MUNICIPALITIES, SCHOOL DISTRICTS, AND SELECTED OTHER FEATURES RELATED TO QUADRANGLE TOPOGRAPHIC MAPS GREATER PITTSBURGH REGION, PENNSYLVANIA

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(on 5 folded enclosures)

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INTRODUCTION

The subjects of this guide are the six southwestern Pennsylvania counties of Allegheny, Armstrong, Beaver, Butler, Washington, and Westmoreland. These form the 4,500 square-mile Greater Pittsburgh region, and wholly or partly within this region are 411 municipalities (cities, boroughs, and townships), 108 school districts, and a substantial number of other areas of equal public interest. The purpose of this guide is to relate these irregularly shaped areas to the rectangular quadrangle topographic maps that cover the entire region, and so enhance map utility in the field of municipal, district, recreational, and other types of planning.

The tables in this guide are arranged for easy reference, enabling the reader to find quickly which quadrangle topographic map contains a given municipality or other feature. The following sections tell what a topographic map is and what it may be used for, what "map scale" means, what quadrangles are and why they are used for maps, how the tables can be used to the best advantage, and how maps may be acquired.

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WHAT IS A TOPOGRAPHIC MAP?

The topography of an area is the configuration of its surface and includes its relief and the positions of its natural and man-made features. A delineation of topography on a plane surface, such as a piece of paper, is a topographic map. A topographic map is not a chart or a plan, although these terms commonly are applied to topographic maps. Rather, a chart is a map prepared for a specific purpose that emphasizes features important to that purpose (for example, an aeronautical chart), and a plan shows considerable detail at very large scales (for example, a house plan).

A modern topographic map shows in brown the shape of the surface of the earth (its relief features) by contours, which are lines of equal elevation above sea level. The contour interval is 20 ft in maps of the subject counties. It also shows, in true relation to each other, streams, rivers, lakes, and reservoirs in blue, forested areas in green, and highways, roads, buildings, bridges, airports and many other works of man in black, red, and magenta. In addition, a topographic map displays boundaries of political units (such as towns and counties), parks, and reservations, and the names of places, political units, and other features.

Each map usually is named for a city, town, or other settlement within the map area. Or, if there are not settlements of any size with generally accepted names, it is named for a prominent natural feature. An explanation of symbols used on U.S. Geological Survey topographic maps is included in this guide.

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USES OF TOPOGRAPHIC MAPS

Topographic maps have many uses as fundamental tools for planning and executing projects that are necessary to our modern way of life. They are of prime importance in planning airports, highways, dams, pipelines, transmission lines, industrial plants, and countless other types of construction, as well as in zoning, property assessment, and other purely governmental work. In addition, topographic maps are an essential part of geologic and hydrologic research, of mineral investigations, and of studies on the quantity and quality of water. They also greatly facilitate the study and application of flood control, soil conservation, and reforestation.

The rapidly growing list of map users now includes many who have discovered the advantages of topographic maps in the pursuit of outdoor activities such as hunting, fishing, and vacationing. In fact, most of our outdoors can be better understood and appreciated with the aid of topographic maps.

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SCALE OF MAPS

The scale of a map is the size relationship between features shown on the map and the same features on the earth's surface. For example, if two buildings shown on a map are 1 inch apart and the actual distance between these features on the ground is 2,000 feet, then the map scale is 1 inch to 2,000 feet. This is the standard scale of the 7½-minute (7½') series of National Topographic Maps, and commonly it is expressed by the ratio 1:24,000. This is derived from the fact that 2,000 feet contain 24,000 inches, so the scale could be read as "1 inch to 24,000 inches." Using the metric system, which daily is coming into greater use, it is equally correct to say "1 centimeter to 24,000 centimeters" (one inch equals 2.54 centimeters).

By way of contrast, the 15-minute (15') series of National Topographic Maps is at the scale of 1:62,500, a very close approximation of 1 inch to 1 mile, or 5,280 feet. If the two buildings 2,000 feet apart were shown on a 1:62,500 map their separation would only be about 3/8 inch, a smaller map distance than at 1:24,000. The 1:62,500 map therefore is a smaller-scale map than the 1:24,000 map, despite the fact that the numerical expression, the scale ratio, contains a larger number. Just remember, in map scale ratios, the larger the number the smaller the scale,

TOPOGRAPHIC MAP SYMBOLS

VARIATIONS WILL BE FOUND ON OLDER MAPS

- y highway, hard surface
- ary highway, hard surface
- uty road, hard or improved surface
- oved road
- nder construction, alinement known
- ed road
- ghway, dividing strip 25 feet or less
- ighway, dividing strip exceeding 25 feet
-

- d: single track and multiple track
- ds in juxtaposition
- gage: single track and multiple track
- d in street and carline
- road and railroad
- dge: road and railroad
- dge
- road and railroad
- ss and underpass
- masonry or concrete dam
- ith lock
- ith road
- with lock

- gs (dwelling, place of employment, etc.)
- church, and cemetery — Cem
- gs (barn, warehouse, etc.)
- ransmission line with located metal tower
- ne line, pipeline, etc. (labeled as to type)
- ther than water (labeled as to type) — Oil — Gas
- oil, water, etc. (labeled only if water) — Water
- or landmark object; windmill
- t, mine, or quarry; prospect
- nd tunnel entrance

- tal and vertical control station:
- et, spirit level elevation — BM △5653
- r recoverable mark, spirit level elevation — △5455
- tal control station: tablet, vertical angle elevation — VABM △ 95/9
- recoverable mark, vertical angle or checked elevation — △3775
- control station: tablet, spirit level elevation — BM × 957
- r recoverable mark, spirit level elevation — ×954
- evation — × 7369 — × 7369
- levation — 670 — 670

- Boundaries: National
- State
- County, parish, municipio
- Civil township, precinct, town, barrio
- Incorporated city, village, town, hamlet
- Reservation, National or State
- Small park, cemetery, airport, etc.
- Land grant
- Township or range line, United States land survey
- Township or range line, approximate location
- Section line, United States land survey
- Section line, approximate location
- Township line, not United States land survey
- Section line, not United States land survey
- Found corner: section and closing
- Boundary monument: land grant and other
- Fence or field line

- Index contour
- Intermediate contour
- Supplementary contour
- Depression contours
- Fill
- Cut
- Levee
- Levee with road
- Mine dump
- Wash
- Tailings
- Tailings pond
- Shifting sand or dunes
- Intricate surface
- Sand area
- Gravel beach

- Perennial streams
- Intermittent streams
- Elevated aqueduct
- Aqueduct tunnel
- Water well and spring
- Glacier
- Small rapids
- Small falls
- Large rapids
- Large falls
- Intermittent lake
- Dry lake bed
- Foreshore flat
- Rock or coral reef
- Sounding, depth curve — 10
- Piling or dolphin
- Exposed wreck
- Sunken wreck
- Rock, bare or awash; dangerous to navigation

- Marsh (swamp)
- Submerged marsh
- Wooded marsh
- Mangrove
- Woods or brushwood
- Orchard
- Vineyard
- Scrub
- Land subject to controlled inundation
- Urban area

1 0 1 2 3 4 5 MILES

MILE SCALE 1:62 500

UNITED STATES DEPARTMENT OF THE INTERIOR GEOLOGICAL SURVEY

TOPOGRAPHIC MAP INFORMATION AND SYMBOLS

SEPTEMBER 1972

QUADRANGLE MAPS AND SERIES

Quadrangle maps cover four-sided areas bounded by parallels of latitude and meridians of longitude. Quadrangle size is given in minutes or degrees. The usual dimensions of quadrangles are: 7.5 by 7.5 minutes, 15 by 15 minutes, and 1 degree by 2 or 3 degrees.

Map series are groups of maps that conform to established specifications for size, scale, content, and other elements.

MAP SCALE DEPENDS ON QUADRANGLE SIZE

Map scale is the relationship between distance on a map and the corresponding distance on the ground.

Map scale is expressed as a numerical ratio or shown graphically by bar scales marked in feet, miles, and kilometers.

NATIONAL TOPOGRAPHIC MAPS

Series	Scale	1 inch represents	Standard quadrangle size (latitude-longitude)	Quadrangle area (square miles)	Price
7½-minute	1:24,000	2,000 feet	7½×7½ min.	49 to 70	$0.75
Puerto Rico 7½-minute	1:20,000	about 1,667 feet	7½×7½ min.	71	.75
15-minute	1:62,500	nearly 1 mile	15×15 min.	197 to 282	.75
Alaska 1:63,360	1:63,360	1 mile	15×20 to 36 min.	207 to 281	.75
U. S. 1:250,000	1:250,000	nearly 4 miles	1° × 2° or 3°	4,580 to 8,669	1.00
U. S. 1:1,000,000	1:1,000,000	nearly 16 miles	4° × 6°	73,734 to 102,759	1.00
Antarctica 1:250,000	1:250,000	nearly 4 miles	1° × 3° to 15°	4,089 to 8,336	.75
Antarctica 1:500,000	1:500,000	nearly 8 miles	2° × 7½°	28,174 to 30,462	.75

CONTOUR LINES SHOW LAND SHAPES AND ELEVATION

The shape of the land, portrayed by contours, is the distinctive characteristic of topographic maps.

Contours are imaginary lines following the ground surface at a constant elevation above or below sea level.

Contour interval is the elevation difference represented by adjacent contour lines on maps.

Contour intervals depend on ground slope and map scale; they vary from 5 to 1,000 feet. Small contour intervals are used for flat areas; larger intervals are used for mountainous terrain.

Supplementary dotted contours, at less than the regular interval, are used in selected flat areas.

Index contours are heavier than others and most have elevation figures.

Relief shading, an overprint giving a three-dimensional impression, is used on selected maps.

Orthophotomaps, which depict terrain and other map features by color-enhanced photographic images, are available for selected areas.

COLORS DISTINGUISH KINDS OF MAP FEATURES

Black is used for manmade or cultural features, such as roads, buildings, names, and boundaries.

Blue is used for water or hydrographic features, such as lakes, rivers, canals, glaciers, and swamps.

Brown is used for relief or hypsographic features—land shapes portrayed by contour lines.

Green is used for woodland cover, with patterns to show scrub, vineyards, or orchards.

Red emphasizes important roads and is used to show public land subdivision lines, land grants, and fence and field lines.

Red tint indicates urban areas, in which only landmark buildings are shown.

Purple is used to show office revision from aerial photographs. The changes are not field checked.

INDEXES SHOW PUBLISHED TOPOGRAPHIC MAPS

Indexes for each State, Puerto Rico and the Virgin Islands of the United States, Guam, American Samoa, and Antarctica show available published maps. Index maps show quadrangle location, name, and survey date. Listed also are special maps and sheets, with prices, map dealers, Federal distribution centers, and map reference libraries, and instructions for ordering maps. Indexes and a booklet describing topographic maps are available free on request.

HOW MAPS CAN BE OBTAINED

Mail orders for maps of areas east of the Mississippi River, including Puerto Rico, the Virgin Islands of the United States, and Antarctica should be ordered from the U. S. Geological Survey Distribution Section, 1200 South Eads Street, Arlington, Virginia 22202. Maps of areas west of the Mississippi River, including Alaska, Hawaii, Louisiana, Minnesota, American Samoa, and Guam should be ordered from the Distribution Section, Federal Center, Denver, Colorado 80225. A single order combining both eastern and western maps may be placed with either office. Residents of Alaska may order Alaska maps or an index for Alaska from the Distribution Section, 310 First Avenue, Fairbanks, Alaska 99701. Order by map name, State, and series. Maps without woodland overprint are available on request. On an order amounting to $300 or more at the list price, a 30-percent discount is allowed. No other discount is applicable. Prepayment is required and must accompany each order. Payment may be made by money order or check payable to the U. S. Geological Survey, or cash (the exact amount) at sender's risk. Your ZIP code is required.

Sales counters are maintained in the following U. S. Geological Survey offices, where maps of the area may be purchased in person: 1200 South Eads Street, Arlington, Va.; Room 1028, General Services Administration Building, 18th & F Streets NW., Washington, D. C.; 1109 North Highland Street, Arlington, Va.; 900 Pine Street, Rolla, Mo.; 345 Middlefield Road, Menlo Park, Calif.; 7638 Federal Building, 300 North Los Angeles Street, Los Angeles, Calif.; 504 Custom House, 555 Battery Street, San Francisco, Calif.; Building 41, Federal Center, Denver, Colo.; 1012 Federal Building, 1961 Stout Street, Denver, Colo.; Room 1-C 45, 1100 Commerce Street, Dallas, Texas; 8102 Federal Building, 125 South State Street, Salt Lake City, Utah; 678 U. S. Court House, West 920 Riverside Avenue, Spokane, Wash.; 108 Skyline Building, 508 Second Avenue, Anchorage, Alaska; 441 Federal Building, 709 West Ninth Street, Juneau, Alaska; and 310 First Avenue, Fairbanks, Alaska.

Commercial dealers sell U. S. Geological Survey maps at their own prices. Names and addresses of dealers are listed in each State index.

★U.S. GOVERNMENT PRINTING OFFICE: 1972—476—696

2 MILES 1 0 .5 1

MILE SCALE 1:24 000

FOOT SCALE 1:62 500

5000 0 5000 10000 15000 20000 25000 FEET

On quadrangle topographic maps the scale ratio always is supplemented by bar scales printed at the bottom. Distances are ruled off in feet, miles, and kilometers on these bar scales, allowing the map user to compare distances directly, even using something so simple as a straight edge of paper or a piece of string. Sample paper bar scales are on the back of the topographic map symbol explanation.

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THE WHAT AND WHY OF QUADRANGLES

In Pennsylvania and most of the other United States, political units such as counties and towns are the most meaningful entities to most citizens. Many political units are irregular in shape, bounded by rivers, mountain crests, or other irregular natural features or by relatively short segments of straight lines surveyed to different points of the compass. In addition, political units vary greatly in size; for example, a small county perhaps might be displayed at 1:24,000 on a sheet of paper of convenient size, but most counties at the same scale would require many such sheets of paper. Only at considerably smaller scales can most counties be displayed on one sheet of convenient size.

With these conditions, it is plain that a consistent series of large-scale maps covering the United States cannot be based on political boundaries. During the latter part of the 19th century a decision therefore was made to map the country by quadrangles, rectangular areas of approximately equal size.

At first, the 15' quadrangle was standard over much of the country. A 15' quadrangle is 15 minutes of latitude (about 17.3 miles) north-south and 15 minutes of longitude (about 13.2 miles at Pittsburgh) east-west. In the vicinity of Pittsburgh, a 15' quadrangle encompasses about 228 square miles. A minute of latitude is the same anywhere on the earth, but minutes of longitude become smaller away from the equator. Most 15' quadrangle topographic maps are at the scale of 1:62,500 and are printed on a sheet of paper 17 inches by 21 inches in size.

During the 1930's and 1940's, however, it was recognized that 1:62,500 maps were too small in scale to show many features in growing urban areas, and accordingly the 7½' quadrangle series was begun. As with the 15' quadrangle series the 7½' label describes the area covered by the map in minutes of latitude north-south and longitude east-west. In Pittsburgh and vicinity a 7½' quadrangle is about 8.65 miles north-south by 6.6 miles east-west for an area of about 57 square miles, one-fourth of the area contained in a 15' quadrangle. By the early 1950's, the scale of 7½' quadrangle maps had been standardized at 1:24,000 and the size of most 7½' quadrangle map sheets was set at 22 inches by 27 inches.

The 7½' quadrangle now is the standard map format used in new mapping over most of the eastern United States and in thickly settled areas of the west. West of the Mississippi many areas though are only sparsely settled, and the 15' quadrangle format at 1:62,500 remains in use for those areas.

All of the six counties of the Greater Pittsburgh region now are mapped in the 7½' quadrangle map series; 116 7½' quadrangles are wholly within or include parts of the six counties. The index map (following page) shows the names of 7½' quadrangles printed diagonally. The names of 15' quadrangle maps also are shown, printed horizontally. Most of the 15' quadrangle topographic maps in Pennsylvania were made before 1940 and so do not reflect many recent changes, such as new highways, expanding suburbs, and altered municipal limits. This largely out-of-date map series now has been superseded officially by 7½' quadrangle maps; 15' quadrangle maps of Pennsylvania no longer are routine sale items available from the U.S. Geological Survey. They are included on the index map and in table 1, however, because photocopies of 15' quadrangle maps in the Geological Survey's archives can be ordered at cost if needed, because many copies of 15' quadrangle topographic maps remain in circulation, and because there are geological reports in print that describe 15' quadrangle areas and contain the names of 15' quadrangles in their titles.

No edition dates are included on the index or in the tables, because the 7½' quadrangle maps are subject to periodic revision. Latest editions available are shown on the frequently updated "Index to topographic mapping in Pennsylvania," which may be had free on application to the U.S. Geological Survey, Washington, D.C. 20244.

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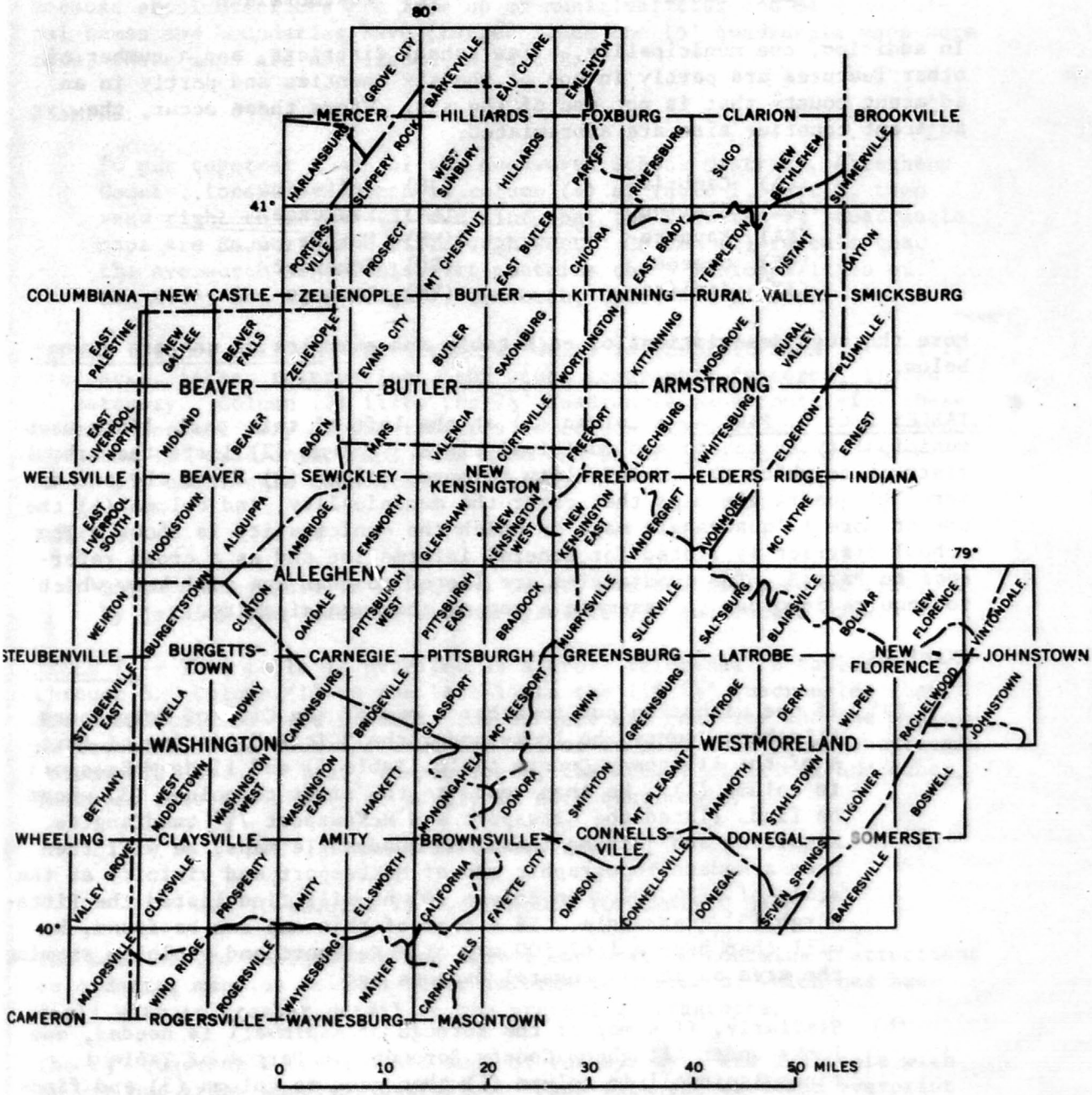
HOW TO USE THE TABLES

Seven tables have been prepared, one for each of the six counties, numbered by alphabetical order, and one for 7½' quadrangles. Each county table is divided into three parts. Part A is keyed to municipalities and may be used to find the school district, 7½' quadrangle map(s), and 15' quadrangle map(s) in which a given municipality lies. Part B is keyed to school districts and reveals the municipalities in a given school district and the 7½' quadrangles needed to make up a map of that school district. Part C deals with selected other features, such as parks, and the 7½' quadrangle maps in which they lie.

Table 7 is keyed to 7½' quadrangle maps and lists municipalities, school districts, and other geographic features that each map includes wholly or in part. Some municipal names are used in more than one county, and the names of most parks, lakes, and other features do not clearly identify the county in which the features lie. Accordingly, county names are included for clarity throughout table 7 and at places in tables 1 to 6.



Index of topographic quadrangle maps of Allegheny, Armstrong, Beaver, Butler, Washington, and Westmoreland Counties, Pennsylvania.

(Diagonal names are 7½-minute quadrangle maps; horizontal names are 15-minute quadrangle maps)

To avoid needless repetition, the names of the six subject counties are abbreviated as follows:

(AL)	Allegheny	(BU)	Butler
(AR)	Armstrong	(WA)	Washington
(BE)	Beaver	(WE)	Westmoreland

In addition, one municipality, a few school districts, and a number of other features are partly in one of the six counties and partly in an adjacent county that is not one of the six. Where these occur, the adjacent counties also are abbreviated:

(CA)	Cambria	(JE)	Jefferson
(CL)	Clarion	(LA)	Lawrence
(FA)	Fayette	(ME)	Mercer
(GR)	Greene	(SO)	Somerset
(IN)	Indiana	(VE)	Venango

More thorough descriptions of each table and examples of use are given below.

TABLES 1 to 6, PART A. -- Column (1) at the left of this part lists each municipality by county and municipal class. Column (2) lists the school district to which the municipality belongs, column (3) lists the one or more 7½' quadrangle maps that cover the municipality, and column (4) the one or more 15'quadrangle maps on which the municipality is shown. The school district is listed for general information and as a cross reference to Part B. The quadrangles are listed so that one will know which to acquire in order to assemble a map of that municipality.

EXAMPLES:

(a) If one wishes to put together a map of the City of McKeesport, Allegheny County, he looks under the "Cities" listing of Part A of the Allegheny County table (Table 1) and finds McKeesport in column (1). He then reads to the right to column (3) where he finds listed the Glassport and McKeesport 7½' quadrangles. Acquiring and joining these two quadrangle maps, he will then have a modern topographic map of McKeesport and vicinity at the scale of 1:24,000. In column (4) he will find listed the Pittsburgh 15' quadrangle. If a copy of this map can be found, he will then have a 1:62,500 map of McKeesport and vicinity showing the area as it was several decades ago.

(b) Similarly, if a map of the Borough of Aspinwall is needed, one looks under Allegheny County Boroughs in Part A of Table 1, finds Aspinwall in column (1) then goes to column (3) and finds that only the Pittsburgh East 7½' quadrangle map is needed to have a 1:24,000 map of Aspinwall. From column (2), one finds that Aspinwall is in the Fox Chapel Area School District.

TABLES 1 to 6, PART B.-- In this part the key unit is the school district, listed by county in column (1) on the left. The school districts that cross county boundaries are so indicated. Column (2) lists the municipalities included in the school district, and column (3) lists the 7½' quadrangle map(s) needed to assemble a map of the school district. Because shool districts are made up of municipalities and many municipal names and boundaries have changed since the 15' quadrangle maps were made, those maps are not listed in Part B.

EXAMPLE:

> To put together a map of the Avonworth School District, Allegheny County, locate Avonworth in column (1) of Table 1, Part B, then read right to column (3) and find that the required 7½' quadrangle maps are Emsworth and Pittsburgh West. Column (2) reveals that the Avonworth School District contains the 5 municipalities of Ben Avon, Ben Avon Heights, Emsworth, Ohio, and Kilbuck.

TABLES 1 to 6, PART C.-- Here the key units in the left-hand column (1) are parks, lakes, reservations, and other geographic features, listed by category. Column (2) lists the 7½' quadrangle maps containing these units. Because many of the features in column (1) were not in existence when the 15' quadrangle maps were made and so are not shown on those maps, 15' quadrangle maps are not listed.

EXAMPLE:

> Boyce County Park in Allegheny County can be displayed at 1:24,000 by joining the Braddock and Murrysville 7½' quadrangle maps.

TABLE 7.-- This table is provided as a cross reference to tables 1 through 6. Column (1) on the left lists the 116 7½' quadrangles that are completely or partly within the subject six counties and the municipalities of those counties that are all or in part in a given quadrangle. Columns (2) and (3) list, respectively, the school districts and other features that are wholly or partly in each quadrangle.

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HOW TO ACQUIRE 7½' QUADRANGLE TOPOGRAPHIC MAPS

The back of the topographic map symbol explanation contains instructions on ordering maps as well as other information, some of which has been dealt with in greater detail in the preceding paragraphs.

The 7½' quadrangle topographic maps of Pennsylvania are available with or without green woodland overprint. Maps with the woodland overprint will be supplied unless the order states specifically "without woodland overprint."

Orders for single copies or small numbers of maps commonly are sent folded in envelopes. If unfolded "flat" maps are desired, this can be specified, and the maps will be sent rolled in a mailing tube.

Many U.S. Geological Survey topographic maps also are stocked and sold over the counter by private dealers at their own prices. Pittsburgh dealers are:

Pen-Oh-Wes Map Co.
511 Magee Building
336 Fourth Avenue

and

J. R. Weldin Co.
413-415 Wood St.