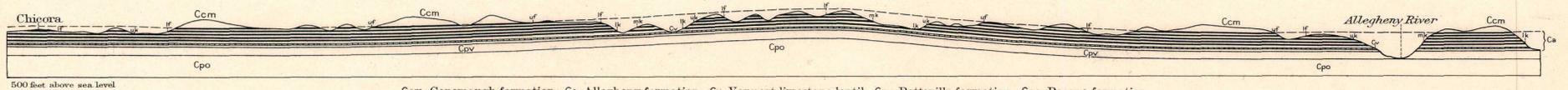


# COLUMNAR SECTION

GENERALIZED SECTION FOR THE KITTANNING QUADRANGLE.  
SCALE: 1 INCH = 100 FEET.

SYSTEM.	SERIES.	FORMATION NAME.	SYMBOL.	COLUMNAR SECTION.	THICKNESS IN FEET.	NAMES OF MEMBERS.	CHARACTER AND DISTRIBUTION OF MEMBERS.	GENERAL CHARACTER OF FORMATIONS.
CARBONIFEROUS	PENNSYLVANIAN	Conemaugh formation.	(Cam)			Ames ("Crinoidal") limestone.	Grayish-green, fossiliferous limestone, 2 feet thick. Hills north of Slate Lick.	Chiefly shale of clayey or sandy composition, with thick coarse sandstones and thin coal seams and limestone.
			Ccm		400+	Red shale.	Hills northeast of Slate Lick.	
			(Csb)			Saltsburg sandstone.	Coarse, thick-bedded sandstone. Excellent quarry rock. Hills in southwest corner of quadrangle.	
						Bakerstown coal.	Thin and worthless. Southwest corner of quadrangle.	
						Red shale.		
				Brush Creek coals.		Brush Creek coals.	Generally thin and worthless, associated with bed of black shale. Underlying limestone rarely found. Occurs in south half of quadrangle.	
				Mahoning sandstone.		(0-50)	Mahoning sandstone.	Often coarse and thick-bedded or massive; sometimes a thin bed of fine-grained flags. Generally present in some form.
				Upper Freeport coal.		(0-20)	Upper Freeport coal.	Generally present and of minable thickness. Thin and poor occasionally. Usually plaster, rarely flint, probably always present under coal.
				Upper Freeport limestone.		(0-20)	Upper Freeport limestone.	Hard blue limestone.
				Lower Freeport coal.		(30-50)	Lower Freeport coal.	Coarse, heavy-bedded sandstone, rarely present. Generally thin. Valuable seam along Glade Run. Thin and rarely present.
		Lower Freeport limestone.			Lower Freeport limestone.	Generally flaggy and coarse, and heavy-bedded near Fosters Mills.		
		Upper Kittanning coal.			Upper Kittanning coal.	Generally thin and worthless; locally thick and valuable.		
		Allegheny formation.	Ca		(0-2)	Middle Kittanning coal.	Not known to be of minable thickness in the quadrangle.	Shale with heavy beds of sandstone, beds of limestone with associated iron ores, and several valuable coal seams and beds of fire clay. Source of all the valuable mineral products of the quadrangle except oil and gas.
	(3-4)			(3-4)	Lower Kittanning coal.	Present throughout quadrangle so far as known. The most valuable coal in the area. Underlain by thick, valuable fire-clay.		
	(0-40)			(0-40)	Kittanning sandstone.	Coarse and heavy bedded.		
	(0-30)			(0-30)	Vanport limestone.	Gray fossiliferous limestone, often cut by Kittanning sandstone. Thin seam of iron ore at top.		
	(Cv)				Clarion sandstone.	Generally thin and of little value. Underlain by valuable fire clay.		
						Brookville coal.	Thin and worthless.	
						Brookville fire clay.		
		Pottsville formation.	Cpv		120-140	Homewood sandstone.	Variable. Often partly replaced by shale; rarely coarse and massive.	Generally heavy-bedded sandstone, often shaly at top and at horizon of Mercer coal.
						Mercer coals?	Thin and worthless.	
						Connoquenessing sandstone.	Coarse, heavy-bedded sandstone with beds of shale. Exposed along Allegheny River and in vicinity of Craigsville.	
		UNCONFORMITY						
	MISSISSIPPIAN	Pocono formation.	Cpo		200+	Pocono formation.	Heavy-bedded gray sandstone, found along the gorge of the Allegheny River and along Red Bank Creek.	Mostly a heavy-bedded sandstone to depth exposed in quadrangle, with small coals, accompanied by shale near top. Underlain by an unknown thickness of shale.

STRUCTURE SECTION ALONG THE LINE A-A ON THE GEOLOGIC MAPS.  
HORIZONTAL SCALE: 1 INCH = 1 MILE. VERTICAL SCALE: 1 INCH = 1500 FEET.



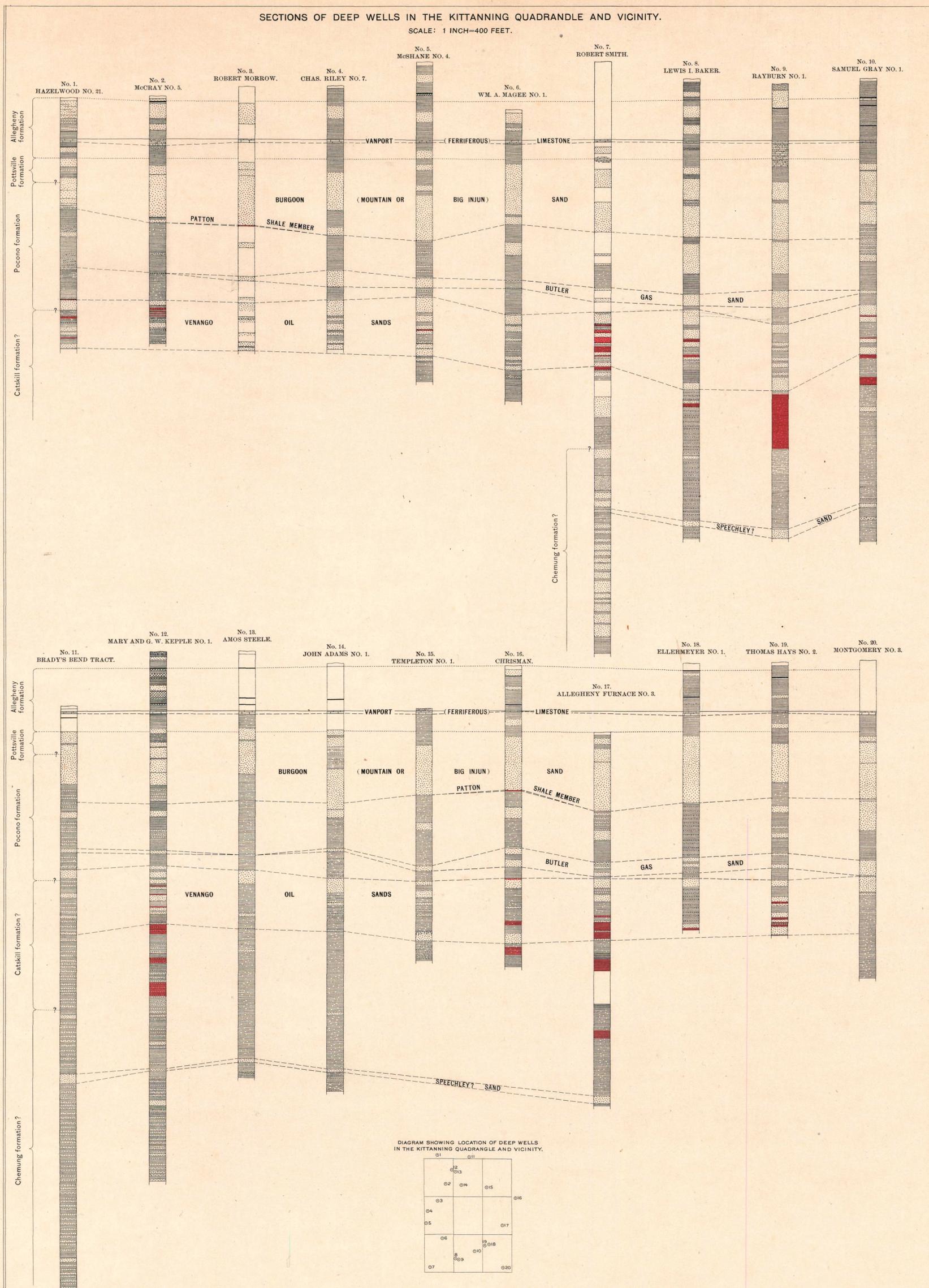
Ccm, Conemaugh formation; Ca, Allegheny formation; Cv, Vanport limestone lentil; Cpv, Pottsville formation; Cpo, Pocono formation.  
uf, Upper Freeport coal; lf, Lower Freeport coal; uk, Upper Kittanning coal; mk, Middle Kittanning coal; lk, Lower Kittanning coal.

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# WELL SECTIONS

SECTIONS OF DEEP WELLS IN THE KITTANNING QUADRANGLE AND VICINITY.

SCALE: 1 INCH=400 FEET.



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# COAL SECTIONS

## SECTIONS OF COAL SEAMS IN KITTANNING QUADRANGLE AND VICINITY.

SCALE: 1 INCH=5 FEET.



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Geologist.

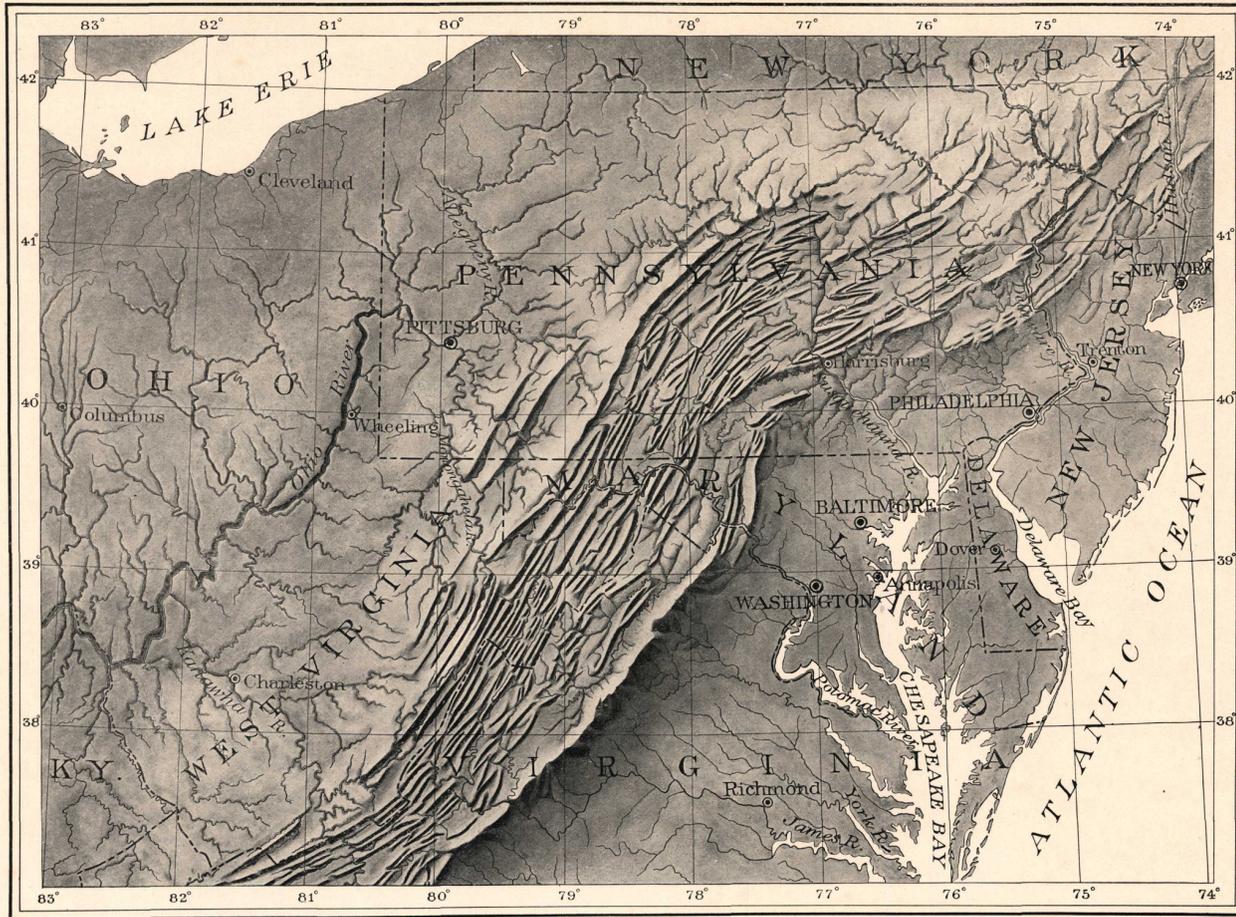


FIG. 10.—RELIEF MAP OF THE NORTHERN APPALACHIAN MOUNTAINS.

The Kittanning quadrangle is situated on the plateau lying west of the belt of valley ridges, in the west-central part of Pennsylvania.

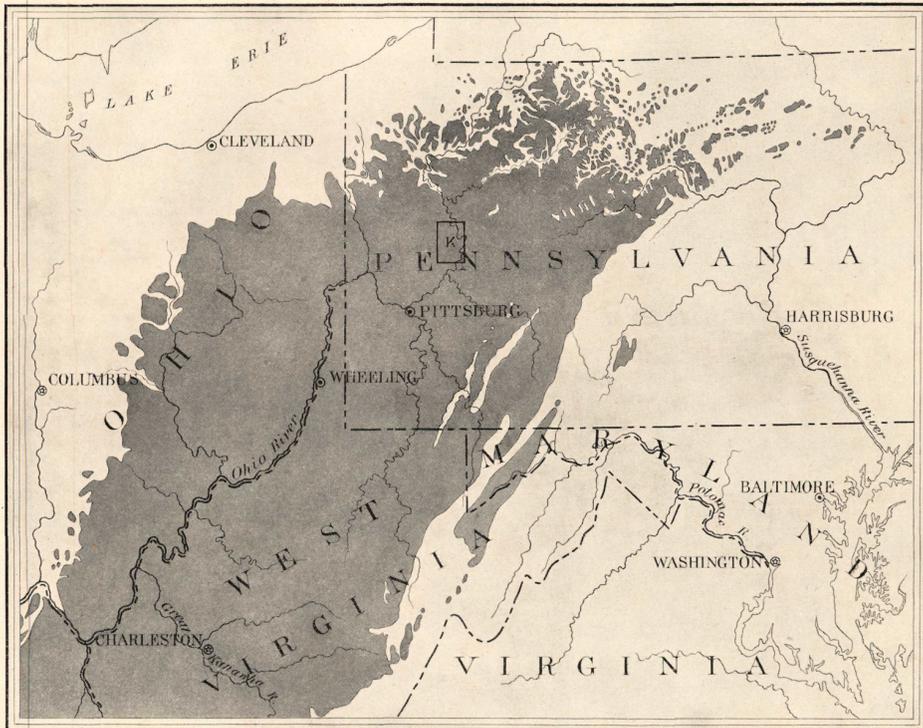


FIG. 11.—MAP SHOWING THE EXTENT OF THE NORTHERN PART OF THE APPALACHIAN COAL FIELD.  
The position of the Kittanning quadrangle within the coal field is shown by the rectangle.

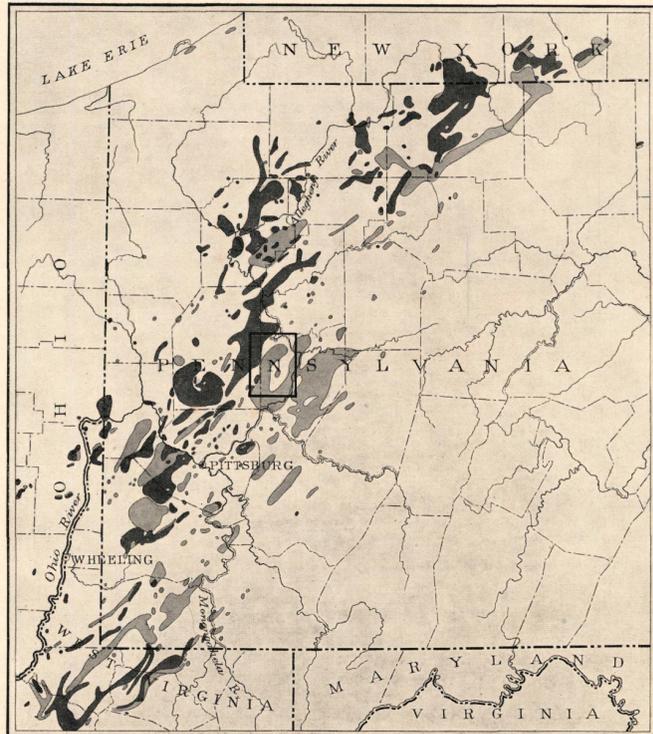


FIG. 12.—MAP OF THE OIL AND GAS PRODUCING AREAS OF THE NORTHERN APPALACHIANS.  
Compiled from map by the Second Geological Survey of Pennsylvania, and from maps by the United States Geological Survey. Dark areas, oil; lighter areas, gas. The location of the Kittanning quadrangle is shown by the rectangle.