SYSTEM	SERIES	GROUP		THICKNESS (IN FEET)	SECTION	LITHOLOGY	LOCATION	HYDROLOGY
Ϋ́	Pleistocene and Recent		Union formation ¹	0-10		Loess and loam, leached and oxidized.	Forms a thin mantle over alluvial deposits and bedrock over much of the area.	Yields practically no water to wells.
QUATERNARY		Necell L	Alluvium	0-90		Sand, gravel, silt, and clay; thinner and finer in the tributaries than in the Green River valley. Gravel consists of chert fragments from Pliocene(?) and Pleistocene gravel.	Borders streams and underlies most flat land along streams. Gravel occurs locally along the Green and Rough Rivers.	May yield as much as 100 gpm(gallons per minute) from sand and gravel along the Green and Rough Rivers. Wells along the Rough River between Taffy and Dundee yield over 10 gpm. Water is hard.
1 -	ine(?) F		Gravel	0-10	0,0000	Chert gravel, with some sand and clay. Locally gravel has been reworked into the alluvium.	Occurs on tops and flanks of hills at elevations of 420 to 500 feet. Occurs on ridge northwest of Morgantown.	Yields enough water for a modern domestic supply (more than 500 gpd) to dug wells. Water is generall soft and low in dissolved solids but may contain objectionable amounts of iron.
TERTIARY(?) AND	Pliocene (and and Pleistoce)	ansboro	nan formation	180±		Shale, sandy shale, and sandstone lenses, thin coal and limestone beds. The Madisonville limestone member occurs near the top of the section in Ohio County.	Crops out in small area in western Ohio County west of Centertown to the Green River and south of Mantanzas to the Green River. This sequence is absent in Butler County.	Yields practically no water except to wells penetrating sandstone. Water may be hard but is suitable fo domestic use.
			Anvil Rock sandstone member Providence Is member No 11 coal			Coarse- to fine-grained crossbedded friable to well-cemented quartz sandstone; grades into shale laterally. Unconformity at base.	Crops out in western and southwestern Ohio County and near Mantanzas, Centertown, Williams, Cool Springs, and Wysox. In most of the eastern part of the outcrop area, the Anvil Rock caps the hills. Underlies younger rocks west of the outcrop area.	Yields enough water for a modern domestic supply except where the sequence is shaly or well cemented. Water near the outcrop area is hard but is increasingly softer downdip. Sodium bicarbonate conter increases downdip. Iron may be present in objectionable amounts.
			dale formation No 9 coal	275.±		Fine- to medium-grained locally shaly quartz sandstone. The No. 11 coal marks the top of the formation.	Crops out in the southwestern quarter of Ohio County at base of hills below Lisman formation. Dips westward and wherever it is present underlies the Lisman formation. Absent in Butler County.	Yields enough water for a modern domestic supply to wells penetrating sandstone. Yields practically r water to wells penetrating only shale. Water is hard.
			Sebree sandstone¹	10 50			Crops out northwest of Morgantown in Butler County. In Ohio County crops out west of Hartford in the valley of the Rough River and midway between Beaver Dam and Mc-Henry southward toward Prentiss and Cromwell. Scattered outcrops occur in northwestern Ohio County north of the Shawneetown-Rough Creek fault zone.	Yields practically no water to wells.
			110 / 6541	20		Crossbedded coarse- to medium-grained friable to well-cemented locally shaly quartz sandstone.	Crops out from Rochester to Morgantown to Eden in Butler County and on the flanks of the Moorman syncline at the base of the formation near Cromwell, Beaver Dam, and Hartford in Ohio County. Scattered outcrops may occur in northwestern Ohio County north of the Shawneetown-Rough Creek fault zone.	Yields enough water for a modern domestic supply to wells penetrating sandstone. Water is hard or ver hard.
s z			Curlew sandstone ²	250 12		Shale, sandy shale, thin limestone and coal beds.	Crops out in Butler County from near Rochester, through Morgantown to Eden, and in Ohio County below and to northeast of the Sebree sandstone.	Yields practically no water to wells.
LVANIA			dewater formation Curlew limestone			Crossbedded coarse- to fine-grained friable to well-cemented locally shaly quartz sandstone.	Crops out in Butler County from the Mud River, south of Rochester through Morgantown and Flener, and in Ohio County from near Flint Springs, to near Beaver Dam, to Hartford and Heflin.	Yields enough water for a modern domestic supply to wells penetrating sandstone. Generally not a goo aquifer in Butler County.
US NNS)			Aberdeen			Shale, sandy shale, thin coal and limestone beds.	Crops out in area between the Aberdeen sandstone below, and the Curlew sandstone above.	Yields practically no water to wells.
AKBONIFEKO PE			Aberdeen coal Elm Lick coal	4		Massive crossbedded coarse- to medium-grained friable to well- cemented quartz sandstone; contains fragments of silicified wood. Shaly in some areas. Unconformity at base.	Crops out at Aberdeen, from Morgantown to Banock in Butler County, north of Baizetown to Horton, Beda, and northwest of Heflin in Ohio County. Unmapped north of Shawneetown-Rough Creek fault zone, but occurs in northwestern part of Ohio County. Underlies all younger rocks to the west.	Yields enough water for a modern domestic supply to wells penetrating sandstone. Some wells produc over 20 gpm. The water is fresh near outcrop areas in both Butler and Ohio Counties but may becom highly mineralized in the deeper part of the Moorman syncline in Ohio County.
5			1A coal				Crops out from the Mud River near Huntsville to the Green River near Woodbury and Banock. Crops out in northeast- ern Ohio County north of the Shawneetown-Rough Creek fault zone and from near Arnold and Rosine to north and west of Rosine.	Generally yields only small quantities of water to wells. May yield enough water for a modern domesti supply to wells penetrating a sufficient thickness of sandstone. Water is fresh near outcrop areas bu becomes increasingly mineralized with depth.
MISSISSIPPIAN	Upper Mississippian	? 1	Caseyville sandstone conglomerations	100-450		Crossbedded conglomeratic medium- to very coarse-grained sand- stone intertonguing with shale laterally. The middle part con- tains several thin coal and limestone beds and more shale than the upper and lower parts. The unconformity at the base locally cuts through 200 feet of the Upper Mississippian. The lower part of the formation is more conglomeratic than the upper part.	Crops out from the Mud River, north of Quality through Woodbury and Reddyville, and into the eastern part of Butler County. Not mapped in Ohio County.	Yields of 60 gpm have been obtained from this sandstone. Will yield enough water for a modern domest supply to most wells penetrating sandstone. At depth, the water becomes salty or may have a hig sodium bicarbonate content. Electric logs indicate that moderately mineralized water may be obtaine locally from this formation at depths of 1200 feet.
			Formations of late Chester age				Crops out from the Mud River west of Quality to the Barren River and along the fault. Crops out in Ohio County east and southeast of Fordsville, along the Shawneetown-Rough Creek fault zone from south of Buford east to Grayson County. Underlies all younger rocks to the west.	Yields only small quantities of water to most wells. May yield fairly large quantities of water to well penetrating solution channels in limestone. Water is fresh near the outcrop areas but becomes salat depth.

of Glenn (1912)

3 as used by Wanless (1939)