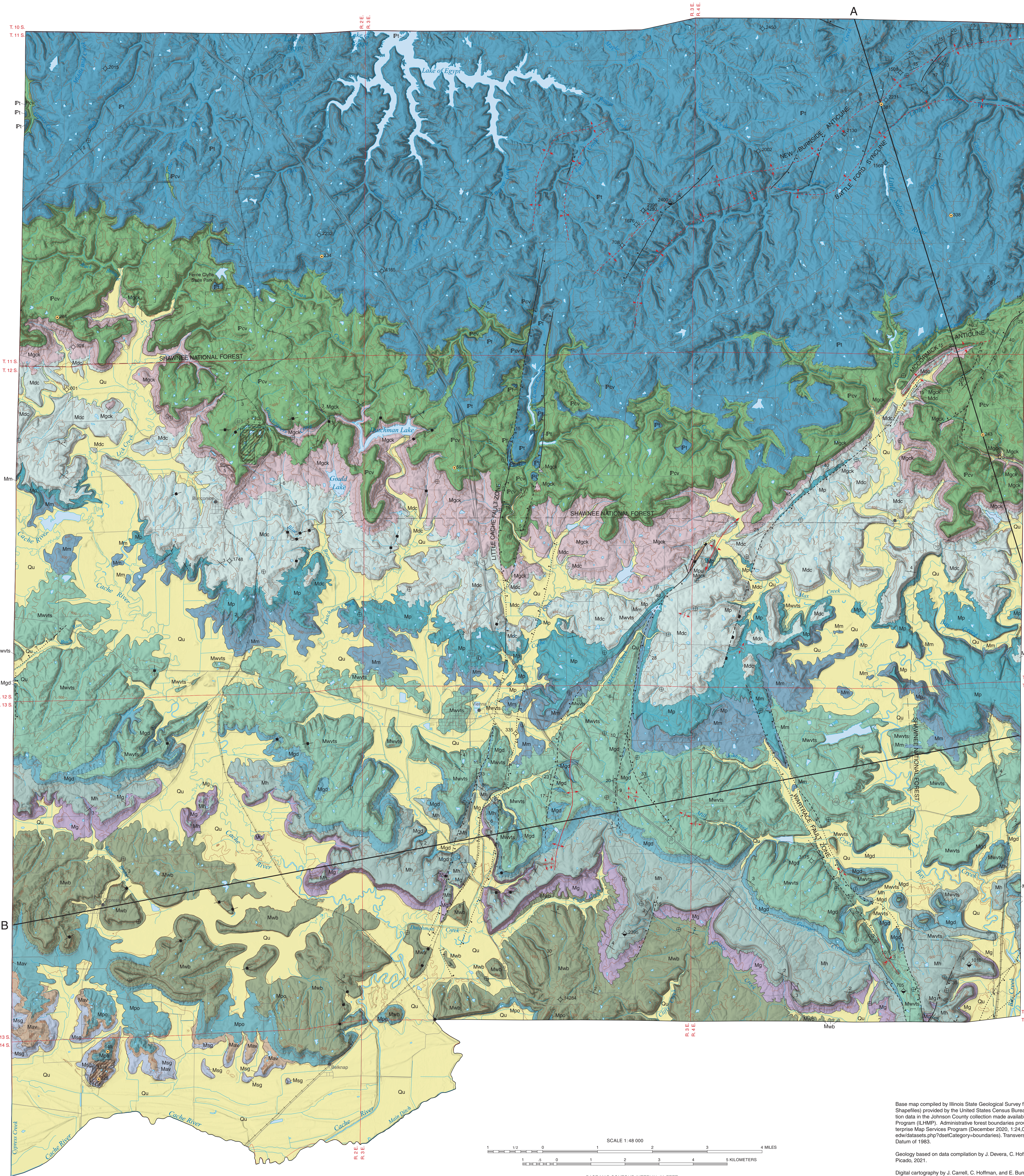


# BEDROCK GEOLOGY OF JOHNSON COUNTY, ILLINOIS

Prairie Research Institute  
 ILLINOIS STATE GEOLOGICAL SURVEY

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 2021

STATEMAP Johnson County-BG



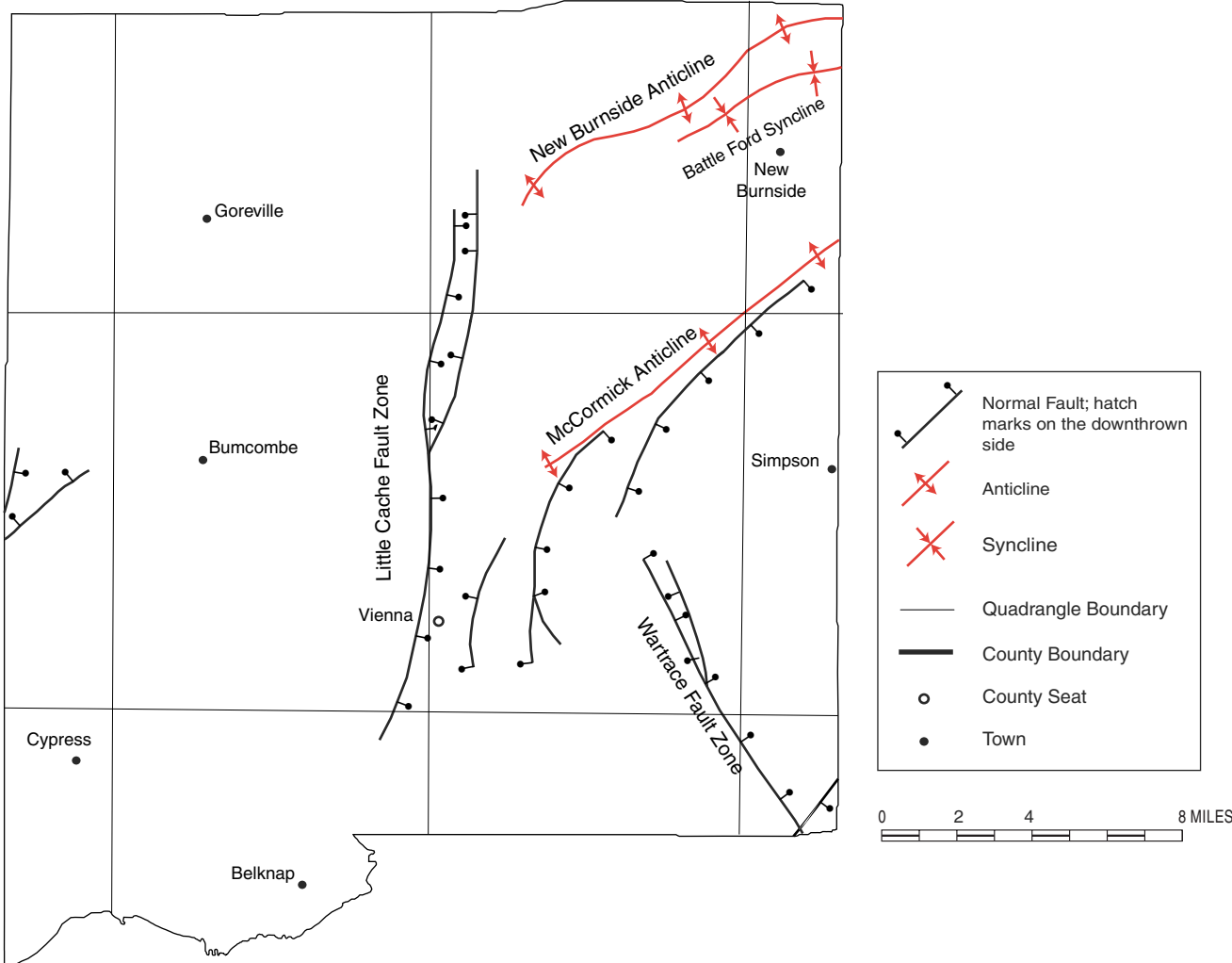
SYSTEM	EXPLANATION	SERIES
Quaternary	Quaternary, undifferentiated	Holocene and Pleistocene
Pennsylvanian Subsystem	Tradewater Formation	Atokan-Desmoinesian
	Caseyville Formation	Morrowan
Carboniferous	Upper Pope Group, undifferentiated in fault zone	
	Grove Church Shale and Kinkaid Limestone, undifferentiated	
	Degonia Sandstone and Clore Formation	
	Paletine Sandstone	
	Menard Limestone	
	Waltersburg Formation, Vienna Limestone, and Tar Springs Formation	
Mississippian Subsystem	Lower Pope Group (divided in cross section)	Chesterian
	Glen Dean Limestone	
	Hardinsburg Sandstone	
	Golconda Formation	
	West Baden Sandstone (Cypress and Raintree Formations; Sample and Bethel Sandstones)	
	Paoli Limestone	
	Aux Vases Sandstone	
	St. Genevieve Limestone	

Line Symbols  
 solid where accurately located, dashed where inferred, dotted where concealed

- Contact, accurately located
- Contact, inferred
- Normal fault; ball and bar on downthrown side
- Normal fault, concealed, questionable
- High angle reverse fault, rectangles on upthrown side
- Syncline
- Anticline
- Anticline, doubly plunging
- Line of cross section

- Symbols
- Horizontal bedding
  - Strike and dip of bedding, number indicates degrees of dip
  - Joints
  - Pit, quarry, or prospect abandoned
  - Surface mined area

- Drill Holes
- labels indicate total depth of boring in feet
- Dry oil test hole
  - Dry hole; show of oil
  - Stratigraphic boring to bedrock



M1 Faults and folds in Johnson County

Base map compiled by Illinois State Geological Survey from digital data (2003 TIGER/Line Shapefiles) provided by the United States Census Bureau. Shaded relief from 2012 Inter elevation data in the Johnson County collection made available by the Illinois Height Modernization Program (IHMP). Administrative town boundaries provided by the U.S. Forest Service Enterprise Map Services Program (December 2020, 1:24,000, <https://data.fs.usda.gov/geodata/edw/datasets.php?dtsc=Category=boundaries>). Transverse Mercator Projection. North American Datum of 1983.

Geology based on data compilation by J. Devera, C. Hoffman, J. Nelson, C. Swiger, and E. Picado, 2021.

Digital cartography by J. Carrell, C. Hoffman, and E. Bunsell, Illinois State Geological Survey.

This geologic map was funded in part by the USGS National Cooperative Geologic Mapping Program under StateMap award number G20AC00371, 2020. This views and conclusions contained in this document are those of the authors and should not be interpreted as necessarily representing the official policies, either expressed or implied, of the U.S. Government.

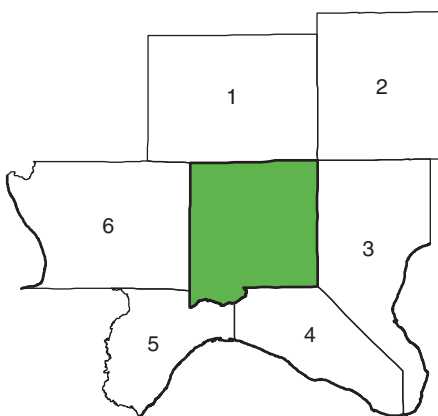
This map has not undergone the formal Illinois Geologic Quadrangle map review process. Whether or when this map will be formally reviewed and published depends on the resources and priorities of the IGSS.

The Illinois State Geological Survey and the University of Illinois make no guarantee, expressed or implied, regarding the correctness of the interpretations presented in this document and accept no liability for the consequences of decisions made by others on the basis of the information presented here. The geologic interpretations are based on data that may vary with respect to the accuracy of geographic location, the type and quantity of data available at each location, and the scientific and technical qualifications of the data sources. Maps or cross sections in this document are not meant to be enlarged.

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ADJACENT  
 COUNTIES

- Williamson
- Saline
- Pope
- Massac
- Putnam
- Union

APPROXIMATE MEAN  
 DECLINATION, 2021

- ROAD CLASSIFICATION
- Interstate Route
  - State Route
  - U.S. Route
  - Local road

SYSTEM	SUBSYSTEM	SERIES	STAGE	GROUP	FORMATION	MEMBER OR BED (units are members unless is specified)	GRAPHIC COLUMN	THICKNESS FT (M)	UNIT	
CARBONIFEROUS	PENNSYLVANIAN	DESMONIAN	ATOKAN	RACCOON CREEK	Tradewater	Vergennes Ss. See Fig. 11 in report		30-60 (9-18)	A	<b>A Vergennes Sandstone</b> is light to medium gray, very fine to medium-grained, micaceous lithic arenite, friable, mostly thick-bedded to massive, lower contact erosive.
						Granger Ss.		20-70 (6-21)	B	<b>B Interval, largely shale and siltstone,</b> medium to dark gray, laminated. Named units in descending order are Carrier Mills Shale Member, Stonefort Limestone Member, Vesie Shale Member, Wise Ridge Coal Bed, Mt. Rosa Coal Bed, Creal Springs Limestone Member, and Murphysboro Coal Member. The Carrier Mills and Vesie are black, hard, thinly fissile, and phosphatic.
						Mitchellville Ls. Bed New Burnside Coal Bed		0-5 (0-1.5) 0-4.5 (0-1.4)	C	<b>C Granger Sandstone</b> sandstone is light to medium gray, weathering yellow to brown, fine to coarse-grained, poorly sorted, and friable. Bedding is mostly thick to massive. Lower contact is erosive.
						Delwood Coal Bed		0-6 (0-1.8)	D	<b>D Interval, largely shale and siltstone,</b> medium to dark gray, laminated. Named units in descending order are Mitchellville Limestone, New Burnside Coal, Delwood Coal, and Oldtown Coal, all ranked as beds.
						Oldtown Coal Bed		0-3.5 (0-1.1)	E	<b>E Murray Bluff Sandstone</b> sandstone is light to medium gray, weathering brown, iron-rich, well indurated, slightly micaceous lithic arenite to sublitharenite. Grain size is fine to coarse; quartz granules are rare. Bedding is mostly thick to massive. Lower contact erosive.
						Murray Bluff Ss.		10-115 (3-35)	F	<b>F Interval, shale, siltstone, and sandstone</b> in variable proportions. Shale and siltstone are medium to dark gray, laminated, and commonly contain abundant trace fossils. Sandstone is light gray, very fine to medium-grained, slightly micaceous sublitharenite with thin to thick bedding.
						Grindstaff Ss.		0-90 (0-27)	G	<b>G Grindstaff Sandstone</b> sandstone is white to light gray, weathering light yellow to brown, fine to medium-grained, with rare quartz granules. Sandstone is well sorted and dominantly quartz arenite, quartz arenite. Bedding is mostly thick to massive. Lower contact erosive.
						Bell Coal Bed		0-2.3 (0-0.7)	H	<b>H Basal Tradewater</b> largely shale and siltstone, medium to dark gray, laminated, also sandstone that is light gray, very fine to medium-grained, dominantly quartz, thin to thick-bedded. The Bell and Reynoldsburg Coal Beds are locally present.
						Reynoldsburg Coal Bed		0-3.5 (0-1.1)	I	<b>I Pounds Sandstone</b> sandstone is white to light gray, weathering yellowish gray to light grayish brown, fine to coarse-grained with common quartz pebbles, bedding mostly thick to massive, crossbedding prominent. Lower contact erosive.
						Pounds Ss.		0-100 (0-30)	J	<b>J Unnamed member,</b> largely shale and siltstone, medium to dark gray, laminated, also sandstone that is light gray, very fine to medium-grained quartz arenite, quartz pebbles common, thin to thick-bedded. Gentry Coal Bed locally present near base.
	MORROWAN				Caseyville	unnamed		20-120 (6-36)	K	<b>K Battery Rock Sandstone</b> sandstone is white to light gray, weathering yellowish gray to light grayish brown, fine to coarse-grained with abundant quartz pebbles, bedding mostly thick to massive, crossbedding prominent. Lower contact erosive.
						Battery Rock Ss.		0-140 (0-43)	L	<b>L Wayside Member</b> shale, siltstone, sandstone, local conglomerate. Lithologies commonly interturbidated or thinly interbedded, trace fossils and local casts common. Conglomerate contains quartz pebbles and near base of unit, pebbles and cobbles of limestone, chert, ironstone, and other rock types. Lower contact a regional unconformity.
						Wayside		25-145 (8-44)	M	<b>M Grove Church Shale</b> shale, claystone, and limestone. Shale is mostly dark gray, fissile, silt-fine, and partly calcareous. Claystone is mottled and variegated red, green, and gray and has blocky structure. Limestone is wackestone and packstone with diverse marine invertebrates. Duxbury Limestone Member at top is light to medium gray, mostly crinoid wackestone and packstone, cherty and argillaceous, contains brachiopods and bryozoans. Lower contact is sharp.
						Grove Church		15 (4.5)	N	<b>N Goreville Member,</b> limestone is light to medium gray and brownish gray and is dominantly wackestone and packstone with crinoids, bryozoans, foraminifera, brachiopods, mollusks, ostracods, trilobites, and rugose corals. Oolitic and crinoid graptolite occurs in upper part. Unusually large specimens of <i>Archimedes</i> are characteristic. Both contacts are sharp.
						Goreville Ls.		37-50 (11-15)	O	<b>O Cave Hill Member</b> at the top is red and green, blocky claystone 13 to 18 feet (4.0 to 5.6 m) thick. At the base is gray to greenish gray, silty, fossiliferous shale 12 to 16 feet (3.7 to 4.9 m) thick. The remainder of the limestone of variable texture, but dominantly lime mudstone that is partly dolomitic and cherty and contains thin layers of shale. Both contacts are sharp.
						Cave Hill		79-92 (21-28)	P	<b>P Negil Creek Limestone Member</b> limestone is medium to dark gray, generally a transition from lime mudstone and wackestone in the lower part to packstone or grainstone near the top. Bedding is very chert nodules common in the lower part. Gastropods, brachiopods, bryozoans, corals, algal onoids, and sponges are common. Both contacts are sharp to rapidly gradational.
						Negil Creek Ls.		25-32 (8-10)	Q	<b>Q Degonia Sandstone</b> at the top is mottled and variegated claystone 10 to 15 feet (3 to 4.5 m) thick. Remainder is gray, brown, and olive silty shale, siltstone, and very fine sandstone. These rocks exhibit planar and ripple lamination, burrows, roots, and plant fragments. Both contacts are sharp to rapidly gradational.
						Degonia		35-45 (11-26)	R	<b>R Ford Sandstone</b> Member interbedded limestone and shale. Massive limestone 5 to 16 feet (1.5 to 4.9 m) thick occurs widely at the base. Limestone is light to dark gray lime mudstone and wackestone with crinoid fragments and brachiopods. Shale is dark gray and greenish gray, clayey to silty, calcareous, and fossiliferous. Contacts are sharp to rapidly gradational.
	ELVIRAN				Palestine	Ford Station		25-55 (8-17)	S	<b>S Tygett Sandstone</b> Member comprises one to three intervals of sandstone separated by limestone and shale. Sandstone generally caps upward-coarsening sequences of shale and

