line. A danger line outlines any feature which is a danger to navigation, such as rocks, foul ground, shoals, small reefs and similar obstructions. Labeling usually is added to indicate the nature of the danger.

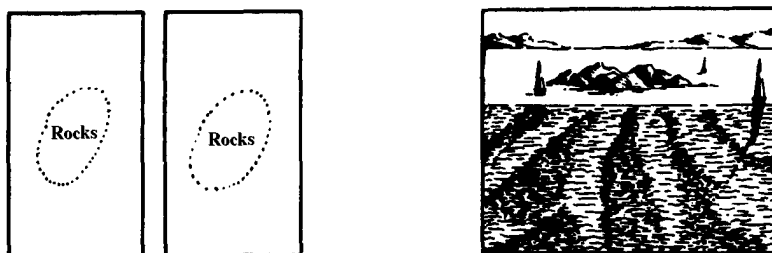


Figure 91. Sounding. The depth of the bottom at hydrographic datum is usually expressed in fathoms (6 feet). Depths are given in feet in the eastern United States and on the Gulf Coast. The map legend indicates the unit of measure.

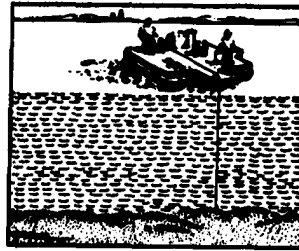
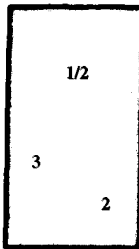


Figure 92. No-Bottom Sounding. The symbol represents soundings for which true depths have not been determined. The value indicates the depth sounded without bottom being struck.

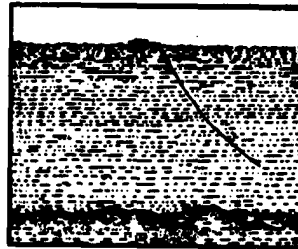
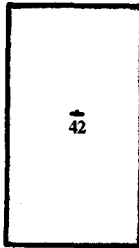


Figure 93. Swept Depth. The figure in the bracket indicates the depth of clearance. This is not necessarily the actual depth. Labeling describes the nature of any danger.

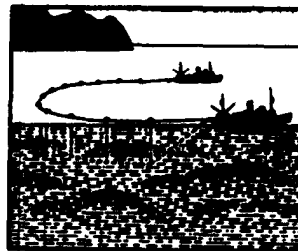


Figure 94. Depth Curves. A depth curve is a line drawn on a map to represent an imaginary line on the sea bottom, all points of which are at an equal depth below the hydrographic datum. Values labeling depth curves are in the same unit of measure as the soundings.

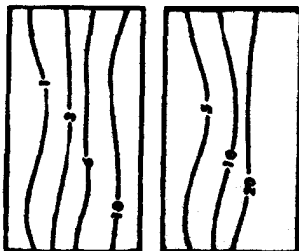


Figure 95. Bottom Characteristics. The character or composition of the bottom is indicated by labeling.



Figure 96. Breaker.
(a) Limits known. (b) Limits unknown.

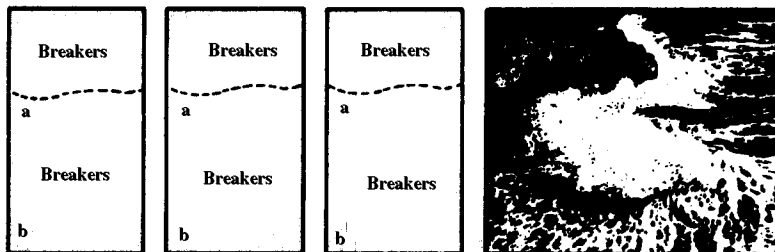


Figure 97. Current. If the speed is known, it is indicated in knots.
(a) General. (b) Flood. (c) Ebb.



Figure 98. Area Limits. The symbol represents the limits of anchorages, fishing stakes, fishing weirs, cable areas, dredged channels, dredge dumps, pipeline areas, prohibited areas, spoil ground, swept areas, and similar areas.

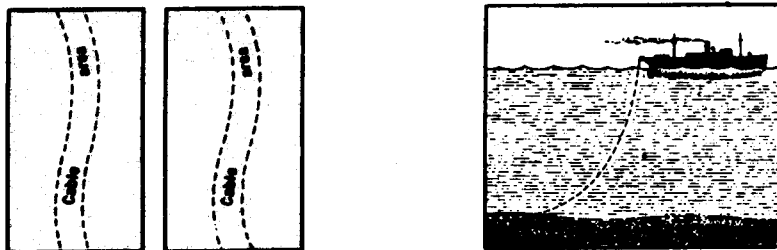


Figure 99. Dolphin, Piling, Stump, Snag. Appropriate labeling indicates the type of obstruction.



Figure 100. Anchorage for Large Vessels. Shown only on maps of foreign areas.

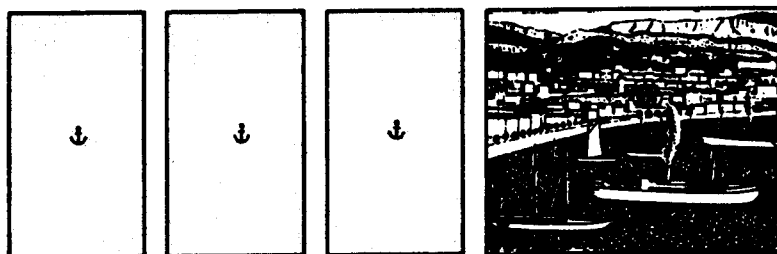


Figure 101. Anchorage for Small Vessels. Shown only on maps of foreign areas.



13. Roads in the United States on Large- and Medium-Scale Maps

a. Road Classifications on Large-scale Maps. Roads within the limits of the United States are classified on large-scale maps as—

- (1) Hard-surface, heavy-duty roads.
 - (a) Four or more lanes wide.
 - (b) Two or three lanes wide.
- (2) Hard-surface, medium-duty roads.
 - (a) Four or more lanes wide.
 - (b) Two or three lanes wide.
- (3) Improved, light-duty roads.
- (4) Unimproved dirt roads.
- (5) Trails.

b. Road Classifications on Medium-Scale Maps. The classifications on medium-scale maps are the same, except for hard-surface roads, where a distinction is made between roads two lanes wide and roads more than two lanes wide.

c. Hard-Surface, Heavy-Duty Roads. Roads of this classification carry heavy truck loads in all weather with a minimum of maintenance. The construction is usually of portland-cement concrete, bituminous concrete, or sheet asphalt, rock asphalt, bituminous penetration, or mixed bituminous on a heavy foundation. Brick or block roads are also included in this category.

d. Hard-Surface, Medium-Duty Roads. These roads carry medium-heavy truck loads in all weather. Occasional maintenance is required. Construction is usually a bituminous-penetration or mixed-bituminous surface, or bituminous-treated surface on a light foundation.

e. Improved, Light-Duty Roads. These roads carry light loads in all weather. Periodic maintenance is usually necessary. Construction consists of stabilized or oiled-surface gravel or stone, graded and drained gravel or stone, or graded and drained soil surface. Included in this category are hard-surface roads less than two lanes wide and improved private roads which normally are not practical for use in rerouting of traffic in emergencies.

f. Unimproved Dirt Roads. These roads are suitable only for light loads in dry weather. They are without surface improvement and are seldom maintained. Included are abandoned roads, fire roads, and lumber roads.

g. Trails. The map shows important foot paths, foot trails, and pack trails which can accommodate ¹/₄-ton trucks in dry weather. Minor and short connecting trails usually are omitted.

h. Symbols. The following pages contain the approved symbols for roads in the United States.

Figure 102. Hard-Surface, Heavy-Duty Road.
LARGE-SCALE: Four or more lanes wide.
MEDIUM-SCALE: Three or more lanes wide.
 Labeling indicates the number of lanes.

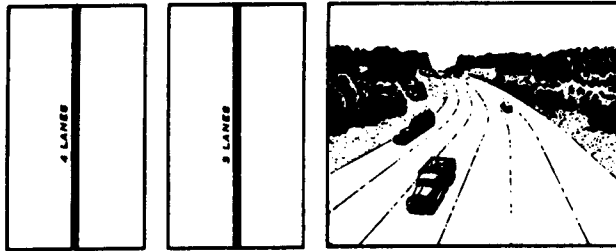


Figure 103. Hard-Surface, Heavy-Duty Road.
LARGE-SCALE: Two or three lanes wide. Unless otherwise labeled, the road is two lanes wide.
MEDIUM-SCALE: Two lanes wide.

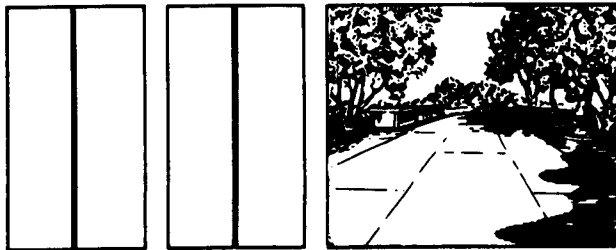


Figure 104. Hard-Surface, Medium-Duty Road.
LARGE-SCALE: Four or more lanes wide.
MEDIUM-SCALE: Three or more lanes wide.
 Labeling indicates the number of lanes.

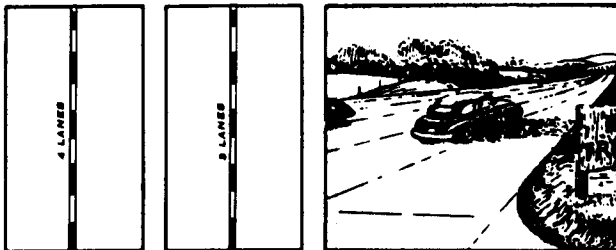


Figure 105. Hard-Surface, Medium-Duty Road.
LARGE-SCALE: Two or three lanes wide. Unless otherwise labeled, the road is two lanes wide.
MEDIUM-SCALE: Two lanes wide.

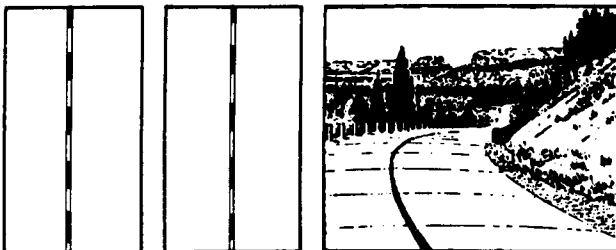


Figure 106. Improved, Light-Duty Road.

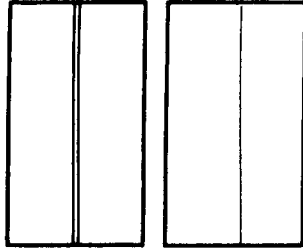


Figure 107. Unimproved Dirt-Road.

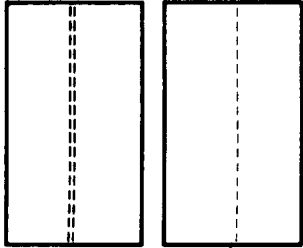
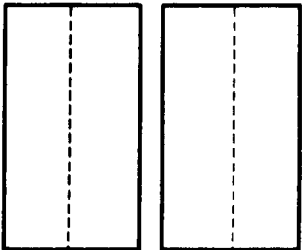


Figure 108. Trail.



14. Roads in Foreign Areas on Large- and Medium-Scale Maps

a. *Road Classifications.* Roads outside the limits of the United States are classified on both large- and medium-scale maps as—

- (1) Hard-surface, all-weather roads.
 - (a) Two or more lanes wide.
 - (b) One lane wide.
- (2) Loose or light surface, all-weather roads.
 - (a) Two or more lanes wide.
 - (b) One lane wide.
- (3) Loose surface, fair- or dry-weather roads.
- (4) Tracks.
- (5) Trails.

b. *Hard-Surface, All-Weather Road.* These roads carry fairly heavy truck loads in all weather. Minimum maintenance requirements are periodic inspection and repair. The construction is usually concrete or asphaltic concrete, bituminous macadam, surface-treated oiled gravel, and light tar-bound macadam.

c. *Loose or Light Surface, All-Weather Road.* These carry light loads in all weather. The roads

generally are drained and graded. Periodic maintenance is required. Construction is usually of gravel, stone, or some stable material, such as sand-clay, on a light foundation.

d. *Loose Surface, Fair- or Dry-Weather Road.* These roads carry light loads in dry weather only. The road may or may not be graded or drained and requires continual maintenance. Any surfacing consists of gravel, or sand-clay with a poor foundation.

e. *Tracks.* Tracks include winter roads, caravan routes, and natural roadways and can accommodate very light vehicles, such as $\frac{1}{4}$ -ton trucks, in dry weather. Tracks are normally shown only in areas having poor road systems.

f. *Trails.* Trails include important foot trails, foot paths, and pack trails. Minor trails and unimportant connecting trails are omitted. In areas with good road systems, tracks are included in this category.

g. *Symbols.* The following pages contain the approved symbols for roads in foreign areas.

Figure 109. Hard-Surface, All-Weather Road, Two or More Lanes Wide.



Figure 110. Hard-Surface, All-Weather Road, One Lane Wide.



Figure 111. Loose or Light-Surface, All-Weather Road, Two or More Lanes Wide.

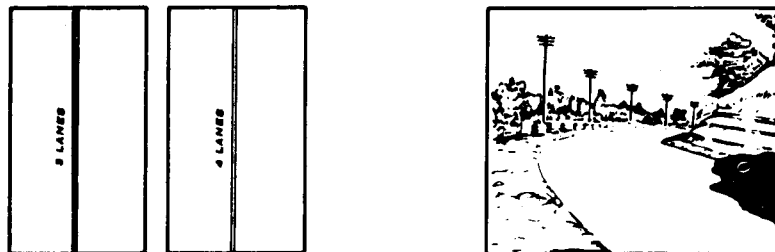


Figure 112. Loose or Light-Surface, All-Weather Road, One Lane Wide.

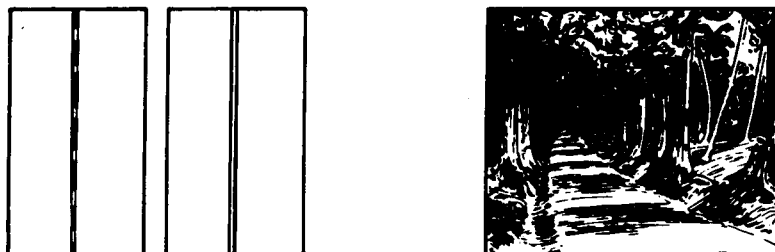


Figure 113. Loose-Surface. Fair or Dry-Weather Road.

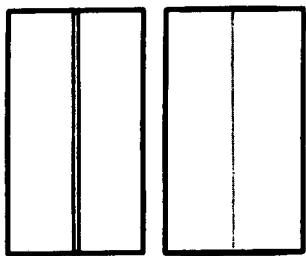


Figure 114. Track

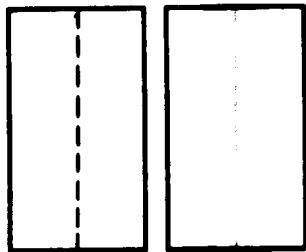
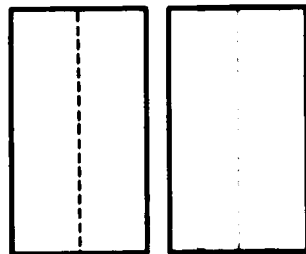


Figure 115. Trail



15. Roads on Small-Scale Maps

a. *Road Classifications.* Roads on small-scale maps are classified as—

- (1) Dual or super highways.
- (2) Main roads.
- (3) Secondary roads.
- (4) Other roads.
- (5) Tracks or trails.

b. *Main Roads.* Main roads are those which serve as the main thoroughfares between the important populated places of an area. Well aligned roads of a substantial width and surface which connect a number of populated places, and cross-country roads which form a direct route connecting with roads and trails leading to important features are included in this category. Main roads are generally hard-surfaced except in areas with poor road systems.

c. *Secondary Roads.* Secondary roads include those roads connecting the minor cities and towns of an area. A road connecting two main roads, at least one of which is higher in

classification than the connecting road, is included in this category. In comparison with main roads, secondary roads have less reported use and less substantial construction, and are generally loose-surfaced roads.

d. *Other Roads.* Included in this category are local community roads serving the villages and settlements of an area. Also included are those connecting roads important to the communications network but obviously of a lower classification than the secondary roads. Such roads may be loose-surfaced or dirt roads.

e. *Tracks or Trails.* Tracks and trails are symbolized alike. Both normally are shown only in areas of sparse culture where they supply the only means of communication. Minor tracks and trails are omitted. Included in this category are winter roads and caravan routes. Normally, the roadway is natural with little or no improvements.

f. *Symbols.* The following pages contain the approved symbols for roads on small-scale maps.

Figure 116. Dual or Super Highway.

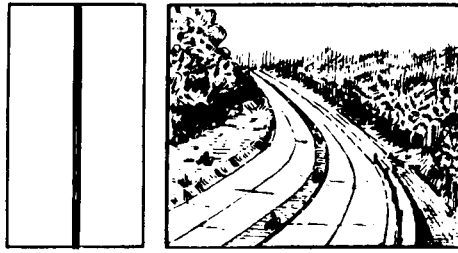


Figure 117. Main Road.

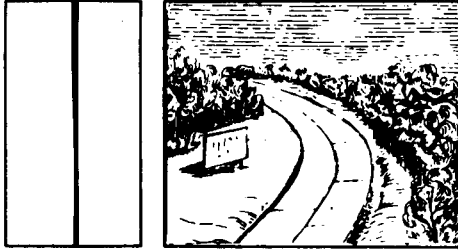


Figure 118. Secondary Road.

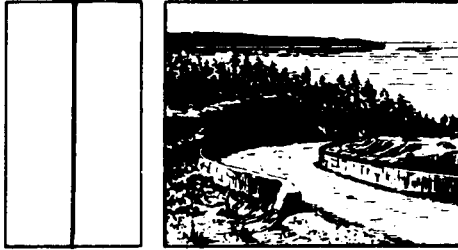


Figure 119. Other Road.

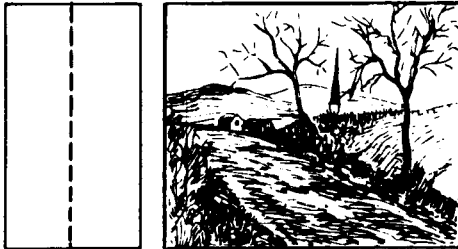


Figure 120. Track or Trail.



16. Related Road Features

The following symbols indicate features related to roads.

Large Scale

Medium Scale

Small Scale

Illustration

Figure 121. Dual Highway. A dual highway consists of two or more lanes on each side of a physical separation such as a parkway. Surface and construction are indicated by the proper road fill. The number of lanes is indicated by labeling. When scale permits, each side of the highway is symbolized separately.

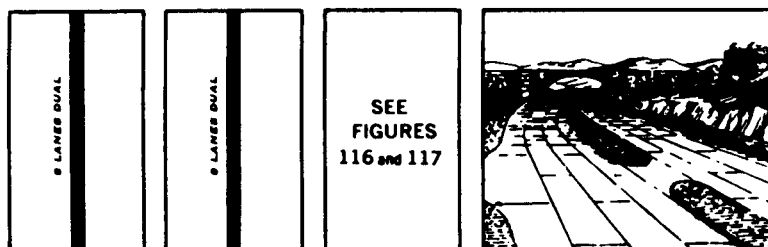


Figure 122. Road Under Construction. Only roads on which construction is actually under way are shown. If information is available, the classification of the completed road is shown by the proper road fill. Proposed roads are omitted.

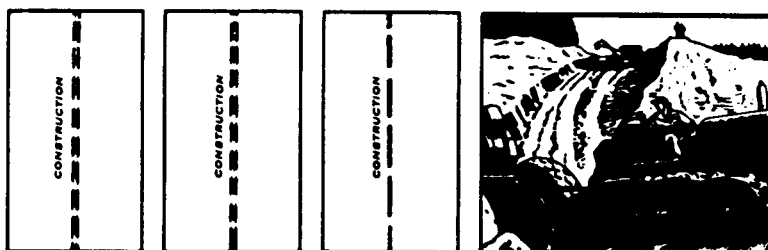


Figure 123. Point of Change in Number of Lanes of Extra-Width Road.

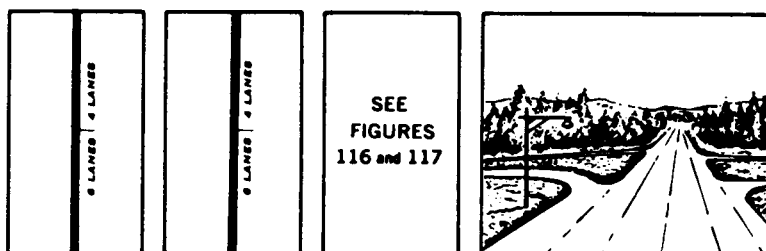


Figure 124. Route Marker. (a) Federal or national. (b) State, province or equivalent.

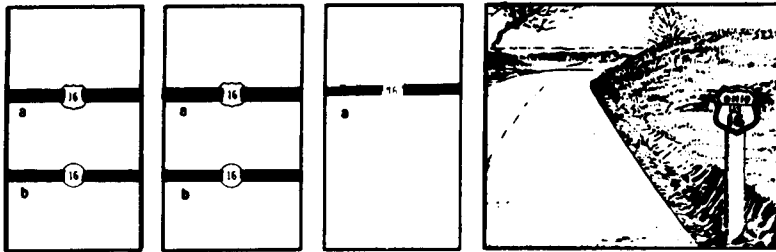


Figure 125.

Streets in Developed Areas. In areas having a developed street pattern, streets are shown to agree with the cultural density and the scale of the map. Normally, streets are symbolized alike regardless of construction. If width permits, a street is shown to scale. Alleys are not shown. Through routes are indicated by red fills.

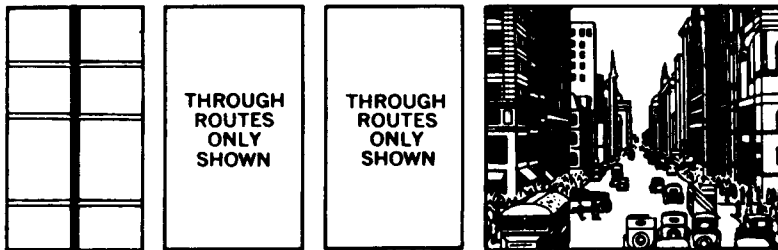


Figure 126. Street Ending at Barrier or Embankment.



Figure 127. Traffic Circle. These are sometimes omitted on 1:50,000 scale maps, especially in congested areas.



Figure 128. Traffic Circle, Cloverleaf, and Interchange. A cloverleaf is shown to true shape whenever the scale permits. They are sometimes omitted on 1:50,000 scale maps, especially in congested areas. On medium-scale maps the access points on limited-access roads are the only cloverleaves shown.

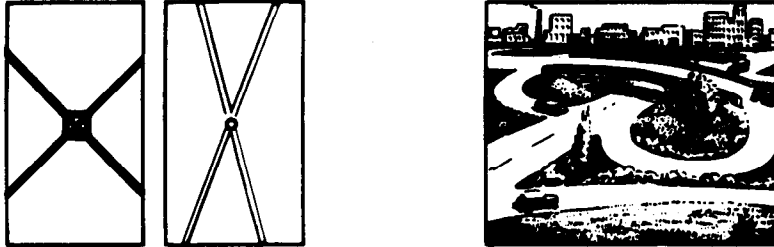


Figure 129. Steep Gradients on Roads.



Figure 130. Road Distances. Distances are shown between towns and road junctions.



17. Railroads

a. *Gage.*

- (1) Normal gage is the gage used on the majority of the mainline railroads of a country. Normal gage in the United States is standard (4' 8 1/2") gage.
- (2) Broad gage is any gage greater than the normal gage used in a country.
- (3) Narrow gage is any gage lesser than the normal gage used in a country.
- (4) Either the symbol legend in the margin or labeling on the map identifies the gage of the railroads.

b. *Multiple-Track Railroad.* A multiple-track railroad contains three or more mainline tracks paralleling each other. The number of tracks of a multiple-track railroad is indicated by labeling placed parallel to the symbol.

c. *Nonoperating Railroad.* A nonoperating railroad is one not in use. Included in this category are railroads under construction, abandoned railroads, and destroyed railroads. Labeling placed parallel to the symbol indicates whether the line is abandoned, destroyed, or under construction.

- (1) An abandoned railroad is one which is no longer in use, but the ballast, bridges, and tracks remain in major part and could be put into limited or full operation with a minimum of repair.
- (2) Only those railroads on which actual work is under way are symbolized as under construction. Proposed lines are not shown. An operating line some-

times has additional tracks under construction. The symbol for the operating line is shown with appropriate labeling to indicate the construction.

d. *Dismantled Railroad.* A dismantled railroad is one which is no longer in use and which has the major part of its tracks and bridges removed. If the right-of-way is being used as a road only, the proper road symbol will be shown. If there is no road and the feature is of landmark importance, it is symbolized by a dashed line and labeled.

e. *Electrified Railroad.* Electrified railroads are shown by the proper symbol indicating the gage and number of tracks, with the word *Electrified* added parallel to the symbol.

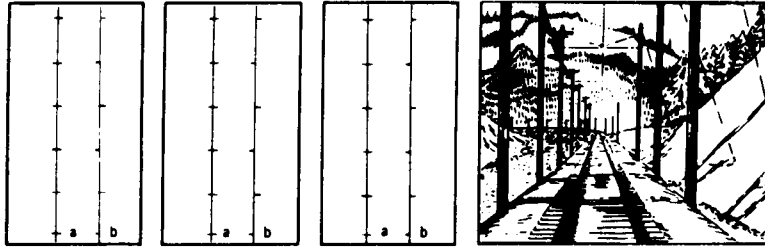
f. *Developed Areas.*

- (1) Minor line and sidings sometimes are omitted in congested areas. Through lines are always shown.
- (2) Railroads which run underground for long distances in a city are not shown. The dashed lines indicating tunnels are omitted. Only the headwalls and wings of the tunnel entrances are shown.
- (3) Rapid transit lines, when located in subways, are not shown. They are shown by the appropriate railroad symbol when located in open cut, on the surface, or on above-surface structures.

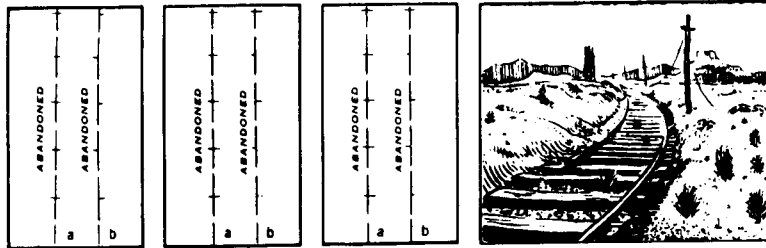
g. *Symbols.* The following pages contain the approved symbols for railroads and related features.

Figure 131. Single-Track Railroad, in Operation.

(a) Normal or broad gage. (b) Narrow gage. Broad and narrow gage railroads are labeled as to gage.

**Figure 132. Single-Track Railroad, Nonoperating.** Labeling indicates whether railroad is abandoned, destroyed, or under construction.

(a) Normal or broad gage. (b) Narrow gage. Broad and narrow gage railroads are labeled as to gage.

**Figure 133. Double- or Multiple-Track Railroad, in Operation.** Railroad is double-track if not otherwise labeled.

(a) Normal or broad gage. (b) Narrow gage. (c) Standard gage (for use in United States only). Broad gage railroads are labeled as to gage.

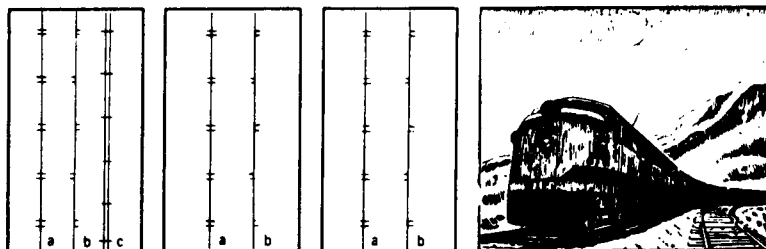


Figure 134. Double- or Multiple-Track Railroad, Nonoperating. Labeling indicates whether railroad is abandoned, destroyed, or under construction. (a) Normal or broad gage. (b) Narrow gage. (c) Standard gage (for use in United States only). Broad gage railroads are labeled as to gage.

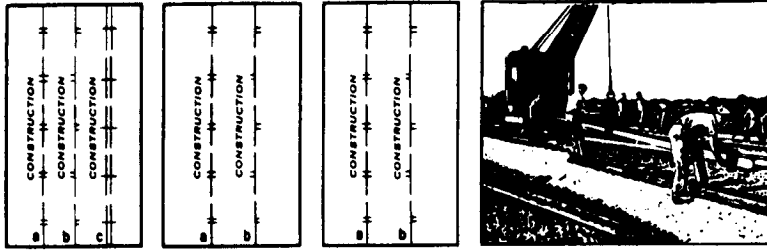


Figure 135. Point of Change in the Gage or the Number of Tracks.

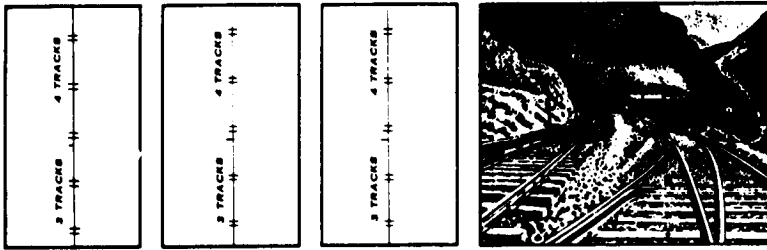


Figure 136. Railroad in Street or Wharf. Normal symbols are used if the width of the containing feature permits. On medium-scale maps appropriate labeling shall indicate where a railroad coincides with a road.

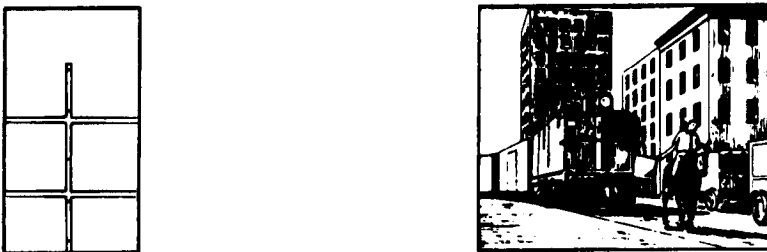


Figure 137. Railroad Siding. Included are tracks for passing, storage, and loading and unloading of passengers or freight. In congested areas, sidings are sometimes omitted.

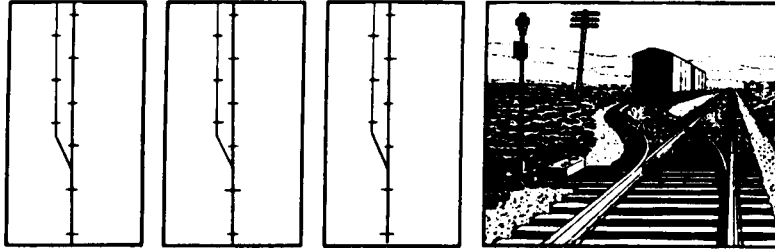


Figure 138. Railroad Yard. The limiting sidings indicate the correct shape of the yard. Lines inside the outline are symbolic and do not show the correct number of sidings.

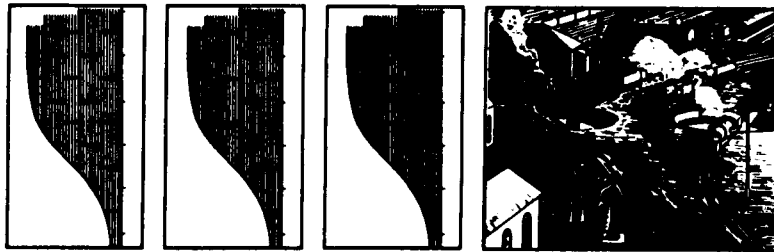


Figure 139. Railroads in Juxtaposition. Railroads of different ownership closely parallel to each other.

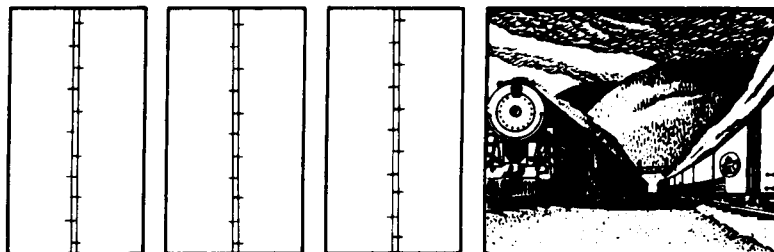


Figure 140. Turntable. A turntable is not drawn to scale. It is usually omitted in congested areas.

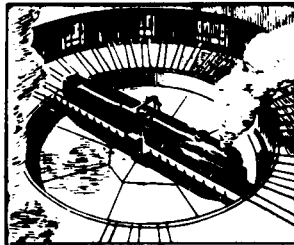
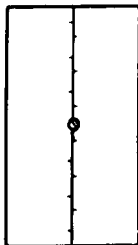


Figure 141. Railroad Station. Within built-up areas, stations are shown only when they are significant as landmarks. If the building is identifiable, it appears in correct location. Flagstops, halts and similar stops without permanent buildings are not shown on medium-scale maps. On large-scale maps they are shown by name only.

(a) Position known. (b) Position unknown.

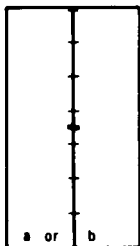
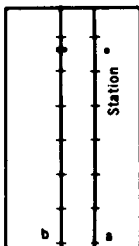
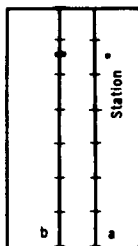


Figure 142. Railroad Snowshed.

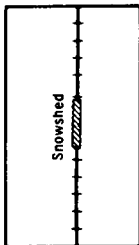
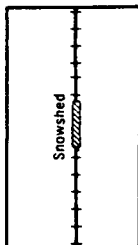


Figure 143. Carline. Carlines are shown only in open areas; they are omitted in built-up areas, streets, and roads. If the line is not in operation, labeling indicates whether it is abandoned, destroyed, or under construction. Single and double-track lines are shown by the same symbol on medium-scale maps. Carlines which are not in operation are symbolized the same as those in operation, except that appropriate labeling is added. Dismantled carlines are shown in the same manner as dismantled railroads.
(a) Single. (b) Double.

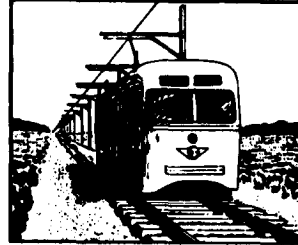
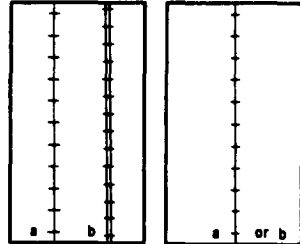


Figure 144. Aerial Cableway, Ski Lift, or Conveyor Belt. Included in this category are linear features, other than railroads or carlines, whose function is the transportation of people or material. Usually, these features are suspended above ground level. They are shown only when they are permanent installations and of sufficient size and importance. Appropriate labeling indicates the type of feature.

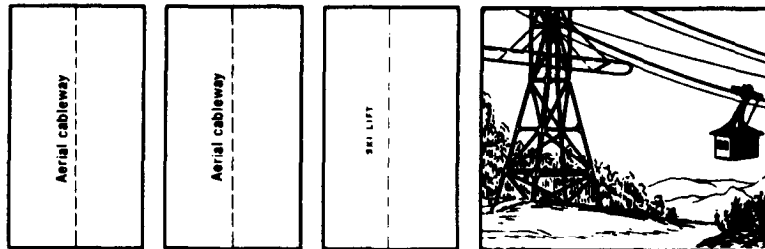
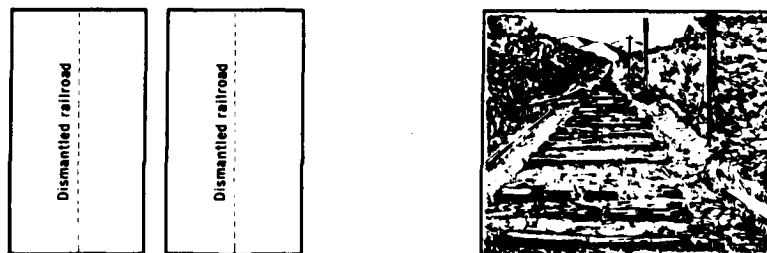


Figure 145. Dismantled Railroad or Carline. Used when the major parts of the tracks and bridges have been removed.



18. Features Related to Communications

a. *Overpasses and Underpasses.* On large-scale maps, overpasses and underpasses normally are shown wherever they exist. On medium- and small-scale maps they generally are shown only in open areas. An overpass is a short viaduct carrying a road or railroad above the grade of another road or railroad. An underpass is a short tunnel carrying a road or railroad below the grade of another road or railroad.

b. *Bridges and Viaducts.*

- (1) The distinction between a bridge and a viaduct is that a bridge passes over what is predominantly water while a viaduct passes over what is predominantly land.
- (2) Long bridges or viaducts are always shown. A shorter bridge or viaduct is shown if it serves as an identifiable landmark or is the only means of crossing within the general area.
- (3) On long bridges or viaducts, the ends of the symbol appear in their correct locations. On shorter ones, the symbol is merely representative and the ends are not necessarily in their correct locations.
- (4) Bridges and viaducts less than 20 feet long normally are not shown except when they are underpasses or overpasses.
- (5) When a bridge is used to carry both a road and a railroad on either the same or different levels, the feature is

shown by the road-bridge symbol with the railroad shown to the bridge ends. The symbol is labeled "Road and railroad".

- (6) Footbridges are shown only in areas of sparse culture.

c. *Drawbridges.*

- (1) Drawbridges are structures of which either the whole or part can be raised, lowered, pivoted, or turned aside to allow or to interrupt traffic.
- (2) On large-scale maps, the small circle of the symbol is centered on the true location of the center of the movable part of the bridge.

d. *Ferries.*

- (1) Ferries capable of carrying vehicular or railroad traffic normally are shown wherever they exist.
- (2) Ferries for pedestrians are shown only in areas of sparse culture or where they provide the only means of water-crossing in the general area.
- (3) The dashed line connects the points between which the ferry operates, without regard for the actual navigating course of the ferry.
- (4) Steamship lines are not shown.

e. *Fords.* Fords are shown only in areas of sparse culture or where they provide the only means of water-crossing in the general area.

f. *Symbols.* The following pages contain the approved symbols for features related to communications.

Figure 146. Overpass or Underpass.

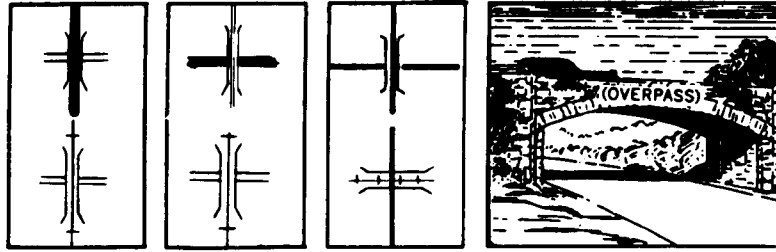


Figure 147. Grade Crossing.

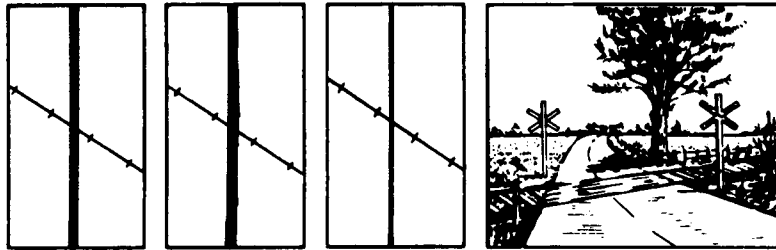


Figure 148. Road Tunnel. Road classification fills are omitted within the tunnel.

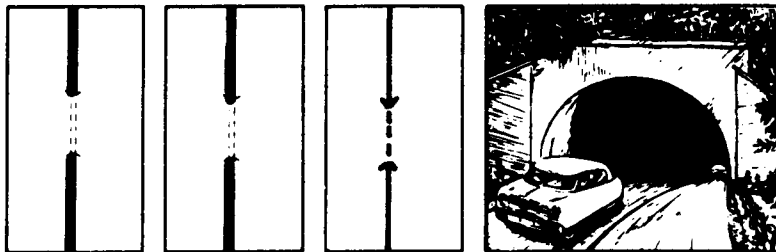


Figure 149. Railroad Tunnel. The railroad symbol is omitted within the tunnel.

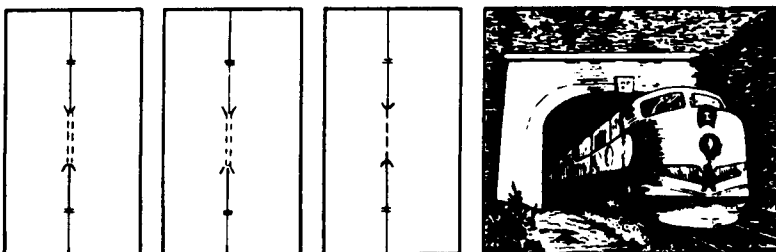


Figure 150. Railroad Bridge or Viaduct.

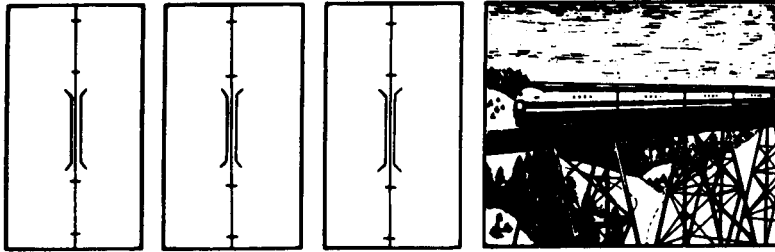


Figure 151. Railroad Drawbridge. Drawbridges are not indicated on medium and small-scale maps.

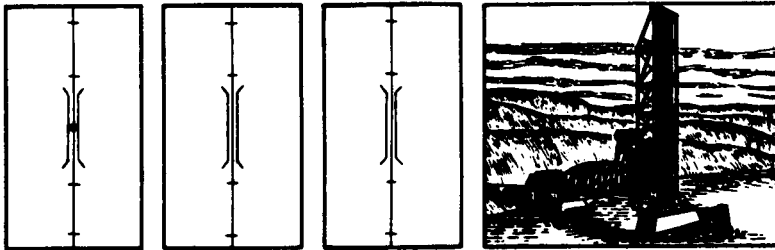


Figure 152. Highway Bridge or Viaduct.

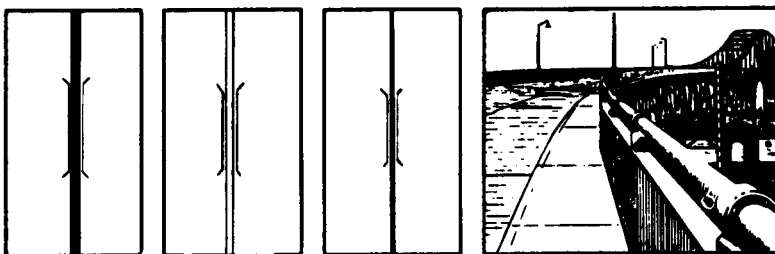


Figure 153. Highway Drawbridge. Drawbridges are not indicated on medium and small-scale maps.

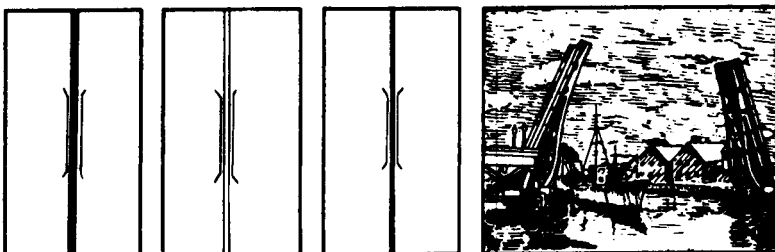


Figure 154. Footbridge.



Figure 155. Ferry.

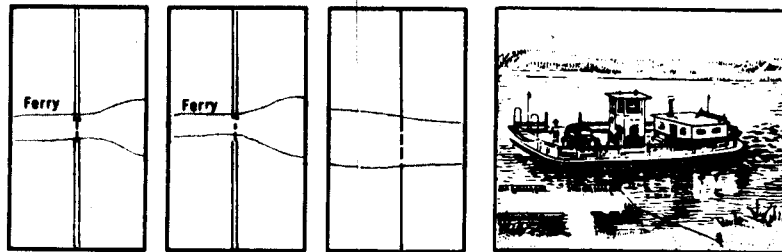
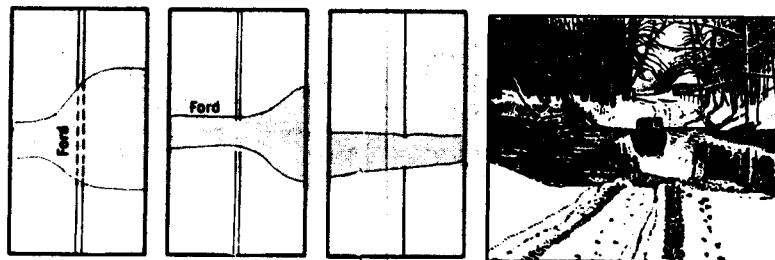


Figure 156. Ford.



19. Buildings and Populated Places on Large-Scale Maps

a. Built-Up Areas.

- (1) A built-up area is a large continuous area which is developed or is in the advanced stage of development for occupancy by concentrated populations. It usually is laid out in a definite street pattern and normally contains a business or industrial district. Since all buildings cannot be shown individually, the area is indicated by an overall screened red tint.
- (2) Only landmark buildings are shown individually in built-up areas. These are buildings which are prominent because of size, location, or usage, such as government or public buildings, colleges, schools, churches, hospitals, railroad stations, markets, factories, and buildings of historical or cultural interest.
- (3) Within the general outline of the built-up area, individual symbols are used and the built-up area tint is generally omitted for the following features:
 - (a) Parks and cemeteries equivalent to or larger than one block.
 - (b) Institutions such as colleges, schools, and hospitals possessing open ground areas equivalent to or larger than one block.
 - (c) Section with little construction or development if equivalent to or larger than two blocks.
- (4) All woodland cover is omitted in built-up areas.

b. Native Settlements. These include native settlements in foreign areas in which the buildings are not usually of permanent construction. Kampongs in southwestern Asia and encampments in western Africa are examples. The symbol legend of the map defines the symbol properly.

c. Buildings in General.

- (1) Conventional symbols are used to show a small building or a small structure similar to a building. The symbol is shown in correct orientation and its center usually coincides with the cor-

rect location of the center of the structure.

- (2) Buildings and similar structures whose plotted size exceeds the conventional symbols are shown in correct orientation and shape and usually in correct location.
 - (3) Buildings and structures located along roads are shown in their correct location unless they would then fall within the road. In such cases, the symbol is moved back.
 - (4) In many cases it is impossible to show all buildings because of congestion. The map retains the general shape and pattern of the area and omits the less important buildings.
- ### d. Structures Similar to Buildings.
- (1) These are features of substantial construction not definable as buildings. In many instances they are roofed, although not necessarily enclosed on all sides. The term includes barns, grandstands, railroad sheds, large open sheds, fruit packing sheds, snow sheds, open-air refineries, and similar structures.
 - (2) Structures which are smaller than the average dwelling in the locality are not shown.
 - (3) In foreign areas, when information is unavailable, no distinction is made between buildings and structures similar to buildings.
- ### e. Schools and Churches.
- (1) When a building is used both as a church and a school, it is symbolized as a school.
 - (2) In the United States, the church symbol is used commonly for all denominations. On maps of foreign areas, this symbol usually denotes a Christian place of worship, with other symbols being used to denote places of worship of other sects. In such cases, the marginal symbol legend should be consulted for detailed information.
 - (3) When a school has numerous buildings, the flag symbol is shown only on the administration building or the most prominent building in the group.

- (4) When there are numerous religious buildings in a group, as in a convent or monastery, the cross symbol is shown only on the building used for religious services or the most prominent building in the group.

f. Ruins. Ruins are buildings or structures in such a state of dilapidation or decay that they

can no longer be used for their original purpose. Ruins which are smaller than the average dwelling in the locality are not shown unless they possess unusual significance.

g. Symbols. The following pages contain the approved symbols for buildings and populated places on large-scale maps.

Figure 157. Built-Up Area.



Figure 158. Native Settlement. Native settlements occur only in foreign areas. The map legend fully defines the symbol.

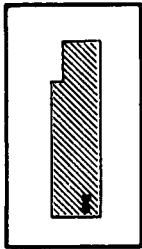


Figure 159. Buildings in General.

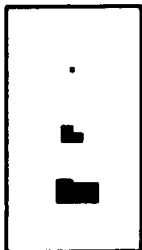


Figure 160. School.

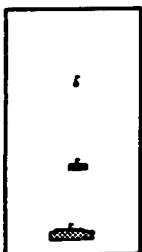


Figure 161. Church.

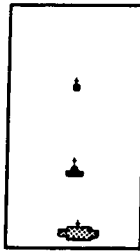


Figure 162. Christian Shrine. A Christian shrine is shown only in foreign areas. (a) and (b) are alternate symbols, or are sometimes used on the same map to denote different features. Consult the map legend for distinctions.

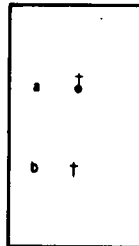


Figure 163. Non-Christian House of Worship. A non-Christian house of worship is shown only in foreign areas. The map legend fully defines the symbol. (a) and (b) are alternate symbols, or are sometimes used on the same map to denote different features. Consult the map legend for distinctions.

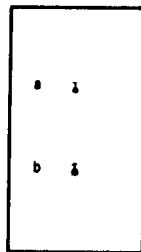


Figure 164. Non-Christian Shrine. A non-Christian shrine is shown only in foreign areas. The map legend fully defines the symbol. (a), (b), (c), and (d) are alternate symbols, or are sometimes used on the same map to denote different features. Consult the map legend for distinctions.

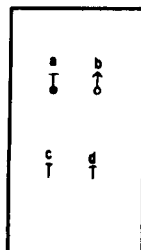


Figure 165. Mosque. A mosque is shown only in foreign areas.

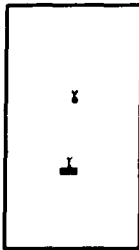


Figure 166. Moslem Shrine. A Moslem shrine is shown only in foreign areas. (a) and (b) are alternate symbols, or are sometimes used on the same map to denote different features. Consult the map legend for distinctions.

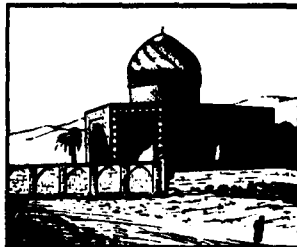
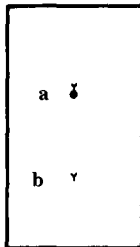


Figure 167. Pagoda. A pagoda is shown only in foreign areas.

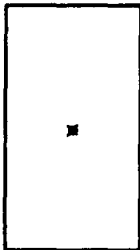


Figure 168. Structures Similar to Buildings.

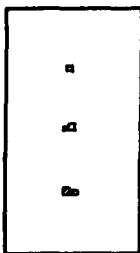


Figure 169. Ruins. (a) Large. (b) Small.

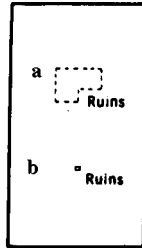


Figure 170. Greenhouse.

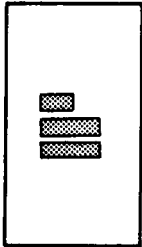


Figure 171. Ruined or Destroyed Areas.

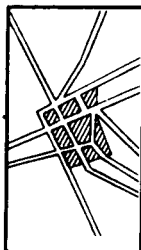


Figure 172. Lighthouse or Light.

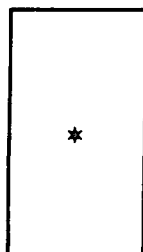


Figure 173. Windmill or Windpump.

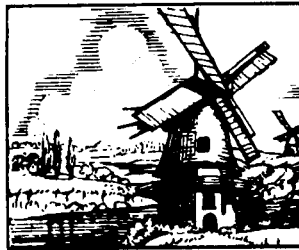
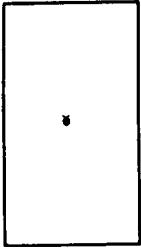


Figure 174. Watermill.

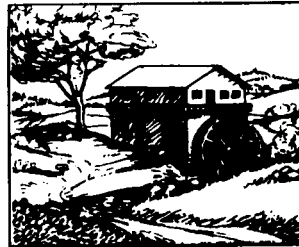
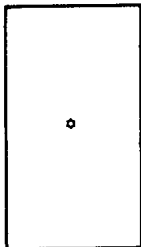


Figure 175. Cliff Dwelling. Cliff dwellings occur in the southwestern United States. Where numerous cliff dwellings occur, one symbol is usually used to represent several.

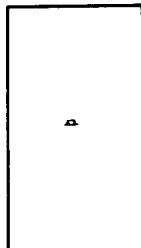


Figure 176. Historical Site. Historical sites are shown only in foreign areas.

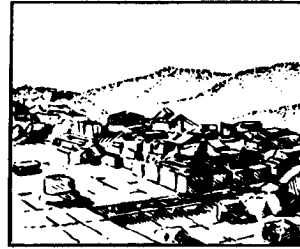
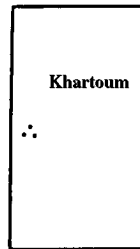


Figure 177. Historical Battlefield. Historical battlefields are shown only in foreign areas. If they cover a large area, historical battlefields are shown with outlines.

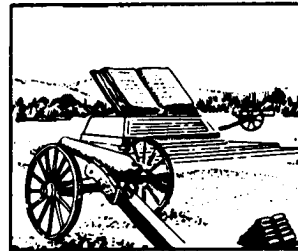
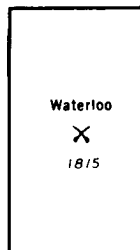
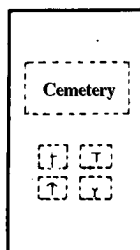


Figure 178. Cemetery. In cemeteries in the United States no distinction is made between denomination or race. In cemeteries in foreign areas, religious denominations are indicated if the information is available. Small private cemeteries and isolated graves are usually omitted.



20. Buildings and Populated Places on Medium- and Small-Scale Maps

a. Reduced Scale. Because of the reduced scale, it is impossible to show the buildings and populated places on medium- and small-scale maps in great detail. Consequently, the symbols are truly symbolic or representative. The only buildings shown are those which serve as outstanding landmarks in isolated areas.

b. Populated Places. A small populated place is shown by a small circle. A larger populated place is shown, generally true to shape, by an outlined and tinted area. Within the outline, the only features usually shown are the main-line railroads and through-route roads. On 1:250,000 scale maps, the tint is usually shown in yellow; on small-scale maps, it is shown in red.

c. Use of Tinted Squares. In many areas, there is insufficient information available to plot the correct outlines of populated places. In such cases, tinted squares of varying sizes are used as symbols, with the size depending upon the population or importance. Explanation of these squares is contained in the marginal legend of the map.

d. Names of Populated Places. The names of populated places are shown in type of varying size, with the size depending upon population or importance. When information is available, the marginal legend shows the different sizes keyed to a population breakdown. When information is not available, the sizes are keyed to an important breakdown.

e. Symbols. The following pages contain the approved symbols for buildings and populated places on medium- and small-scale maps.

Figure 179. Populated Place, Limits Known. Size of type used for name indicates population or relative importance.

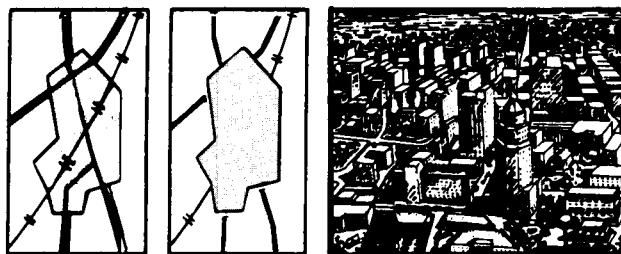


Figure 180. Populated Place, Limits Unknown, First Importance. Usually a large city or metropolitan area.

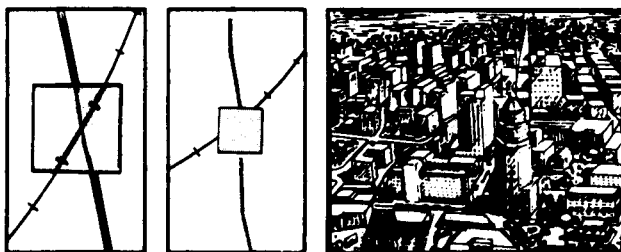


Figure 181. Populated Place, Limits Unknown, Second Importance. Usually a medium sized city.

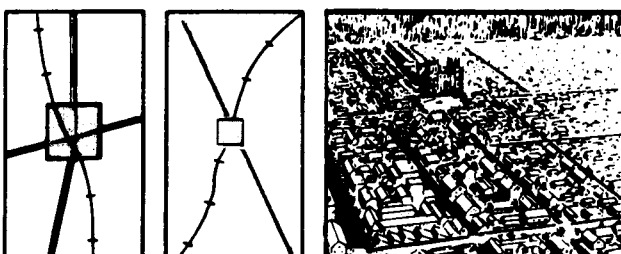


Figure 182. Populated Place, Limits Unknown, Third Importance. Usually a small city.

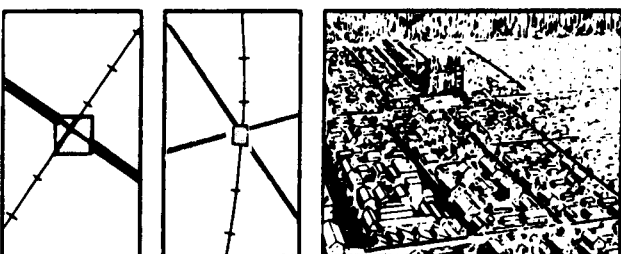


Figure 183. Populated Place, Limits Unknown, Fourth Importance. Usually a small city or large town.

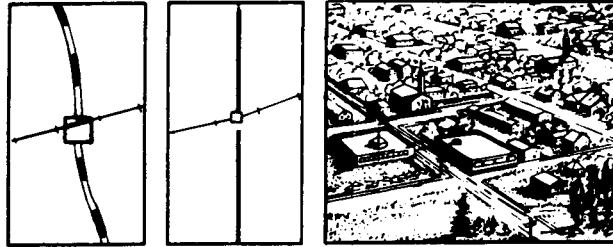


Figure 184. Populated Place, Limits Unknown, Fifth Importance. Usually a town of fair size.

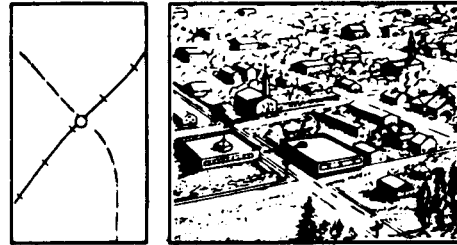


Figure 185. Town, Village or Settlement.

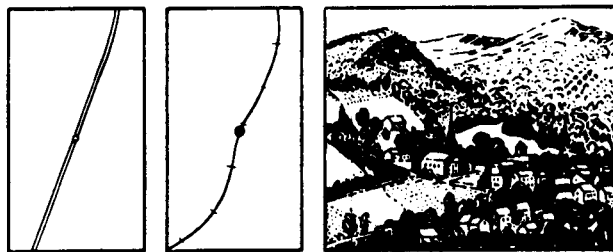


Figure 186. Landmark Building. Labeling indicates nature or identity of structure.

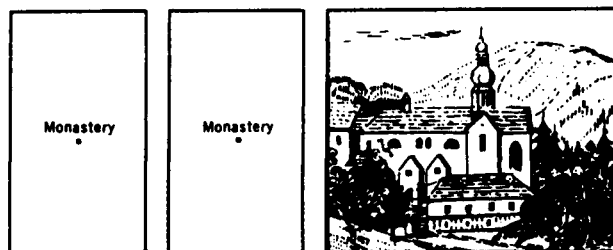
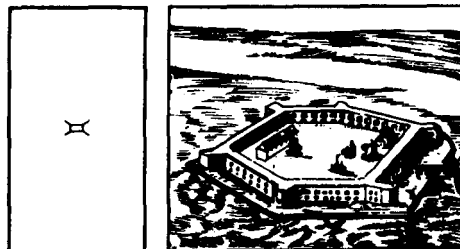


Figure 187. Fort.



21. Industrial and Public Works

The following symbols indicate the industrial and public works shown at the various scales.

Large Scale

Medium Scale

Small Scale

Illustration

Figure 188. Small Dam. Includes those dams, either earthen or masonry, too narrow to plot to scale. On certain maps, the symbol in black indicates a masonry dam, and in brown, an earthen dam.

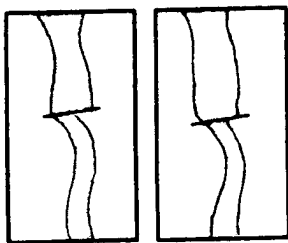


Figure 189. Dam Carrying Road.

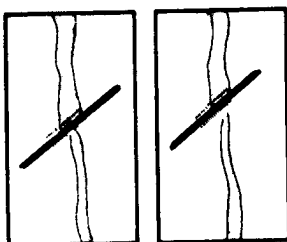


Figure 190. Large Masonry Dam. The correct shape of the feature is shown and spillways or other details are included wherever possible. Buildings located on the dam are shown in their correct position. Only the important dams are shown on small-scale maps.

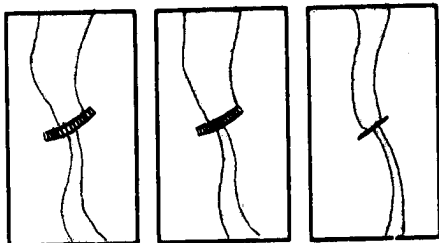


Figure 191. Passable Lock. The angle of the symbol always points upstream.

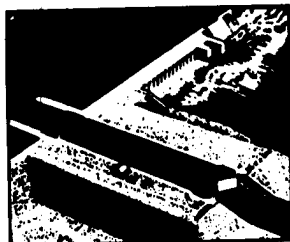
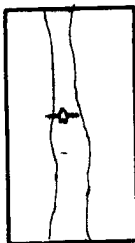


Figure 192. Sluice Gate or Small Canal Lock. The angle of the symbol always points upstream.

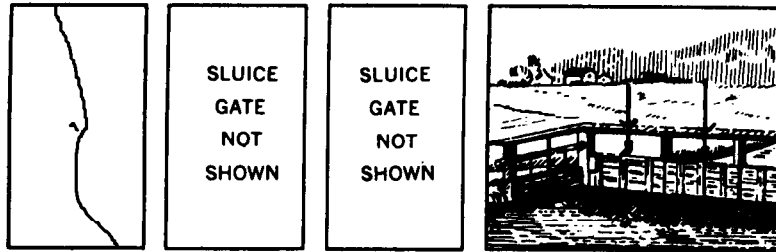


Figure 193. Small Breakwater, Jetty or Diversion Dam. Unimportant features are usually omitted.

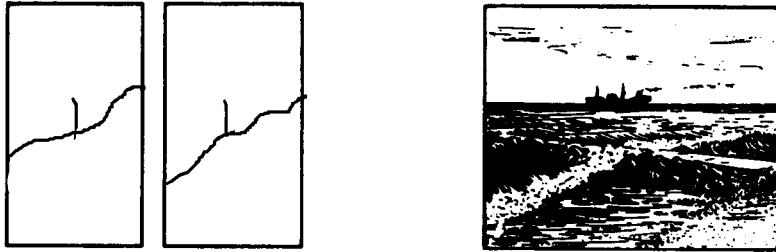


Figure 194. Large Breakwater.

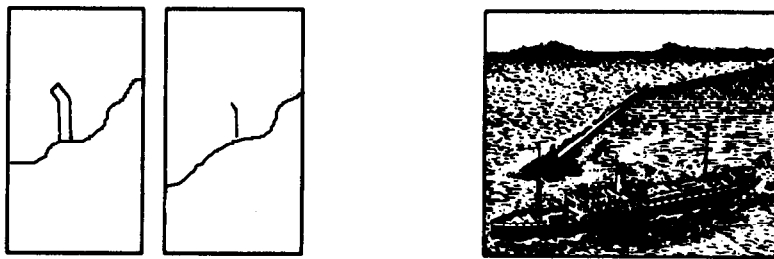


Figure 195. Submerged Breakwater. Breakwaters which are submerged at mean high tide even though exposed at low tide are included.

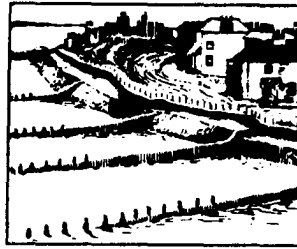
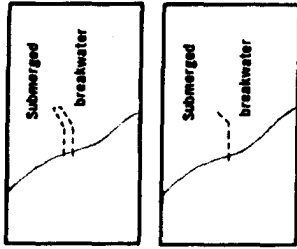


Figure 196. Narrow Seawall or Revetment.

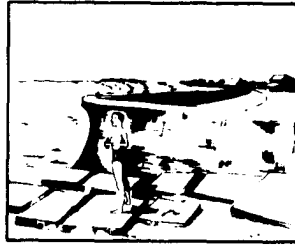
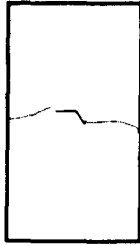


Figure 197. Large Seawall.

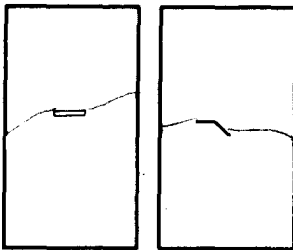


Figure 198. Large Revetment.

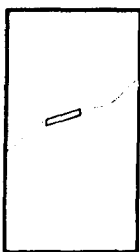


Figure 199. Small Pier, Dock or Wharf.

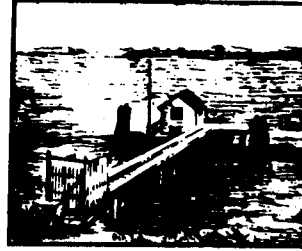


Figure 200. Large Pier, Dock or Wharf.

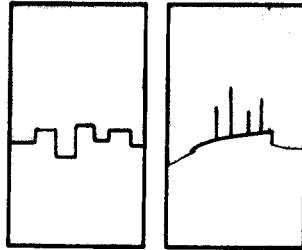


Figure 201. Ferry Slip.

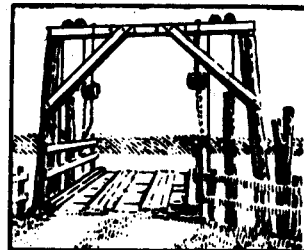
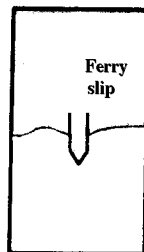


Figure 202. Ramp. The part submerged at mean high tide is shown by a dashed line.

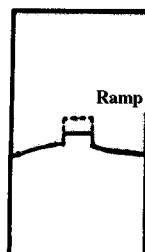


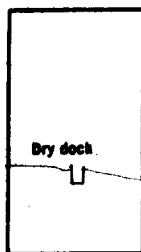
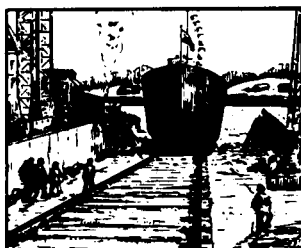
Figure 203. Drydock.**Figure 204. Marine Railroad.**

Figure 205. Tank. Tanks which are used for storage of oil, gas, water, vinegar, or other liquids. Labeling usually describes the contents. Large tanks are plotted to scale on large-scale maps.

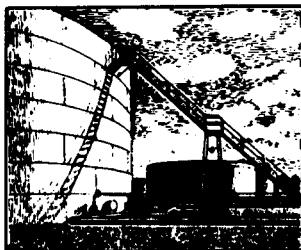
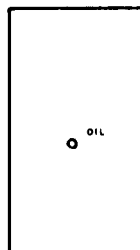
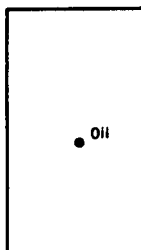
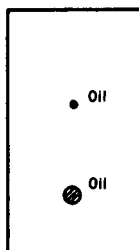


Figure 206. Well. This symbol includes wells drilled for gas, oil, or other minerals, which are in operation. Wells for water are not included. Labeling usually indicates the kind of well.

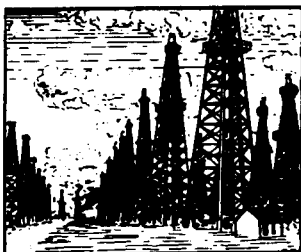
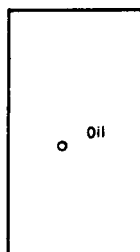
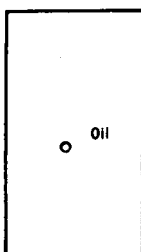
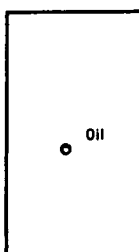


Figure 207. Reservoir, Other Than Water. Open reservoirs used for the storage of asphalt, oil, or other liquids except water are indicated if they can be plotted to scale. Those too small to show to scale are omitted. Labeling identifies the feature.

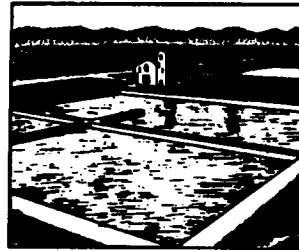
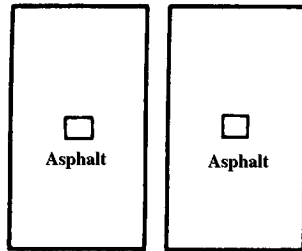


Figure 208. Sewage Disposal or Filtration Bed. These are shown only when they can be plotted to scale. Wherever possible, major separations within the feature are shown. Labeling identifies the feature.

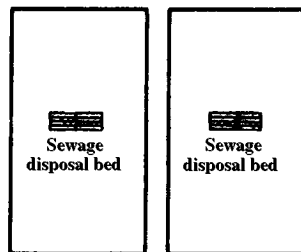


Figure 209. Swimming Pool.

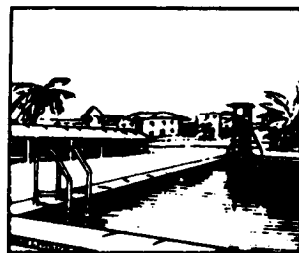
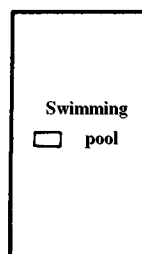


Figure 210. Pipeline. This includes only those pipelines not used for water which are landmark features in areas of sparse culture. They are omitted in developed areas. No effort is made to show pipelines as a continuous feature and only landmark parts are shown.

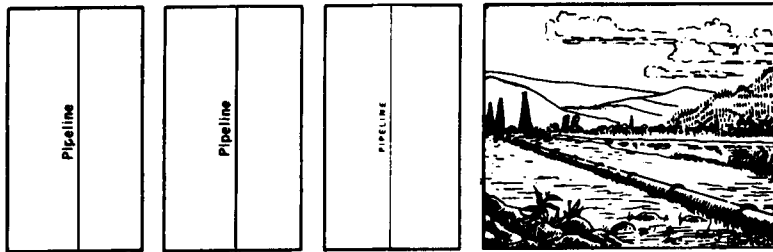


Figure 211. Underground Pipeline. The symbol represents underground pipelines which are obvious from cleared rights-of-way, ground scars, or levee-like mounds.

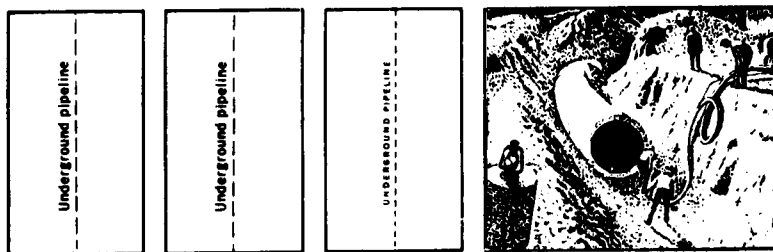


Figure 212. Landmark or Located Object. A feature is a landmark when it is visible from a distance. Landmarks include towers, chimneys, air beacons, monuments, and similar features. Labeling indicates the nature of the object.

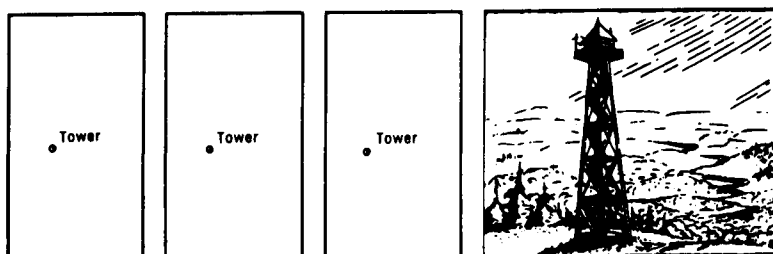


Figure 213. Open-Pit Mine or Quarry. This feature is usually omitted in areas of dense culture. In foreign areas all types of mines are shown by this symbol. Whenever possible, the appropriate labeling supplements the symbol indicating the material mined.

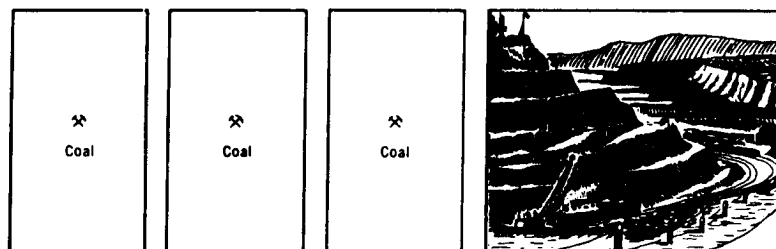


Figure 214. Mine Shaft. A mine shaft is vertical or nearly vertical in direction. (a) United States. (b) Foreign.

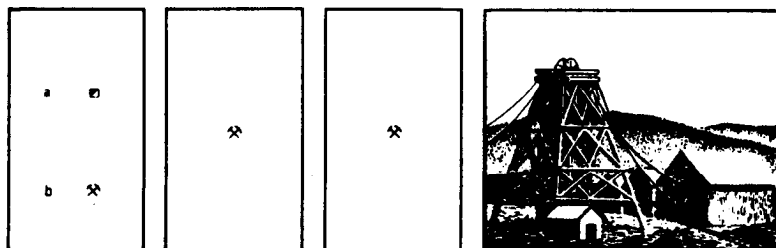


Figure 215. Mine Tunnel. A mine tunnel is horizontal or nearly horizontal in direction. (a) United States. (b) Foreign.

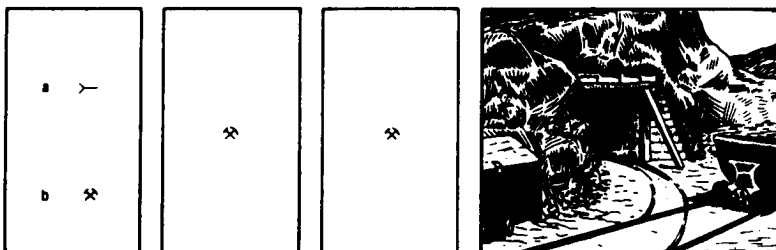


Figure 216. Prospect. Prospects are shown only on large-scale maps of the United States. A prospect is shown only where there is evidence of current or recent digging.



Figure 217. Telephone and Telegraph Lines. These are shown only when they are landmark features in areas of sparse cultural development. They are usually omitted along roads or railroads.

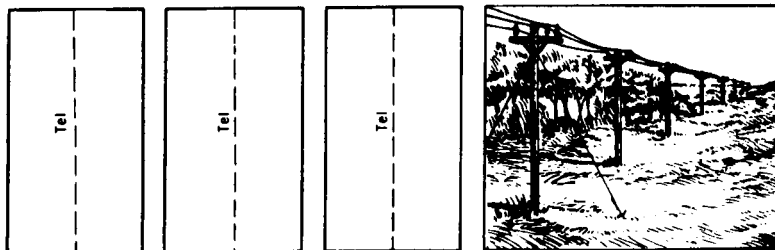


Figure 218. Power-Transmission Line. These are shown only when they are landmark features in areas of sparse cultural development. They are seldom shown along roads and railroads. Voltage is not indicated.

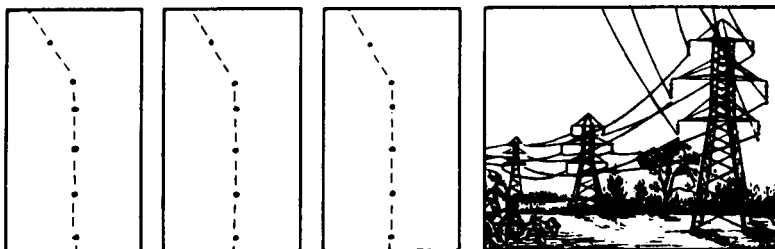


Figure 219. Fence, Hedgerow, Field Line. This symbol applies to maps of certain foreign areas only.



Figure 220. Prominent Fence. Only fences which provide definite landmarks in areas of sparse culture are shown.

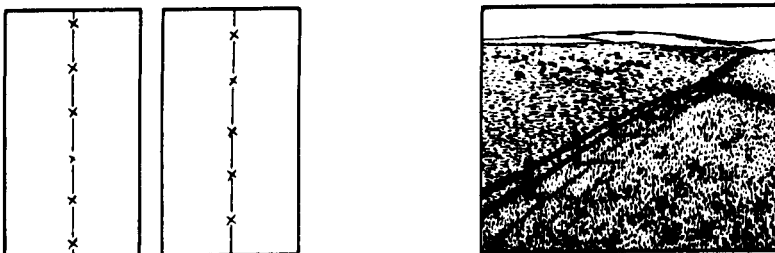


Figure 221. Prominent Wall. Such walls as the Great Wall of China and walls surrounding forts or cities, and the like are included. Minor walls are usually not shown.

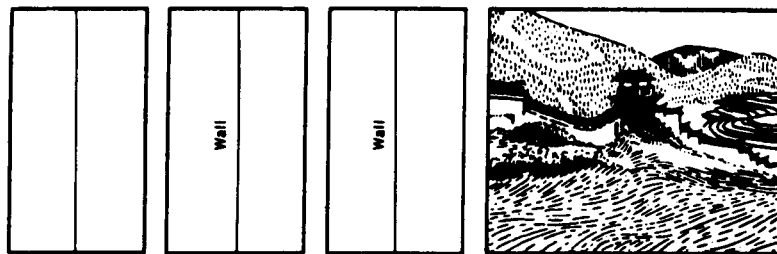


Figure 222. Race Track.

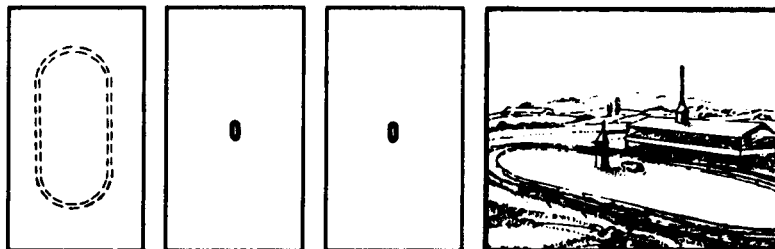


Figure 223. Airport or Airfield. Airports and airfields are shown to true shape on large-scale maps.

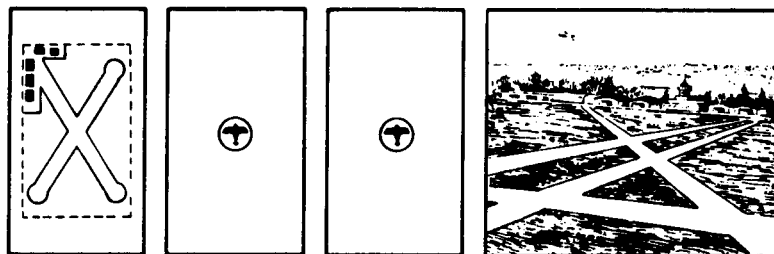


Figure 224. Landing Ground. Landing grounds are shown to true shape on large-scale maps.

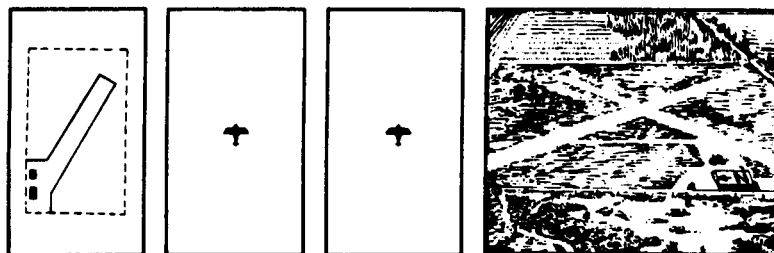


Figure 225. Seaplane Base. Seaplane bases are shown to true shape on large-scale maps.

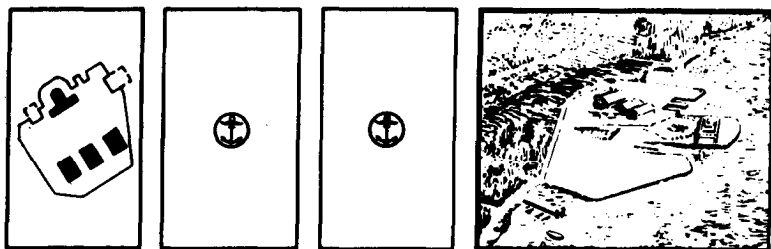
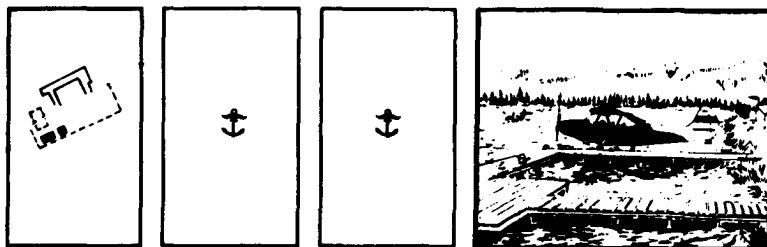


Figure 226. Seaplane Anchorage. Seaplane anchorages are shown to true shape on large-scale maps.



22. Control Points and Elevations

a. Application of Definitions. The definitions of horizontal and vertical control stations which follow are generally applicable only to the United States.

b. Exceptions. In foreign areas, horizontal control stations may not be monumented and

in some cases, may be less than third order accuracy. Whenever information is available, exceptions are noted in the marginal legend of the map.

c. Symbols. The following pages contain the approved symbols for control points and elevations.

Figure 227. Horizontal Control Point. The symbol represents a described horizontal control point which is marked on the ground and which was established by triangulation or traverse of third or higher order accuracy.

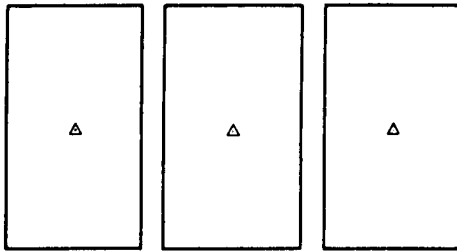


Figure 228. Monumented Bench Mark. The symbol represents a described vertical control point which is marked by a tablet on the ground and which was established by survey methods of third or higher order accuracy. On medium and small-scale maps Bench Marks are not specially symbolized. Their elevations are shown as spot elevations. (a) and (b) are alternate symbols.

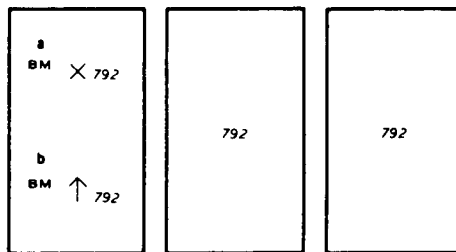


Figure 229. Monumented Bench Mark At Horizontal Control Point. The symbol represents a described control point which is marked on the ground and whose horizontal and vertical positions were established by survey methods of third or higher order accuracy.

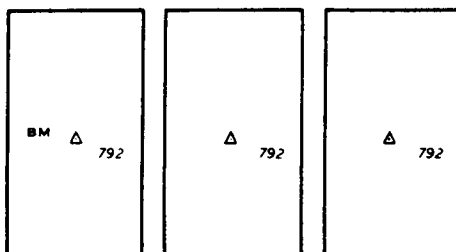


Figure 230. Non-monumented Bench Mark. (sometimes called temporary, supplementary, or intermediate). The symbol represents a described vertical control point which was established by survey methods of third or higher order accuracy. The point is usually recoverable. The mark does not bear a tablet.

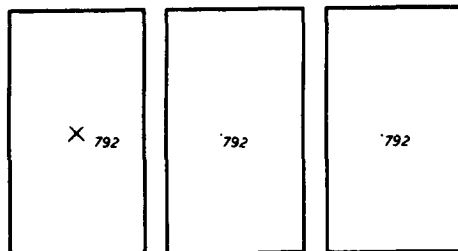


Figure 231. Astronomic Position. The symbol represents a described horizontal control point whose geographic position was determined through local astronomic observations.

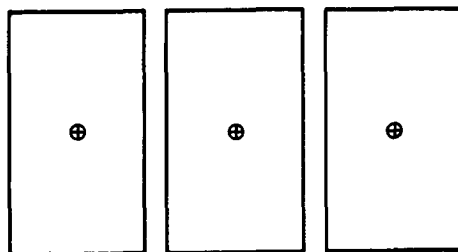


Figure 232. Checked Spot Elevation. The symbol represents an elevation established by closed lines, including spirit level, stadia, and vertical angle methods.
(a) Identifiable point. (b) Unidentifiable point. (c) Unidentifiable point, alternate symbol on large-scale maps.

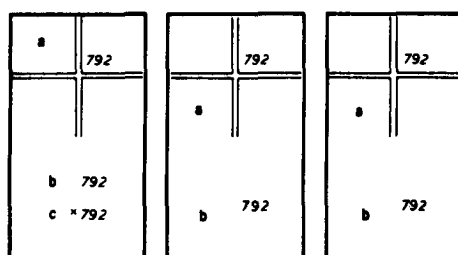
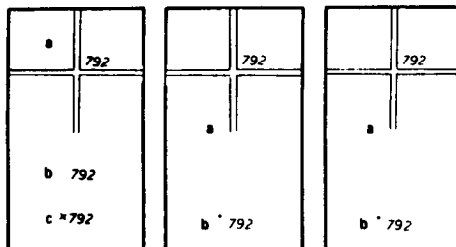


Figure 233. Unchecked Spot Elevation. The symbol represents an elevation determined by unchecked field surveys such as side shots on stadia lines, unchecked vertical angle or precision altimetry, or by repeated photogrammetric readings. An unchecked spot elevation is not as reliable as checked spot elevations. (a) Identifiable point. (b) Unidentifiable point. (c) Unidentifiable point, alternate symbol on large-scale maps.



23. Boundaries

a. Where two or more boundaries coincide, only the symbol representing the higher-ranking boundary is shown.

b. Boundaries which are approximate or indefinite are appropriately labeled.

c. In cases where a boundary follows a road, stream, or river, usually only every third unit

of the symbol is shown. The intervening symbol units are omitted, except where the omission would create uncertainty as to the alinement of the boundary.

d. Terminology of boundaries in foreign areas varies; see the map legend for the correct terms.

e. The following pages contain the approved symbols for boundaries.

Figure 234. International.

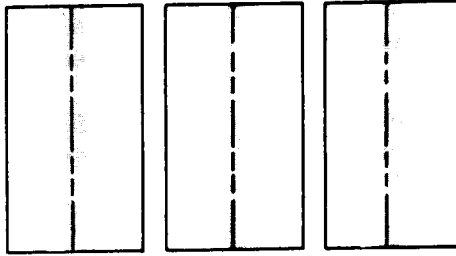


Figure 235. Major Administrative. (As Intercolonial in French West Africa.)

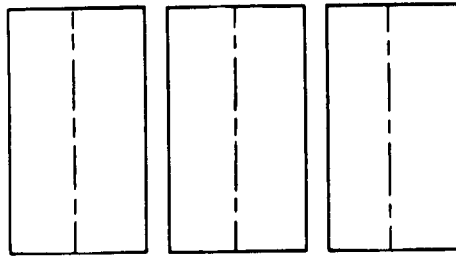


Figure 236. First Class Administrative. (As State in United States; Province or equivalent in foreign areas.)

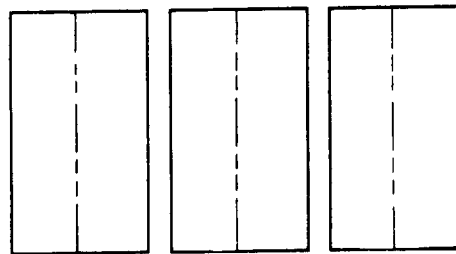


Figure 237. Second Class Administrative. (As County or Parish in the United States.)

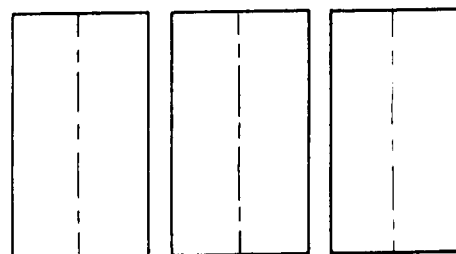


Figure 238. Third Class Administrative. (As Township in the United States.)

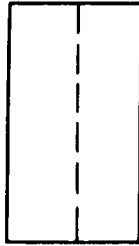


Figure 239. Fourth Class Administrative. (As Corporate Limits in the United States.)

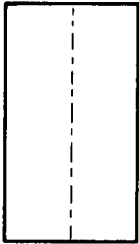


Figure 240. Fifth Class Administrative. (As Ward in the United States.) Shown only on very-large-scale maps.

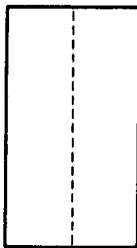


Figure 241. Special. (As Reservation in the United States). On large-scale maps of the United States, a red overprint is shown for Military Reservations.

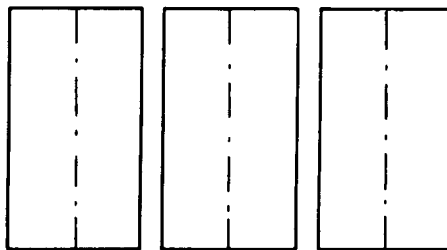


Figure 242. International Boundary Marker.

