

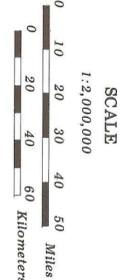
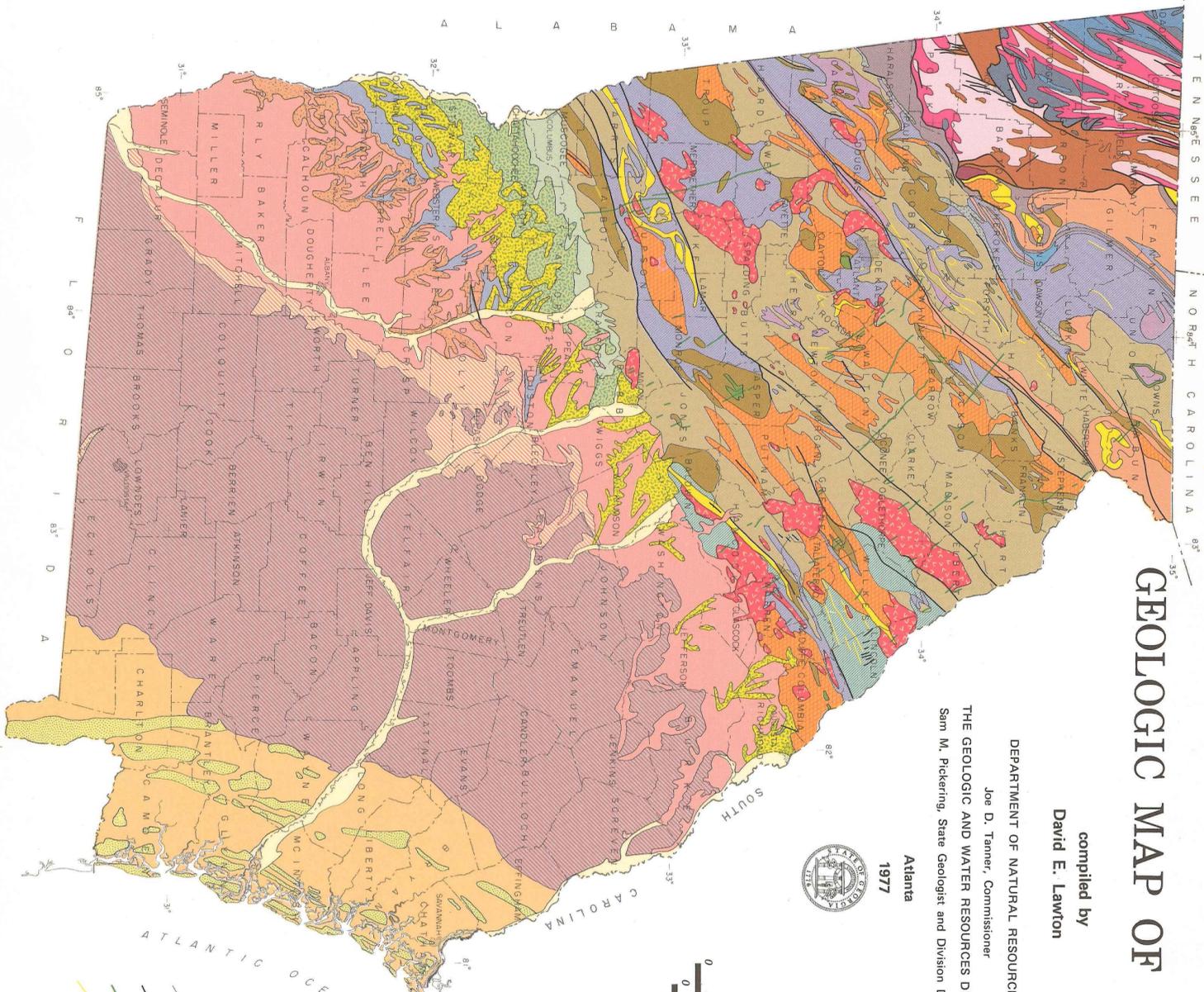
GEOLOGIC HISTORY

ERA	PERIOD	EPOCH	SIGNIFICANT LIFE FORMS	TYPICAL FOSSILS FOUND IN GEORGIA
CENOZOIC	QUATERNARY	Holocene	present day; recorded history	mammal bones, mollusks
		Pleistocene	extinction of mammoths and giant sloths	mollusks
	TERTIARY	Pliocene	earliest man	foraminifera, mollusks
		Miocene	1st apes, grasses	coral, foraminifera, echinoids, mollusks
		Oligocene	1st monkeys	bryozoa, foraminifera, coral, echinoids, vertebrate remains
CRETACEOUS	Paleocene	1st horses	mollusks	
		extinction of dinosaurs	mollusks, echinoids, foraminifera, vertebrate remains, petrified wood	
MESOZOIC	JURASSIC	AGE OF REPTILES	There is no fossil-bearing Jurassic rock exposed at the surface in Georgia.	
		1st birds, mammals	There is no fossil-bearing Triassic rock exposed at the surface in Georgia.	
		1st dinosaurs	This period is not represented in Georgia.	
PALEOZOIC	PERMIAN	extinction of trilobites	fossils, scale trees	
		1st frogs, evergreens	ferns, scale trees	
		AGE OF AMPHIBIANS	1st reptiles	
		AGE OF CRINOIDS	echinoids, blastoids, brachiopods, corals, gastropods, bryozoa	
DEVONIAN	1st scale trees, ferns, amphibians	corals, brachiopods, bryozoa		
	AGE OF FISHES	mollusks, trilobites, graptolites, bryozoa, ostracods, corals, crinoids		
	SILURIAN	1st air-breathing animals, land plants	mollusks, trilobites, graptolites, bryozoa, ostracods, corals, crinoids	
ORDOVICIAN	1st fishes	mollusks, trilobites, graptolites, bryozoa, ostracods, corals, crinoids		
	AGE OF GRAPTOLITES	1st air-breathing animals, land plants		
CAMBRIAN	1st hard-shelled invertebrates	trilobites, brachiopods, sponges		
	AGE OF TRILOBITES	trilobites, brachiopods, sponges		
pre-Cambrian	Age of the earth is 4.5 - 5 billion years	multi-cellular forms	fossils unknown in Georgia	
		one-celled forms		

GEOLOGIC MAP OF GEORGIA

compiled by
David E. Lawton

DEPARTMENT OF NATURAL RESOURCES
Joe D. Tanner, Commissioner
THE GEOLOGIC AND WATER RESOURCES DIVISION
Sam M. Pickering, State Geologist and Division Director
Atlanta
1977



- SYMBOLS**
- Fault or zone of cataclasis
 - Diabase dike (thickness exaggerated)
 - Quartzite (thickness exaggerated)

- EXPLANATION**
- COASTAL PLAIN SEDIMENTARY ROCKS** (in stratigraphic order)
 - QUATERNARY ALLUVIUM: Composed of unconsolidated sand and gravel located primarily on flood plains. Only the wide alluvial deposits of the major rivers in the coastal plain are shown, although alluvium occurs throughout the state.
 - QUATERNARY (PLEISTOCENE AND HOLOCENE) BARRIER ISLAND DEPOSITS: Located parallel to the present coast line, composed predominantly of unconsolidated sand and clayey sand which were deposited at former high sea levels.
 - QUATERNARY (PLEISTOCENE AND HOLOCENE) MARSH AND LAGOON DEPOSITS: Located parallel to the present coast line, composed predominantly of sand and sandy clay which were deposited at former high sea levels.
 - PLIOCENE-MIOCENE DEPOSITS: Includes sand, clay, fillers earth, gravel, minor limestone, dolomite, phosphatic sand, and marl.
 - OLIGOCENE DEPOSITS: Includes limestone and minor dolomite, and the residuum from both.
 - UPPER EOCENE DEPOSITS: Includes sand, clay, sandy clay, marl, and limestone of early Tertiary age.
 - MIDDLE AND LOWER EOCENE DEPOSITS: Includes sand, clayey sand, kaolin, impure limestone, and marl.
 - PALEOCENE DEPOSITS: Includes sand, clay, kaolin, limestone, and marl.
 - UPPER CRETACEOUS-TERTIARY DEPOSITS: Includes sand, sand clay, and marl located in the northern coastal plain. East of the Ogeechee River, this unit contains kaolin deposits of undifferentiated Cretaceous to lower Tertiary age.
 - UPPER CRETACEOUS DEPOSITS: Includes sand, clay, and marl.
 - UPPER CRETACEOUS DEPOSITS: Includes sand, gravel, and clay.
 - RIDGE AND VALLEY SEDIMENTARY ROCKS** (in stratigraphic order)
 - PENNSYLVANIAN ROCKS: Includes the sandstone, conglomerate, shale, and coal of the Lookout Plateau.
 - MISSISSIPPIAN ROCKS: Includes limestone, shale, and chert with lesser sandstone units.
 - DEVONIAN ROCKS: Includes sandstone, shale, and chert. Underlain by SILURIAN ROCKS, composed of an iron-rich complex of sandstone, siltstone, and shale. Underlain by ORDOVICIAN ROCKS, including Middle and Late Ordovician shale and limestone.
 - CAMBRIAN AND ORDOVICIAN ROCKS: Includes units which transgress the time boundary between the Ordovician and Cambrian periods; composed of limestone, dolomite, and chert.
 - BLUE RIDGE AND PIEDMONT CRYSTALLINE ROCKS** (in stratigraphic order implied)
 - CAMBRIAN ROCKS: Includes those units comprising a group of shale, limestone, and lesser units of dolomite underlain by another group of Cambrian rocks, composed of a thick sequence of shale, siltstone, sandstone, limestone, and dolomite.
 - CAMBRIAN-PRECAMBRIAN ROCKS: Includes the sedimentary quartzites of the eastern Ridge and Valley Province.
 - GRANITE: Includes those units which are granitic in composition and texture and units of mixed lithology which are composed predominantly of granite.
 - GRANITE GNEISS: Includes all strongly banded metamorphic units of granitic composition whether of igneous or sedimentary origin.
 - BIOTITE GNEISS: Includes units of metamorphic rock displaying gneissic banding, strong foliation, and relatively high biotite mica content. Also includes those mixed lithologies which are predominantly biotite gneiss.
 - QUARTZITES: Includes those units which are composed predominantly of meta-sandstone. Also mixed lithologies in which quartzite predominates.
 - METAGRAYWACKE: Includes metagraywackes with lesser units of mica schist, quartzite, amphibolite and conglomerate.
 - MICA SCHIST: Includes a wide variety of mica schists containing biotite and/or muscovite with lesser units of graphitic schist, gneiss, and amphibolites.
 - ALUMINOUS SCHISTS: Includes those mica schist units which contain a moderate to large percentage of aluminosilicate minerals such as garnet, kyanite, sillimanite, and staurolite. Also includes mixed lithologies in which the aluminous schists predominate.
 - PELLITIC AND CALCAREOUS ROCKS: Includes calcareous schists, metagraywackes, metaconglomerates, metasandstones, and marbles.
 - PHYLLITIC ROCKS: Includes meta-schist, phyllites, graphitic phyllites and similar very fine-grained rocks of lower metamorphic grade.
 - MAFIC GNEISS: Includes a wide variety of metamorphic rocks, composed largely of iron-magnesium silicates such as amphibolite, hornblende gneiss, and mafic hornfels. Also includes mixed lithologies composed predominantly of these rock types.
 - SCHISTOSE MAFIC ROCKS: Includes schistose units composed predominantly of various mafic minerals including chlorite, tremolite, actinolite, and hornblende.
 - ULTRAMAFIC-MAFIC ROCKS: Includes gabbros, serpentinites, diabase, and undifferentiated ultramafics. The generally northwest trending diabase dikes are indicated by thin green lines.
 - METAVOLCANIC ROCKS: Includes metavolcanic rocks of mafic to felsic composition, locally includes meta-schist, phyllites, and schists.

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