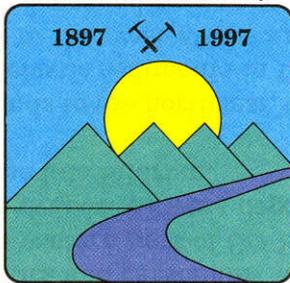


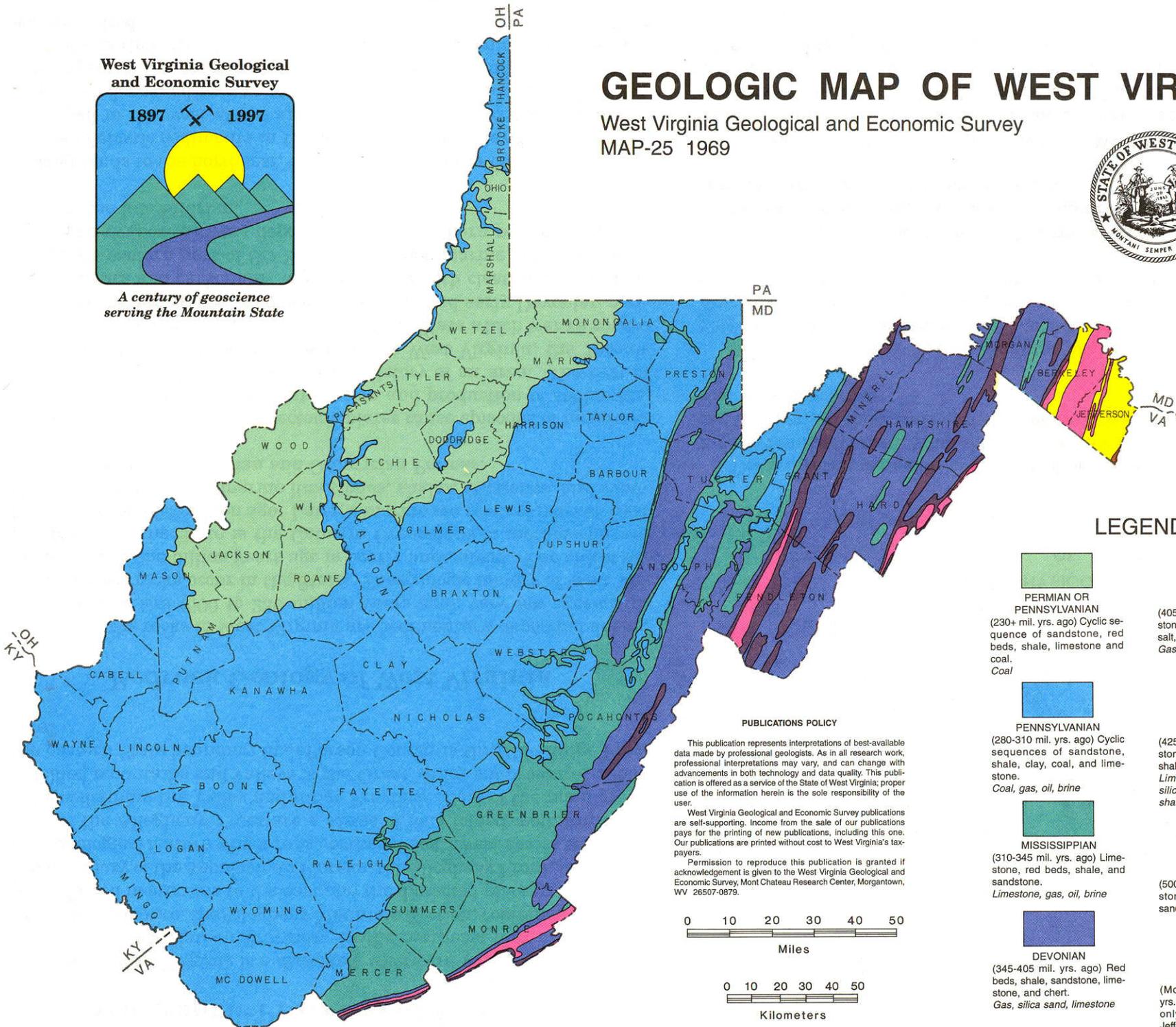
West Virginia Geological and Economic Survey



A century of geoscience serving the Mountain State

GEOLOGIC MAP OF WEST VIRGINIA

West Virginia Geological and Economic Survey
MAP-25 1969



LEGEND

- | | |
|--|--|
|  |  |
| PERMIAN OR PENNSYLVANIAN
(230+ mil. yrs. ago) Cyclic sequence of sandstone, red beds, shale, limestone and coal. | SILURIAN
(405-425 mil. yrs. ago) Sandstone, shale, limestone, rock salt, and ferruginous beds. Gas, limestone, artificial brine |
|  |  |
| PENNSYLVANIAN
(280-310 mil. yrs. ago) Cyclic sequences of sandstone, shale, clay, coal, and limestone. Coal, gas, oil, brine | ORDOVICIAN
(425-500 mil. yrs. ago) Limestone, dolomite, sandstone, shale, and metabentonite. Limestone (particularly low silica), building stone, clay-shale |
|  |  |
| MISSISSIPPIAN
(310-345 mil. yrs. ago) Limestone, red beds, shale, and sandstone. Limestone, gas, oil, brine | CAMBRIAN
(500-600 mil. yrs. ago) Limestone and dolomite, some sandstone and shale. |
|  |  |
| DEVONIAN
(345-405 mil. yrs. ago) Red beds, shale, sandstone, limestone, and chert. Gas, silica sand, limestone | PRECAMBRIAN
(More than 600 mil. yrs. ago) Greenstone. Present only in extreme eastern Jefferson County. |

PUBLICATIONS POLICY

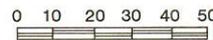
This publication represents interpretations of best-available data made by professional geologists. As in all research work, professional interpretations may vary, and can change with advancements in both technology and data quality. This publication is offered as a service of the State of West Virginia; proper use of the information herein is the sole responsibility of the user.

West Virginia Geological and Economic Survey publications are self-supporting. Income from the sale of our publications pays for the printing of new publications, including this one. Our publications are printed without cost to West Virginia's taxpayers.

Permission to reproduce this publication is granted if acknowledgement is given to the West Virginia Geological and Economic Survey, Mont Chateau Research Center, Morgantown, WV 26507-0879.



Miles



Kilometers

Physiographic Provinces of West Virginia

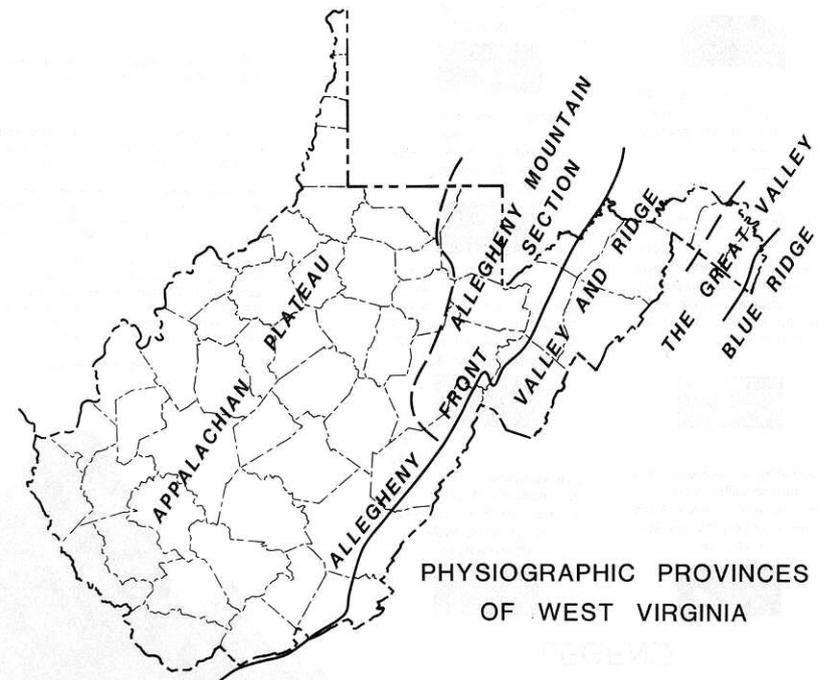
Most of West Virginia is a dissected, westward-tilting plateau called the Appalachian Plateau Province. In the northeast part of this province, a subprovince, the Allegheny Mountain Section, combines elements of the folded mountains to the east and the dissected plateau. The eastern boundary of the Appalachian Plateau, the Allegheny Front, is a prominent geological feature which runs northeast-southwest across the State. East of the Allegheny Front are a series of long folded mountains and valleys defining the Valley and Ridge Province. East of the main group of folded mountains and valleys is the Great Valley subprovince. Along the eastern State boundary in Jefferson County is the Blue Ridge Province.

Bedrock Geology of West Virginia

Most of the rocks in West Virginia are sedimentary, deposited during the Paleozoic Era (600 to 230 million years ago); very few igneous or metamorphic rocks occur in the State. The geologic history of West Virginia prior to one billion years ago is poorly understood. The oldest exposed rock in the State is the Catoclin Greenstone, a metamorphosed lava deposited 800 million ago. Later, a marine sea covered most of West Virginia and deposited marine limestones, shales, siltstones, and sandstones during the Cambrian and Ordovician Periods.

Movements of the earth's tectonic plates cause episodes of mountain building which, with subsequent erosion and production of sediments, can have major effects on the geologic history of an area. The first of these mountain-building episodes to effect West Virginia, the Taconic Orogeny, formed mountains to the east of the State which were a source of sediments during the Ordovician, Silurian, and early Devonian periods. Clastics and carbonates were deposited with clastics predominating in the eastern part of the State. Also, non-marine deposition took place and evaporites were deposited in the northern part of West Virginia in the late Silurian.

Highlands to the northeast, formed in the Acadian Orogeny, were the source of clastic sediments in the Middle and Late Devonian. The sea regressed to the west at the end of the Devonian and continental red beds were deposited over most of the State. The sea covered West Virginia again in the Middle Mississippian (about 330 million years ago). During this time, the Greenbrier Group, composed mainly of limestone, was deposited.



The sea retreated again near the end of the Mississippian, and during the Pennsylvanian, West Virginia was low-lying and swampy. During this period, thousands of feet of non-marine sandstone, shale, and coal were deposited.

During the Permian Period, the Appalachian Orogeny, the dominant geologic event in the formation of the Appalachian Mountains, began. Much folding and thrust-faulting occurred, especially in the eastern part of the State. Erosion became the predominant geological process.

No sedimentary rocks from the Mesozoic Era (230 to 70 million years ago) exist in West Virginia. However, hundreds of igneous dikes from this time are found in Pendleton County.

The glaciers of the ice ages never reached West Virginia. A large lake caused by an ice dam to the north resulted in lake deposits in the northern part of the State and drainage changes and alluvial deposits in the southern part. These are the only Cenozoic Era (younger than 70 million years ago) deposits in West Virginia.