

Production History and Exploration Targets in Western Nebraska

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Regional Structural Framework

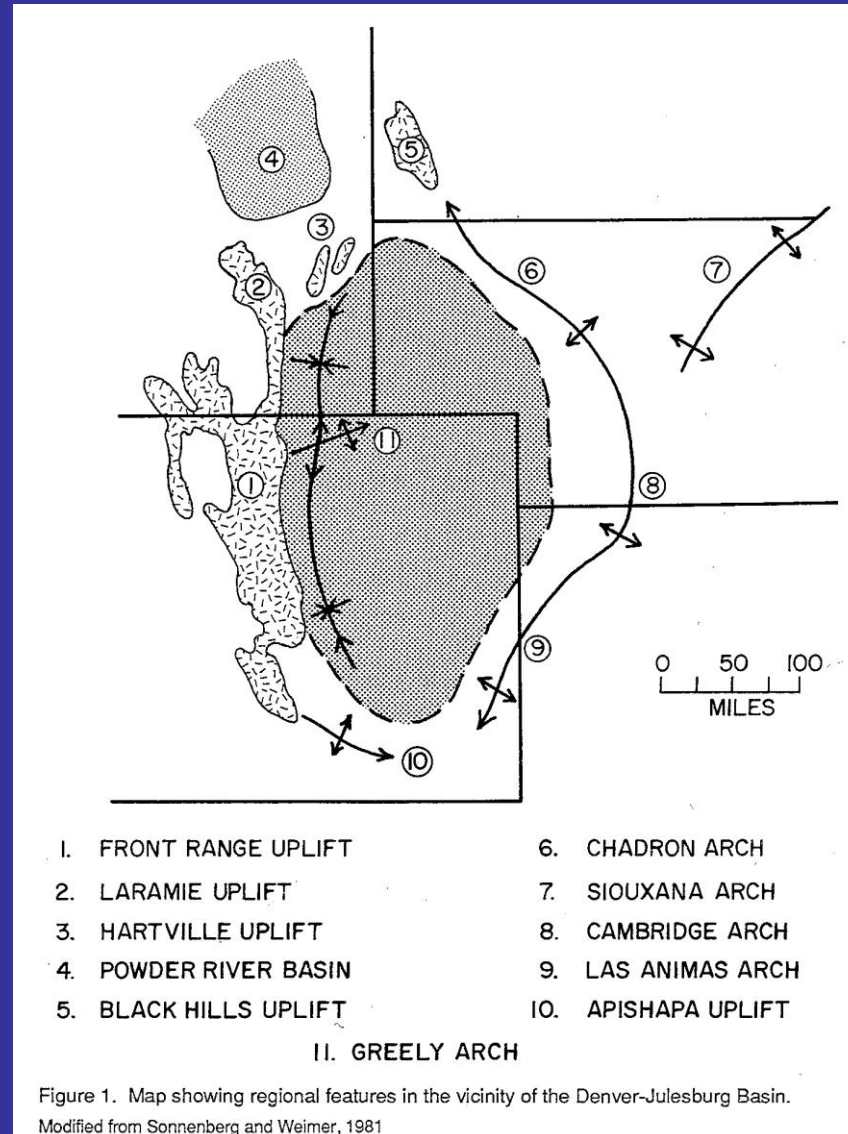
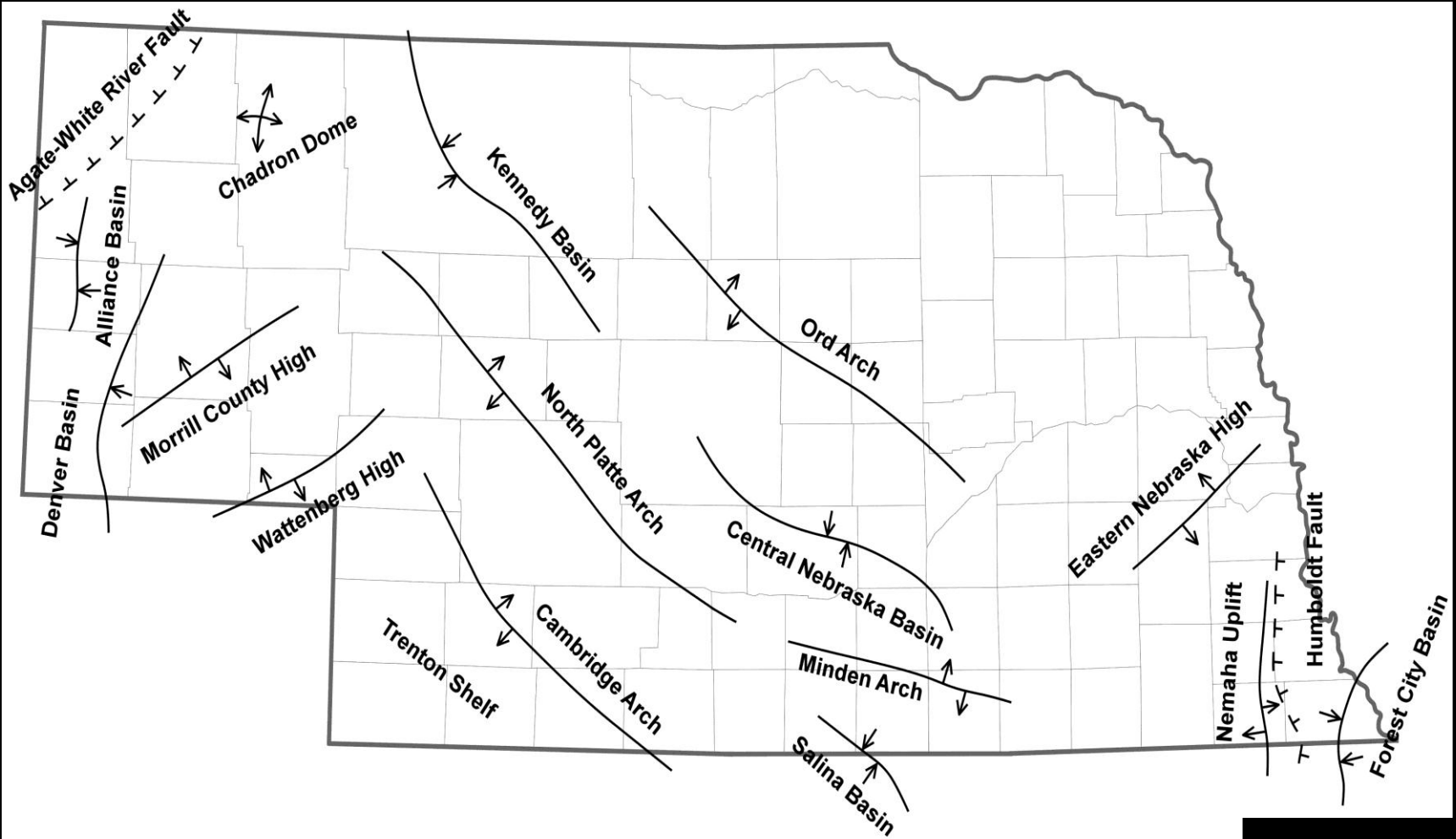


Figure 1. Map showing regional features in the vicinity of the Denver-Julesburg Basin.
Modified from Sonnenberg and Weimer, 1981

Revised Structural Features, Nebraska

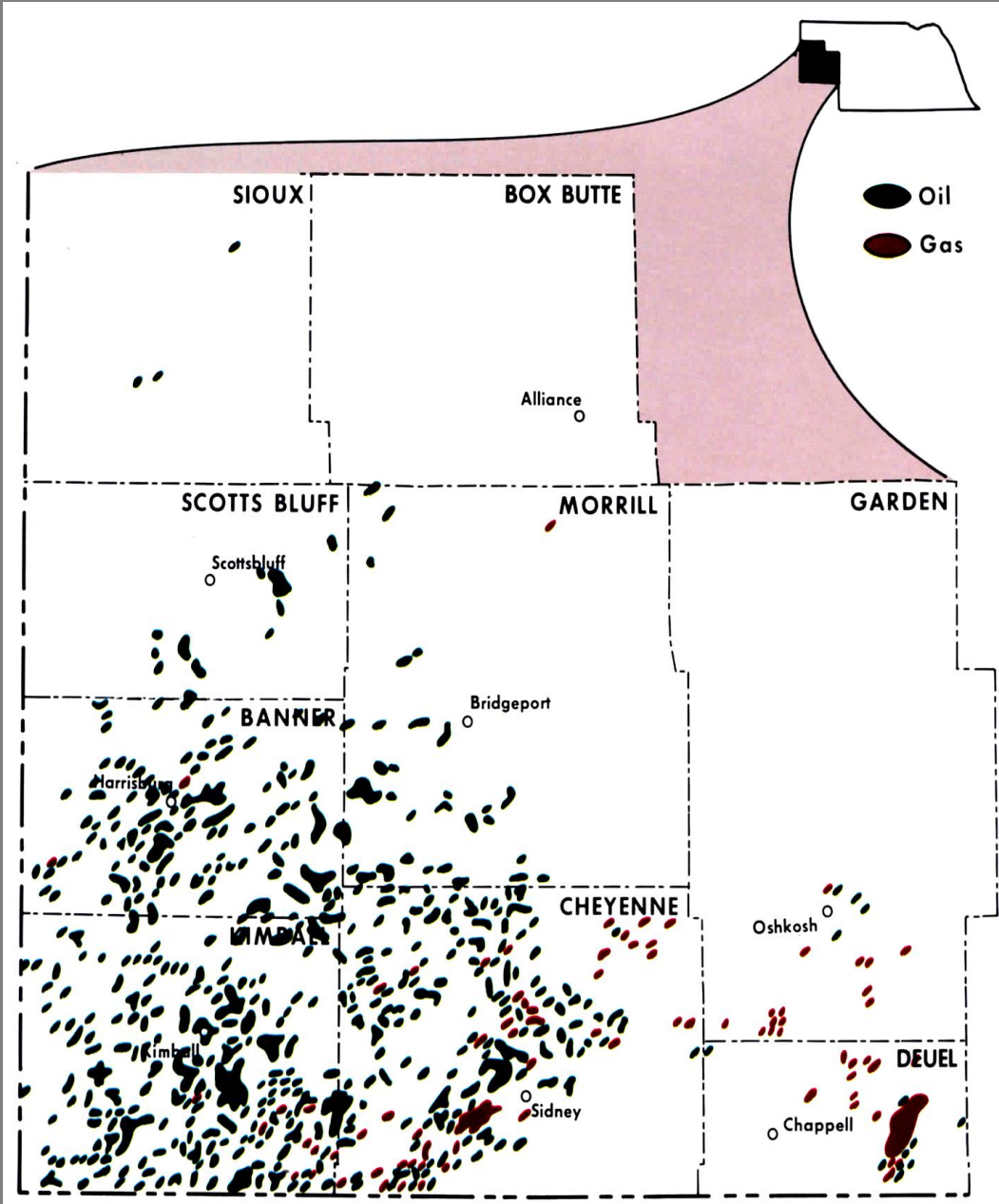


General Stratigraphic Column

TERTIARY	White River	Ogallala
		Hemingford
		Arkaree
		Brule
		Chadron
CRETACEOUS	Fox Hills	
	Pierre	Transition Zone
		Parkman
		Sharon Springs
	Niobrara	Smokey Hill
		Fort Hays
		Codell
	Carlile	
	Greenhorn	
	Graneros	Belle Fourche
		X Bentonite
	Dakota D	
	Huntsman	
	Dakota J	
	Skull Creek	
Lakota		
JUR	Morrison	
	Sundance	
TR	Spearfish	

JUR	Morrison	
	Sundance	
TR	Spearfish	
PERMIAN	Guadalupe	Ervas
		Forelle
		Glendo
		Minnekahta
		Opeche
	Leonard	Blaine
		Flowerpot
	Cedar Hills - Lyons	
	Stone Corral	
	Ninnescah	
	Wolfcamp	Chase
		Council Grove
PENNSYLVANIAN	Virgil	Wabaunsee
		Shawnee
	Missouri	Lansing
	Des Moines	Marmaton
		Cherokee
Atoka		
Precambrian		

Panhandle Fields

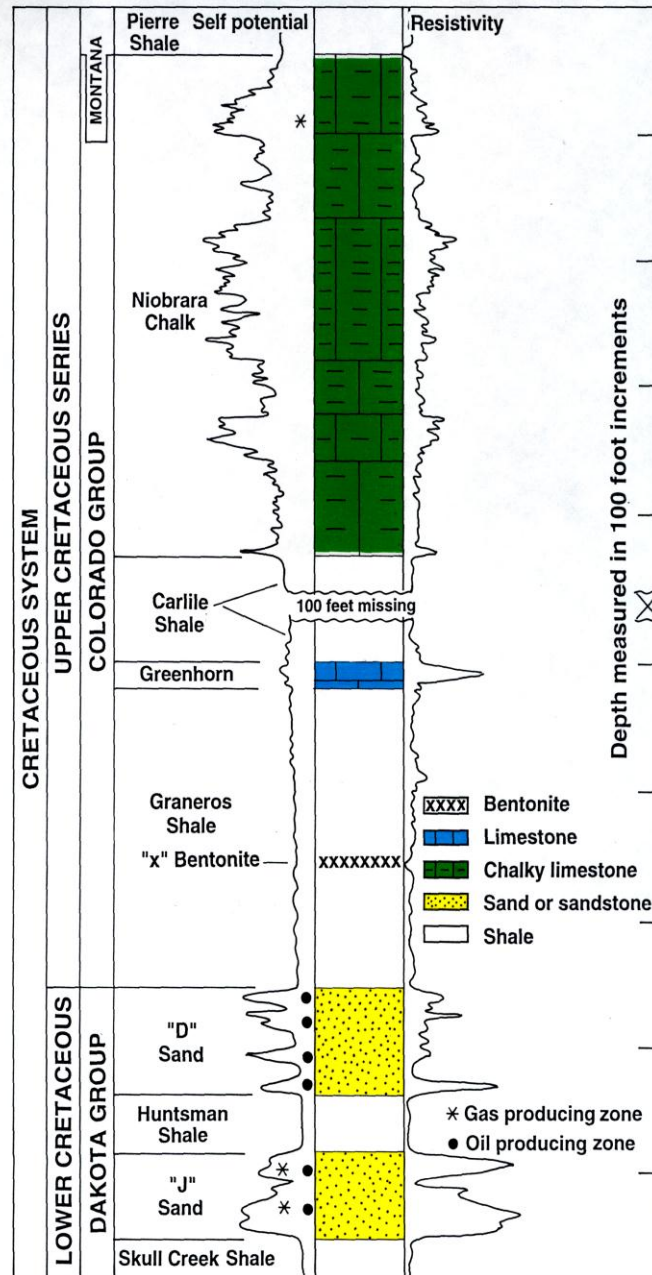


D and J Sand Production

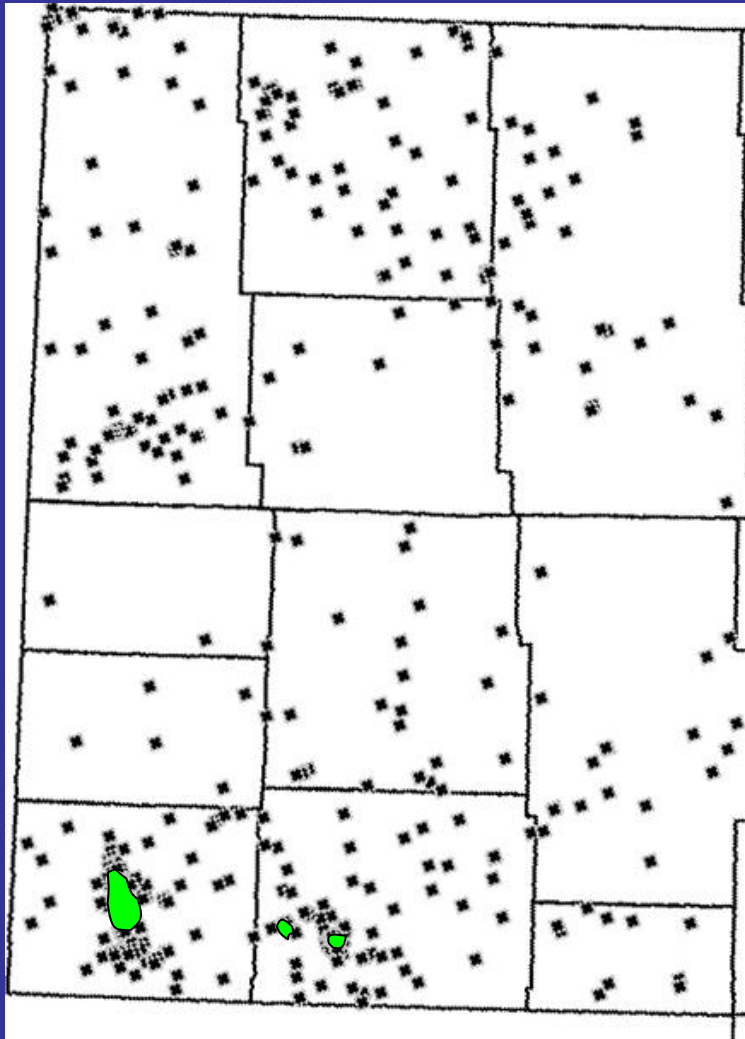
Cumulative Values for Cretaceous Oil and Gas Production
as of April 2011
State of Nebraska

Formation	Oil, MMBO	Gas, MMCF	Water, MMBO
Gurley "D" Sand	68.787	118,726	336.910
Allocated "D"	8.051	10,008	31.151
Total	76.838	128,734	368.061
Cruise "J" Sand	247.508	36,012	834.705
Allocated "J"	28.969	36,012	112.089
Total	276.477	72,023	946.794
Grand Totals	353.315	200,757	1,314.855

Panhandle Cretaceous Reservoirs



Permo-Penn Production



Amazon Field

5 Wells

255,431 BO

Bird Field

5 Wells

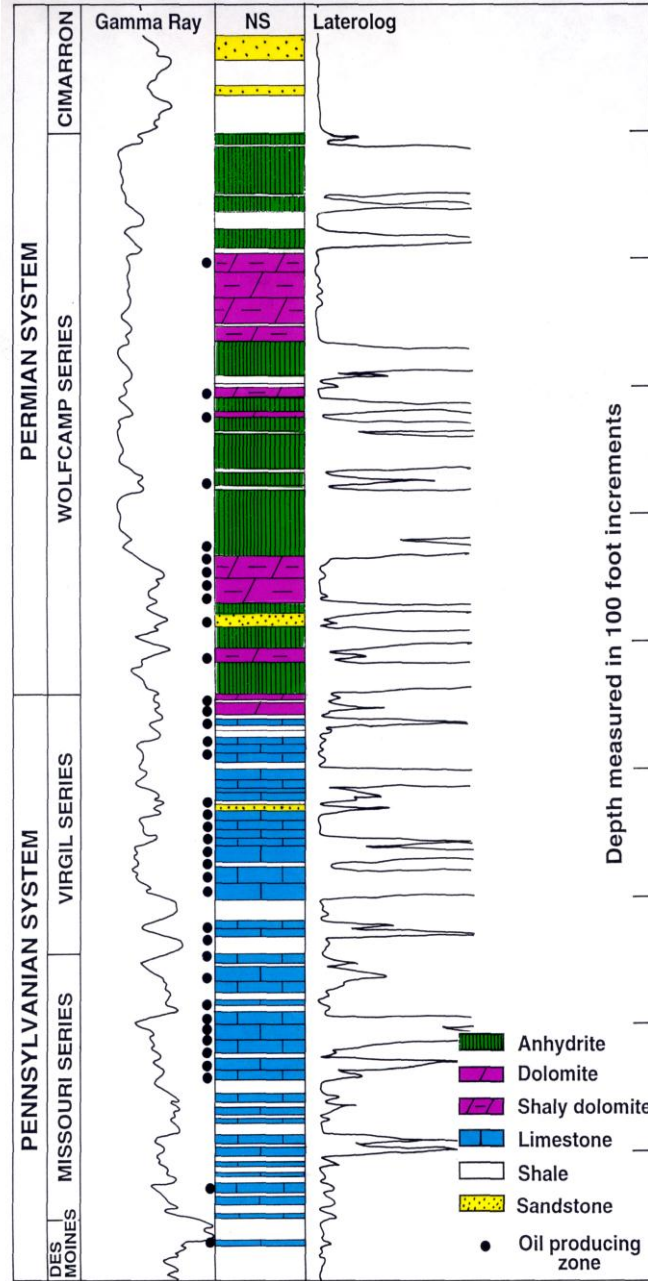
2,069,109 BO

Kleinholz Field

33 Wells

6,978,059 BO

Panhandle Paleozoic Reservoirs



Permian Basins

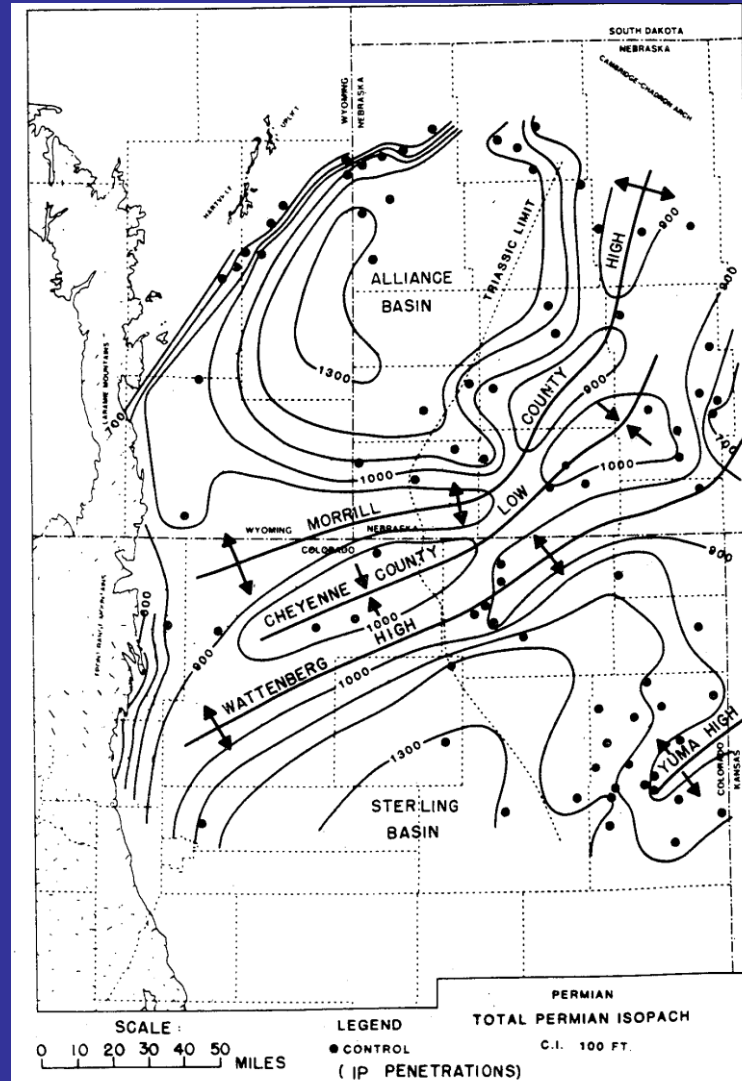
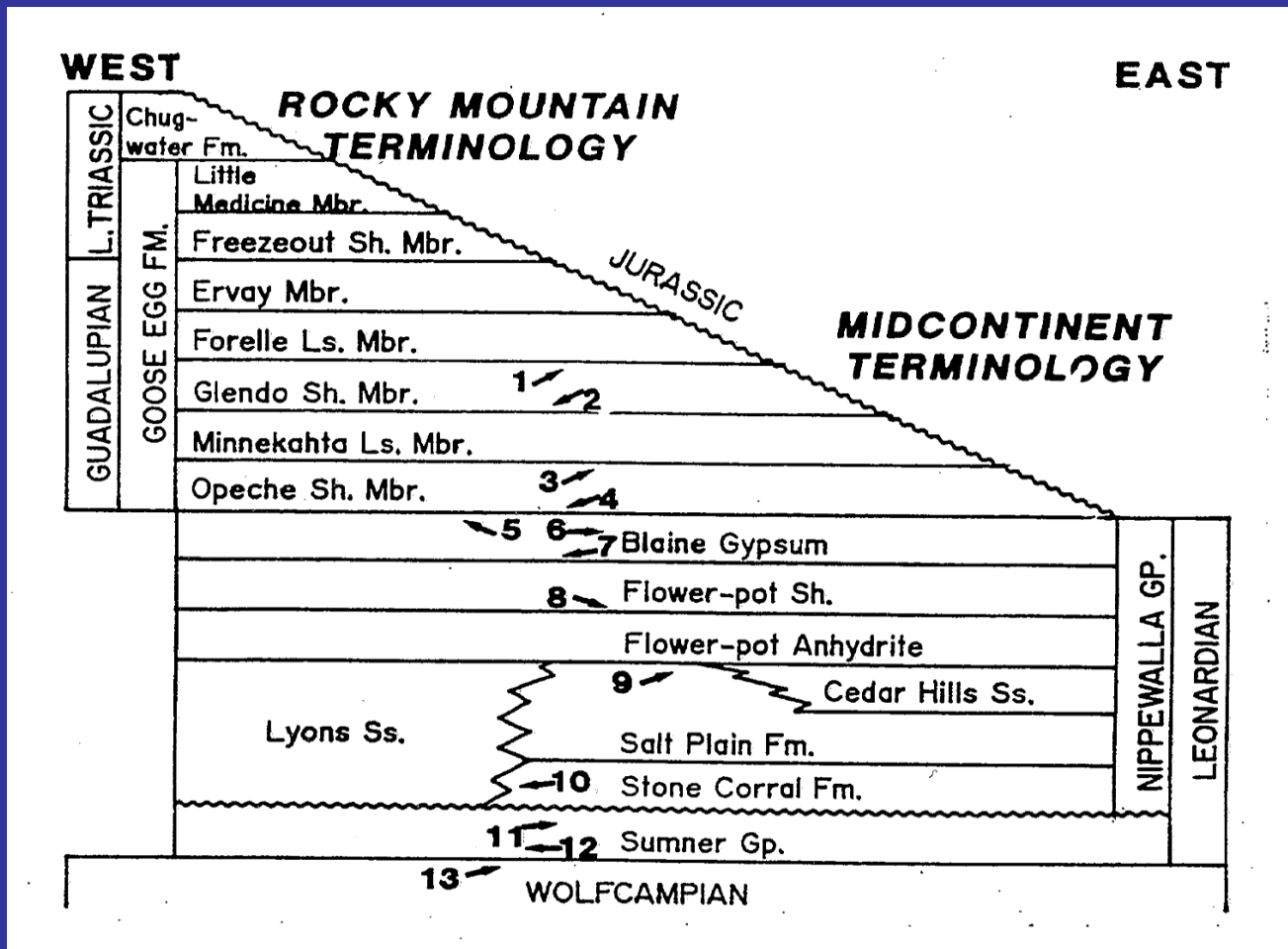
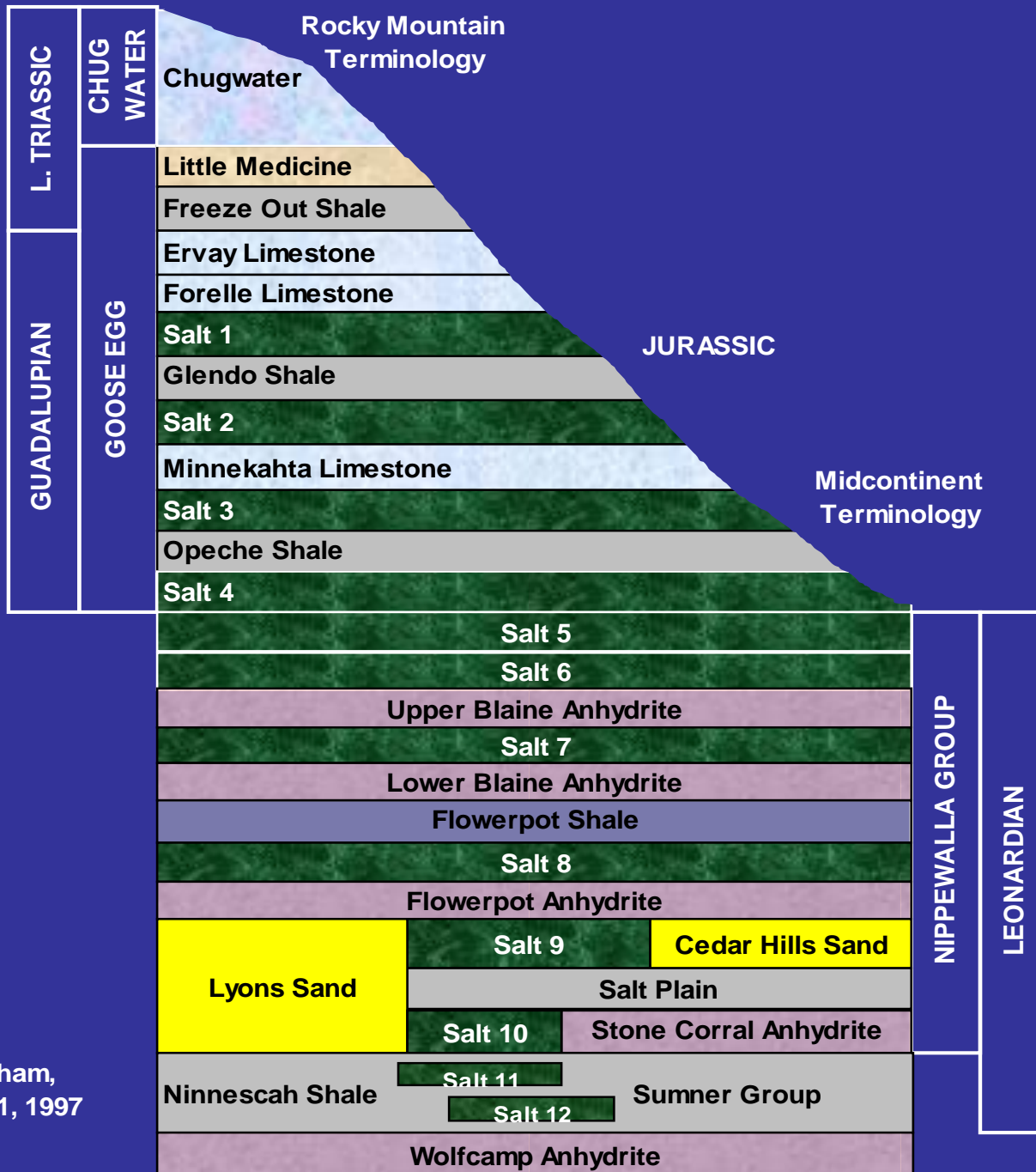


Figure 15. Isopach, total Permian.

Source: Sonnenberg and Weimer, 1981

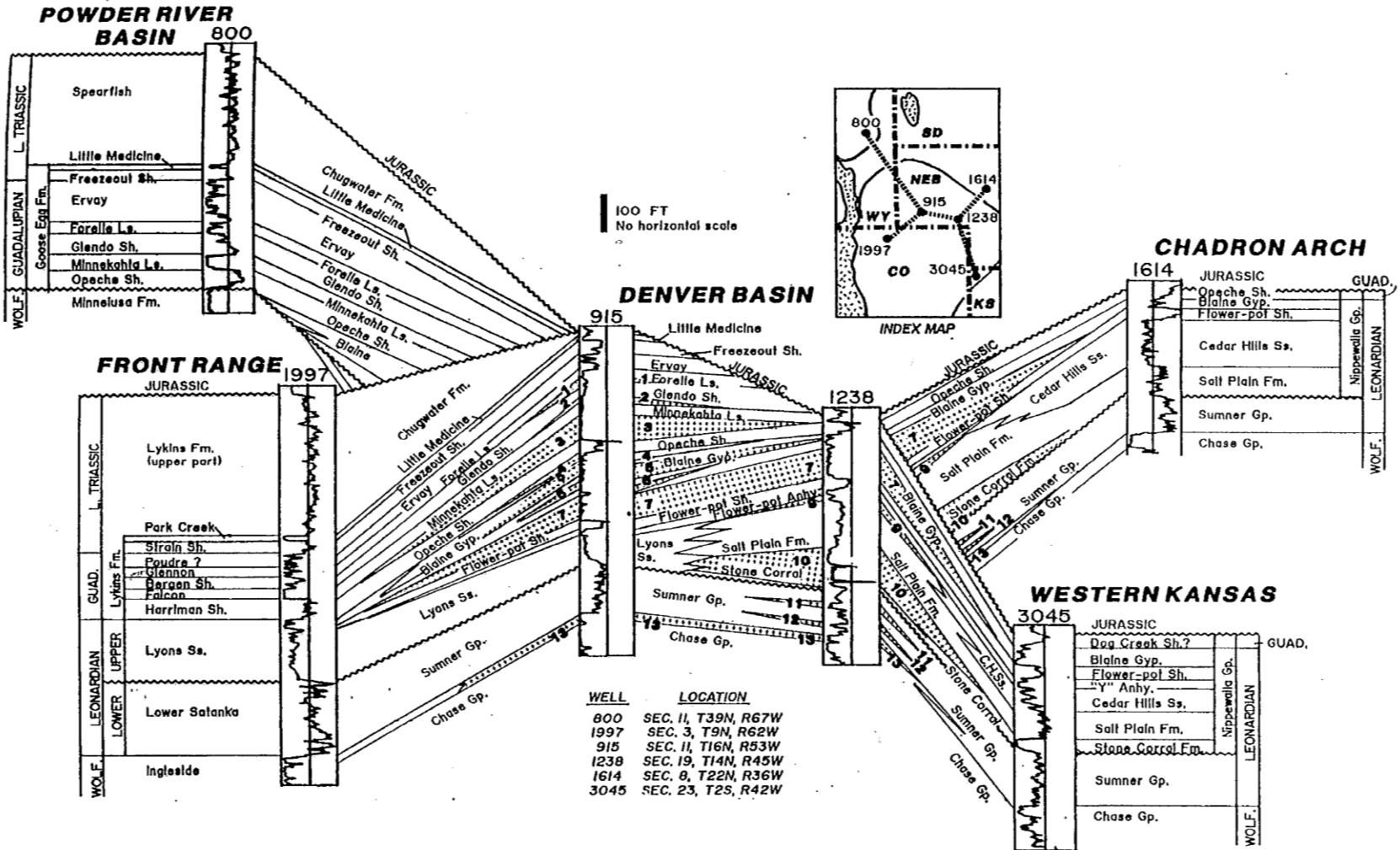
Permian Stratigraphic Complexity





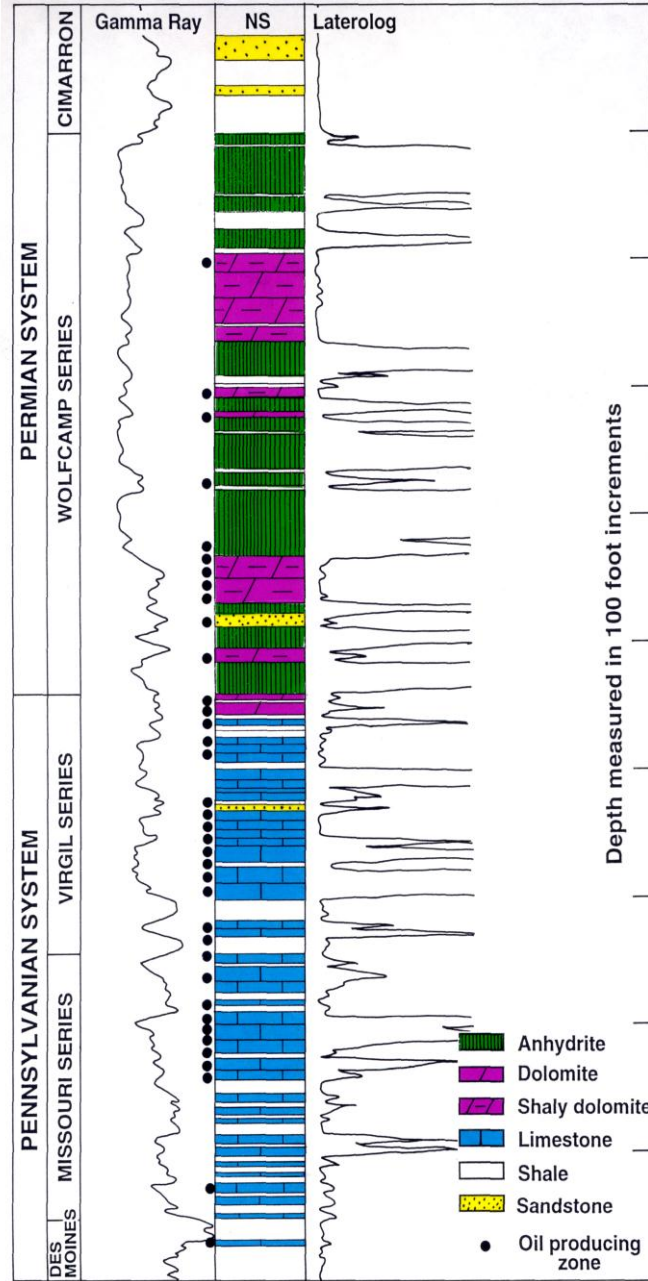
After Oldham,
Figure 3-1, 1997

Fence Diagram of Permian

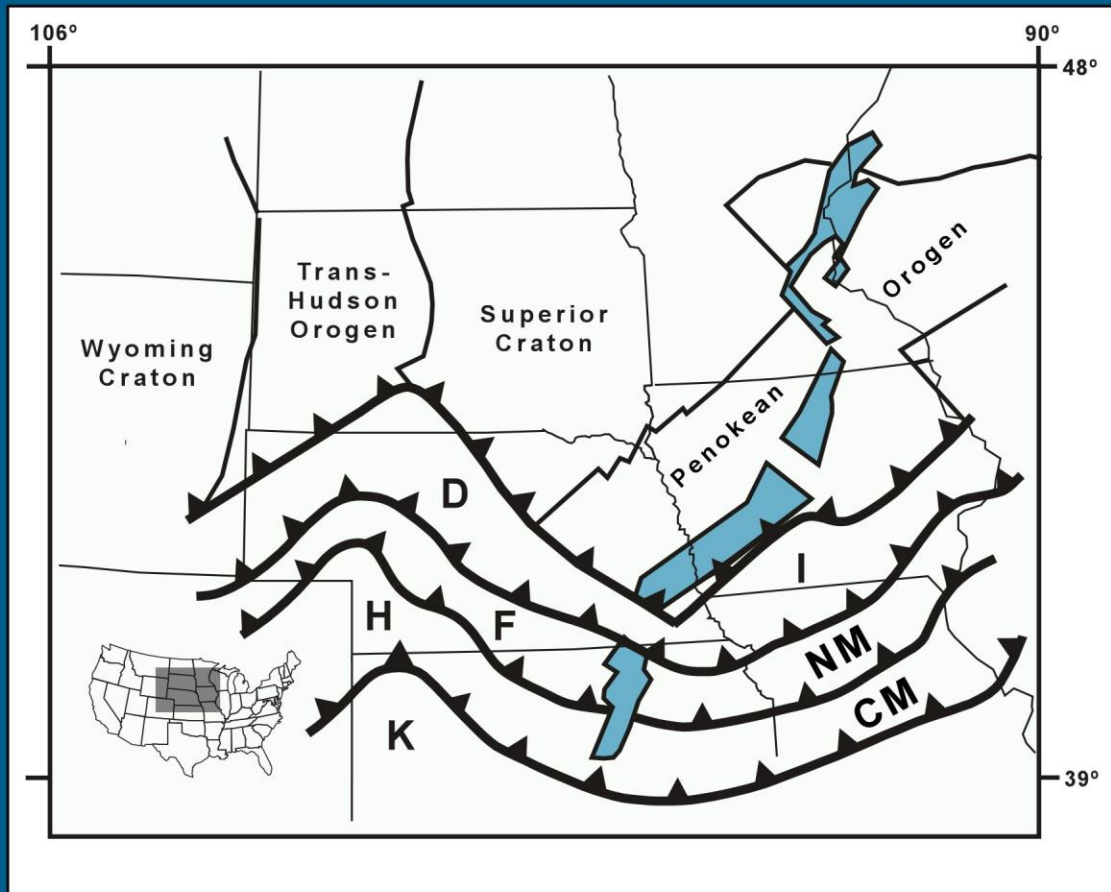


Modified from Oldham, Figure 3-4, 1997

Panhandle Paleozoic Reservoirs



ACCRETIONARY TERRAINS



D Dawes
(1.78 Ga)

F Frontier
(1.71Ga)

H Hitchcock
(1.67Ga)

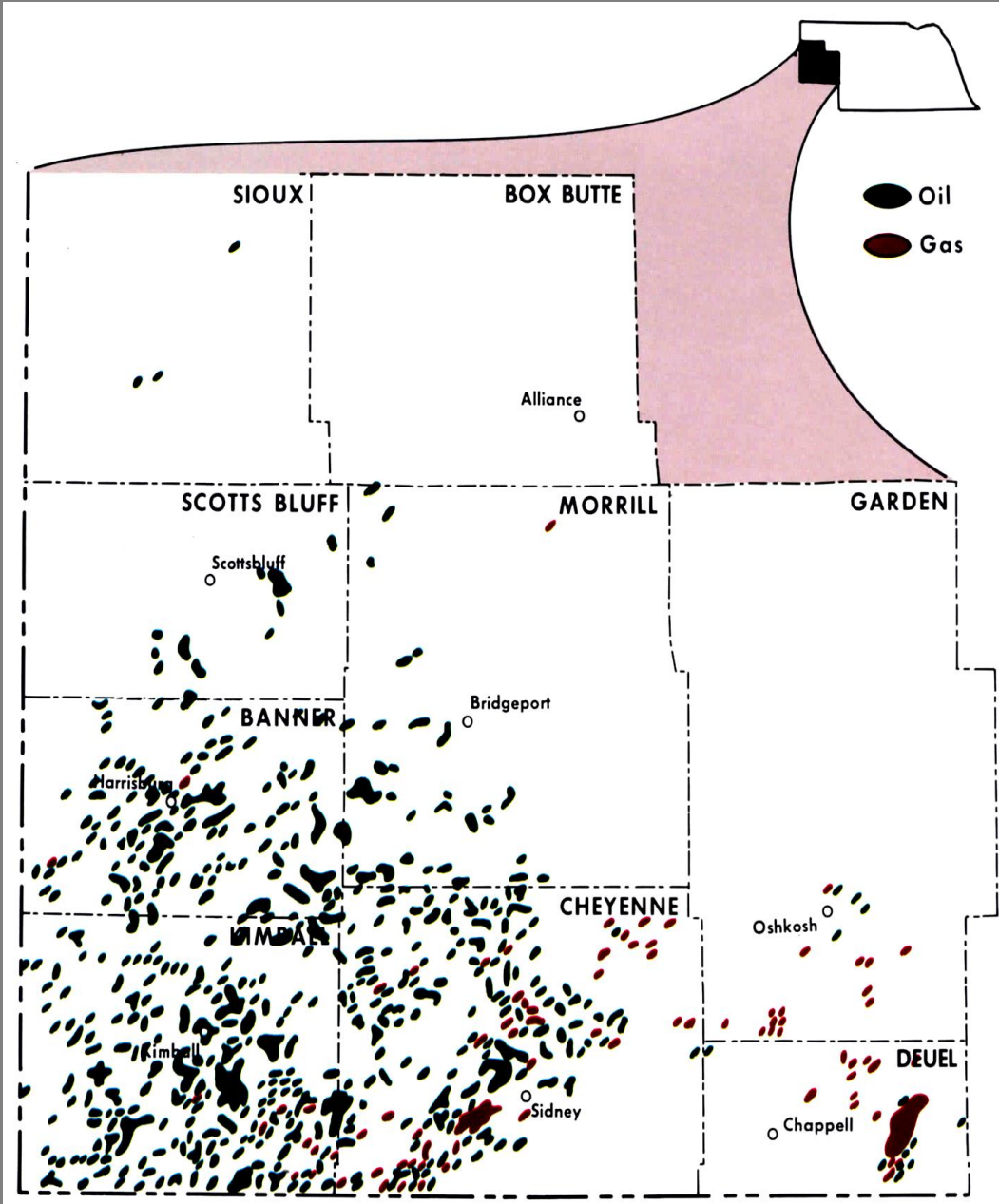
K Western Kansas
(1.61Ga)

I Southern Iowa

NM Northern Missouri

CM Central Missouri

Panhandle Fields



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