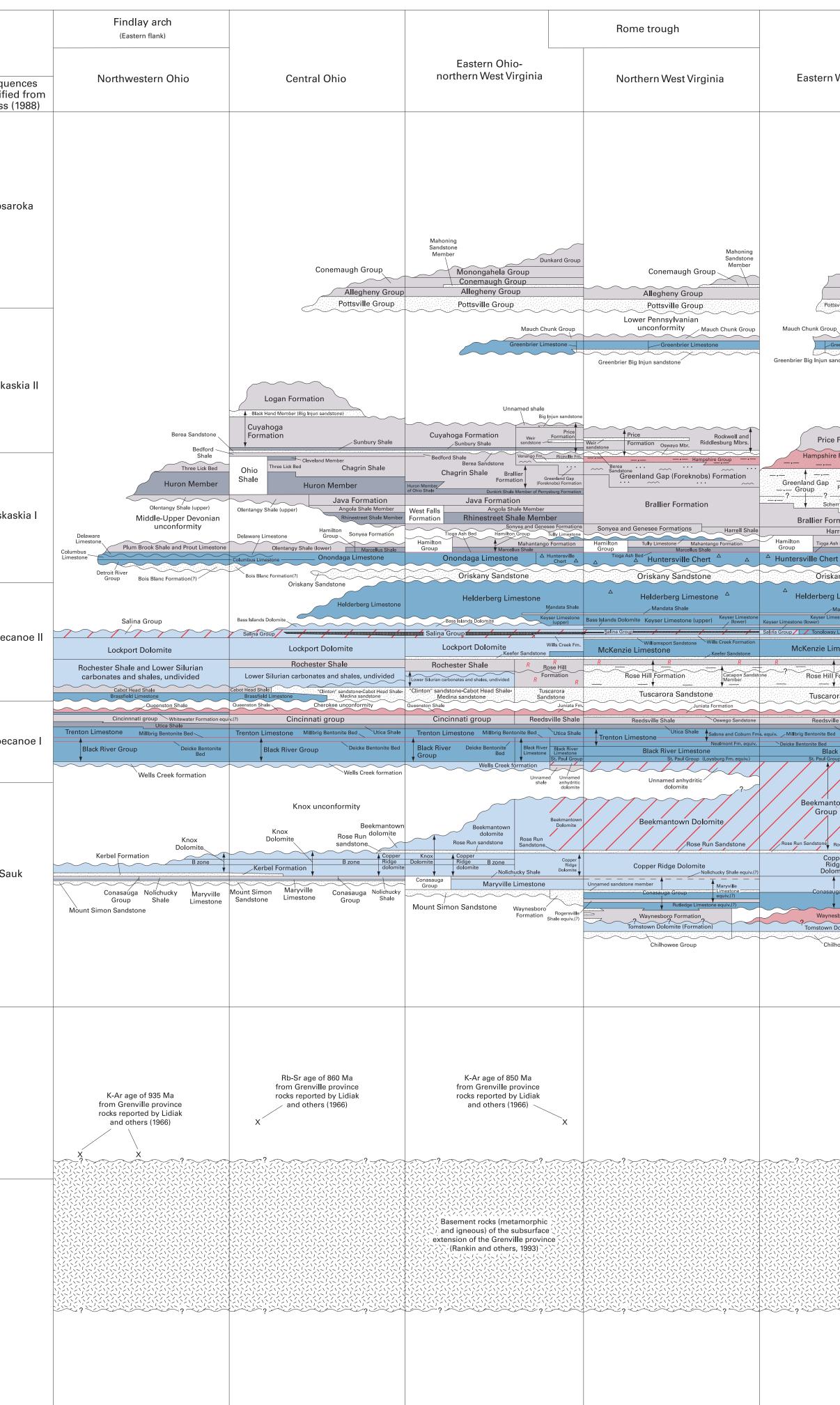
Age (Ma) Eon ^{251.0}	Era	System		International Series Lopingian	Upper	European Series	North American Series			International Stage Changhsingian Wuchiapingian	North American Stage		Seque modifie Sloss		
270.6 —			Permian	Guadalupian	Middle		Wa	Capitanian ordian/Road Leonardian	ian	Capitanian Wordian/Roadian Kungurian Artinskian	_				
				Cisuralian	Lower					Sakmarian	-		Absa		
299.0 —						, Autunian ,	V	Volfcampian	n	Asselian	_				
306.5 —			Penn- sylvanian	Upper Middle		Stephanian		Virgilian Missourian Desmoinesian		Gzhelian Kasimovian Moscovian	-				
311.7 —			Persylva	Lower		Westphalian		Atokan Morrowan	— 1 -	Bashkirian	_				
218.1 — 26.4 —		ferous		Upper		Namurian	_	Chesterian		Serpukhovian	_				
		Carboniferous	Mississippian	Middle			N	<i>l</i> lerameciar	ו	Visean			Kaska		
45.3 —			Miss	Lower			Osagean Kinderhookian		in	Tournaisian					
59.2 —				Upper			Chautauquan		n	Famennian					
	oic		u					Senecan		Frasnian			Kaska		
385.3 – .5 20 397.5 – 2.702 Bug bug bug bug bug bug bug bug bug bug b	Paleozoic	Devonian		Middle			Erian ² Taghanic ² Tioghniogian ² Cazenovian ³ Southwood ³		d³	Givetian Eifelian					
Bhane Bhane Bhane	_			1			Ulsterian ²	Sawkill [®] Deer Park		Pragian	-				
16.0 —				Lower			Ulst	Helderbei							
18.7 —			_	Pridoli Ludlow			C	_ Cayugan⁴	Upper ⁴	Unnamed Ludfordian/Gorstian	-		Tippec		
22.9 — 28.2 —			Silurian	Wenlock		-	N	liagaran⁴		Homerian/Sheinwoodian	-				
43.7 —			S	Llandovery					Lower ⁴	Telychian Aeronian/Rhuddanian	_				
-5.7						Ashgillian	0	Cincinnatiar	<u>ו</u>	- Katian ⁶	Ric	amachian hmondian aysvillian Edenian Shermanian ⁵			
			u	Upper		Caradocian		Mohawkian		Sandbian ⁶	ian	Kirkfieldian⁵ Rocklandian⁵ ackriveran ⁵	Tipped		
60.9 —			Ordovician	Middle		Llanvirnian	v	Vhiterockiaı	n	Darriwilian Dapingian ⁶	-				
71.8 —			Ord			Arenigian				Floian ⁶					
88.3 —				Lower		Tremadocian	_	lbexian		Tremadocian	Tremp	ealeauan ²			
-01.0				Furongian	Upper			Croixian ²	— 5 —	Unnamed ??Paibian	Frar	nconian ² bachian ²	Sa		
13.0 —		Cambrian		Middle		_	Albertan ²			Unnamed					
			Car	Lower			Waucoban ²								
42.0		EXPLANATION													
700 —	ozoic		SEDIMENTARY ROCKSLITHOLOGIC MODIFIERS(Dominant lithology)(Used in conjunction with dominant lithology)												
800 —	Neoproterozoic				Sandstone Sandstone and silts					Sandy	0,77				
000	Neop									Silty					
900-						Red sandstone and	red s	iltstone		Argillaceous, gray and (or) greer					
Proterozoic					Black shale					Anhydritic	_				
Prote					Gray and (or) green shale										
,					Dolomite										
,200 —	Jzoic	Dzoic				Halite									
,300—	oroterozoic					Bentonite bed									
,400—	Mesop														
,500 —		² Harl ³ Ver \$	and and ot	yton (2006). hers (1990). nd Brett (2006). s (1995).											
		⁵Web	by (1995).	ohy.org (accessed 12/19/08).											

Figure 1.—Correlation of Paleozoic rocks along geologic cross section D–D' (Ryder and others, 2009, which was re-released in this volume, chap. E.4.1) in Ohio and West Virginia showing associated total petroleum systems as defined by Milici and others (2003). Geologic time scale from Gradstein and others (2004). Abbreviations are as follows: equiv., equivalent; Fm., Formation; K-Ar, potassium-argon; Ls., Limestone; Ma, millions of years; Mbr., Member; Mbrs., Members; Rb-Sr, rubidium-strontium.



Allegheny structural front and Valley and Ridge province				sy Appa Ohio	yster alach and \	Nest'	
		an	Middle Upper				
		Permian	Lower				
Conemaugh Group Allegheny Group	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	Pennsylvanian	Lower Middle Upper	Lower Middle Upper Carboniferous Coal-bed Gas			
reenbrier Limestone	erous		Upper				
indstone	Carboniferous	Mississippian	Middle		eozoic		
Formation			Lower				
Foreknobs Formation Proreknobs Formation Provemation P	Devonian		Upper		Devonian Shale-Middle and Upper Pa		
sh Bed Mahantango Formation Marcellus Shale rt A Needmore Shale		Devo	Middle		De		
Limestone Andata Shale estone (upper) Big Mountain Shale Big Mou	Corriga New C	ata Shale anville Ls. and reek Ls.	Lower				
V Limestone / Wills Creek Formation /	-Keyser	untain Shale Limestone wwer)	Upper				
Formation Cacepon Sandstone	ne	Silurian	Lower			İ	
Juniata Formation		Ordovician	Middle			Utica-Lower Paleozoic	sauga
town o Beekmantown Group		OLOO	Lower Mic				
Rose Run Sandstone equiv.		f Gatesburg juiv.(?)	er				ne/Conas:
Ige Copper Ige Ridge Ridge Mite Dolomite Iga Group Elbrook Formation (Dolomite)	Ore Hil of Gate Fm. eq	I Ls. Mbr. sburg uiv.(?)	lle Upper				Conasauga-Rome/Cona:
sboro Formation		Cambrian	Middle				Conas
Dolomite (Formation)		Cam	Lower				•
 A state of the sta							