



DESCRIPTION OF LITHOFACIES

(Lithofacies boundary queried where inferred. Lateral gradations, which may take place over a distance of several miles, are shown as zigzag cutoffs)

COMPOSITION (IN PERCENT)	TEXTURE	BEDDING	FOSSILS
<b>A</b> THIN-BEDDED FOSSILIFEROUS LIMESTONE AND SHALE. Limestone (70-80) Shale, calcitic (15-25) Siltstone, calcitic (5)	Fossil fragmental; fine- to medium-grained matrix Silty to clayey Fine to coarse silt	Thin beds (1-4 in.); in part discontinuous, in part laterally continuous, variable in thickness Crude laminae in sets 1-6 in. thick and as partings Smooth-surfaced thin beds (1-3 in.), laterally continuous and uniform in thickness	Abundant brachiopods and bryozoans Sparse to common brachiopods Sparse brachiopods
<b>B</b> EVEN-BEDDED FOSSILIFEROUS LIMESTONE AND SHALE. Limestone (40-65) Shale, calcitic (30-55); commonly decreasing upward Siltstone, calcitic (5-10)	Fossil fragmental; very fine to coarse-grained matrix Silty to clayey Fine silt	Thin to medium beds (1-10 in.), laterally continuous and uniform in thickness Crude laminae in sets 1-6 in. thick and as partings Smooth-surfaced thin to thick beds (1-6 in.), laterally discontinuous and variable in thickness	Abundant brachiopods and bryozoans Sparse brachiopods and bryozoans Sparse brachiopods
<b>C</b> EVEN-BEDDED FOSSILIFEROUS SHALE AND LIMESTONE. Limestone (40-60) Shale, calcitic (40-60); commonly increasing upward	Fossil fragmental; matrix chiefly very fine grained, but ranging from micrograined to coarse grained; in part muddy Clayey to silty	Thin beds (1-4 in.), mostly laterally continuous, in part discontinuous, variable in thickness; in part nodular; also as lenses and partings in shale Crude laminae in sets 1-24 in. thick	Common to very abundant. Chiefly brachiopods, bryozoans, and corals Sparse to common brachiopods and bryozoans
<b>D</b> NODULAR-BEDDED FOSSILIFEROUS LIMESTONE AND SHALE. Limestone (40-90) Shale, calcitic (10-60)	Fossil fragmental; micrograined to fine-grained, muddy matrix. Coarse-grained calcarenite minor but locally conspicuous Clayey to silty	Obscure thin beds (1-4 in.) made up of closely packed nodular lenses grading to irregularly wavy thin lenses; in part laterally discontinuous and variable in thickness. Coarse-grained limestone commonly in beds 6-18 in. thick, in part crossbedded, in sets 1-3 ft. thick Partly in crude laminae in thin lenses (1-4 in. thick); partly intermixed and intergrading with limestone	Abundant brachiopods and bryozoans
<b>E</b> CALCARENITE. Limestone (100)	Medium to very coarse grained	Crossbeds in thin sets (1-4 in. thick)	Sparse brachiopods
<b>F</b> MICROGRAINED LIMESTONE. Limestone (60-90) Shale, calcitic (10-40)	Cryptograined to medium grained, but chiefly micrograined Clayey to silty	Thin beds (1-4 in.), planar to wavy, laterally continuous and uniform to slightly variable in thickness Crude laminae in thin sets 1-2 in. thick and as partings	Sparse to abundant ostracodes. Brachiopods, gastropods, and scolithoid markings locally common
<b>G</b> CALCITIC TO DOLOMITIC MUDSTONE. Calcitic to dolomitic mudstone grading to muddy dolomite and to muddy dolomitic limestone	Micrograined	Obscure laminae and very thin beds (less than 1 in.) laterally continuous and uniform in thickness, in sets a few inches to a few feet thick	Absent to very sparse, chiefly bryozoans
<b>H</b> DOLOMITIC MUDSTONE AND DOLOMITE. Dolomitic mudstone grading to muddy dolomite (75-90) Dolomite grading to dolomitic limestone (10-25)	Micrograined Very fine to medium grained	Obscure laminae, in part crude, and very thin beds (less than 1 in.), laterally continuous and uniform in thickness, in sets a few inches to a few feet thick Thin to medium beds (1-8 in.), laterally continuous and fairly uniform, irregularly interstratified in unit as single beds and grouped in sets as much as 4 feet thick	Generally absent, sparse bryozoans Bryozoans, sparse to abundant; brachiopods generally sparse
<b>I</b> DOLOMITE AND CALCITIC DOLOMITE. Dolomite interbedded and intergrading with calcitic dolomite and minor limestone (80-100) Dolomitic to calcitic mudstone (0-20)	Micrograined to medium grained Clayey to silty	Obscure laminae, in part crude, and very thin beds (less than 1 in.), laterally continuous and uniform in thickness, in sets a few inches to a few feet thick Obscure laminae and very thin beds (less than 1 in.), laterally continuous and uniform in thickness, in sets a few inches to a few feet thick	Generally absent; sparse brachiopods, bryozoans
<b>J</b> DOLOMITIC LIMESTONE AND MUDSTONE. Limestone (50-75) Mudstone (25-50)	Micrograined Silty	Medium beds (4-18 in.) Obscure laminae in thin sets (1-4 in.)	Common to abundant ostracodes. Gastropods, brachiopods, and bryozoans, sparse to locally abundant Sparse bryozoans

These diagrams show relations of lithofacies to stratigraphic names used on geologic quadrangle maps for part of the Ordovician section in Kentucky. The diagrams are based on data from studies of key exposures and on geologic mapping at a scale of 1:24,000 by the U.S. Geological Survey in cooperation with the Kentucky Geological Survey.

The top of the Ordovician section diagrammed is the top of exposure. The Ordovician strata mostly are paraconformably or unconformably overlain by strata of Silurian age. In the southern part of the state, they commonly are unconformably overlain by strata of Devonian age. The base of the section is drawn to exclude the Kope and Clays Ferry Formations and the Garrard Silurian. Earlier workers assigned the diagrammed strata to the Maysville and Richmond Groups (Palquist and Hall, 1961).

The Upper Ordovician strata are divided into 10 lithofacies described in the accompanying table. Lithofacies D is characterized by nodular beds of fossiliferous limestone. Lithofacies E, characterized by medium to very coarse grained limestone, and lithofacies F, characterized by micrograined limestone, locally make up parts of lithofacies A-D and are shown only where they form persistent discrete units. Lithofacies G, H, I, and J are characterized by dolomitic rocks.

The stratigraphic nomenclature is drawn from the 1:24,000-scale geologic maps with only minor changes. For example, the northern cutoffs of the Leipers Limestone and Cumberland Formation were previously unspecified. The boundaries of formations and members generally match boundaries of lithofacies, but owing primarily to differences in exposure, the grouping of lithofacies into formal stratigraphic units differs locally. The stratigraphic nomenclature for most of the strata diagrammed is discussed by Weir and others (1965), by Peck (1966), and by Weir and Cressman (1978).

REFERENCES CITED

Palquist, W. N., Jr., and Hall, F. R., 1961, Reconnaissance of ground-water resources in the Blue Grass region, Kentucky: U.S. Geol. Survey Water-supply Paper 1533, 39 p.

Peck, J. H., 1966, Upper Ordovician formations in the Maysville area, Kentucky: U.S. Geol. Survey Bull. 1244-B, 30 p.

Weir, G. W., and Cressman, E. R., 1978, Geologic names of Ordovician rock-stratigraphic units exposed in Kentucky: U.S. Geol. Survey Open-File Report 78-796, 254 p.

Weir, G. W., Greene, R. C., and Simmons, G. C., 1965, Calloway Creek Limestone and Ashlock and Drakes Formations (Upper Ordovician) in south-central Kentucky: U.S. Geol. Survey Bull. 1224-D, 36 p.

EXPLANATION

- Boundary of formation
- Boundary of member or bed
- ~ Erosion surface

LITHOFACIES AND STRATIGRAPHIC NOMENCLATURE OF PART OF THE UPPER ORDOVICIAN SECTION OF KENTUCKY

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1979

