UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

PROFESSIONAL PAPER 580
PLATE 2

EXPLANATION

METAMORPHIC AND IGNEOUS ROCKS

Intrusive igneous rocks of uncertain age
Kimberlite and almoite in dikes and diatremes, Tomkins County, New York; granophyre and peridotite in Pendleton County, West Virginia, and Highland County, Virginia; and mica-peridotite in Union County, Tennessee and Elliott County, Kentucky and Indiana, Greene and Fayette Counties, Pennsylvania

Triassic dikes
Diabase and gabbro

Pzg — Paleozoic(?) granitic rocks
Includes some migmatite and gneiss

Pzm — Paleozoic(?) metamorphic rocks
Gneisses and schists of poorly determined age. Includes some Paleozoic granitic rocks and migmatite, and may include areas of Precambrian rocks

Pzd — Paleozoic diorite and gabbro

Paleozoic and Precambrian(?) ultramafic rocks
Peridotite, serpentinite, dunite, gabbro, and related rocks

pCg — Precambrian granitic rocks
Intrusive rocks, migmatite, and granitized gneiss and schist. Includes minor amounts of gabbro in western North Carolina

pCl — Lower Precambrian metamorphic rocks
Mica gneisses, mica schists, and hornblende gneiss. May include areas of upper Precambrian metamorphic rocks

Geologic contact

Fault

Southern limit of glacial deposits of Wisconsin age

Southern limit of glacial deposits of pre-Wisconsin age

Intensely disturbed local area
Nearly circular area of strongly deformed rocks enclosed by faults. Have been called meteor impact structures and cryptovolcanic structures

EXPLANATION

SEDIMENTARY AND VOLCANIC ROCKS

K — Cretaceous rocks undivided
Tuscaloosa and Eutaw Formations in Alabama. Sandstone, clay, and basal gravels of Late Cretaceous age

Tr — Triassic rocks undivided
Conglomerate, sandstone, shale, and thin beds of coal in Dan River Basin, North Carolina; Late Triassic in age

P — Permian rocks undivided
Dunkard Group in Pennsylvania, West Virginia, Ohio, and Maryland. Sandstone, siltstone, shale, limestone, and coal

Pm — Monongahela Group (Upper Pennsylvanian)
In Pennsylvania, Ohio, and West Virginia. Sandstone, siltstone, shale, limestone, and coal. Pittsburgh coal at base

Pc — Conemaugh Formation (Upper Pennsylvanian)
In Pennsylvania, Ohio, Maryland, and West Virginia. Sandstone, siltstone, shale, limestone, and coal. Upper Freeport coal at base

Pa — Allegheny Group (Middle Pennsylvanian)
In Pennsylvania, Ohio, West Virginia, and Kentucky. Sandstone, siltstone, shale, limestone, and coal

Pp — Pottsville Group (Lower and Middle Pennsylvanian)
In Appalachian Plateau from Pennsylvania to Alabama. Conglomerate, sandstone, siltstone, shale, and coal

Mu — Upper Mississippian rocks
In Cumberland Plateau of Kentucky, Tennessee, and Alabama. Limestone (Newman Limestone and equivalents) in lower part but including sandstone units in Alabama and Georgia. Shale, siltstone, and sandstone (Pennington Formation) in upper part

Ml — Lower Mississippian rocks
In Cumberland Plateau of Kentucky, Tennessee, and Alabama. Fort Payne Chert and Maury Formation

Du — Upper Devonian rocks
In New York, northern Pennsylvania, and Ohio. Conglomerate and sandstone of Catskill delta grading westward into black shale, siltstone, and sandstone

Dml — Middle and Lower Devonian rocks
Predominantly shale (Hamilton Group) in upper part, and shale, limestone, and sandstone in lower part

S — Silurian rocks undivided
Predominantly limestone and dolomite in upper part; sandstone and red shale including thin beds of iron ore (Clinton) in middle part. Ridge-forming sandstone and conglomerate (Tuscarora and Clinch Sandstones) present in lower part from northern Tennessee northward

Oum — Upper and Middle Ordovician rocks
In Ohio and Kentucky. Post-Knox Ordovician formations from central Virginia southwestward. Predominantly limestone; some shale in upper part. Clastic formations dominant in east Tennessee (Bays, Sevier, and Tellico Formations)

Ock — Knox Group (Lower Ordovician and Upper Cambrian)
From central Virginia southward. Massive bedded carbonate formations of Early Ordovician and Late Cambrian age; predominantly dolomite on western side of Valley and Ridge province, limestone on eastern side

Cml — Middle and Lower Cambrian rocks undivided
From central Virginia southward. Principally of Middle and Early Cambrian age, but includes units of early Late Cambrian age at top, and excludes basal Cambrian clastic rocks. Sandstone, shale, dolomite, and limestone, glauconitic in many places

Cbc — Basal Cambrian clastic rocks
Chilhowee Group and equivalent rocks. Locally includes basalt flows in lower part. In places includes narrow belts of overlying Shady Dolomite

pCu — Upper Precambrian sedimentary and volcanic rocks
In Tennessee, North Carolina, and Georgia: variably metamorphosed sandstone and associated rocks of the Ocoee Series and Grandfather Mountain Formation. In southern Virginia and adjacent areas: clastic sedimentary rocks and rhyolite of Mount Rogers Volcanic Group. In Maryland: Catoctin Greenstone (Precambrian?)

IP — Pennsylvanian rocks undivided
Conglomerate, sandstone, siltstone, shale, and coal in anthracite region of Pennsylvania, and in western Maryland and eastern West Virginia

Pap — Allegheny and Pottsville Groups undivided
Narrow belts in Pennsylvania, Maryland, and West Virginia

M — Mississippian rocks undivided
In narrow belts in Valley and Ridge province from Pennsylvania to Alabama. Continental clastic deposits (Mauch Chunk and Pocono Formations) in Pennsylvania changing westward and southwestward to marine sandstone and shale in lower part predominantly limestone (Newman and Greenbrier Limestones) in middle part, and sandstone and shale (Pennington Group) in upper part. Parkwood Formation, Floyd Shale, and Fort Payne Chert in easternmost belts in Alabama and Georgia

MD — Mississippian and Devonian rocks undivided
Narrow belts of Chattanooga Shale (Upper Devonian) and formations of Mississippian age on Pine Mountain, Kentucky-Tennessee, and Chilhowee Mountain, Blount County, Tennessee

D — Devonian rocks undivided
In States north of Tennessee except New York. Predominantly black shale of Late Devonian age in upper part; underlying formations of shale, limestone, and sandstone of Middle and Early Devonian age present as far south as west-central Virginia

MDS — Mississippian, Devonian, and Silurian rocks undivided
In narrow belts in southern Virginia and Tennessee. Predominantly shale and limestone (Mississippian), black shale (Devonian), and sandstone and red shale (Silurian)

DS — Devonian and Silurian rocks undivided
In narrow belts from west-central Virginia southward. Predominantly black shale (Devonian) and sandstone and red shale (Silurian)

MDSO — Mississippian, Devonian, Silurian, and Ordovician rocks undivided
In narrow belts in Tennessee. Predominantly shale and limestone (Mississippian); black shale (Devonian), red shale and siltstone (Silurian), and shale and limestone (Ordovician)

DSO — Devonian, Silurian, and Ordovician rocks undivided
In Tennessee, Georgia, and Alabama. Chattanooga Shale (Upper Devonian), Red Mountain or Rockwood Formations (Silurian), and shale and limestone formations (Upper and Middle Ordovician)

DO — Devonian and Ordovician rocks undivided
Around rim of Nashville Basin in Tennessee and southern Kentucky. Chattanooga Shale (Upper Devonian) and limestone formations of Ordovician age. Silurian rocks absent

SO — Silurian and Ordovician rocks undivided
Thin limestone, dolomite, and shale (Upper Silurian) and shale and limestone (Ordovician) in New York. Red shale and sandstone (Middle and Lower Silurian) and shale and limestone (Upper and Middle Ordovician) in southwest Virginia and from Claiborne County to Meigs County, Tennessee

O€ — Ordovician and Cambrian rocks undivided
Structurally complex areas in southern Virginia and northeastern Tennessee

O — Ordovician rocks undivided
In Pennsylvania, Maryland, northern Virginia, and West Virginia. Clastic rocks in upper part (Juniata, Oswego, and Martinsburg Formations), numerous limestone formations in middle part, and dolomite and limestone (Beekmantown Group) in lower part

€ — Cambrian rocks undivided
In Pennsylvania, Maryland, and West Virginia. Predominantly dolomite and limestone. Excludes basal Cambrian clastic rocks

GEOLOGIC MAP
OF
APPALACHIAN REGION

Compiled by
Dennis P. Cox, Ralph L. Miller, Avery Ala Drake, Jr.,
and Jarvis B. Hadley

SCALE
1:2 500 000
APPROXIMATELY 1 INCH TO 40 MILES

50 0 50 100 150 200 250 MILES
50 0 50 100 150 200 250 KILOMETERS

Base by U.S. Geological Survey

Published sources of geologic data: State and County Maps by the State Geological Surveys; Tectonic Map of the United States, 1962, by the U.S. Geological Survey and the American Association of Petroleum Geologists; Geologic Map of the United States, 1932, by the U.S. Geological Survey; Glacial Map of the United States East of the Rocky Mountains, 1959, by the Geological Society of America; and quadrangle maps by the U.S. Geological Survey.

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INTERIOR—GEOLOGICAL SURVEY, WASHINGTON, D. C.—1967—G67229