

# AREAL GEOLOGY

OF THE  
CHAMBERLAIN QUADRANGLE

STATE GEOLOGICAL SURVEY  
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STATE OF SOUTH DAKOTA  
SIGURD ANDERSON, GOVERNOR

## EXPLANATION

### SEDIMENTARY ROCKS

- RECENT

  - Qal**  
Alluvium  
(Flood plain deposits of silt and gravel, generally in present stream valleys)
  - Ql**  
Loess  
(Wind deposited silt)
  - Qol**  
Older Alluvium  
(Terrace deposits of silt and gravel, areas of old river meanders)

PLEISTOCENE

  - Qg**  
Gravels  
(Terrace deposits of fluvial and glacial fluvial materials, sand and gravel, generally under loess or silt cover)
  - Qo**  
Outwash  
(Glacial fluvial deposits of sand and gravel generally covered by loess or silt)
  - Qt**  
Glacial Till  
(Undifferentiated till and drift deposits, generally covered by loess, south east of Chamberlain; characterized by gentle local and swale topography, loess and ponds common; north east of Chamberlain, grain-irregular topography and some un-drained depressions)
  - Qtr**  
Terrace Remnants  
(High outliers generally 1700' or above in altitude, scattered boulders, trace of gravels, some glacial till, overtopped by soil and loess)

QUATERNARY

  - Kmv**  
Moberge Member  
(Buff chalk and calcareous clay, few concretions and boulders, very few boulders, under thick loess cover)
  - Kvc**  
Virgin Creek Member  
(Upper part: Dark gray bentonitic shale weathers to bumps, contains crab bones, Indian bead concretions; lower part: Dark gray bentonitic shale, numerous bentonite layers, baffle concretions, decrease only at road cuts just beneath high upland surface; loess covered west of river, till covered east of river)

UPPER CRETACEOUS

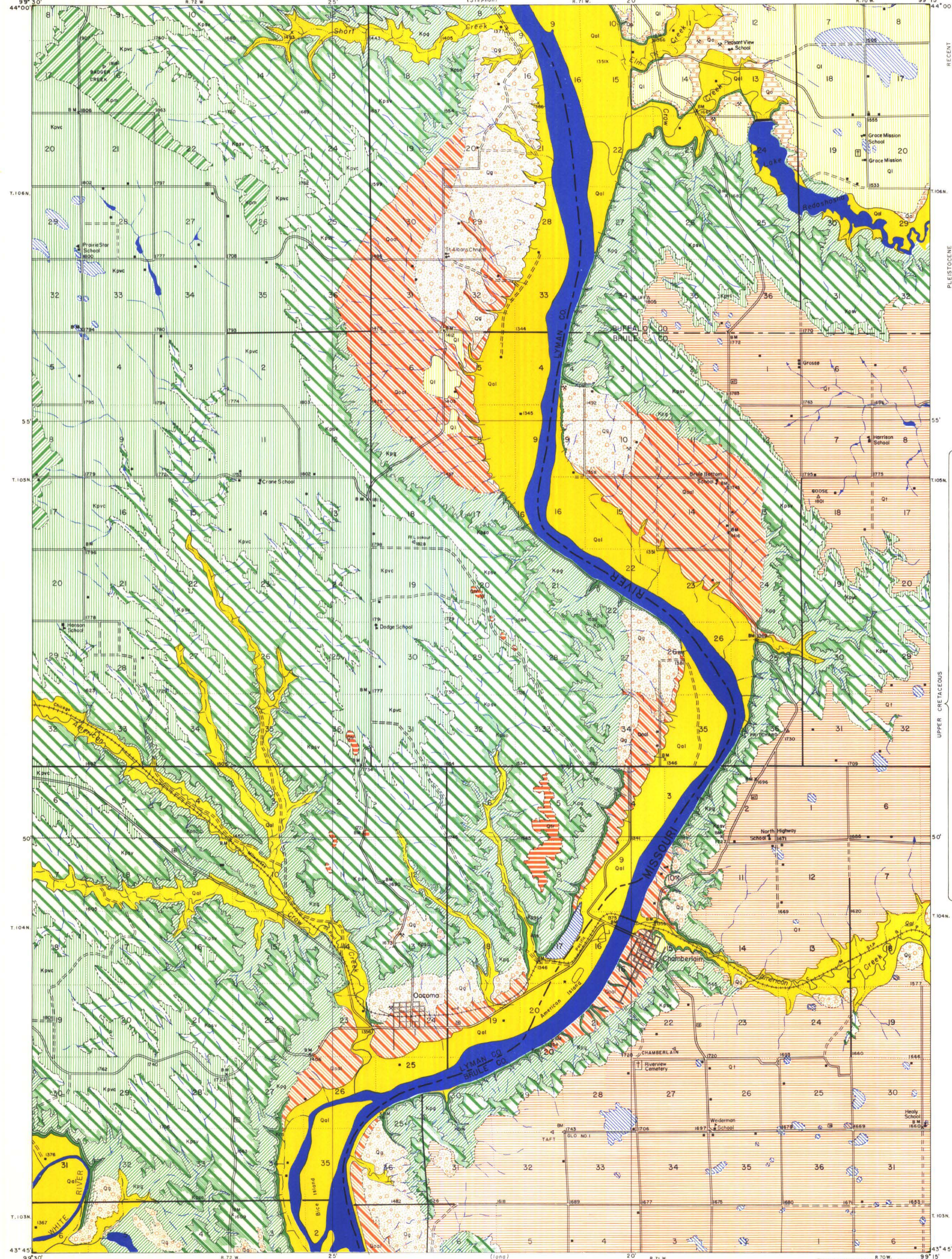
  - Kpsv**  
Sully Member  
(Upper: Verendrye facies (Kpsv) brownish bentonitic clay with numerous ferruginous concretions, few bentonite concretions; Lower: Osage facies (Kpsv) gray bentonitic clay, baffle concretions very numerous; Bentonite concretions numerous; Bottom: Crow Creek facies (Kpsv) upper part white to light buff marl, lower part calcareous shaly sandstone)
  - Kgg**  
Gregory Member  
(Brown and dark gray bentonitic clay, brown concretions, one to three gray marl layers in lower part; about 300' thick)
  - Kss**  
Sharon Springs Member  
(Black and dark gray oil shale, tough and blocky, abundant fish scales, thick bentonite layers and volcanic ash layer of black, yellow melaniferous tuff and; about 17' to 25' thick)
  - Kns**  
Smoky Hill Member  
(Gray fossiliferous chalk, bentonite layers, generally outcrops a steep vertical cliff; about 80' exposure)

DRAINAGE

  - Intermittent Streams
  - Intermittent Lakes

CULTURE

  - Buildings  
(House, church and school)
  - Roads and Trails
  - Altitudes  
(In feet above sea level)
  - Bench Marks  
(Monument marking point of known altitude)
  - Triangulation Stations  
(Monument marking point of exact geographic location)
  - Gravel Pits and Quarries



Geology by Bruno Petsch  
Assisted by Donald Fairbanks  
Surveyed in 1951

Based on maps by Corps of Engineers  
U. S. Army, and Geologic data from U. S.  
Coast and Geodetic Survey and U. S. G. S.  
Chamberlain Quadrangle