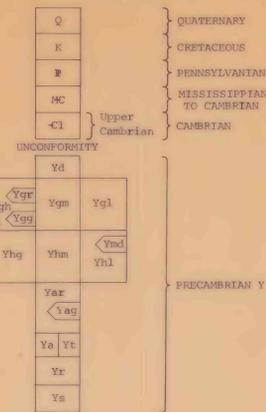


CORRELATION OF MAP UNITS



SOURCES OF MAPPING  
Paleozoic and younger rocks: McCracken, M. H., comp., 1961, Geologic map of Missouri: Missouri Division Geological Survey and Water Resources, scale 1:500,000.  
Precambrian rocks: Pratt, W. P., and others, 1978, unpublished mapping, scale 1:125,000.  
Structure: Heyl, A. V., Brock, M. R., Jolly, J. L., and Wells, C. E., 1965, Regional structure of the Southeast Missouri and Illinois-Kentucky mineral districts: U.S. Geological Survey Bulletin 1202-B, Plate 1, scale 1:250,000.

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Malkames, J. A., and Hood, W. C., 1976, Petrology of the Mudlick Dellenite, St. Francois Mountains, Missouri, in Kisvarsanyi, E. B., ed., Studies in Precambrian geology: Missouri Department of Natural Resources, Geological Survey, Report of Investigations 61, p. 132-139.  
McQueen, H. S., 1943, Fire clay districts of central Missouri: Missouri Geological Survey and Water Resources, 2d ser., v. 28, p. 1-244.  
Rittman, A., 1952, Nomenclature of volcanic rocks: Bulletin volcanologique, Ser. II, tome XII, p. 75-102.  
Sides, J. R., 1976, Stratigraphy of volcanic rocks in the Lake Killarney quadrangle, Iron and Madison Counties, Missouri, in Kisvarsanyi, E. B., ed., Studies in Precambrian geology: Missouri Department of Natural Resources, Geological Survey, Report of Investigations 61, p. 105-113.

DESCRIPTION OF MAP UNITS

Q ALLUVIUM (QUATERNARY)  
K GULFIAN SERIES (CRETACEOUS)--Clay and sand  
E CHELLENHAM FORMATION (McQUEEN, 1943) (PENNSYLVANIAN)  
--Shale and sandstone, limestone, and coal beds  
MC MISSISSIPPIAN TO CAMBRIAN ROCKS--Limestone, dolomite, shale, and sandstone  
-C1 LAMOTTE SANDSTONE (UPPER CAMBRIAN)--Sandstone with some dolomite and shaly lenses; coarse-grained to conglomeric and arkosic at base

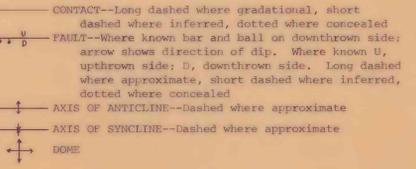
INTRUSIVE ROCKS

Yd DIABASE AND GABBRO (PRECAMBRIAN Y)  
Ygh GRANITIC ROCKS (PRECAMBRIAN Y)  
--High-silica granites--Contains 74-78 percent SiO<sub>2</sub>; Butler Hill type (Hayes, 1961)  
Ygr Graniteville Granite (Graves, 1938)  
Ygg Granophyric high-silica granites--Breadtray type (Hayes, 1961)  
Ygm Medium-silica granites--Contains 70-73 percent SiO<sub>2</sub>; Slabtown type (Hayes, 1961)  
Ygl Low-silica granites--Contains 66-70 percent SiO<sub>2</sub>; silvermine type (Graves, 1938)  
HYPERBYSSAL ROCKS (PRECAMBRIAN Y)  
Yhg Fine-grained equivalent of granophyric high-silica granites  
Yhm Fine-grained equivalent of medium-silica granites  
Yhl Fine-grained equivalent of low-silica granites  
Ymd Mudlick Dellenite (Malkames and Hood, 1976)

VOLCANIC ROCKS

Yar ALKALI-RHYOLITE<sup>1</sup> TUFFS AND FLOWS (PRECAMBRIAN Y)  
--Characterized by predominant phenocrysts of incompletely albitized potassium feldspar, with or without quartz; includes some water-laid tuffs  
Yag GRASSY MOUNTAIN IGNEBRITE (SIDES, 1976) AND VERY SIMILAR ALKALI-RHYOLITES (PRECAMBRIAN Y)--  
Characterized by abundant phenocrysts of quartz and salmon-colored alkali feldspar in a dense, aphanitic, dark groundmass  
Ya ANDESITE AND BASALT (PRECAMBRIAN Y)  
Yt TRACHYTE (PRECAMBRIAN Y)  
Yr RHYOLITE<sup>1</sup> TUFFS AND FLOWS (PRECAMBRIAN Y)--  
Characterized by phenocrysts of both incompletely albitized potassium feldspar and cleanly twinned albite, with or without quartz  
Ys SODA-RHYOLITE AND QUARTZ LATITE<sup>1</sup> TUFFS AND FLOWS (PRECAMBRIAN Y)--  
Characterized by predominant albite phenocrysts, with or without quartz

<sup>1</sup>Nomenclature according to classification of Rittmann (1952)



Base from U.S. Geological Survey 1954; revised 1969



GENERALIZED GEOLOGIC MAP OF THE ROLLA 1°x2° QUADRANGLE, MISSOURI AND ILLINOIS  
WITH EMPHASIS ON PRECAMBRIAN AND CAMBRIAN LAMOTTE SANDSTONE

Compiled by  
Walden P. Pratt  
1978

INTERIOR GEOLOGICAL SURVEY WASHINGTON, D.C. 20508  
Geology compiled in 1978