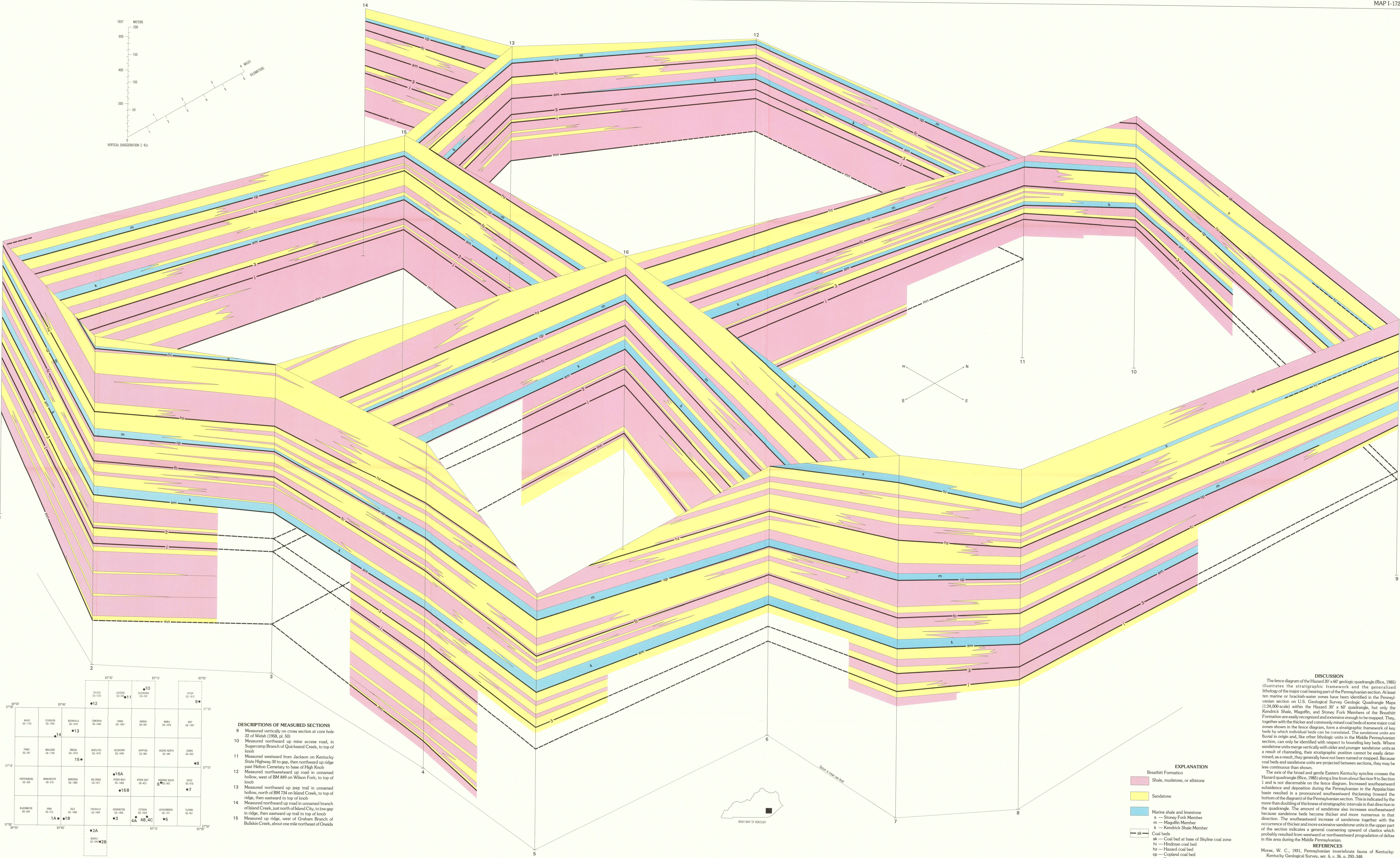


Note: Areas showing no lithologic pattern represent largely ellstone, shale, and minor sandstone; symbols for marine fossils shown at positions of most common occurrence in the lithologic column.

LOCATION OF SECTIONS				
Identification number	Data source	Quadrangle	Location	Elevation of top of section in feet
1A	Drill Hole	Hima	Lat. 37°02'30" Long. 83°46'20"	1068
1B	Drill Hole	Ogle	Lat. 37°02'00" Long. 83°44'30"	1656
2A	Drill Hole	Beverly	Lat. 37°09'45" Long. 83°35'40"	1977
2B	Drill Hole	Beverly	Lat. 37°08'00" Long. 83°32'00"	1090
3	Drill Hole	Hokkinson	Lat. 37°01'35" Long. 83°28'10"	1842
4A	Drill Hole	Cutahin	Lat. 37°01'25" Long. 83°21'20"	1016
4B	Drill Hole	Cutahin	Lat. 37°02'10" Long. 83°17'30"	1940
4C	Drill Hole	Cutahin	Lat. 37°01'50" Long. 83°17'55"	1468
5	Drill Hole	Leathewood	Lat. 37°02'30" Long. 83°12'30"	1525
6	Drill Hole	Hazard	Lat. 37°11'30" Long. 83°11'30"	1444
7	Drill Hole	South Vicco	Lat. 37°09'30" Long. 83°03'15"	2170
8	Measured section and drill hole	Carrie	Lat. 37°15'20" Long. 83°01'55"	2030
9	Measured section	Tiptop	Lat. 37°13'16" Long. 83°00'56"	1530
10	Measured section	Quickland	Lat. 37°35'47" Long. 83°19'00"	1500
11	Measured section	Jackson	Lat. 37°33'10" Long. 83°24'10"	1200
12	Measured section	Taliga	Lat. 37°30'25" Long. 83°36'43"	1310
13	Measured section	Boonerville	Lat. 37°22'10" Long. 83°41'50"	1430
14	Measured section	Struggen and Mauldin	Lat. 37°22'45" Long. 83°45'50"	1455
15	Measured section	Oneida	Lat. 37°17'10" Long. 83°38'00"	1500
16A	Drill Hole	Hyden West	Lat. 37°12'15" Long. 83°28'45"	1422
16B	Drill Hole	Hyden West	Lat. 37°08'40" Long. 83°27'45"	1640

Sections composed of two or more drill holes are located in the fence diagram at intermediate positions.

Index map of Hazard 30' x 60' quadrangle showing 7.5-minute quadrangles and data point locations. Quadrangles outside Hazard quadrangle are shown by dashed lines.



DESCRIPTIONS OF MEASURED SECTIONS

- Measured vertically on cross section at core hole 32 of Walsh (1958, pl. 50)
- Measured northward up mine access road, in Sugarcamp Branch of Quicksand Creek, to top of knob
- Measured westward from Jackson on Kentucky State Highway 30 to gap, then northward up ridge past Helton Cemetery to base of High Knob
- Measured northward up road in unnamed hollow, west of BM 869 on Wilson Fork, to top of knob
- Measured northward up steep trail in unnamed hollow, north of BM 734 on Island Creek, to top of ridge, then eastward to top of knob
- Measured northward up road in unnamed branch of Island Creek, just north of Island City, to low gap in ridge, then eastward up trail to top of knob
- Measured up ridge, west of Graham Branch of Bullskin Creek, about one mile northeast of Oneida

REFERENCES

- Morse, W. C., 1931, Pennsylvanian invertebrate fauna of Kentucky: Kentucky Geological Survey, ser. 4, v. 36, p. 293-308.
Kentucky Geological Survey, 1985, map of the Hazard 30' x 60' quadrangle, eastern Kentucky: U.S. Geological Survey Miscellaneous Investigation Series Map I-1727-A, scale 1:100,000.
Rice, C. L., 1985, Geologic map of the Hazard 30' x 60' quadrangle, eastern Kentucky: U.S. Geological Survey Miscellaneous Investigation Series Map I-1727-A, scale 1:100,000.
Walsh, S. W., 1958, Geology and coal resources of the Tiptop quadrangle, Kentucky: U.S. Geological Survey Bulletin 1042-P, p. 585-612.

DISCUSSION

The fence diagram of the Hazard 30' x 60' geologic quadrangle (Rice, 1985) illustrates the stratigraphic framework and the generalized lithology of the major coal-bearing part of the Pennsylvanian section. At least ten marine or brackish-water zones have been identified in the Pennsylvanian section on U.S. Geological Survey Geologic Quadrangle Maps (1:250,000 scale) within the Hazard 30' x 60' quadrangle, but only the Kendrick Shale, Magoffin, and Stoney Fork Members of the Breathitt Formation are easily recognized and extensive enough to be mapped. They, together with the thicker and commonly mined coal beds of some major coal zones shown in the fence diagram, form a stratigraphic framework of key beds by which individual beds can be correlated. The sandstone units are fluvial in origin and, like other lithologic units in the Middle Pennsylvanian section, can only be identified with respect to bounding key beds. Where sandstone units merge vertically with older and younger sandstone units as a result of channeling, their stratigraphic position cannot be easily determined; as a result, they generally have not been named or mapped. Because coal beds and sandstone units are projected between sections, they may be less continuous than shown.

The axis of the broad and gentle Eastern Kentucky syncline crosses the Hazard quadrangle (Rice, 1985) along a line from about Section 9 to Section 1 and is not discernable on the fence diagram. Increased southeastward subsidence and deposition during the Pennsylvanian in the Appalachian basin resulted in a pronounced southeastward thickening toward the bottom of the diagram of the Pennsylvanian section. This is indicated by the more-than-doubling of thickness of stratigraphic intervals in that direction in the quadrangle. The amount of sandstone also increases southeastward because sandstone beds become thicker and more numerous in that direction. The southeastward increase of sandstone together with the occurrence of thicker and more extensive sandstone units in the upper part of the section indicates a general coarsening upward of clastics which probably resulted from westward or northward progradation of deltas in this area during the Middle Pennsylvanian.

GENERALIZED FENCE DIAGRAM SHOWING PRINCIPAL COAL AND KEY MARINE BEDS OF PENNSYLVANIAN AGE IN THE HAZARD 30' x 60' QUADRANGLE, EASTERN KENTUCKY

By
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1986