

**Redefinition of the Tectonic Features  
in Portions of Nebraska  
and Adjoining Areas**  
*New Approaches to Exploration*

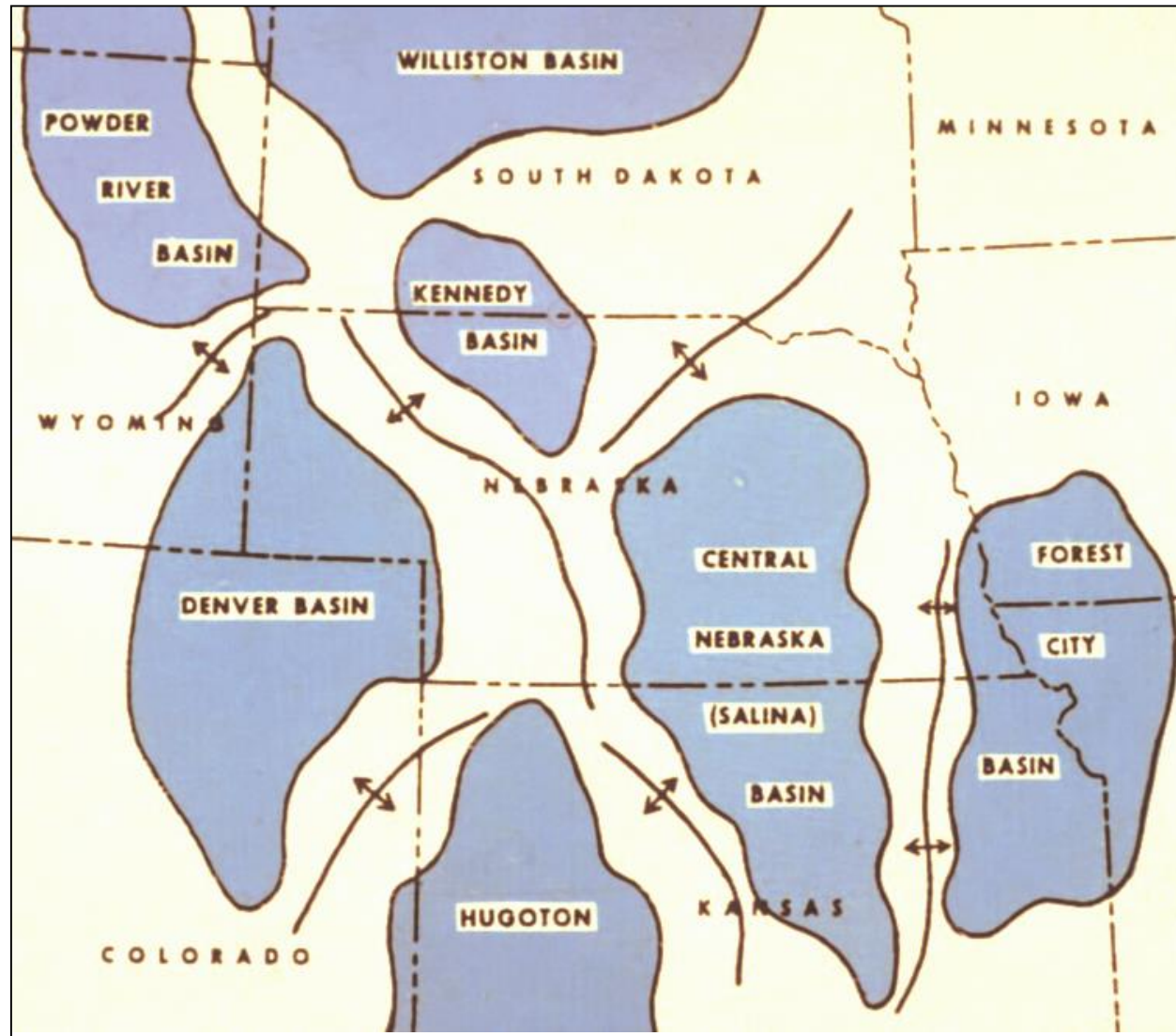
**Marvin P. Carlson**

*Nebraska Geological Survey*

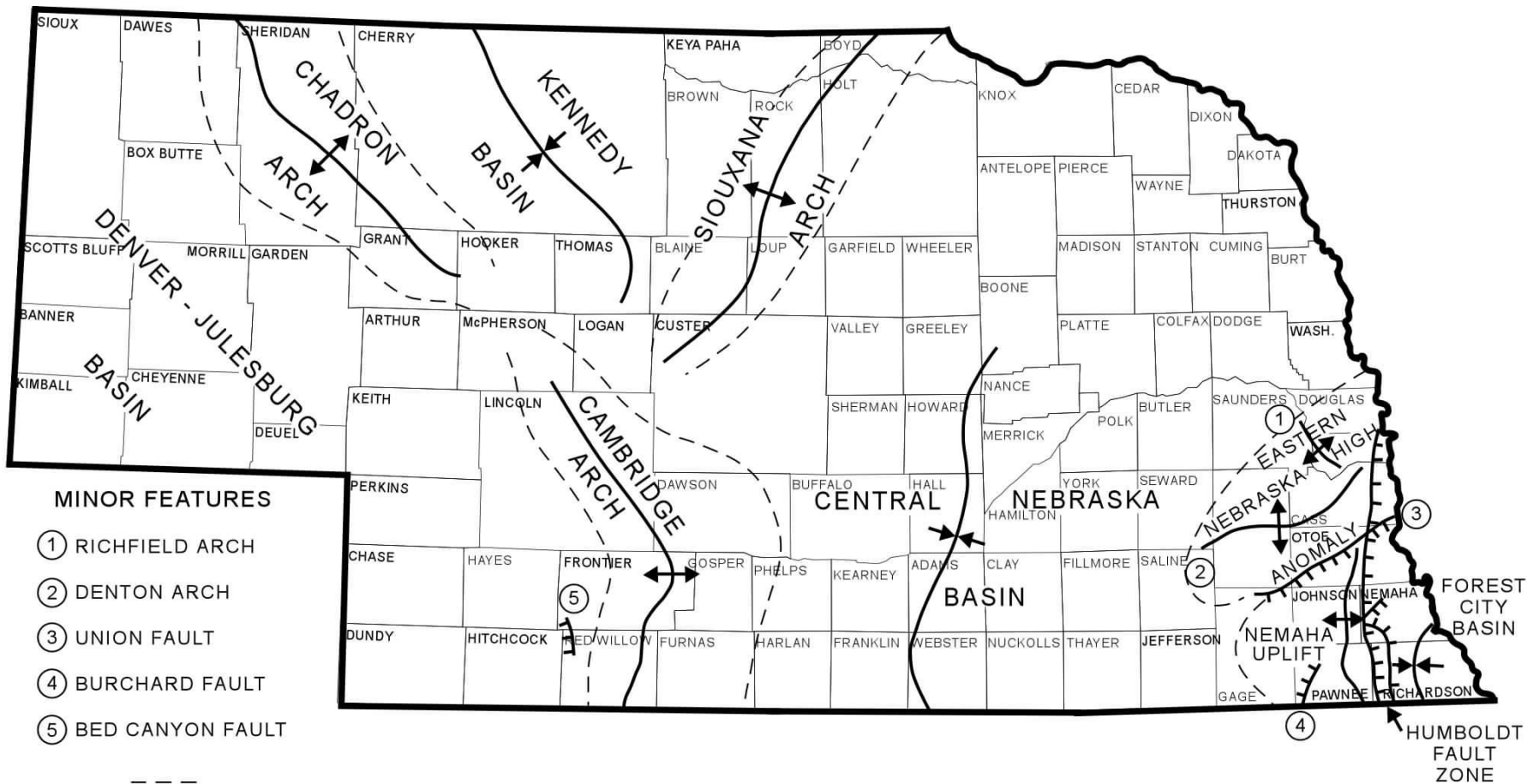
**William H. Sydow**

*Nebraska Oil and Gas Conservation Commission*

# Structural Features, Region



# Structural Features, Nebraska



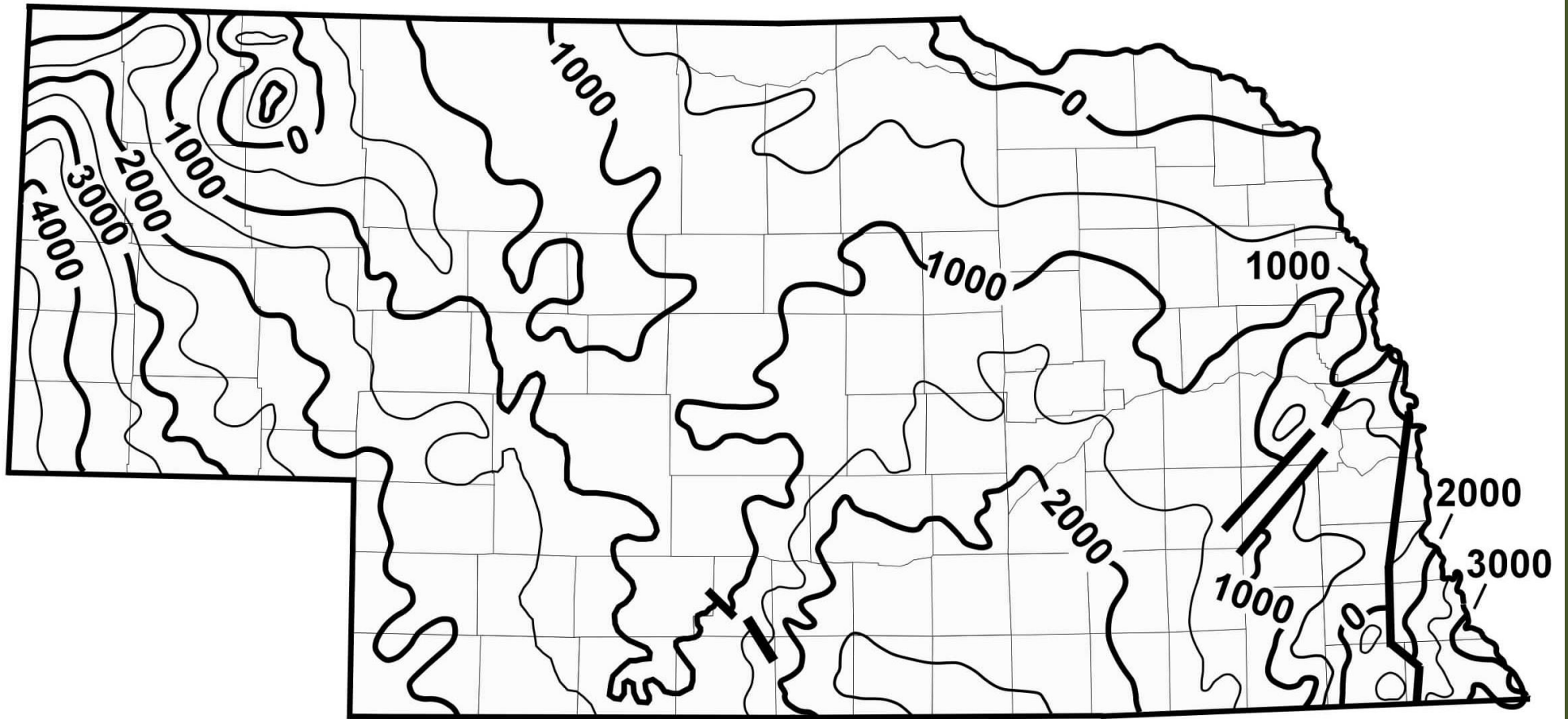
## MINOR FEATURES

- ① RICHFIELD ARCH
- ② DENTON ARCH
- ③ UNION FAULT
- ④ BURCHARD FAULT
- ⑤ BED CANYON FAULT

---

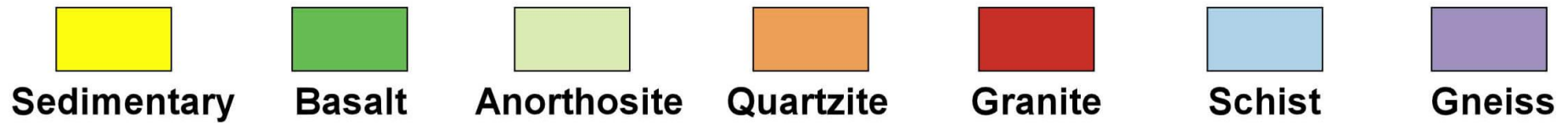
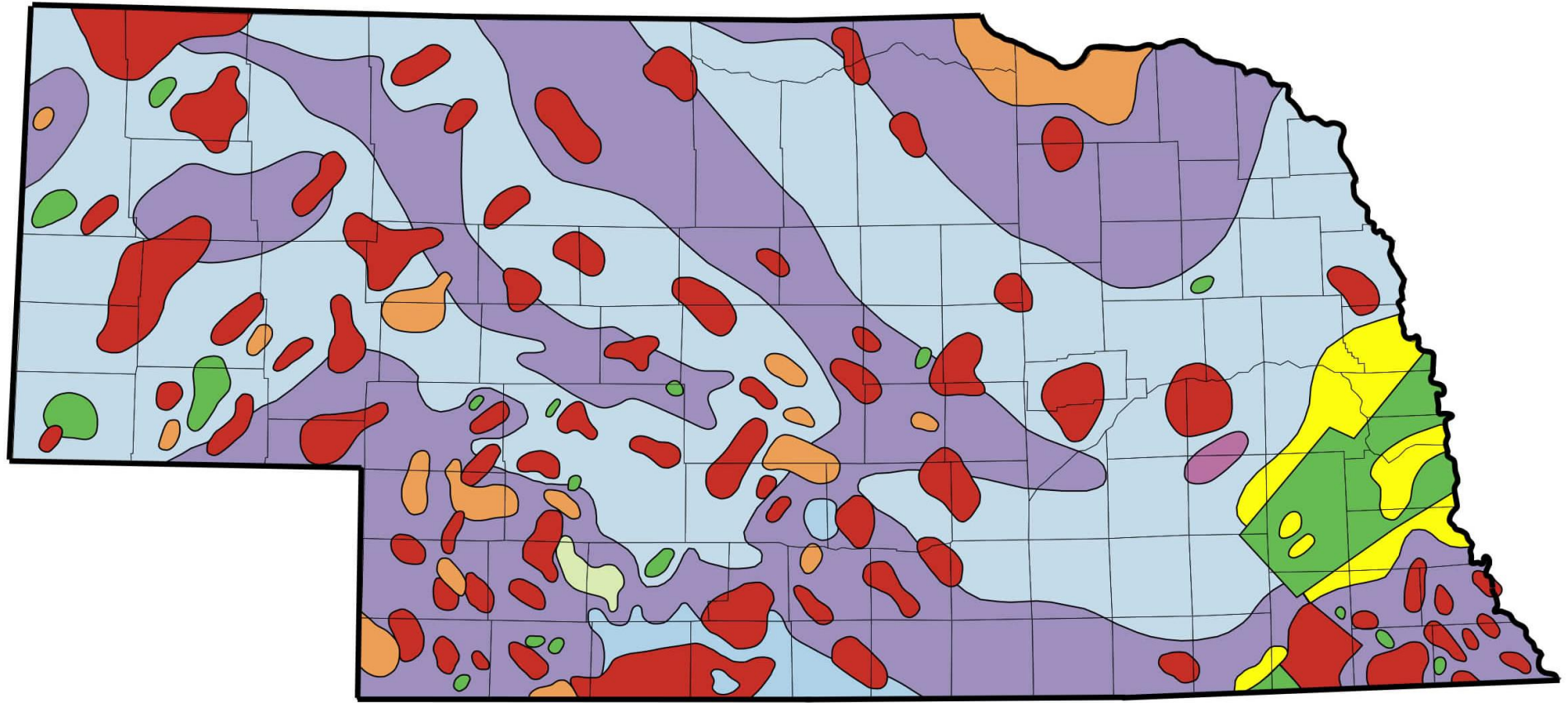
Approximate limits of selected arches

# Precambrian Configuration



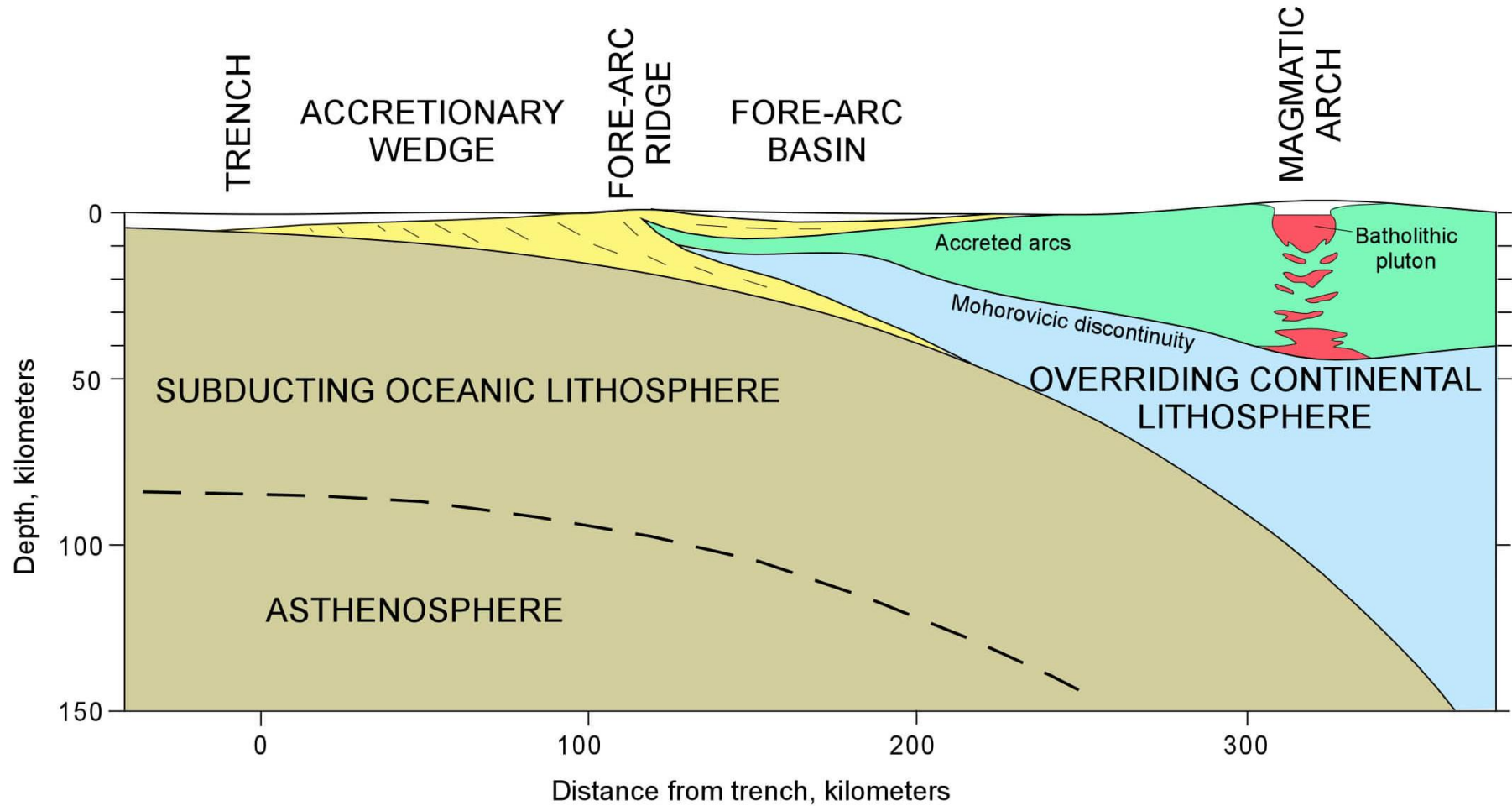
Carlson, 2000

# Basement Rock Type, Nebraska



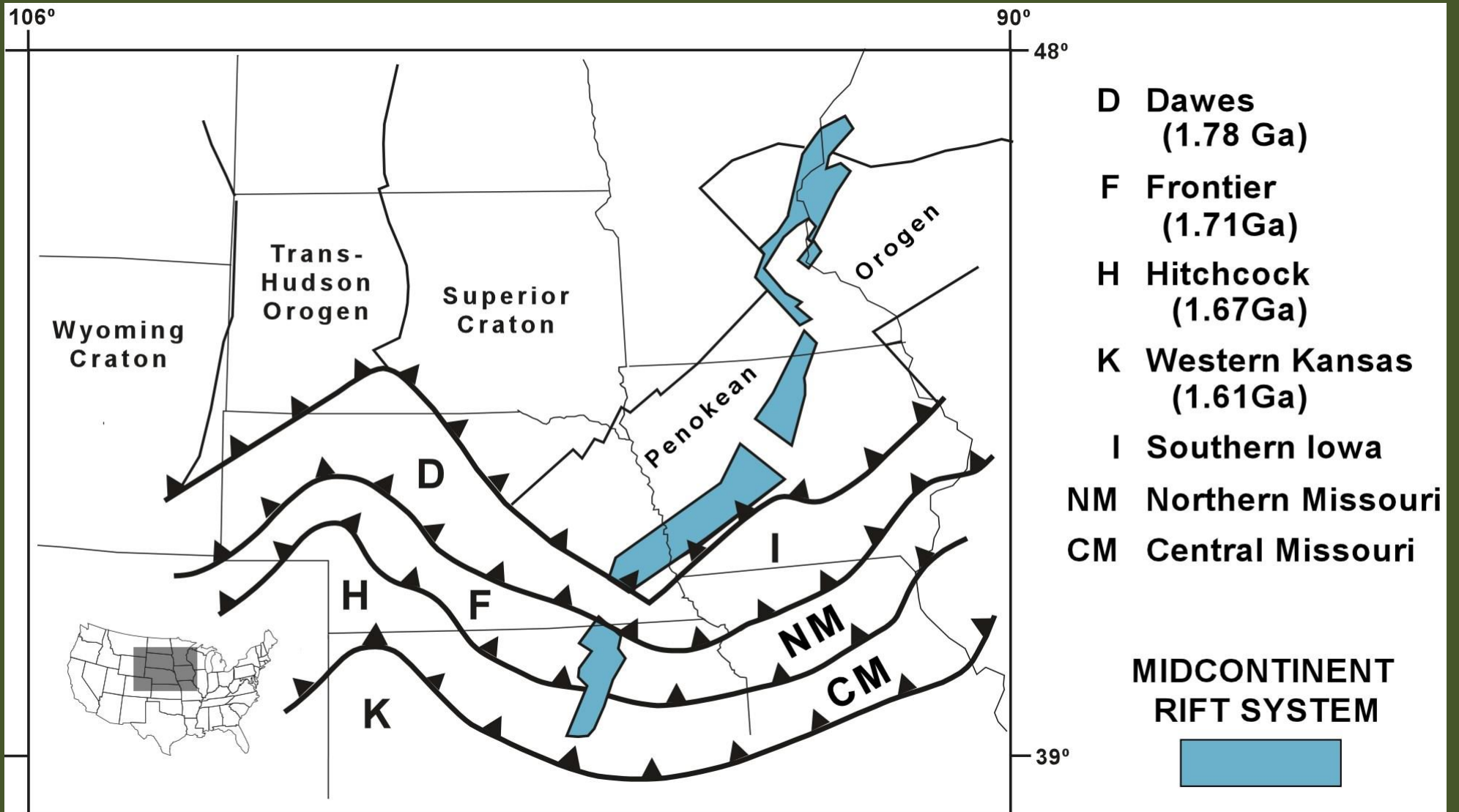
Carlson and Treves, 2000

# Diagrammatic Section across a Continental-Margin Subduction System



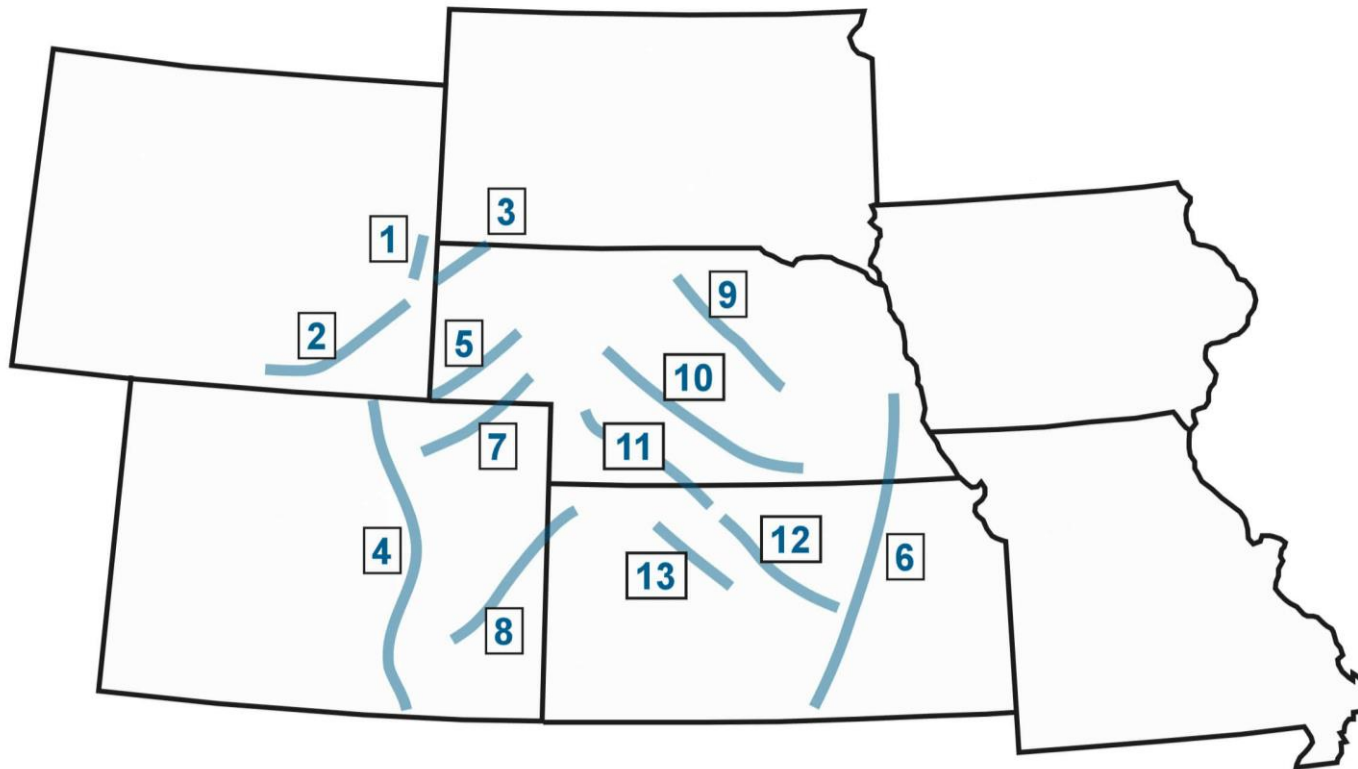
(modified from Hamilton, 1988)

# Sutures/Terranes



# Regional Uplifts

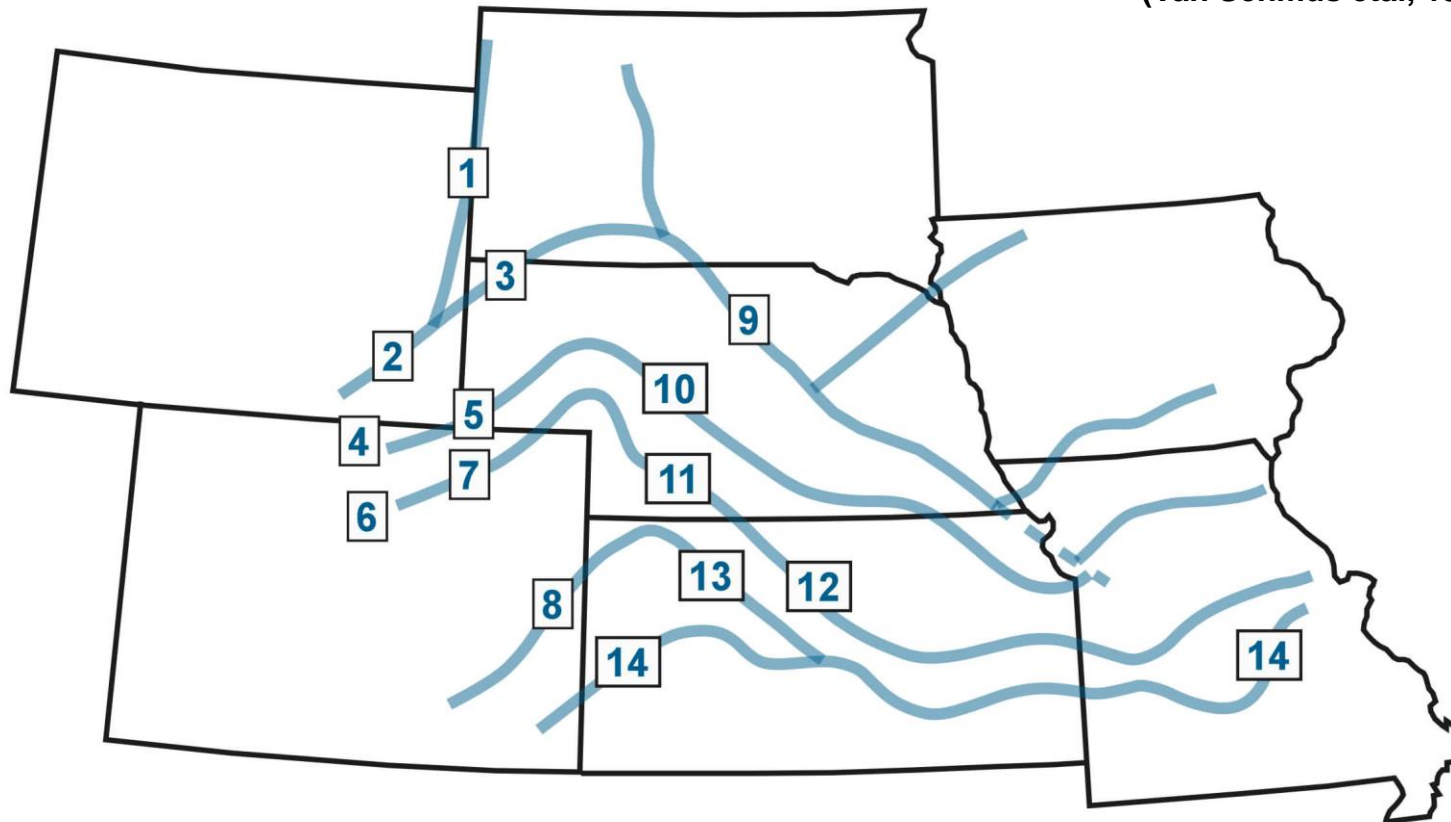
- 1 Hartville Fault (Sims et al, 1981)
- 2 Cheyenne Belt (Sims et al, 1981)
- 3 Agate-White River Fault (Swinehart et al, 1985)
- 4 Rocky Mountains
- 5 Morrill County High (Sonneberg and Weimer, 1981)
- 6 Nemaha Uplift
- 7 Wattenberg High (Sonneberg and Weimer, 1981)
- 8 Los Animas Arch (Sonneberg and Weimer, 1981)
- 9 Ord Arch (Carlson, 2000)
- 10 North Platte Arch (Carlson, 2000)
- 11 Cambridge Arch (Carlson, 2000)
- 12 Central Kansas Uplift (Cole, 1976)
- 13 Rush Rib (Cole, 1976)



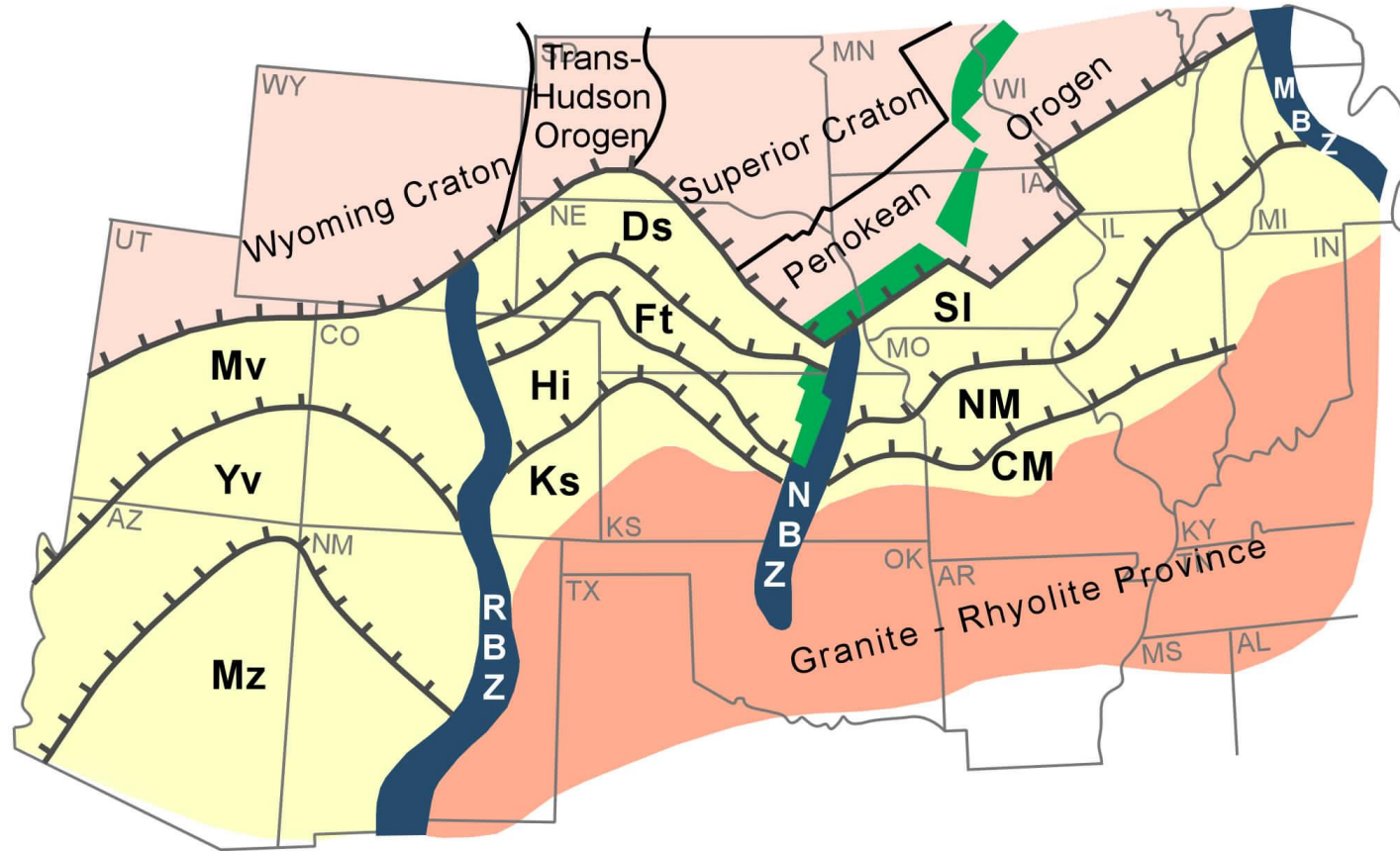


# Structures/Sutures

- |  |   |
|--|---|
| 1 Hartville Fault (Sims et al, 1981)               | 8 Los Animas Arch (Sonneberg and Weimer, 1981)                          |
| 2 Cheyenne Belt (Sims et al, 1981)                 | 9 Ord Arch (Carlson, 2000)  |
| 3 Agate-White River Fault (Swinehart et al, 1985)  | 10 North Platte Arch (Carlson, 2000)                                    |
| 4 Skin Gulch Shear (Tweto, 1980)                   | 11 Cambridge Arch (Carlson, 2000)                                       |
| 5 Morrill County High (Sonneberg and Weimer, 1981) | 12 Central Kansas Uplift (Cole, 1976)                                   |
| 6 Idaho Springs Shear (Tweto, 1980)                | 13 Rush Rib (Cole, 1976)  |
| 7 Wattenberg High (Sonneberg and Weimer, 1981)     | 14 Northern boundary Granite-Rhyolite province (Van Schmus et al, 1993) |



# Regional Terranes



## BOUNDARY ZONES

**RBZ** Rockies  
**NBZ** Nemaha  
**MBZ** Michigan

## ACCRETIONARY TERRANES AND SUTURE AGES (Ga)

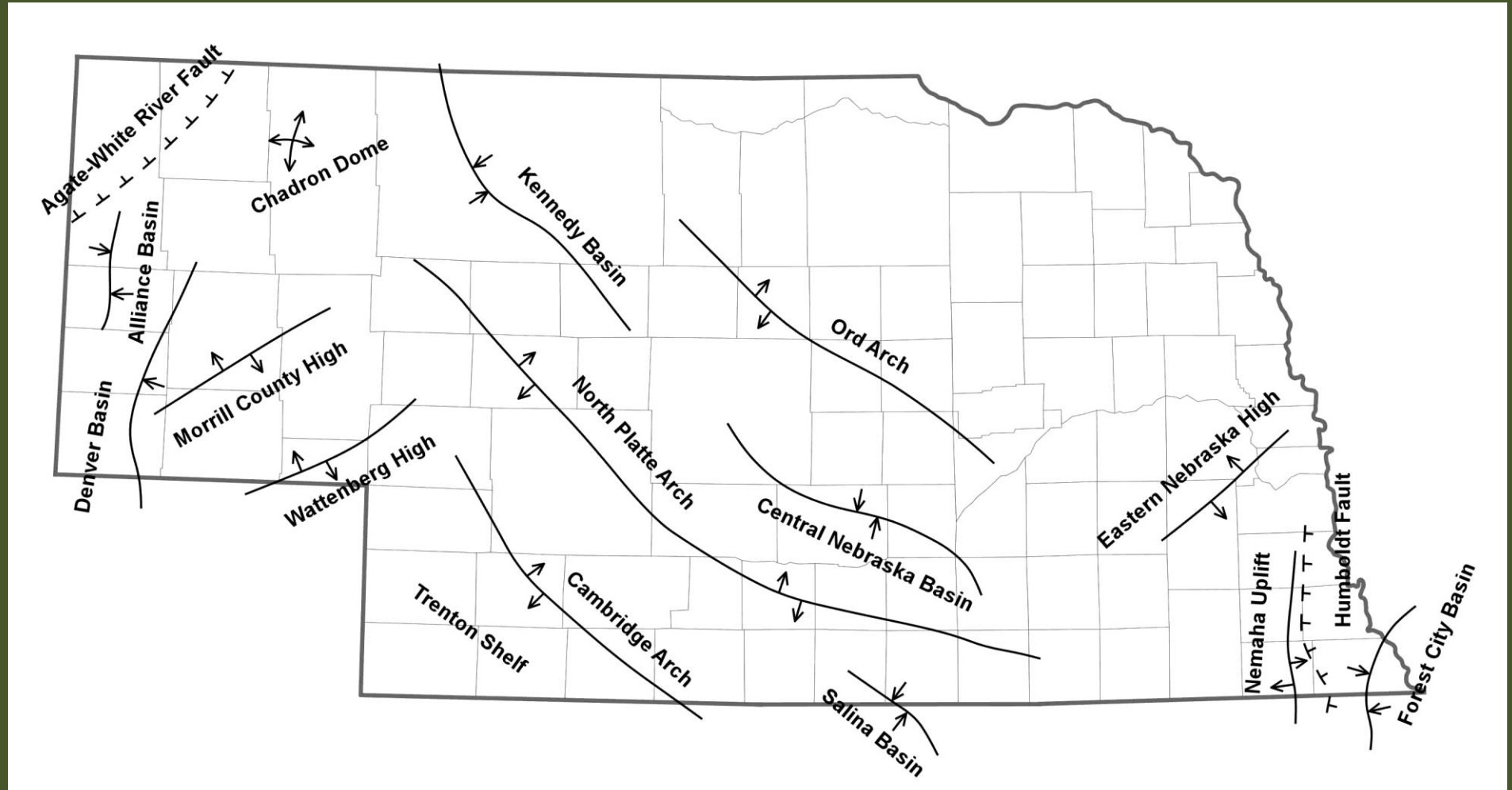
<b>Mv</b> Mojave (1.75)	<b>Ds</b> Dawes (1.78)	<b>SI</b> Southern Iowa (1.76)
<b>Yv</b> Yavapai (1.70)	<b>Ft</b> Frontier (1.71)	<b>NM</b> Northern Missouri
<b>Mz</b> Mazatzal (1.65)	<b>Hi</b> Hitchcock (1.67)	<b>CM</b> Central Missouri
<b>Ks</b> Kansas (1.61)		

## MIDCONTINENT RIFT SYSTEM

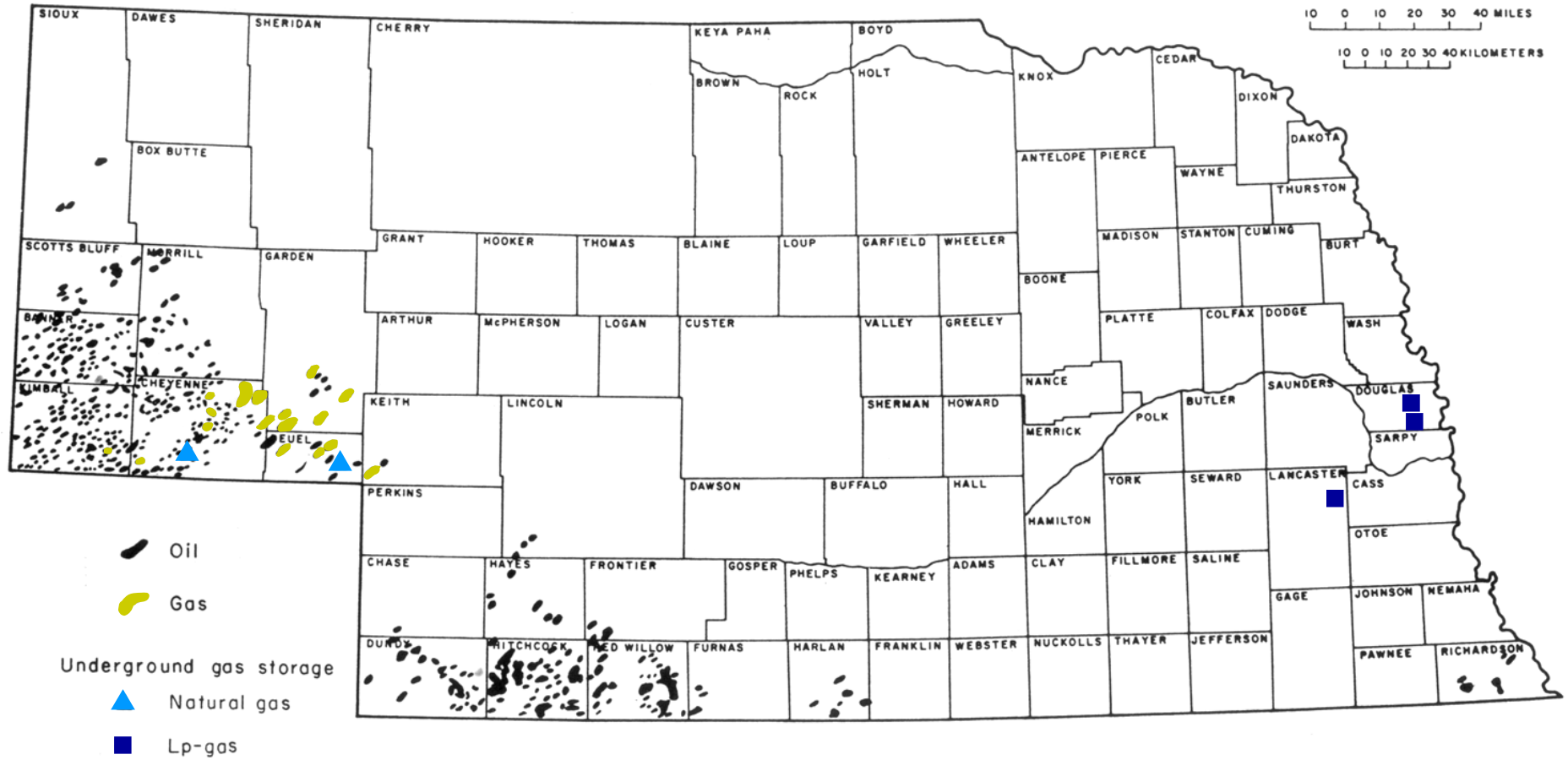


CARLSON 2001

# Revised Structural Features, Nebraska



# Nebraska Fields



# Potential Fields

