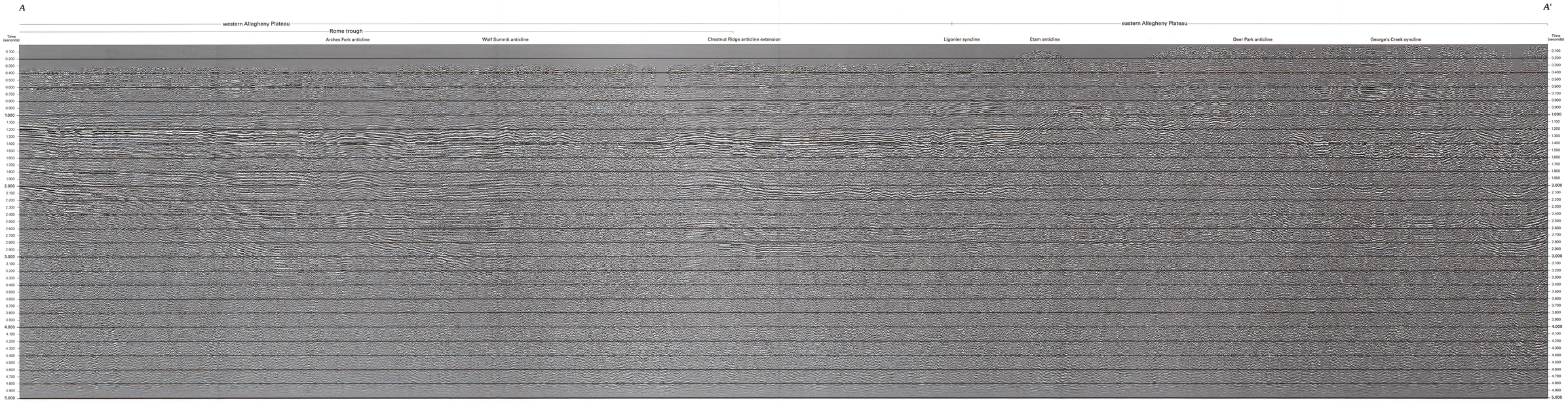

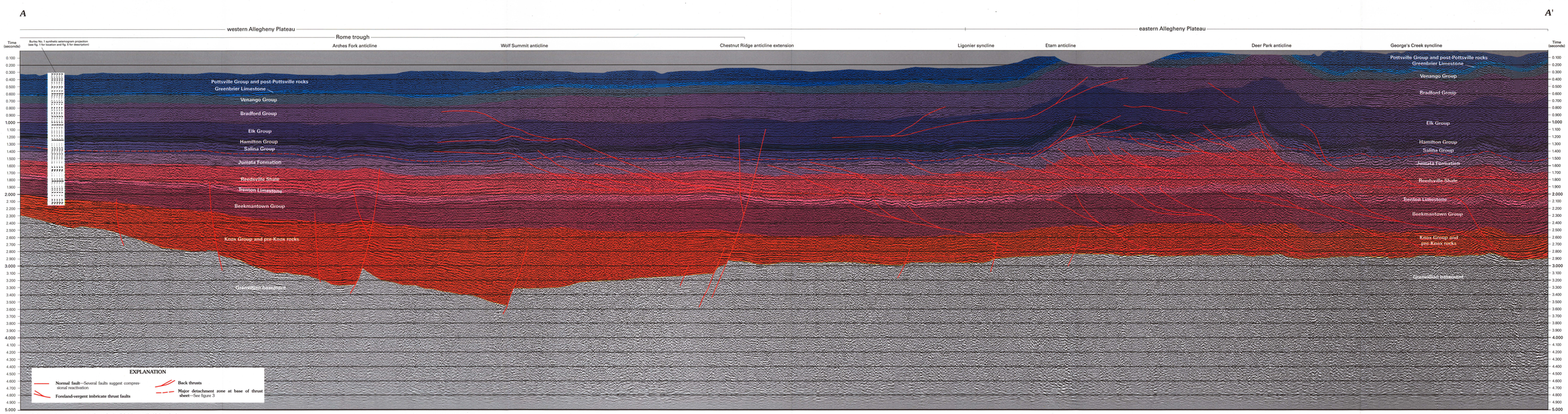

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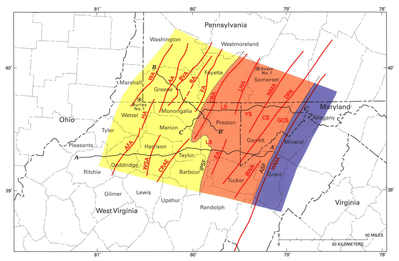

Figure 1.—Location of seismic sections, wells, and anticlinal axes. General locations of synclines also are shown. ASF, Allegheny structural front; IPSF, intraplateau structural front (of Gwinn, 1964); AA, Amity anticline; AFA, Arches Fork anticline; BWA, Blackwater anticline; BA, Brownsville anticline; BVA, Belle Vernon anticline; CRA, Chestnut Ridge anticline; CRAE, Chestnut Ridge anticline extension; CS, Casselman syncline; DPA, Deer Park anticline; EA, Etam anticline; FA, Fayette anticline; GCS, George's Creek syncline; HA, Hundred anticline; LHA, Laurel Hill anticline; LS, Ligonier syncline; NMA, Negro Mountain anticline; WA, Washington anticline; WMA, Wills Mountain anticline; WSA, Wolf Summit anticline; YS, Youghiogheny syncline.

EXPLANATION

- Low plateau of Gwinn (1964)—Refers to "western" Allegheny Plateau province of this report
- High plateau of Gwinn (1964)—Refers to "eastern" Allegheny Plateau province of this report
- Valley and Ridge province
- A—A' Seismic line
- CRA Axial trace of anticline—Dashed where inferred
- IPSF Structural front
- Well location

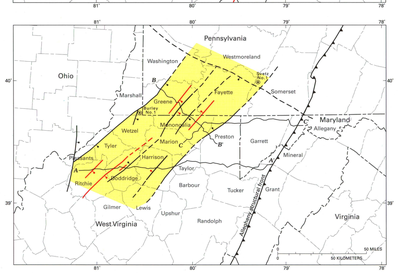

Figure 2.—Location of seismic sections, wells, and major basement faults of the Rome trough. Modified from Shumaker (1996).

EXPLANATION

- Rome trough
- A—A' Seismic line
- Thrust fault—Sawteeth on upper plate
- Normal fault—From Shumaker (1996). Bar and ball on downthrown side. Dashed where inferred
- Normal fault—This study. Bar and ball on downthrown side. Dashed where inferred
- Normal fault—From Shumaker (1996). Red bar and ball shows downthrown side from this study. Dashed where inferred
- Well location

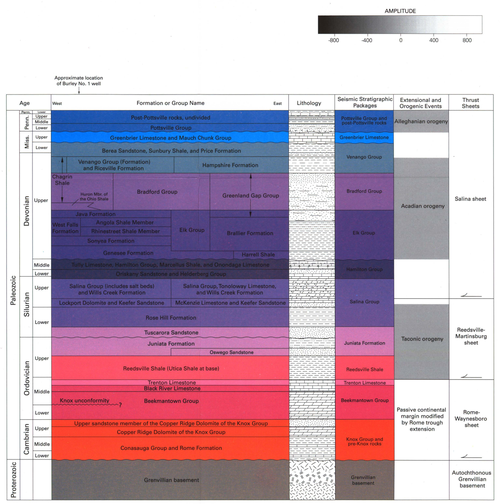

Figure 3.—Correlation chart of Paleozoic and Proterozoic rocks in the study area and associated thrust sheets. Also shown are times of major extensional and orogenic events. Colors refer to seismic stratigraphic packages that are defined in figure 5 and interpreted on the seismic sections.

- **Post-Pottsville rocks**—Gray, green, and, locally, red silty shale, sandstone, bituminous coal, and local argillaceous limestone
- **Pottsville Group**—Interbedded sandstone, siltstone, mudstone, shale, and coal; conglomerate commonly found near base of section
- **Mauch Chunk Group**—Gray, green, and, locally, red shale
- **Greenbrier Limestone**—Greenish-gray and reddish-gray argillaceous limestone interbedded with red calcareous shale and sandstone
- **Price Formation**—Interbedded marine clastics; primarily shale with fine-grained sandstone close to the base and top; includes Weir and Big Injun sands
- **Sunbury Shale**—Black shale, generally shallow marine in origin
- **Berea Sandstone**—Medium- to fine-grained clay-bonded quartz sandstone
- **Riceville Formation**—Shale with interbedded marine siltstone
- **Venango Group (Formation)**—Fine- to coarse-grained sandstone and shale; includes Gordon sands
- **Chagrin Shale and Huron Member of the Ohio Shale**—Silty gray shale (Chagrin Shale) at top and black shale (Huron Member) at base
- **Java Formation**—Thin, black shale at the base overlain by gray shale and mudstone
- **West Falls Formation**—Coarsening upward sequence of clastic sediments from black shale of the Rhinestreet Shale Member at the base through silty shale of the Angola Shale Member at the top
- **Sonyea Formation**—Brown, friable shale with interbedded thin siltstone layers; includes basal, black Middlesex Shale Member
- **Genesee Formation**—Brown, friable shale with interbedded thin siltstone layers and at least one limestone layer; includes basal, black Geneseo Shale Member
- **Tully Limestone**—Shaly limestone
- **Marcellus Shale**—Dark-gray to black, fissile, thinly laminated carbonaceous shale with pyritic inclusions; lower part of Hamilton Group
- **Onondaga Limestone**—Gray, fine-grained limestone and gray-mottled and brown-mottled chert with rare layers of finely laminated shale

Stratigraphic column continues with the Oriskany Sandstone.

Eastward-equivalents of Upper Devonian stratigraphic units shown in column to the left

- **Bradford Group**—Fine-grained sandstone and shale; includes Balltown sands
- **Elk Group**—Fine-grained sandstone and shale; includes Benson sands
- **Hampshire Formation**—Interbedded red mudstone, red shale, and brown-to-red crossbedded sandstone and siltstone; some fossiliferous, thinly bedded, green shale
- **Greenland Gap Group**—Interbedded marine siltstone and sandstone, largely olive, gray, or dusty green in color; some shale layers in the lower members
- **Brallier Formation**—Dark- to medium-gray, laminated siltstone and shale; weathers to light gray; coarsens upward
- **Harrell Shale**—Medium- to dark-gray shale

- **Oriskany Sandstone**—Clean, white to light-gray, fine-grained sandstone interspersed with 10 to 20 percent limestone
- **Helderberg Group**—An amalgamation of various limestone, sandstone, and shale members, including the 200- to 300-ft-thick Keyser Limestone at the base
- **Salina Group**—Interbedded evaporite—primarily halite and anhydrite—and thickly laminated dolomite interspersed throughout the interval
- **Wills Creek Formation**—Thin-bedded mudstone, olive to yellowish-gray shale, and argillaceous dolomite
- **Lockport Dolomite**—Brown-gray, argillaceous dolomite, sometimes oolitic; locally interbedded with thin sandstone
- **Keefer Sandstone**—White to yellowish-gray, thick-bedded quartzite with calcium-carbonate cement
- **Rose Hill Formation**—Grayish-green and purplish, thin-bedded shale with interbedded gray, thin-bedded sandstone
- **Tuscarora Sandstone**—Light-gray to white, medium- to thick-crossbedded orthoquartzite and subgraywacke
- **Juniata Formation**—Grayish-red and greenish-gray siltstone and shale
- **Oswego Sandstone**—Very fine to coarse-grained sandstone with sparse conglomerate
- **Reedsville Shale**—Thick sequence of dark-gray shale with sparse limestone layers toward the western part of the Rome trough. Black shale of the Utica at base
- **Trenton and Black River Limestones**—The Trenton is predominantly light- to medium-gray crossinoid limestone with interbeds of dark, argillaceous, silt-size limestone and dark-gray shale. The Black River is micritic, light-gray limestone
- **Beekmantown Group**—Medium- to coarse-crystalline, light- to dark-gray massive dolomite; entire section contains silt and fine-grained sand in thin beds; commonly contains nodular chert
- **Upper sandstone member of the Copper Ridge Dolomite of the Knox Group**—Fine- to medium-grained quartzose sandstone
- **Copper Ridge Dolomite of the Knox Group**—A thickly bedded, highly competent, light-gray dolomite
- **Conasauga Group**—Light-blue limestone formations (Maynardville and Maryville Limestones) separated by the Nolichucky Shale
- **Rome Formation**—Alternating red and gray shale, sandstone, and limestone
- **Grenvillian basement**—Metamorphic and igneous rocks

Eastward-equivalents of Silurian stratigraphic units shown in column to the left

- **Tonoloway Limestone**—Bluish-gray, platy, thin-bedded limestone, dolomitic limestone, and sparse calcareous shale
- **McKenzie Limestone**—Light-colored, medium crystalline, partly oolitic limestone

Figure 4.—Description of stratigraphic units in the Burley No. 1 well and in adjoining parts of the study area. Colors refer to seismic stratigraphic packages that are defined in figure 5, shown in figure 3, and interpreted on the seismic sections.

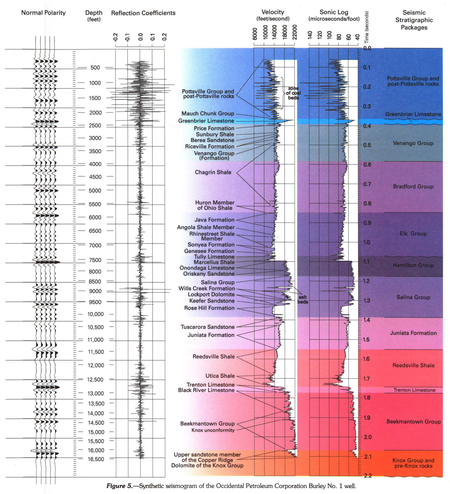

Figure 5.—Synthetic seismogram of the Occidental Petroleum Corporation Burley No. 1 well.

REGIONAL SEISMIC LINES ACROSS THE ROME TROUGH AND ALLEGHENY PLATEAU OF NORTHERN WEST VIRGINIA, WESTERN MARYLAND, AND SOUTHWESTERN PENNSYLVANIA

By
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2005

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