

EXPLANATION

- - - Contact line (dashed where approximately located.)
- Kpe<sub>x</sub> Bedrock outcrop (letters indicate bedrock formation.)

RECENT

- Qal** Alluvium (Floodplain deposits of silt and clay; some sand and gravel also present; includes some silt and clay deposits in low flat marshy areas; 0-15 feet thick.)
- Qc** Colluvium (Silt, clay and some fine sand on slopes adjacent to highlands; may include some till; 0-12 feet thick.)
- Qds** Sand Dunes (Fine to medium well-sorted sand; forms dune topography with as much as 25 feet of relief; maximum thickness unknown.)
- Ql** Loess (Yellow-brown silt on Missouri River terraces and uplands adjacent to Missouri River; 0-10 feet thick.)
- Q<sub>1</sub>** Lower Terrace (Sand and gravel outwash; some loess near Missouri River; sand dunes present on terrace in extreme northwest corner of county; flat at about 1650 feet elevation.)
- Q<sub>2</sub>** Upper Terrace (Mostly loess covered, or clayey colluvial-alluvial complex; underlain with outwash and sandy alluvial complex; sloping surface 1650-1700 feet elevation.)
- Qwlo** Outwash (Sand and gravel of glaciofluvial origin; includes proglacial outwash, outwash lenses, and ice-contact outwash deposits. 0-100 feet thick.)
- Qwit** Glacial Till (A heterogeneous mixture of boulders, gravel, sand, silt and clay; upper weathered portion is yellow-brown; lower unweathered portion is gray to black; 0-300 feet thick.)
- Qwll** Lake Beds (Clays, silt and some fine sand; upper weathered portion is yellow; lower unweathered portion is light-to medium-gray; 0-150 feet thick.)

LATE WISCONSIN

PLEISTOCENE

UPPER CRETACEOUS

FOX HILLS FORMATION

- Kft** Timber Lake and Trail City Members - Undifferentiated (Upper: Timber Lake Member - Yellow friable sandstone with fossiliferous concretions, cliff forming; about 100 feet thick. Lower: Trail City Member - Light-to medium-gray silty clay, silt and sandy silt with fossiliferous concretions; about 90 feet thick.)

PIERRE SHALE

- Kpe** Elk Butte Member (Flakey-weathering, bluish-gray noncalcareous clay and slightly silty clay; unweathered portion breaks with a conchoidal fracture; as much as 160 feet thick.)
- Kpm** Mobridge Member (Interbedded calcareous and noncalcareous bluish-gray clay; upper part contains thin marl and "chalk" zones; about 200 feet thick.)
- Kpvc** Virgin Creek Member (Dark gray bentonitic clay and siliceous bentonitic clay; upper 30 feet exposed.)

QUATERNARY

- Lake or pond
- Intermittent lake
- Intermittent stream
- Federal and State highway
- Section line

Sectionized township

6	5	4	3	2	1
7	8	9	10	11	12
13	14	15	16	17	18
19	20	21	22	23	24
25	26	27	28	29	30
31	32	33	34	35	36

Approximate Mean Declination 1963

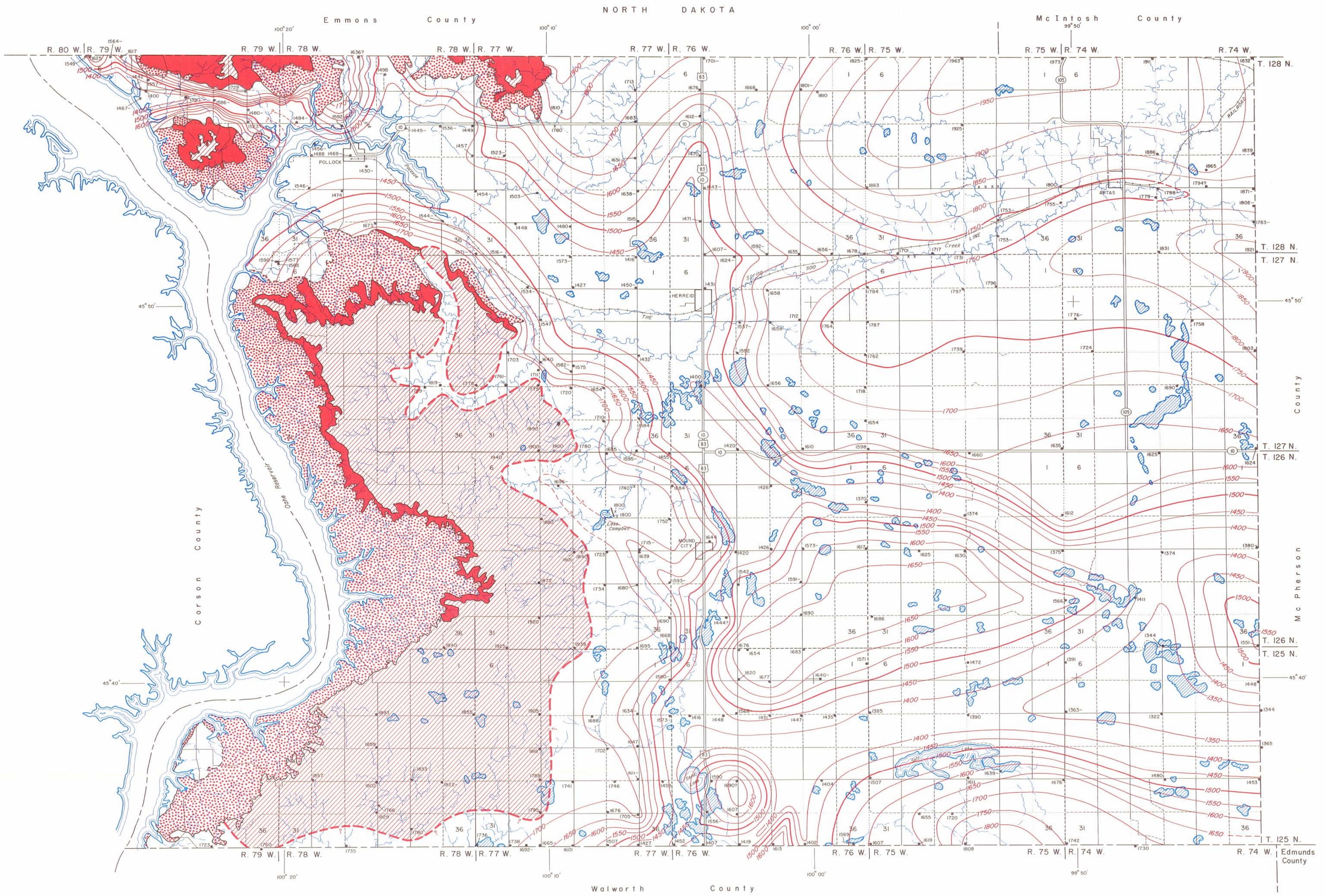
TRUE NORTH  
MAGNETIC NORTH

Index map showing location of Campbell County

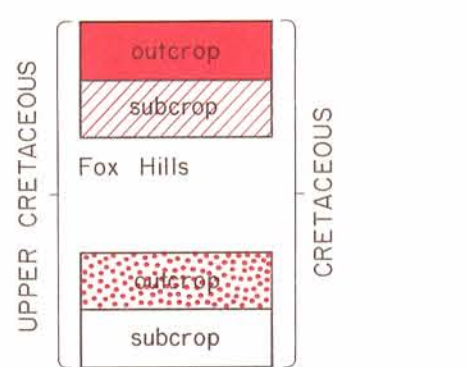
SCALE 0 1 2 3 4 5 6 miles

by Lynn S. Hedges 1966





EXPLANATION



Pierre Shale  
(The Pierre Shale subcrop may include some Fox Hills)

- 1601\* Control point; number is elevation of bedrock surface above sea level.
- 1692\* Control point where bedrock elevation is less than number shown.
- 1940, Bedrock outcrop; number is elevation above sea level.

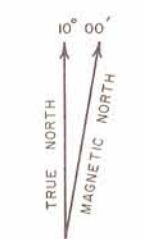
Contour on bedrock surface. Number is elevation above sea level. Contour interval = 50 feet.

In the western 1/3 of the county the bedrock surface is not contoured above an elevation of 1700 feet above sea level or where contour lines join bedrock outcrop areas.

- Lake or pond
- Intermittent lake
- Intermittent stream
- Federal and State highway
- Secondary road
- Trail
- Section line

6	5	4	3	2	1
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13	14	15	16	17	18
19	20	21	22	23	24
25	26	27	28	29	30
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Sectionized township



Approximate Mean Declination, 1963



Index map showing location of Campbell County



by Lynn S. Hedges, 1968

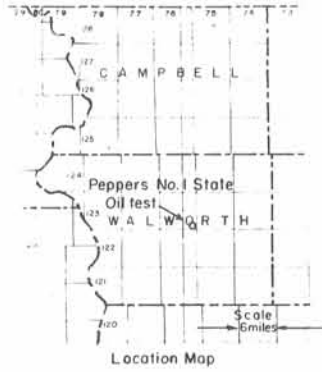


SOUTH DAKOTA GEOLOGICAL SURVEY

BULLETIN 20  
PLATE 3

Electric log and general lithologic description of bedrock units in the Peppers No. 1 State Oil Test.

Walworth County, South Dakota.



EXPLANATION

Electric log of Peppers No. 1 State Oil Test,  
NE 1/4, SE 1/4, Sec. 36, T.123 N., R. 76 W.,  
Walworth County, South Dakota

ERA SYSTEM  
Group or Formation  
Approx. Thickness (feet)

M E S O Z O I C  
C R E T A C E O U S  
Niobrara Marl 150  
Pierre Shale 700  
Carliile Shale 450  
Greenhorn ls 50  
Graneros Shale 330

Trail City Member - alternating light-to medium-gray silt, clayey silt, and sand; yellow sulfate veins, streaks and pellets near base.

Timber Lake Member - yellow friable sand and sandstone. Butte former in northwest part of Campbell County.

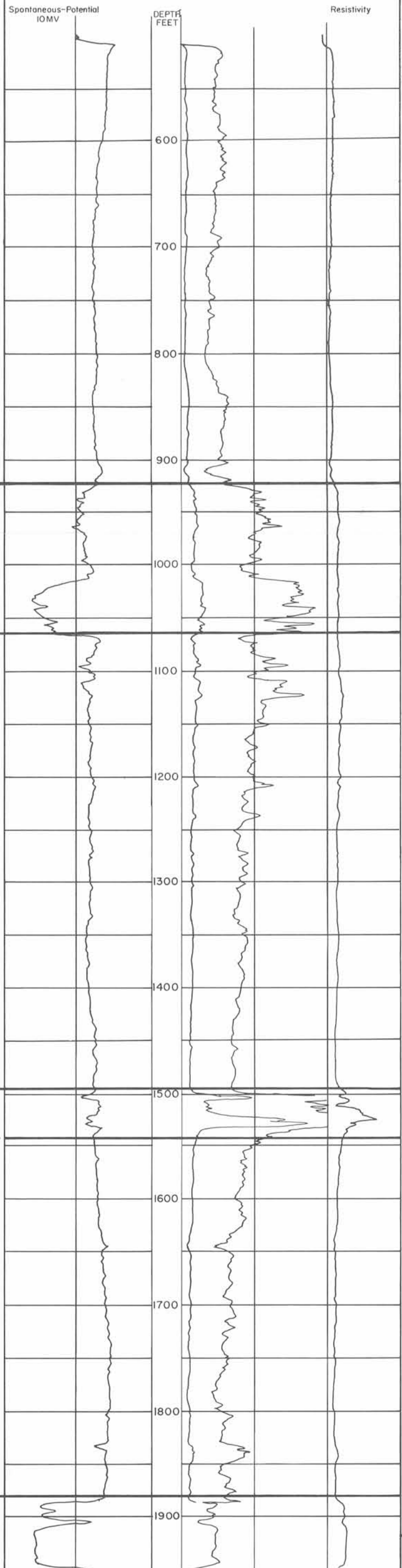
Light to dark-gray shale, with claystone, siltstone, and marls throughout section; contains bentonite beds and concretions; black carbonaceous shale at base.

Light to dark-gray chalk, marl and some shale; generally white speckled; contains microfossils.

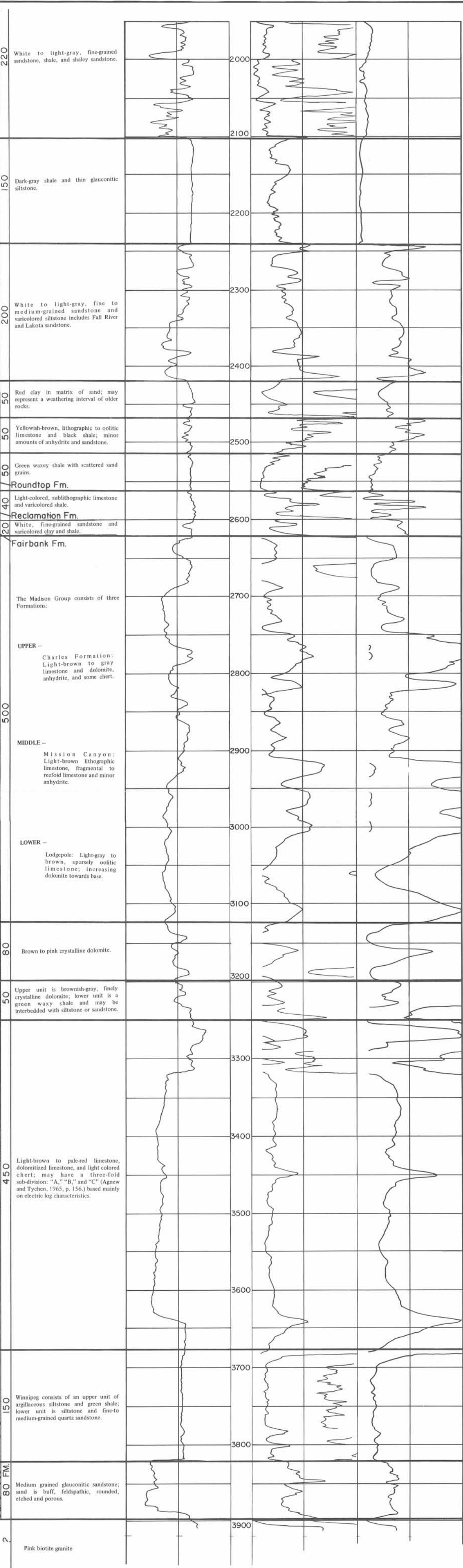
Medium to dark-gray, plastic to fissile shale with scattered concretions; contains Codell Sandstone Member near top.

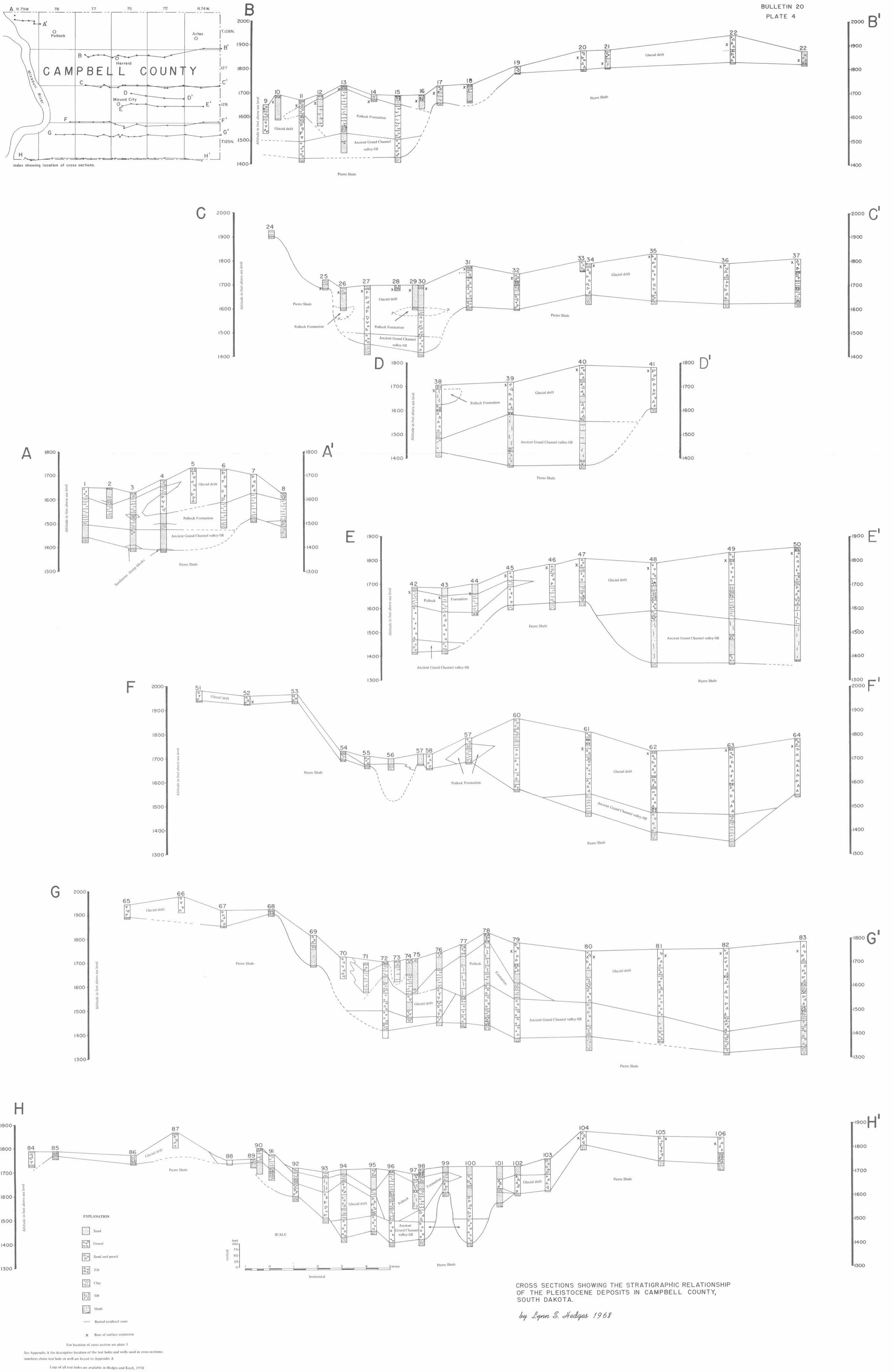
White to light-gray, fossiliferous limestone; has white speckled shale at base and top. Hard limestone layer is excellent stratigraphic marker.

Medium to dark-gray siliceous shale with bentonite and concretions.

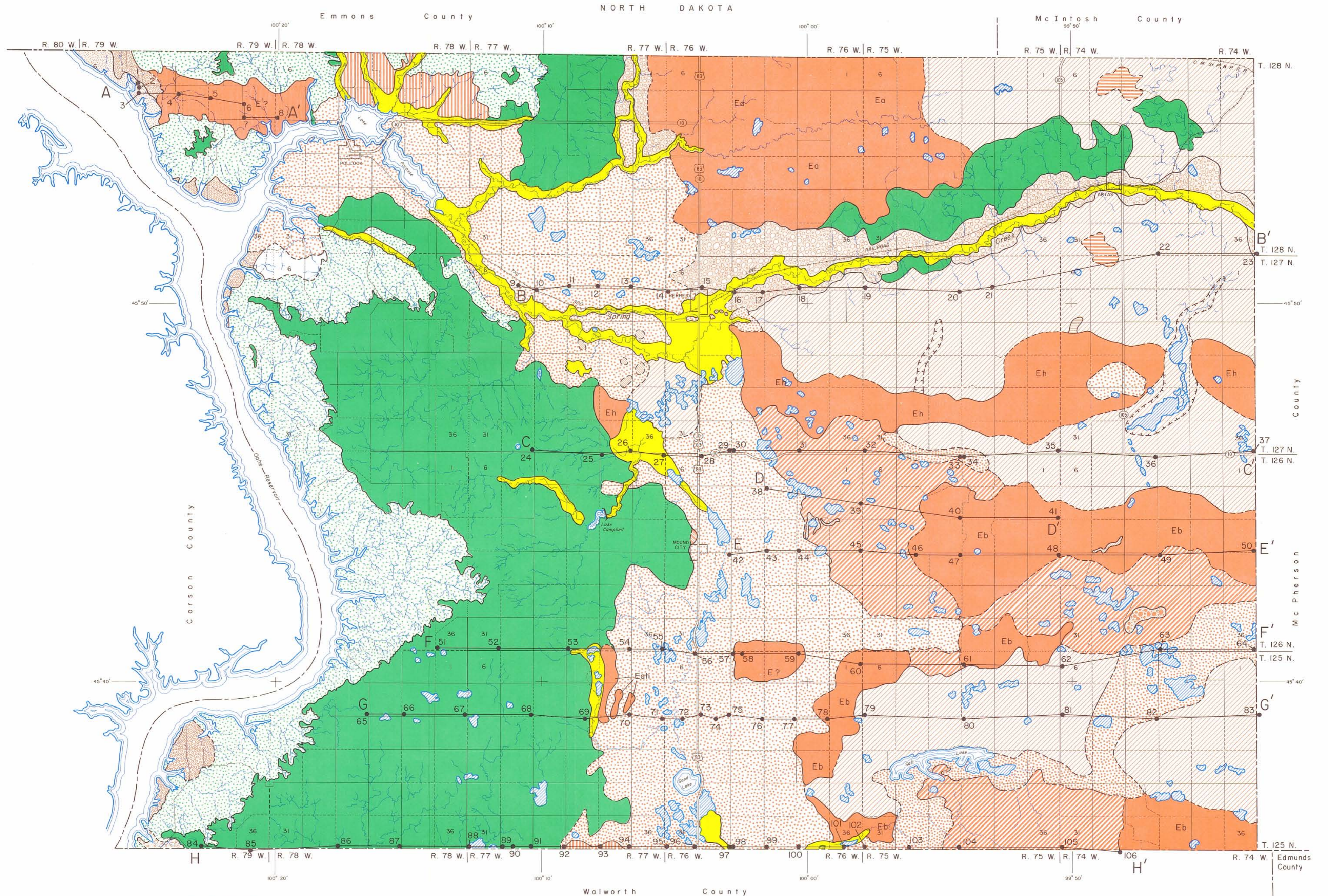


M E S O Z O I C  
P A L E O Z O I C  
P E N N S Y L V A N I A N  
HAYDEN 50  
ROUNDTOP FM. 50  
RECLAMATION FM. 20  
FAIRBANK FM. 20  
M I S S I S S I P P I A N  
MADISON GROUP 500  
S I L U R I A N - D E V O N I A N  
S T O N Y M T. FM. 50  
O R D O V I C I A N  
R E D R I V E R F O R M A T I O N 450  
W I N N I P E G F O R M A T I O N 150  
C A M B R I A N  
D E A D W O O D F M. 80  
P R E - C A M B R I A N









EXPLANATION

- Landform boundary (Lines dashed where approximately located.)
- |    |    |    |
|----|----|----|
| Ea | Eh | Eb |
|----|----|----|

 End Moraine (A linear ridge composed of rocky, sandy, silty and clayey till.)  
Ea: Artas end Moraine   Eh: Herreid end moraine   Eb: Bowdle end moraine
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 Stagnation Drift of High Relief (Rugged hummocky topography composed mostly of till. Local relief is as much as 100 feet. Contains many lakes and sloughs. May contain smaller areas of lake deposits or sloughs.)
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 Stagnation Drift of Low Relief (Similar to stagnation drift of high relief except local relief is 10 to 50 feet and contains fewer ice contact lake deposits and smaller, less numerous bodies of outwash.)
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 Glacially Modified Stream Eroded Topography (Medium to high relief with a nearly completely integrated drainage net. Bedrock, loess or till present at the surface. Underlying till may be stagnation drift, end moraine or ground moraine.)
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 Ice-Walled Outwash Plain (Flat or nearly flat isolated plain composed of sand and gravel. Ice-contact present.)
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 Ice-Walled Lake Plain (Flat or nearly flat isolated plain composed of silt, clay, and some sand. Ice-contact face present.)
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 Collapsed Outwash (Topography undulating to pitted. Low local relief in undulating areas and higher relief in pitted areas. Composed mostly of sand and gravel, but may contain small amounts of till or silt and clay of glacio-fluvial origin.)
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 Collapsed Lake Plain (Undulating topography of low relief. Composed mostly of lake silts and clays with some sand.)
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 Lake Plain (Dissected proglacial lake plain. Forms terraces in the Pollock area. Predominately clay and silty clay. May be covered with thin veneer of colluvium or outwash.)
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 Valley Train Outwash (Flat to slightly sloping topography along present streams. Composed of sand and gravel and is partially overlain by Recent alluvium.)
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 Outwash Terrace (Lower terrace along the Missouri River. Flat surface at 1650 feet altitude. Underlain predominately with outwash sand and gravel and covered with loess or dune sand.)
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 Outwash Terrace (Upper terrace along the Missouri River. Smoothly sloping surface from 1650 to 1700 feet altitude. Underlain by outwash sand and gravel and covered with colluvium or loess.)
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 Kame Terrace (Outwash sand and gravel deposited against existing highland.)
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 Modern Floodplain (Flat surface within present valleys. Includes marshy areas and sloughs which form basins and receive sediment. Dark silt and clay are the predominant deposits.)
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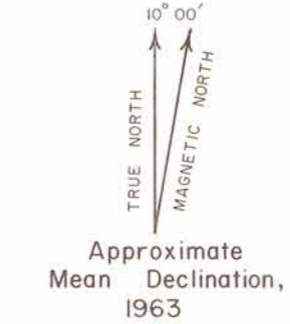
 Stream Eroded Bedrock Topography (Deeply dissected areas of high relief with completely integrated drainage. Composed of bedrock with small areas of alluvium, colluvium, and scattered thin loess cover.)
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 Ice-Disintegration Ridge (Linear to circular ridge of outwash sand and gravel or till.) Kame
- |  |
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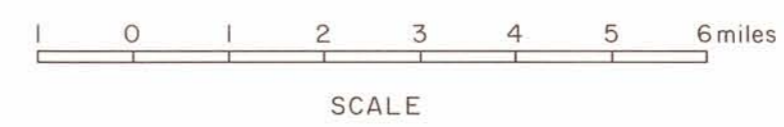
 Collapse Trench (Primarily non-erosional trench attributed to melting and collapse of drift covered ice. Some segments now contain kettle chains. Underlain by till or sand and gravel.)
- A ——— A'      3      4  
Lines of cross-sections on Plate 4. Numbers by test holes correspond to numbers of test holes on Plate 4 and location numbers in Appendix A.
- Lake or pond      Intermittent lake      Intermittent stream
- Federal and State highway      Secondary road      Trail
- Section line

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Sectionized township



Index map showing location of Campbell County



by Lynn S. Hedges  
1966