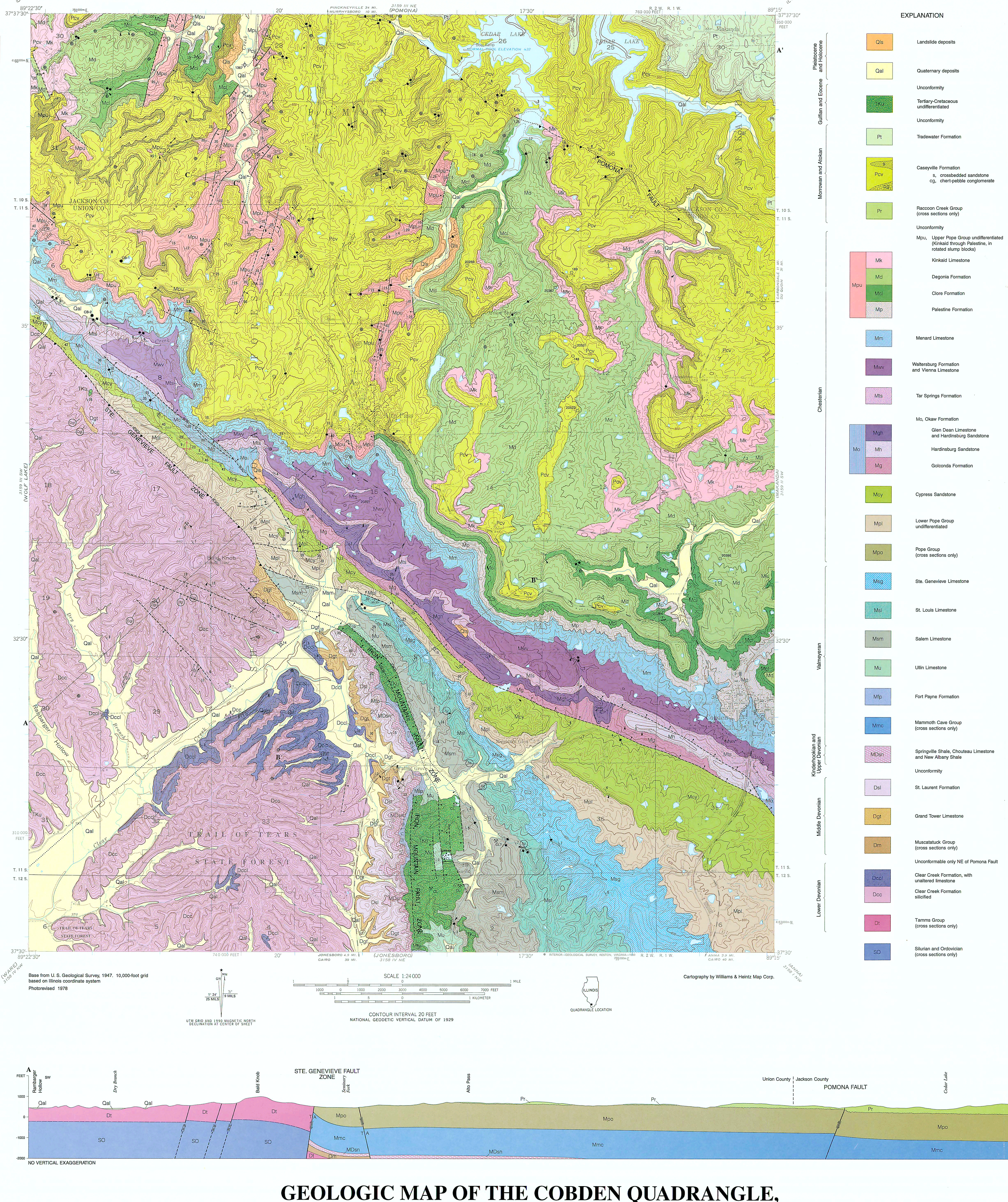


SYSTEM	SERIES	MEMBER AND BED	GRAPHIC COLUMN	THICKNESS (FEET)	DESCRIPTION	DESCRIPTION	
							FORMATION
PENNSYLVANIAN	PENN PENN PENN PENN PENN PENN PENN PENN PENN PENN	undivided	Less, aluminous, lenticular deposits	0-100	A Lenses, aluminous, and lenticular deposits. Lenses is yellowish to brownish gray, with thin silty shales and shaly sandstones, up to 100 feet thick near the Mississippi River bluffs, and thin, silty shales and shaly sandstones, up to 100 feet thick near the Mississippi River bluffs, and thin, silty shales and shaly sandstones, up to 100 feet thick near the Mississippi River bluffs.		
		Wilcox?					
		McNairy?					
		Tridewater					
		Caseyville					
		Grove Church Shale Mbr.					
		Goreville Limestone Member					
		Kirkland Limestone					
		Law Hill Member					
		Hog Creek Limestone Member					
CHESTERIAN	CHE CHE CHE CHE CHE CHE CHE CHE CHE CHE	Degonia Sandstone		30-110	F Limestone and shale. The Grove Church Shale Member is mostly greenish gray to olive gray, soft, calcareous shale that contains lenses and thin interbeds. Red shale occurs at the top. The Degonia Limestone Member is light gray to yellow, coarse crystalline, shaly limestone in the upper part, grading to medium brownish gray, fine grained, argillaceous limestone and sandstone in the lower part. The Grove Church Shale Member is mostly greenish gray to olive gray, soft, calcareous shale that contains lenses and thin interbeds. Red shale occurs at the top. The Degonia Limestone Member is light gray to yellow, coarse crystalline, shaly limestone in the upper part, grading to medium brownish gray, fine grained, argillaceous limestone and sandstone in the lower part.		
		Fort Station Member		50-90	G Limestone and shale. The Fort Station Member contains, at the top, a large, dark gray to black, silty shale with thin, silty sandstone lenses. The Fort Station Member is mostly greenish gray to olive gray, soft, calcareous shale that contains lenses and thin interbeds. Red shale occurs at the top. The Fort Station Member is mostly greenish gray to olive gray, soft, calcareous shale that contains lenses and thin interbeds. Red shale occurs at the top.		
		Clare		30-52	H Limestone and shale. The Clare Limestone Member is mostly greenish gray to olive gray, soft, calcareous shale that contains lenses and thin interbeds. Red shale occurs at the top. The Clare Limestone Member is mostly greenish gray to olive gray, soft, calcareous shale that contains lenses and thin interbeds. Red shale occurs at the top.		
		Palatine		100-120	I Sandstone, siltstone, and shale. Sandstone, the dominant lithology, is white to light gray, very fine to medium grained, and contains lenses and thin interbeds. Siltstone is light gray to yellow, fine to medium grained, and contains lenses and thin interbeds. Shale is light gray to yellow, fine to medium grained, and contains lenses and thin interbeds.		
		Manard Limestone		45-65	J Shale and limestone. The Manard Limestone Member contains, at the top, a large, dark gray to black, silty shale with thin, silty sandstone lenses. The Manard Limestone Member is mostly greenish gray to olive gray, soft, calcareous shale that contains lenses and thin interbeds. Red shale occurs at the top. The Manard Limestone Member is mostly greenish gray to olive gray, soft, calcareous shale that contains lenses and thin interbeds. Red shale occurs at the top.		
		Wallerburg		20-110	K Shale, siltstone, and shale. In most areas, dark gray, fossiliferous clay shale at the base grades upward to medium gray, silty shale and siltstone, which in turn grades to brownish gray, silty shale and siltstone. The Wallerburg Limestone Member is mostly greenish gray to olive gray, soft, calcareous shale that contains lenses and thin interbeds. Red shale occurs at the top. The Wallerburg Limestone Member is mostly greenish gray to olive gray, soft, calcareous shale that contains lenses and thin interbeds. Red shale occurs at the top.		
		Vienna Limestone		70-110	L Shale, siltstone, and shale. In most areas, dark gray, fossiliferous clay shale at the base grades upward to medium gray, silty shale and siltstone, which in turn grades to brownish gray, silty shale and siltstone. The Vienna Limestone Member is mostly greenish gray to olive gray, soft, calcareous shale that contains lenses and thin interbeds. Red shale occurs at the top. The Vienna Limestone Member is mostly greenish gray to olive gray, soft, calcareous shale that contains lenses and thin interbeds. Red shale occurs at the top.		
		Tar Springs		140-270	M Limestone and shale. Limestone, the dominant lithology, is light gray to yellow, coarse crystalline, shaly limestone in the upper part, grading to medium brownish gray, fine grained, argillaceous limestone and sandstone in the lower part. The Tar Springs Limestone Member is mostly greenish gray to olive gray, soft, calcareous shale that contains lenses and thin interbeds. Red shale occurs at the top. The Tar Springs Limestone Member is mostly greenish gray to olive gray, soft, calcareous shale that contains lenses and thin interbeds. Red shale occurs at the top.		
		Glen Dean Limestone		70-120	N Limestone and shale. The Glen Dean Limestone Member is mostly greenish gray to olive gray, soft, calcareous shale that contains lenses and thin interbeds. Red shale occurs at the top. The Glen Dean Limestone Member is mostly greenish gray to olive gray, soft, calcareous shale that contains lenses and thin interbeds. Red shale occurs at the top.		
		Overburg Sandstone		250-300	O Limestone and shale. Limestone, the dominant lithology, is light gray to yellow, coarse crystalline, shaly limestone in the upper part, grading to medium brownish gray, fine grained, argillaceous limestone and sandstone in the lower part. The Overburg Sandstone Member is mostly greenish gray to olive gray, soft, calcareous shale that contains lenses and thin interbeds. Red shale occurs at the top. The Overburg Sandstone Member is mostly greenish gray to olive gray, soft, calcareous shale that contains lenses and thin interbeds. Red shale occurs at the top.		
MISSISSIPPIAN	MISS MISS MISS MISS MISS MISS MISS MISS MISS MISS	Lower Pope Group (unfossiliferous)		250-300	P Sandstone, siltstone, and shale. Sandstone is mostly light gray, fine grained, and contains lenses and thin interbeds. Siltstone is light gray to yellow, fine to medium grained, and contains lenses and thin interbeds. Shale is light gray to yellow, fine to medium grained, and contains lenses and thin interbeds.		
		Cypress		250-300	Q Limestone, minor sandstone, and shale. Limestone is mostly white to light gray, coarse oolitic and shaly limestone in the upper part, grading to medium brownish gray, fine grained, argillaceous limestone and sandstone in the lower part. The Cypress Limestone Member is mostly greenish gray to olive gray, soft, calcareous shale that contains lenses and thin interbeds. Red shale occurs at the top. The Cypress Limestone Member is mostly greenish gray to olive gray, soft, calcareous shale that contains lenses and thin interbeds. Red shale occurs at the top.		
		St. Genevieve Limestone		200-300	R Limestone and shale. The St. Genevieve Limestone Member is mostly greenish gray to olive gray, soft, calcareous shale that contains lenses and thin interbeds. Red shale occurs at the top. The St. Genevieve Limestone Member is mostly greenish gray to olive gray, soft, calcareous shale that contains lenses and thin interbeds. Red shale occurs at the top.		
		St. Louis Limestone		200-250	S Sandstone, siltstone, and shale. Sandstone is mostly light gray, fine grained, and contains lenses and thin interbeds. Siltstone is light gray to yellow, fine to medium grained, and contains lenses and thin interbeds. Shale is light gray to yellow, fine to medium grained, and contains lenses and thin interbeds.		
		Salem Limestone		250-300	T Limestone and shale. The Salem Limestone Member is mostly greenish gray to olive gray, soft, calcareous shale that contains lenses and thin interbeds. Red shale occurs at the top. The Salem Limestone Member is mostly greenish gray to olive gray, soft, calcareous shale that contains lenses and thin interbeds. Red shale occurs at the top.		
		Ulin Limestone		15-60	U Limestone and shale. The Ulin Limestone Member is mostly greenish gray to olive gray, soft, calcareous shale that contains lenses and thin interbeds. Red shale occurs at the top. The Ulin Limestone Member is mostly greenish gray to olive gray, soft, calcareous shale that contains lenses and thin interbeds. Red shale occurs at the top.		
		Fort Payne		30-50	V Ulin Limestone and shale. The Fort Payne Limestone Member is mostly greenish gray to olive gray, soft, calcareous shale that contains lenses and thin interbeds. Red shale occurs at the top. The Fort Payne Limestone Member is mostly greenish gray to olive gray, soft, calcareous shale that contains lenses and thin interbeds. Red shale occurs at the top.		
		Springville Sh.		50-70	W The Springville Shale is greenish gray, poorly laminated silty shale to siltstone. The Springville Shale is greenish gray, poorly laminated silty shale to siltstone. The Springville Shale is greenish gray, poorly laminated silty shale to siltstone. The Springville Shale is greenish gray, poorly laminated silty shale to siltstone.		
		New Albany Sh.		90-100	X The New Albany Shale is dark gray to black, silty, siltstone to shaly siltstone. The New Albany Shale is dark gray to black, silty, siltstone to shaly siltstone. The New Albany Shale is dark gray to black, silty, siltstone to shaly siltstone. The New Albany Shale is dark gray to black, silty, siltstone to shaly siltstone.		
		St. Laurent		40	Y Limestone, dolomite, shale, and siltstone. Carbonate rocks are medium to dark gray and brownish gray, fine to medium grained, and contain lenses and thin interbeds. Siltstone is light gray to yellow, fine to medium grained, and contains lenses and thin interbeds. Shale is light gray to yellow, fine to medium grained, and contains lenses and thin interbeds.		
DEVONIAN	DEV DEV DEV DEV DEV DEV DEV DEV DEV DEV	Clear Creek		300+	Z Limestone and shale. The Clear Creek Limestone Member is mostly greenish gray to olive gray, soft, calcareous shale that contains lenses and thin interbeds. Red shale occurs at the top. The Clear Creek Limestone Member is mostly greenish gray to olive gray, soft, calcareous shale that contains lenses and thin interbeds. Red shale occurs at the top.		
		St. Laurent		90-100	AA Limestone, dolomite, shale, and siltstone. Carbonate rocks are medium to dark gray and brownish gray, fine to medium grained, and contain lenses and thin interbeds. Siltstone is light gray to yellow, fine to medium grained, and contains lenses and thin interbeds. Shale is light gray to yellow, fine to medium grained, and contains lenses and thin interbeds.		
		St. Laurent		90-100	AB Limestone, dolomite, shale, and siltstone. Carbonate rocks are medium to dark gray and brownish gray, fine to medium grained, and contain lenses and thin interbeds. Siltstone is light gray to yellow, fine to medium grained, and contains lenses and thin interbeds. Shale is light gray to yellow, fine to medium grained, and contains lenses and thin interbeds.		
		St. Laurent		90-100	AC Limestone, dolomite, shale, and siltstone. Carbonate rocks are medium to dark gray and brownish gray, fine to medium grained, and contain lenses and thin interbeds. Siltstone is light gray to yellow, fine to medium grained, and contains lenses and thin interbeds. Shale is light gray to yellow, fine to medium grained, and contains lenses and thin interbeds.		
		St. Laurent		90-100	AD Limestone, dolomite, shale, and siltstone. Carbonate rocks are medium to dark gray and brownish gray, fine to medium grained, and contain lenses and thin interbeds. Siltstone is light gray to yellow, fine to medium grained, and contains lenses and thin interbeds. Shale is light gray to yellow, fine to medium grained, and contains lenses and thin interbeds.		
		St. Laurent		90-100	AE Limestone, dolomite, shale, and siltstone. Carbonate rocks are medium to dark gray and brownish gray, fine to medium grained, and contain lenses and thin interbeds. Siltstone is light gray to yellow, fine to medium grained, and contains lenses and thin interbeds. Shale is light gray to yellow, fine to medium grained, and contains lenses and thin interbeds.		
		St. Laurent		90-100	AF Limestone, dolomite, shale, and siltstone. Carbonate rocks are medium to dark gray and brownish gray, fine to medium grained, and contain lenses and thin interbeds. Siltstone is light gray to yellow, fine to medium grained, and contains lenses and thin interbeds. Shale is light gray to yellow, fine to medium grained, and contains lenses and thin interbeds.		
		St. Laurent		90-100	AG Limestone, dolomite, shale, and siltstone. Carbonate rocks are medium to dark gray and brownish gray, fine to medium grained, and contain lenses and thin interbeds. Siltstone is light gray to yellow, fine to medium grained, and contains lenses and thin interbeds. Shale is light gray to yellow, fine to medium grained, and contains lenses and thin interbeds.		
		St. Laurent		90-100	AH Limestone, dolomite, shale, and siltstone. Carbonate rocks are medium to dark gray and brownish gray, fine to medium grained, and contain lenses and thin interbeds. Siltstone is light gray to yellow, fine to medium grained, and contains lenses and thin interbeds. Shale is light gray to yellow, fine to medium grained, and contains lenses and thin interbeds.		
		St. Laurent		90-100	AI Limestone, dolomite, shale, and siltstone. Carbonate rocks are medium to dark gray and brownish gray, fine to medium grained, and contain lenses and thin interbeds. Siltstone is light gray to yellow, fine to medium grained, and contains lenses and thin interbeds. Shale is light gray to yellow, fine to medium grained, and contains lenses and thin interbeds.		



EXPLANATION

LINE SYMBOLS: Dashed where inferred, dotted where concealed.

CONTACT

- Reverse fault: triangle on upthrown side
- Plunging anticline, local
- Line of cross section
- Strike-slip movement

SYMBOLS

- Strike and dip of bedding; number indicates degree of dip
- Horizontal bedding
- Core: centered black on symbol indicates vertical; black on side indicates non-vertical joint and/or direction
- Outcrop of specific rock, shown where contact, map unit, or fault is well exposed at surface
- Arrows indicate paleocurrent direction (indicated by arrowhead)
- North arrow indicates a direction of flow; single pointer indicates directional flow
- Silica mine
- Clay pit or mine
- Large flat beds of Dutch Creek Sandstone; pointer indicates direction of origin
- Acropathetic protuberance Azme Zone
- Vertical fracture with horizontal (strike-slip) slickenside striations
- Silica
- Drill holes from which subsurface data were obtained
- ISSS core test hole
- Oil test hole, with ISSS county number
- Water well, with ISSS county number

STRUCTURAL GEOLOGY

The Cobden Quadrangle lies along the border between the northern flank of the Drank Dome and the southwest margin of the Illinois Basin. The Ste. Genevieve Fault Zone separates Devonian and older rocks on the dome from Mississippian and Pennsylvanian rocks in the basin. The north edge of the Mississippian Embayment (a northward projection of the Gulf Coastal Plain Province) is about 15 miles south of the quadrangle. Cambrian and Precambrian sediments of the embayment originally extended farther north and are preserved in small, scattered, erosional outcrops in the southern part of the Cobden Quadrangle.

The Ste. Genevieve Fault Zone, a major tectonic feature of the southeastern United States, extends more than 120 miles through Missouri and southernmost Illinois. The major fault, sometimes called the Bartlesville Ferry Fault, strikes northwest and juxtaposes the Clear Creek Formation (Lower Devonian) on the east against the Caseyville Formation (Pennsylvanian) on the west. The fault zone is about 10 miles wide and is composed of several parallel faults. The major fault is the Caseyville Fault, which is about 10 miles wide and is composed of several parallel faults. The Caseyville Fault is about 10 miles wide and is composed of several parallel faults. The Caseyville Fault is about 10 miles wide and is composed of several parallel faults.

OIL AND GAS

Oil and gas were reported as an occurrence for the Cobden Quadrangle. All were dry and abandoned, but shows of oil and/or gas were noted for three of the four. The Sunburst No. 1 Reservoir borehole (well 15) in Section 21, T. 11 S., R. 2 W., was drilled in 1930 to a depth of 515 feet in the Ste. Genevieve Limestone. The Sunburst No. 1 Reservoir borehole (well 15) in Section 21, T. 11 S., R. 2 W., was drilled in 1930 to a depth of 515 feet in the Ste. Genevieve Limestone. The Sunburst No. 1 Reservoir borehole (well 15) in Section 21, T. 11 S., R. 2 W., was drilled in 1930 to a depth of 515 feet in the Ste. Genevieve Limestone.

ECONOMIC GEOLOGY

Kolinian clay was formerly mined from open-pit and underground workings in the south-central part of the Cobden Quadrangle. The mines, inactive for many decades, are all collapsed or flooded. Information on the mines and the clay is taken from St. Clair (1920), Parkmeade and Schroyer (1922), and Lamm (1948).

Clay mining near Mountain Glen peaked during World War I when German imports were cut off. The clay, used chiefly for making glass pipes and enameled, occurred as sedimentary deposits in the Paleozoic (a northward projection of the Gulf Coastal Plain Province) is about 15 miles south of the quadrangle. Cambrian and Precambrian sediments of the embayment originally extended farther north and are preserved in small, scattered, erosional outcrops in the southern part of the Cobden Quadrangle.

The Ste. Genevieve Fault Zone, a major tectonic feature of the southeastern United States, extends more than 120 miles through Missouri and southernmost Illinois. The major fault, sometimes called the Bartlesville Ferry Fault, strikes northwest and juxtaposes the Clear Creek Formation (Lower Devonian) on the east against the Caseyville Formation (Pennsylvanian) on the west. The fault zone is about 10 miles wide and is composed of several parallel faults. The major fault is the Caseyville Fault, which is about 10 miles wide and is composed of several parallel faults. The Caseyville Fault is about 10 miles wide and is composed of several parallel faults.

GEOLOGIC MAP OF THE COBDEN QUADRANGLE, JACKSON AND UNION COUNTIES, ILLINOIS
JOSEPH A. DEVERA AND W. JOHN NELSON
1995