COLUMNAR SECTIONS

GENERALIZED SECTION OF ROCKS SOUTHEAST OF SOUTH MOUNTAIN, FAIRFIELD AND GETTYSBURG QUADRANGLES.

SCALE: 1 INCH=2000 FEET.

System		Formation Name	Symbol	Columnar Section	Thickness in Feet	Character of Rocks	Character of Topography and Soils
TRIASSIC	UPPER TRIASSIC (NEWARK GROUP)	(Arendtsville conglomerate lentil).	(Ta)		(0-500)	Coarse unconsolidated quartzose conglomerate in red sand matrix, Ta, replaced to south by limestone conglomerate cemented by red calcareous matrix.	The quartzose conglomerate forms high hills adjacent to the mountains; the limestone conglomerate forms lowlands with few outcrops.
		Gettysburg shale.	Tg			Chiefly soft red shale and sandstone.	
		(Heidlersburg member.)	Th			Red shale and sandstone interbedded with hard gray to white sandstone and a little gray to black shale.	Plains with gentle valleys.
		Gettysburg shale.	Tg		16000[1]	Chiefly soft red shale and some red sandstone, locally altered to hard argillite, hornstone, and porcelamite by injection of thick diabase sill.	Plains above which rise low hills and some higher sharp knobs composed of diabase.
		New Oxford formation.	Tno		7000[1]	Red shale and sandstone, with some beds of harder light-colored micaceous sandstone.	Plains with gentle valleys. Low ridge at eastern margin.
		(Quartzose conglomerate member.)	(Tnc)			Red shale and sandstone with more numerous beds of hard light-colored micaceous sandstone, arkose, and conglomerate. Coarse red quartzose conglomerate locally at base.	
		UNCONFORMITY					
ORDOVICIAN	Lower Ord.	Conestoga limestone.	Oc		1000±	Impure blue argillaceous limestone weathering readily to shaly fragments and soil	Lowland, with few outcrops.
		UNCONFORMITY					
CAMBRIAN	LOWER CAMBRIAN	Ledger dolomite.	€lg		2000±	Pure coarse gray dolomite and beds of equally pure blue and white limestone marble, which are extensively quarried.	Lowland, with few outcrops.
		Kinzers formation.	€k		50±	Dark argillaceous shale.	Line of low hills in the lowland.
		Vintage dolomite.	€v		500±	Dark dolomite, poorly exposed.	Lowland, with few outcrops.
		Antietam sandstone.	€a		500±	Granular sandstone, weathering to porous slabs with rusty fossiliferous partings.	Low hills and mountain slopes.
		Harpers schist.	€h		1000+	Gray sandy schist.	Mountain slopes and hill country.
		Chickies quartzite with Hellam conglomerate member.	€c (€hl)		800±	White vitreous quartzite with scolithus tubes; hard pebbly quartzite and conglomerate of glassy quartz at base, €hl.	High ridges and mountain tops of Pigeon Hills.
		UNCONFORMITY					
ALGONKIAN		Metabasalt (greenstone.)	Amb		500±	Massive greenstone, amygdaloid, and spotted sericite schist.	Ridges and valleys of Pigeon Hills.

[1] The Triassic sediments overlap progressively westward, so that the thicknesses given here are the total aggregates but are not present at any one place; probably the greatest thickness at any place is not over half the total.

GENERALIZED SECTION OF ROCKS FOR SOUTH MOUNTAIN AREA, FAIRFIELD QUADRANGLE.

SCALE: 1 INCH=2000 FEET.

ORDOVICIAN	LOWER ORD. (?)	Beekmantown (?) limestone. (Intervening formations concealed.)	Ob		300+	Blue limestone, in part banded and earthy, weathering to tripoli.	Lowland with few outcrops.
CAMBRIAN	LOWER AND MIDDLE	Waynesboro formation.	€w		1000±	Mottled sandstone and purple sandy shale at top, blue white limestone and dolomite in middle, and siliceous gray sandy limestone and sandstone at base.	Low hills in the limestone valley.
		Tomstown dolomite.	€t		1000±	Coarse glistening gray dolomite, blue limestone, and some shale and sericite schist, poorly exposed.	Valleys.
		Antietam sandstone.	€a		800	Coarse quartzose sandstone with numerous scolithus tubes and hard vitreous quartzite with rusty fossiliferous partings.	Mountain slopes and smaller ridges and knobs.
	LOWER CAMBRIAN	Harpers schist with Montalto quartzite member.	€h (€ma)		3000	Dark hackly sandy slate or schist and white quartzite: the quartzite, (€ma), in thin beds at the south, expands northeastward to represent most of the formation. The upper part of the quartzite is filled with scolithus tubes.	High ridges and mountains with sharp valleys on the schist beds.
		Weverton sandstone.	€w		750	Gray and purplish feldspathic sandstone and quartz conglomerate.	Crests of high ridges and steep mountain slopes.
		Loudoun formation.	€l		550	Soft purplish arkosic conglomerate and fine sericite slate.	Steep mountain slopes
		UNCONFORMITY					
ALGONKIAN		Metabasalt greenstone.	mb		1000±	Massive to schistose greenstone and bluish gray rocks containing epidote and quartz; altered basalt lava.	Mountains and ridges, rounded knobs, and open intermontane valleys.
		Aporhyolite.	ar		1000±	Bluish gray to pink and purplish felsite with white phenocrysts, altered rhyolite lava, white to red sericite schist in upper part and red breccia and tuff at top.	

ILLUSTRATIONS I

PLATE 1.—SCHISTOSE APORHYOLITE EXPOSED IN SMALL QUARRY WEST OF BRIDGEPORT
Schistosity dips southeast

PLATE 2.—MASSIVE BEDS OF WEVERTON SANDSTONE ON BARE ROCK, NORTH OF CHARMIAN

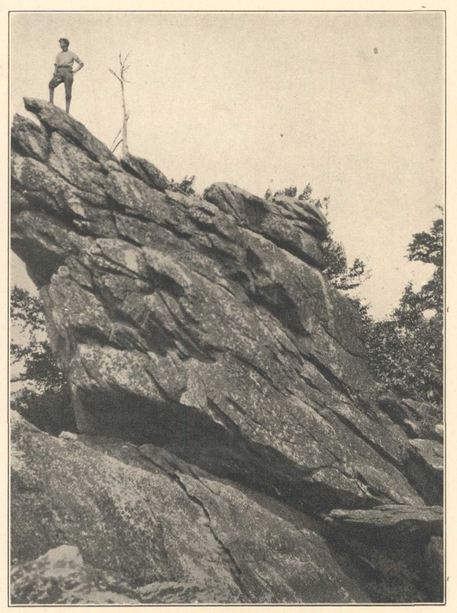

PLATE 3.—TYPICAL ROCK LEDGES OF SCHISTOSE WEVERTON SANDSTONE ON TOP OF SOUTH MOUNTAIN AT HAMMOND ROCKS, NORTH OF GETTYSBURG QUADRANGLE

PLATE 4.—SLATE AT BASE OF LOUDOUN FORMATION IN OLD QUARRY ON EAST SLOPE OF PINEY MOUNTAIN, WEST OF WENKSVILLE

PLATE 5.—POROUS SANDSTONE RESIDUAL FROM SANDY CONESTOGA LIMESTONE AT McSHERRYSTOWN
Crumbles to rounded sand grains and is quarried for building sand

PLATE 6.—TYPICAL TALUS OF ANTIETAM SANDSTONE AT TOP OF FRONT KNOBS OF SOUTH MOUNTAIN, OVERLOOKING CUMBERLAND VALLEY, AT STONY KNOB, JUST WEST OF FAIRFIELD QUADRANGLE.

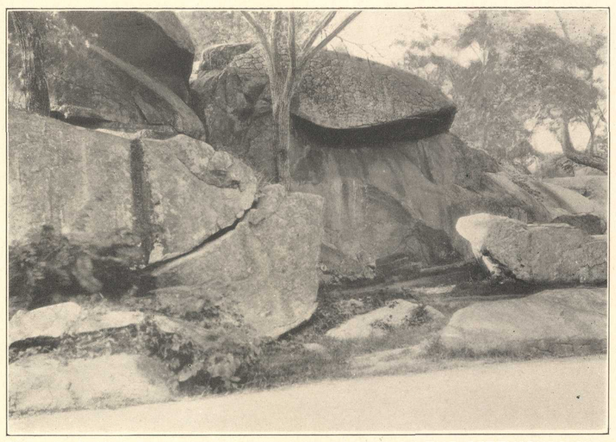

PLATE 7.—DEVILS DEN, ROCKY LEDGES OF DIABASE OF THE GETTYSBURG SILL, NORTHWEST OF ROUND TOP
Here part of the battle of Gettysburg was fought hand to hand

PLATE 8.—RESIDUAL BOULDERS FROM A DIABASE DIKE NEAR BOWLDER
These boulders are similar to the ironstones that were made into fences and used as barricades by both armies in the battle of Gettysburg

PLATE 9.—SPHERICAL EXFOLIATION OF WEATHERED DIABASE, 1 MILE SOUTH OF BAKER SCHOOL
The ball-like mass rests on sand and soil derived from the complete disintegration of the diabase

PLATE 10.—VESICULAR DIABASE
The thin porous layer is at the upper contact of a 30-foot diabase sill in Triassic shale, just east of Heidlersburg

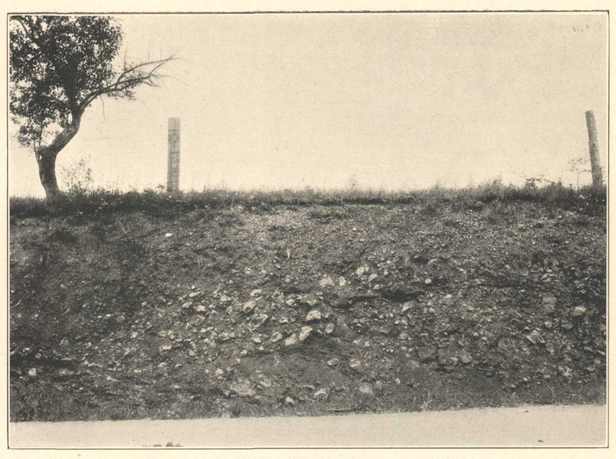

PLATE 11.—LAVA FLOW NEAR BENDERSVILLE
Fragments of vesicular lava inclosed in red sandy matrix overlying red sandstone

PLATE 12.—ROUND TOP, A CONICAL KNOB OF DIABASE
Gettysburg Battlefield in foreground

PLATE 13.—EAST FACE OF BIG HILL NORTH OF ARENDTSVILLE
The hill, composed of resistant pre-Cambrian aporhyolite, rises abruptly above the Gettysburg plain in foreground

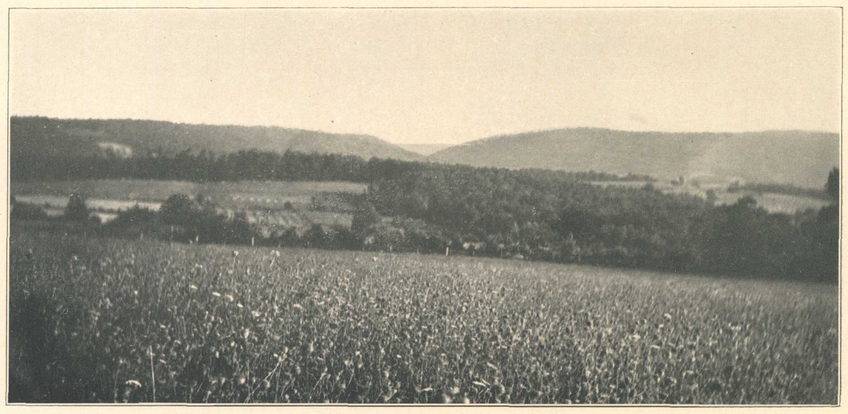

PLATE 14.—THE NARROWS, A SHARP ROCKY GAP CUT BY CONEWAGO CREEK THROUGH THE BIG HILL-BEAR MOUNTAIN APORHYOLITE RIDGE
The even crest of the mountains represents an old peneplain surface

PLATE 15.—FOLDED THIN-BEDDED WEVERTON QUARTZITE AT EAST PORTAL OF WESTERN MARYLAND RAILWAY TUNNEL IN TUNNEL HILL

PLATE 16.—FAULT CONTACT BETWEEN WEVERTON SANDSTONE AND PRE-CAMBRIAN APORHYOLITE IN OLD TAPEWORM RAILROAD CUT 1 MILE WEST OF IRON SPRINGS
The sandstone has been thrust over the aporhyolite, and the fault plane dips 40° SE.

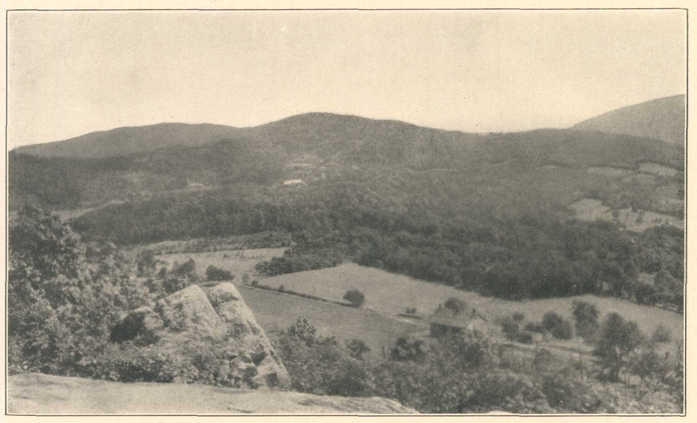

PLATE 17.—TUNNEL HILL AND VALLEY OF MINEY BRANCH VIEWED FROM BARE ROCK, NORTH OF CHARMIAN
The mountain is capped by Cambrian quartzite overlying greenstone, which is quarried at the foot of the mountain

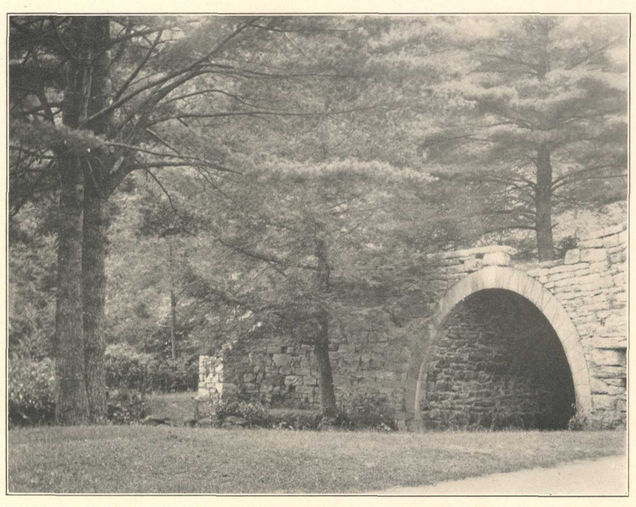

PLATE 18.—STREAM CULVERT BUILT OF WEVERTON SANDSTONE ON ABANDONED TAPEWORM RAILROAD ON FLANK OF JACKS MOUNTAIN
Overgrown with large white pines

PLATE 19.- VIEW DOWN MARSH CREEK VALLEY FROM THE DIVIDE AT NEWMAN SCHOOL
The valley lies along a shear zone in greenstone

PLATE 20.—OLD QUAKER MEETINGHOUSE NEAR BERMUDIAN CHURCH
Built in eighteenth century of Triassic red sandstone

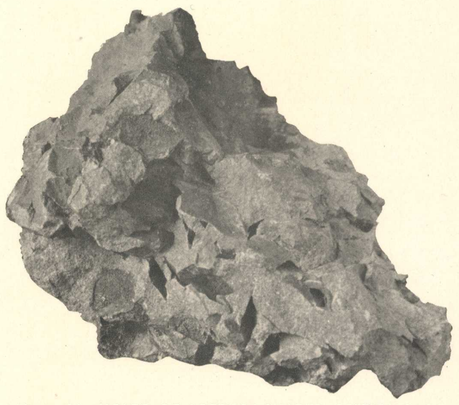

PLATE 21.—MOLDS OF LOZENGE-SHAPED CRYSTALS OF GLAUBERITE IN HARD BAKED TRIASSIC SHALE, FROM A POINT NEAR GOLDENVILLE
The mud in which these crystals grew was deposited in ponded water under arid climatic conditions

PLATE 22.—MOLD OF A LOZENGE-SHAPED CRYSTAL OF GLAUBERITE FROM A POINT NEAR GOLDENVILLE

PLATE 23.—EPIDOTIC CONCRETIONS IN ALTERED TRIASSIC SHALE METAMORPHOSED BY DIABASE INTRUSION 5 MILES SOUTH OF GETTYSBURG

PLATE 24.—DEVILS RACECOURSE IN SOUTH MOUNTAIN, WEST OF GLADHILL
Composed of Cambrian quartzite boulders stripped of soil, on an old peneplain surface, now forming a valley floor

ILLUSTRATIONS III

PLATE 25.—APORHYOLITE BANDED BY CHAIN SPHERULITES, FROM RACCOON CREEK, NORTHWEST OF SOUTH MOUNTAIN SANATORIUM
Bright-red rock with darker-red streaks bordering white spherulitic bands. Spherulitic fabric replaced by granular fabric. Polished specimen

PLATE 26.—BANDS OF COARSE SPHERULITES IN DARK DEVITRIFIED APORHYOLITE GLASS, FROM RACCOON CREEK

PLATE 27.—APORHYOLITE BANDED BY CHAIN SPHERULITES, FROM CORLS RIDGE, NORTH OF SOUTH MOUNTAIN SANATORIUM
Spherulitic fabric replaced by granular fabric

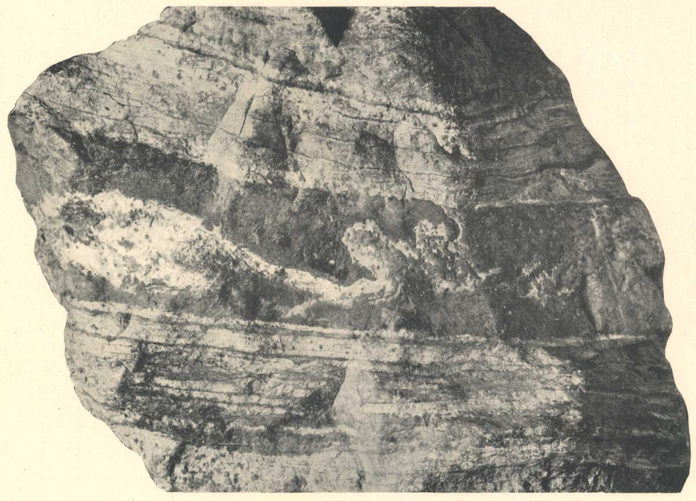

PLATE 28.—FLOW BANDING IN APORHYOLITE FROM RACCOON CREEK
Exhibits drag folds in devitrified layer

PLATE 29.—FINELY LAMINATED GRAY APORHYOLITE, FROM SOUTH SLOPE OF BIG HILL, 1 MILE NORTHWEST OF CASHTOWN
The fine, even flow banding bends around the white to pink feldspar phenocrysts. Polished specimen

PLATE 30.—LARGE ROUND SPHERULITES IN APORHYOLITE, FROM A POINT NEAR MOUTH OF COPPER RUN

PLATE 31.—RHYOLITE FLOW BRECCIA, FROM A POINT 2 MILES SOUTHEAST OF SOUTH MOUNTAIN SANATORIUM
Angular fragments of red rhyolite cemented into a breccia by quartz. Polished specimen

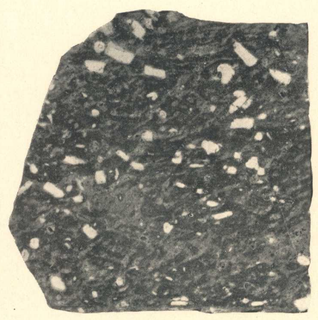

PLATE 32.—DARK-GRAY PORPHYRY SPOTTED WITH RECTANGULAR WHITE FELDSPAR PHENOCRYSTS, FROM HEAD OF MARSH CREEK HOLLOW
Polished specimen

PLATE 33.—MOTTLED GREEN AND PINK AMYGDALOIDAL APORHYOLITE, FROM BINGHAM COPPER MINE, NORTH OF PINE MOUNTAIN
A handsome ornamental rock with large amygdules of pink quartz the centers of which are stained green by copper carbonate. Polished specimen

PLATE 34.—DENSE FELSITIC APORHYOLITE, FROM FOOT OF ROCKY MOUNTAIN, 2 MILES SOUTH OF CALEDONIA FURNACE
Shows dark-purple and gray flow banding

PLATE 36.—AMYGDALOIDAL METABASALT, FROM A POINT NEAR SOUTH MOUNTAIN SANATORIUM
Vesicles filled with dark-green epidote with a lining of milk-white quartz. Polished specimen

PLATE 35.—RHYOLITE BRECCIA, FROM A LOCALITY 1 MILE NORTH OF BRADY SCHOOL, BUCHANAN VALLEY
Rhyolite tuff fragments inclosed in a finer red tuff matrix

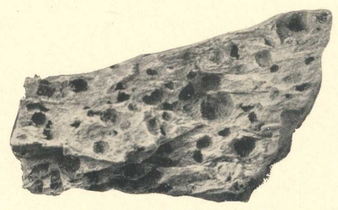

PLATE 37.—WEATHERED AMYGDALOIDAL GREENSTONE, FROM PIGEON HILLS, 1½ MILES NORTHEAST OF BITTINGER
The brown-weathered rock is pitted with round holes from which the filling, probably calcite, has been dissolved

PLATE 38.—WEATHERED AMYGDALOIDAL METABASALT, FROM FOOT OF WILDCAT ROCKS
The round quartz amygdules stand in relief on the weathered surface

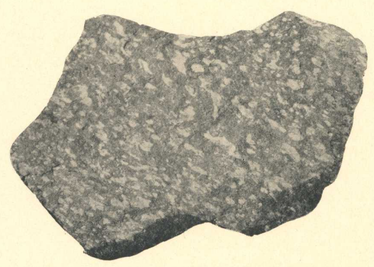

PLATE 39.—SPOTTED VOLCANIC SLATE, FROM A POINT JUST SOUTH OF CHARMIAN
Fragments of basaltic tuff flattened to shiny flakes