

Ordovician and Cambrian formations of central Alabama, showing different usages and equivalents

System and series	Alabama					Tennessee (U. S. Geological Survey reports)				New York (New York State Survey reports)				
	Montevallo-Columbiana folio	Bessemer-Vandiver folio		Birmingham folio		Alabama Geological Survey reports	Central basin	Valley and Ridge province						
		Cahaba Valley	Birmingham Valley	Birmingham Valley	Cahaba Valley			Western areas	Eastern areas					
								Knoxville folio	Morristown folio					
Ordovician	Middle Ordovician	Absent.	Absent.	Basal Trenton represented.	[Represented.]		Trenton fully represented.	[Represented.]	[Absent.]	[Sevier shale northwest of Clinch Mountain = Martinsburg shale. Lower part = Trenton.]	Trenton limestone.			
				Represented.	[Represented.]		[Not represented.]	[Represented?]	[Represented?]		Black River group.	Amsterdam limestone. Watertown limestone.		
				Represented.	[Represented.]			Carters limestone.	[Represented.]	Bays sandstone.	Moccasin limestone. Northwest of Clinch Mountain.	Bays sandstone [typical]. Southeast of Clinch Mountain.	Leray limestone. Lowville limestone.	
		Little Oak limestone.	Little Oak limestone.	Chickamauga limestone.	Chickamauga ("Pelham") limestone.	Chickamauga ("Pelham") limestone.	Chickamauga ("Pelham") limestone.	Pelham limestone.	[Not represented.]	[Probably not represented.]	Sevier shale [typical; Otsego shale of Ulrich].	Sevier shale southeast of Clinch Mountain.	Chickamauga limestone northwest of Clinch Mountain.	Normanskill shale and Valcour limestone.
		Tellico sandstone not represented.	Not represented.								Not represented.	[Not represented.]		
	Athens shale.	Athens shale.							Athens shale.	Athens shale.				
	Absent.	Absent.							Holston marble member of Chickamauga limestone.					
	Lower Ordovician	Absent.	Absent.					Stones River group.					Chazy group.	Pamela limestone.
		Lenoir limestone.	Lenoir limestone.	Stones River group represented. Attalla chert conglomerate member at base.	[Stones River group represented] Attalla conglomerate member at base.	Chickamauga ("Pelham") limestone.		Lebanon limestone.	[Stones River limestone represented.]	Chickamauga limestone.	Chickamauga limestone southeast of Clinch Mountain.		Crown Point limestone.	
		Absent.	Absent.					Ridley limestone.					Day Point limestone.	
		Mosheim limestone.	Mosheim limestone.					Pierce limestone.						
		Odenville limestone.	Odenville limestone.	Absent.	[Absent.]			Murfreesboro limestone. Bottom not exposed.						
	Cambrian or Ordovician (Ozarkian system of Ulrich)	Longview limestone.	Longview limestone.	Absent.	[Absent.]								Beekmantown limestone.	
		Chepultepec dolomite.	Chepultepec dolomite.	Absent.	[Absent except in Murphrees Valley.]								Chert bed at top of Little Falls dolomite.	
		Copper Ridge dolomite.	Copper Ridge dolomite.	Copper Ridge dolomite.	[Copper Ridge dolomite present.]									
Bibb dolomite.		Bibb dolomite.	Absent.	[Absent.]										
Ketona dolomite.		Ketona dolomite.	Ketona dolomite.	Ketona dolomite member.										
Cambrian	Brierfield dolomite.	Brierfield dolomite.	Absent.	[Absent.]								Hoyt limestone. Theresa dolomite. Potsdam sandstone.		
	Upper Cambrian	Conasauga ("Coosa") limestone.	Absent.	Conasauga ("Coosa") limestone.	Conasauga ("Coosa") limestone.	[Absent.]	Coosa (Flatwoods) shale.							
		Rome ("Montevallo") formation.	Rome ("Montevallo") formation.	Horizon not exposed.	[Horizon not exposed]			Montevallo variegated shales and sandstones.						
	Middle Cambrian	Absent (?); may be represented in Rome formation.												
		Shady limestone.												
Lower Cambrian	Weisner quartzite.											Lower Cambrian slates, quartzites, and limestones with Poughquag quartzite at base.		

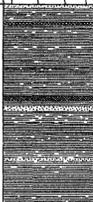
GENERALIZED COLUMNAR SECTION OF THE SEDIMENTARY ROCKS OF THE MONTEVALLO AND COLUMBIANA QUADRANGLES

SCALE: 1 INCH=1,000 FEET

SYSTEM	SERIES	FORMATION	SYMBOL	SECTION	THICKNESS IN FEET	MINOR DIVISIONS	CHARACTER OF ROCKS AND TOPOGRAPHY		
CARBONIFEROUS	PENNSYLVANIAN	Pottsville formation.	Cpv		9180	Upper Maylena coal. Lower Maylena coal.	Shale, sandstone, conglomerate, and coal beds. Sandstone, siliceous and feldspathic (arkosic), thick-bedded, and flaggy. The Shades, Pine, and Chestnut sandstone members, which are hard ridge makers, compose the "Millstone Grit" of Alabama. The shale is generally of clayey composition and of dark color, but some is siliceous. This formation contains nearly all the coals of Alabama, except the lignite of the southern part of the State.		
						Upper Dogwood coal. Lower Dogwood coal.			
						Montevallo coal.			
						Yeshic coal.			
						Helena coal. Straven conglomerate member. Thompson coal. Smithshop coal. Quarry coal. Gibson 1 coal. Clark 1 coal. Moyer coal. Youngblood coal. Buck coal.			
						Pump coal.			
						Aiken coal.			
						Wadsworth coals.			
						Harkness (Big Bone) coal.			
						Nunnally coal group.			
						Chestnut sandstone member.			
						Gould coal.			
						Pine sandstone member.			
						Shades sandstone member.			
						MISSISSIPPIAN		?	Parkwood formation.
Floyd shale.	Cf		1800-2000±		Mainly dark to black clay-shale including thin layers of argillaceous limestone and a considerable proportion of fine-grained greenish sandstone, apparently in lenticular layers of no great extent. Some gray and finely conglomeratic sandstone.				
Fort Payne chert.	Cfp		100±		Gray thick and thin-bedded fossiliferous chert.				
Frog Mountain sandstone.	Dfm		0-100		Rusty and dark sandstone.				
ORDOVICIAN	LOWER ORDOVICIAN	Little Oak limestone.	Olc		0-100		Thick-bedded dark partly cherty, fossiliferous limestone.		
		Athens shale.	Oa		200-300		Black fissile graptolitic shale with layers of black argillaceous limestone.		
		Lenoir and Mosheim (?) limestones.	Ol		0-400		Thick-bedded dark medium-grained limestone with clay veins that make a residual network on the weathered surface. Mosheim limestone is compact, dove-colored, pure, and fossiliferous.		
		Newala and Odenville limestones.	On		800-1200		Thick-bedded, compact, light bluish-gray limestone with layers of dolomite and magnesian limestone. Yields very little or no chert. Sparingly fossiliferous. Extensively burned for lime. Odenville limestone, at top argillaceous and fossiliferous.		
		Longview limestone.	Olv		0-400		Thick-bedded, partly magnesian limestone yielding much rather brittle chert which commonly contains fossils, especially gastropods of the characteristic genus <i>Lecanospira</i> .		
		CAMBRIAN OR ORDOVICIAN		Chepultepec dolomite.	COc		600-1000±		Medium thick-bedded, rather coarse-grained dark bluish-gray dolomite which yields cavernous fossiliferous chert. Locally a considerable thickness of thick-bedded light bluish-gray compact limestone in basal part.
				Copper Ridge dolomite.	COcr		2000±		Thick-bedded, mainly dark bluish-gray dolomite; some light-gray fine-grained dolomite. Yields many large masses of dense jagged chert, much more than any other formation in Alabama. Chert very sparingly fossiliferous.
				Bibb dolomite.	COb		275-500		Thick-bedded bluish-gray finely crystalline dolomite, highly siliceous, with silica incrustations or network of silica ridges on weathered surfaces of cavernous layers.
				Ketona dolomite.	COk		275-1000		Thick-bedded dark-gray dolomite, which is an almost pure carbonate rock of dolomite composition. To a large extent contains not over 2 percent of insoluble matter. Extensively used in blast furnaces.
				Brierfield dolomite.	CObf		1250±		Thick-bedded bluish-gray finely crystalline dolomite, highly siliceous, with silica incrustations or network of silica ridges on weathered surfaces of cavernous layers.

SECTION CONTINUED ON BACK OF THIS SHEET

COLUMNAR SECTION—Continued
SCALE: 1 INCH=1,000 FEET

SYSTEM	SERIES	FORMATION	SYMBOL	SECTION	THICKNESS IN FEET	MINOR DIVISIONS	CHARACTER OF ROCKS AND TOPOGRAPHY
CAMBRIAN	MIDDLE CAMBRIAN	Conasauga ("Coosa") limestone.	Cc		0-1500		Mainly thin-bedded limestone with intercalated shale which aggregates a considerable proportion of the whole. Limestone is somewhat impure with argillaceous and siliceous matter and also somewhat magnesian. Makes low, flat, poorly drained land, called "flatwoods."
		Rome ("Montevallo") formation.	Cr		1000±		Red shale, fine-grained calcareous sandstone weathering rusty, and a small amount of limestone, some layers of which appear to be fairly pure. Generally makes rough land of low hills. Sparingly fossiliferous.
	LOWER CAMBRIAN	Shady dolomite.	Cs		400±		Thick-bedded light-gray to white coarse-grained limestone. Makes valley.
		Weisner formation.	Cw		1700-1800	Hematite ore. Hematite ore (good grade).	Clay and siliceous slate or sericitic schist with finely conglomeratic quartzite lentils 3 to 125 feet thick. Hematite lenses. Makes the high ridges of the Columbiana Mountain region.
PRE-CAMBRIAN OR PALEOZOIC	TALADEGA SLATE OF ALABAMA REPORTS	Wash Creek slate.	wc		5000±	Massive sandstone. Black slate. Ferruginous sandstone member, containing lean ore.	Sericitic phyllite, greenish and grayish when weathered. Some crumpled quartz veins that contain a little gold present in places. Sandy in lower part. Occasional small lentil of conglomeratic sandstone or quartzite. In upper part, heavy bed of conglomeratic sandstone, with black slate or schist beneath. Low rounded hills and ridges.
		Brewer phyllite.	bw		500±		Sericitic phyllite, predominantly purplish gray, some of it having green silty luster. Locally ferruginous at bottom (lean ore). Easily recognizable and important as key to structure and stratigraphy of Talladega slate.
		Waxahatchee slate.	wx		5000±	Sawyer limestone member (50-200 feet). Sandstone (50-100 feet). Limestone (10-20 feet). Sandstone (100± feet).	Dark bluish shale and schist weathering pink, yellow, and gray. Conglomeratic sandstone in quartzite lentils. Limestone beds in the upper part. Low rounded hills and ridges.
PRE-CAMBRIAN		Crystalline schists, gneisses, and granite.					

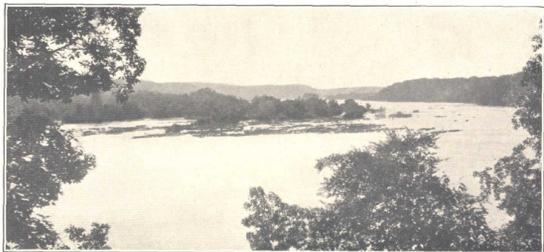


PLATE 1.—COOSA RIVER IN THE SOUTHEAST CORNER OF THE COLUMBIANA QUADRANGLE
Looking south from the Narrows. Shows upland surface or old peneplain with entrenched river valley.

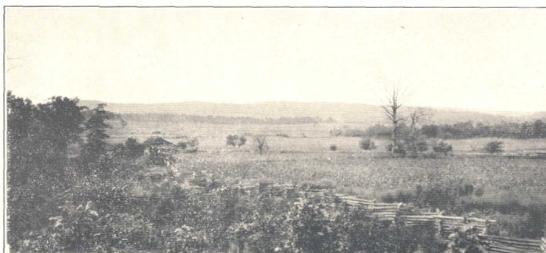


PLATE 2.—VIEW LOOKING NORTHWEST ACROSS SHELBY VALLEY
Valley eroded mainly on the Newala limestone. Columbiana Mountain in the distance.



PLATE 3.—ROUNDED HILLS CHARACTERISTIC OF AREAS UNDERLAIN BY WAXAHATCHEE SLATE
About 2 miles south of Shelby. Looking east.



PLATE 4.—PROSPECT FOR ROOFING SLATE IN WAXAHATCHEE SLATE
Three-fourths of a mile south of Ocampo. Looking north.



PLATE 5.—CRUMPLED WASH CREEK SLATE 8 MILES SOUTH OF SHELBY



PLATE 6.—BRIERFIELD DOLOMITE INCRUSTATED WITH CHARACTERISTIC FRETWORK OF RESIDUAL SILICA
Six miles south of Shelby, about 1 mile northwest of the southwest corner of the Montevallo quadrangle.



PLATE 7.—CAVERNOUS SILICA FROM BIBB DOLOMITE
Characteristic weathering product from the Brierfield and Bibb dolomites.



PLATE 8.—NEWALA LIMESTONE IN BOWDEN'S QUARRY
About half a mile south of Newala, in the northeastern part of the Montevallo quadrangle. Looking east.



PLATE 9.—FROG MOUNTAIN SANDSTONE (DEVONIAN) LYING ON FOSSILIFEROUS CLAY WHICH IS DECOMPOSED LITTLE OAK LIMESTONE (ORDOVICIAN)
Cut on railroad 1 mile northwest of Mosteller, in the eastern part of the Columbiana quadrangle. Between the clay and sandstone is a stratigraphic gap representing the upper part of the Ordovician system, the entire Silurian system, and the lower part of the Devonian system.

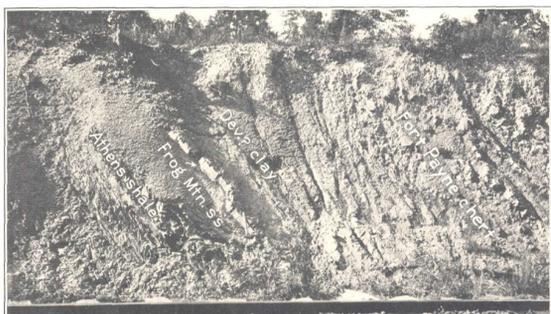


PLATE 10.—CARBONIFEROUS AND ORDOVICIAN ROCKS IN CUT ON SOUTHERN RAILWAY HALF A MILE EAST OF CALERA
The Athens shale (Ordovician) is overlain by the Frog Mountain sandstone (Devonian), 4 inches thick; clay that may be of Devonian age in the middle; and Fort Payne chert (Mississippian) at the right. There is a great stratigraphic break between the Frog Mountain sandstone and Athens shale. Looking northeast.



PLATE 11.—SHELBY IRON ORE DIGGINGS
At top there is 15 feet of red loam carrying best quality of lump ore, underlain by light-colored sand and quartz gravel, possibly of Cretaceous age.

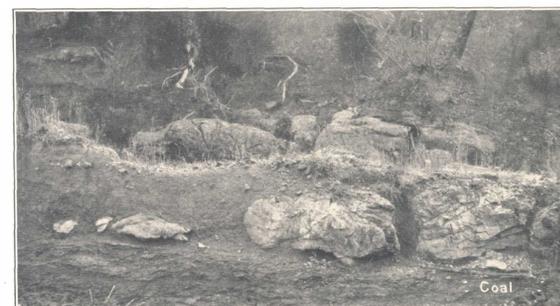


PLATE 12.—CONASAUGA LIMESTONE OVERTHRUST ON A COAL BED IN THE POTTSVILLE FORMATION
Shoal Creek, 1.5 miles southwest of Aldrich, in the Cahaba coal field.



PLATE 13.—TYPICAL COAL MINE IN THE CAHABA COAL FIELD
Coleanor mine, about 2 miles west of the Montevallo quadrangle. Looking west.



PLATE 14.—RESIDUAL PINNACLE OF CONTORTED NEWALA LIMESTONE EXPOSED IN ORE BANK AT SHELBY



PLATE 15.—IRON ORE DIGGINGS AT SHELBY
Ore is in pockets in decayed rock, which is reported to extend nearly 100 feet below the bottom of the pit. The clay seems to fill an ancient sink hole.