Base by Tennessee Valley Authority and U.S. Geological Survey, 1952

Geology by K. J. Englund, J. A. VanLieu, and A. O. DeLaney, 1953, 1954, and 1962

APPROXIMATE MEAN DECLINATION, 1968

SCALE 1:24 000

1 ½ 0 1 MILE

1 .5 0 1 KILOMETER

CONTOUR INTERVAL 20 FEET
DATUM IS MEAN SEA LEVEL

EXPLANATION

QUATERNARY

- Qal — Alluvium
- Qc — Colluvium

PENNSYLVANIAN (Breathitt Group; Lee Formation)

- Middle Pennsylvanian — Ph — Hignite Formation: wm, *Walnut Mountain coal bed*; m, *base of Magoffin Beds of Morse (1931)*
- Pc — Catron Formation: w, *Windrock coal bed*
- Pmp, Pm — Mingo Formation: jo, *Jordan coal bed*; Pmp, *Pioneer Sandstone Member*; j, *Jellico coal bed*
- Lower and Middle Pennsylvanian — Phai, Pha, Phay — Hance Formation: Phai, *Ivydell Sandstone Member*; rm, *Rich Mountain coal bed*; bg, *Blue Gem coal bed*; bw, *Black Wax coal bed*; ke, *Kent coal bed*; sa, *Swamp Angel coal bed, shown in section only*; mu, *Murray coal bed*; rx, *Rex coal bed*; Phay, *Yellow Creek Sandstone Member*; n, *Naese coal bed*
- Pln — Naese Sandstone Member

UNCONFORMITY

- Lower Pennsylvanian — Plh, Plhu, Plhl — Hensley Member: Plhu, *upper sandstone bed*; Plhl, *lower sandstone bed*
- Plm, Plm1, Plm2, Plm3, Plm4 — Middlesboro Member: Plm1–4, *sandstone beds*; c, *unnamed coal bed*; Plm, *undivided; shown in section only*
- Pl — Lee Formation, undivided
- Mlp — Pinnacle Overlook Member: *Intertongues with the upper member of the Pennington Formation*

MISSISSIPPIAN

- Upper Mississippian — Mp, Mpu, Mpl — Pennington Formation: Mpu, *upper member*; Mpl, *lower member*; Mp, *undivided; shown in section only*
- Mn, Mnu, Mnl — Newman Limestone: Mnu, *upper member*; Mnl, *lower member*; Mn, *undivided; shown in section only*
- Lower Mississippian — Mf — Fort Payne Chert
- Mg — Grainger Formation

DEVONIAN

- Upper Devonian — Dc — Chattanooga Shale

UNCONFORMITY

SILURIAN

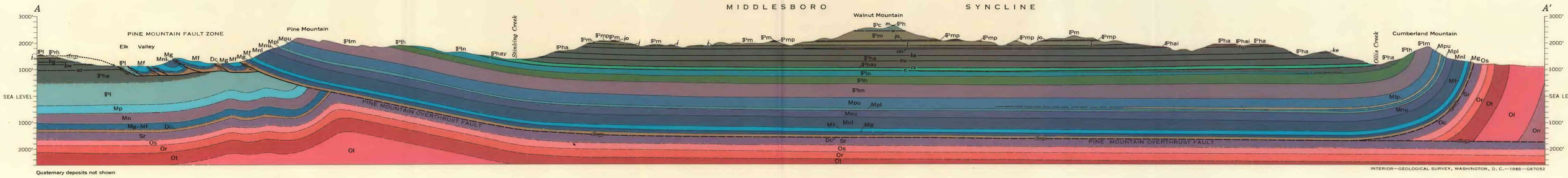
- Lower and Middle Silurian — Sr — Rockwood Formation

ORDOVICIAN

- Upper Ordovician — Os — Sequatchie Formation
- Or — Reedsville Shale
- Ot — Trenton Limestone
- Middle Ordovician — Ol — Middle Ordovician limestones, undifferentiated
- Lower Ordovician, Knox Group — On — Newala Dolomite

CARBONIFEROUS

- Contact — *Dashed where approximately located; dotted where concealed*
- Coal bed — *Dashed where approximately located; dotted where concealed*
- Fault — *Dashed where approximately located. U, upthrown side; D, downthrown side*
- Thrust fault — *Dashed where approximately located; dotted where concealed. T, on upper plate*
- Anticline — *Showing position of crestline*
- Syncline — *Showing position of troughline. Dashed where approximately located*
- 22 — Strike and dip of beds
- 1600 — Structure contours — *Drawn on top of Blue Gem coal bed northwest of Pine Mountain fault zone and on top of Kent coal bed on the Cumberland overthrust sheet. Long dashed where control less accurate. Short dashed where datum is above land surface. Hachures indicate closed basin. Contour interval 20 feet*
- 344 — Mine adit — *Number refers to location of graphic section on plate 8*
- 302 — Prospect or outcrop of coal bed — *Number refers to location of graphic section on plate 8*
- Strip mine
- Strip mine — *Area completely stripped*
- Core hole
- Show of gas
- Quarry
- Inclined shaft



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GEOLOGIC MAP AND SECTION OF THE IVYDELL QUADRANGLE, TENNESSEE