U.S. GEOLOGICAL SURVEY
J.W. POWELL, DIRECTOR

# COLUMNAR SECTIONS

TENNESSEE
KINGSTON SHEET

## GENERALIZED SECTION WEST OF THE CLINCH AND TENNESSEE RIVERS.

SCALE 1000 FEET = 1 INCH.

| Period. | Formation Names. | Formation Symbols. | Columnar Section. | Thickness in Feet. | Character of Rocks. | Character of Topography and Soils. |
|---|---|---|---|---|---|---|
| CARBONIFEROUS | Walden sandstone. | Cw | | 1300 | Coarse sandstone and sandy shale with beds of coal and fire clay. | Flat topped, plateau-like mountains, intersected by narrow rocky gorges. Gray, yellow or red sandy loam. |
| | Lookout sandstone. | Cl | | 260—<br>—510 | Conglomerate and massive sandstone; sandy shale with beds of coal and fire clay. | Cliffs; abrupt plateau escarpments. Scanty soil, rocky and sandy. |
| | Bangor limestone. | Cb | | 750—<br>—850 | Shaly limestone.<br>Massive, blue, crinoidal limestone.<br>Sandy and shaly limestone. | Steep mountain slopes and coves. Black clay soil with more or less sand from rocks above. Narrow valleys. Red clay, with sand and chert from adjacent slopes. |
| | Fort Payne chert. | Cp | | 75—150 | Cherty limestone. | Sharp, narrow ridges parallel to plateau escarpments. Sandy clay soil with abundant fragments of chert. |
| DEV. | Chattanooga black shale. | Dc | | 15—30 | Carbonaceous shale. | |
| | Rockwood formation. | Sr | | 165—650 | Greenish clay shale with beds of fossil iron ore. | |
| SILURIAN | Chickamauga limestone. | Sc | | 1300—<br>—1700 | Blue flaggy limestone. | Level valleys; shallow residual deposits of red or blue clay. Scanty blue clay soil where the limestones are nearly horizontal and deeper red clay where they are steeply inclined. |
| | Knox dolomite. | Sk | | 3300—<br>—3500 | Magnesian limestone; white, gray, or light blue; generally granular and massively bedded; containing nodules and layers of chert. | Low ridges and irregular rounded hills; deep residual deposits of red clay and chert. Red clay soil with a few fragments of chert grading into white or gray soil, composed almost entirely of chert. |
| CAMBRIAN | Connasauga shale. | Ꞓc | | 300—<br>—500 | Blue seamy limestone. Greenish clay shales. Thin beds of oolitic limestone. | |
| | Rome formation. | Ꞓr | | 2800—<br>—3400 | Greenish or brown shales with thin siliceous layers. | Narrow level valleys. Stiff yellow or bluish gray clay soil. |
| | [Rome sandstone.] | [Ꞓrs] | | [1800—<br>—2200] | Purple or brown sandstones interbedded with sandy shales. | Comby ridges. Rocky sandy soil. |
| | Apison shale. | Ꞓa | | 1000 + | | Narrow, rolling valleys. Stiff clay soil. |

## GENERALIZED SECTION EAST OF CLINCH AND TENNESSEE RIVERS.

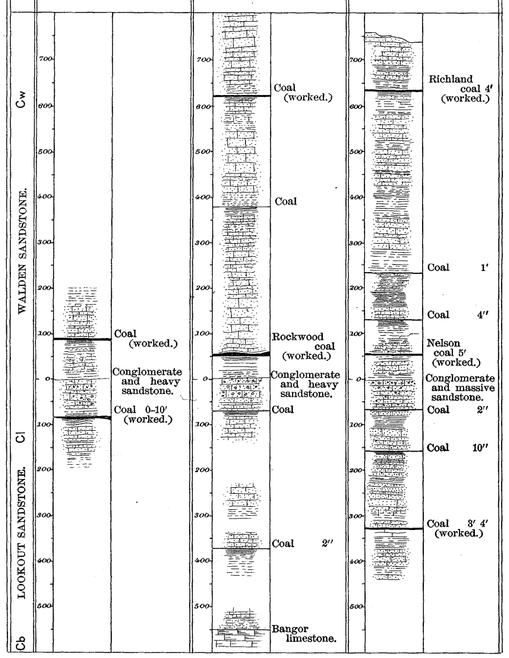
SCALE 1000 FEET = 1 INCH.

| Period. | Formation Names. | Formation Symbols. | Columnar Section. | Thickness in Feet. | Character of Rocks. | Character of Topography and Soils. |
|---|---|---|---|---|---|---|
| C. | Fort Payne chert. | Cp | | 75 + | Beds of chert and cherty limestone. | Knobs parallel with Rockwood ridges; sandy soil with fragments of chert. |
| D. | Chattanooga black shale. | Dc | | 35 | Carbonaceous shale. | |
| SILURIAN | Rockwood formation. | Sr | | 850—<br>—1000 | Calcareous sandy shale and beds of iron ore.<br>Coarse porous sandstone.<br>Thin bedded sandstone and shale. | High ridges with undulating or rounded summits. Rocky, sandy soil. |
| | Athens shale. | Sa | | 250—<br>—400 | Calcareous shale weathering yellow. | |
| | Chickamauga limestone. | Sc | | 1500—<br>—1800 | Earthy limestones; mottled, purple and gray.<br>Blue flaggy limestone. | Level valleys; shallow residual deposits of red or blue clay. Scanty blue clay soil where the limestone beds have low dips, and deeper red clay where they are steeply inclined. |
| | Knox dolomite. | Sk | | 3300—<br>—3500 | Magnesian limestone; white, gray or light blue; generally granular and massively bedded; containing nodules and layers of chert. | Low ridges and irregular rounded hills; deep residual deposits of red clay and chert. Red clay soil with a few fragments of chert, grading into white or gray soil, composed almost entirely of chert. |
| CAMBRIAN | Connasauga shale. | Ꞓc | | 0–1500 | Blue seamy limestone.<br>Greenish clay shales. Thin beds of oolitic limestone. | Level or rolling valleys.<br>Stiff yellow or bluish gray clay soil. |
| | Rome formation. | Ꞓr | | 2100—<br>—3000 | Greenish or brown shales with thin siliceous layers. | Valleys with low ridges. Thin sandy clay soil. |
| | [Rome sandstone.] | [Ꞓrs] | | [700—<br>—1000] | Purple and brown sandstones interbedded with sandy shales. | Comby ridges. Rocky, sandy soil. |
| | Apison shale. | Ꞓa | | 1000 + | Highly colored calcareous shales; red, purple, green and yellow. | Narrow, rolling valleys. Stiff clay soil. |

## VERTICAL SECTIONS SHOWING THE POSITION AND THICKNESS OF COAL BEDS.

SCALE 250 FEET = 1 INCH.

VERTICAL DISTANCES ARE MEASURED FROM THE TOP OF THE LOOKOUT CONGLOMERATE.




## NAMES OF FORMATIONS.

| | Names and symbols used in this sheet. | Smith: Geology of the valley region adjacent to the Cahaba coal field, Alabama, 1890. | Smith: Outline of the Geology of Alabama, 1878. | Safford: Geology of Tennessee, 1869 |
|---|---|---|---|---|
| Carboniferous | Cw Walden sandstone.<br>Cl Lookout sandstone. | Coal measures. | Upper coal measures.<br>Lower coal measures.<br>Millstone grit; conglom. | Coal measures. |
| | Cb Bangor limestone. | Bangor limestone. | Upper sub-carboniferous or mountain limestone. | Mountain limestone. |
| | Cf Floyd shale.<br>Cp Fort Payne chert. | Oxmoor shale.<br>Fort Payne chert. | Lower sub-carbonifer's. | Siliceous group. |
| Dev. | Dc Chattanooga black shale. | Black shale. | Genesee or Black shale. | Black shale. |
| Silurian | Sr Rockwood formation. | Red mountain or Clinton. | Clinton or Dyestone. | Dyestone group: White Oak mountain sandst. |
| | Sa Athens shale. | | | |
| | Sc Chickamauga limestone. | Trenton or Pelham limestone. | Trenton, Chazy or Maclurea. | Trenton, Lebanon or Maclurea limestone. |
| | Sk Knox dolomite. | Knox dolomite. | Quebec or Knox dolom. | Knox dolomite. |
| Camb. | Ꞓc Connasauga shale. | Choccolocco or Montevallo shales. | Knox shales. | Knox shale. |
| | Ꞓr Rome formation. | | Calciferous or Knox s. s. | Knox sandstone. |
| | Ꞓrs Rome sandstone. | | | |
| | Ꞓa Apison shale. | | | |

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