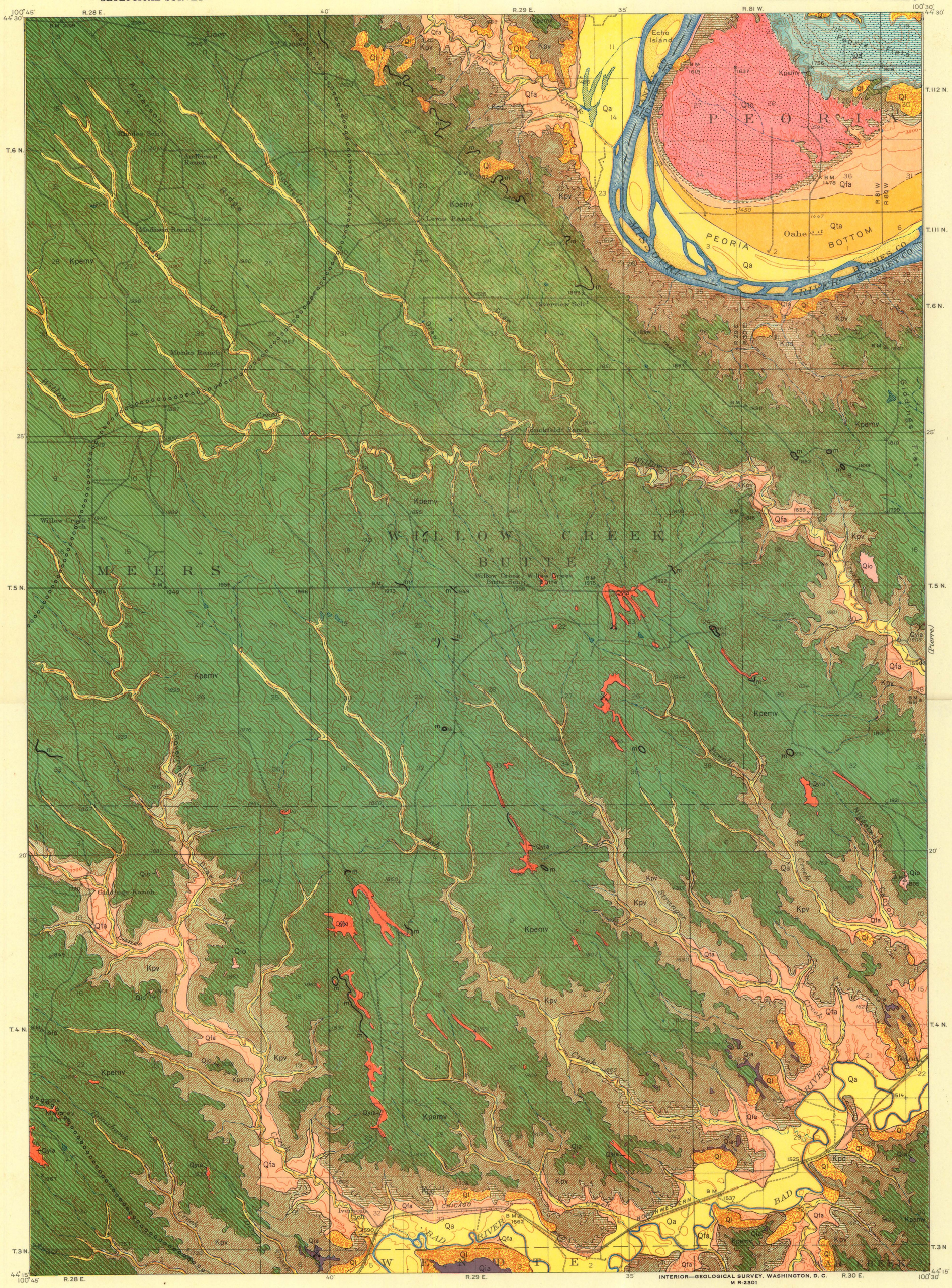
UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

PROFESSIONAL PAPER 307 PLATE 3



EXPLANATION

Loess of Pleistocene and Recent age, a few inches to more than 10 feet thick, represented on the map by a stipple pattern, covers most of the area northeast of the Missouri River; generally it is not shown where less than 2 feet thick

Qa

Flood-plain alluvium

Silt, sand, and pebble gravel which underlie surfaces of present flood plains. A few feet to probably 75 feet thick

Qta

Terrace alluvium

Silt, sand, and gravel which underlie surfaces of terraces 8 to 20 feet above present flood plains. Several feet to probably more than 80 feet thick

Qfa

Fan alluvium and colluvium

Shale detritus, sand, and gravel which typically occur as broad, gently sloping alluvial fans in area between shale outcrops in valley walls and flood plain or terrace alluvium. One to 30 feet thick

Ql

Landslide deposit

Slumped material consisting chiefly of glacial drift and Pierre shale. Generally shown only along valley walls of the Missouri and Bad Rivers. Ten to probably 125 feet thick

Qto | Qio

Glacial outwash terrace deposit

Sand and pebble to boulder gravel which occur as dissected terrace deposits in the trenches of the Missouri River and its tributaries. Granite and carbonate rock types predominate; iron-oxide concretions from the Pierre shale locally are abundant. Deposits inferred to be of following ages: Qto, Tazewell substage; Qio, Iowan substage; a few feet to 150 feet thick

Qd | Qd

Glacial drift undifferentiated

Predominantly clay-rich till and included deposits of sand and gravel. Areas which have a local relief of 10 to 20 feet are ground moraine and are shown by horizontal pattern

Qia

Iowan alluvium

Sand and pebble gravel predominantly of western derivation forming fill terraces in valley of Bad River. Alluvium consists chiefly of carbonate rock types, chert, and chalcedony; subordinate amount of basic and granitic igneous rocks represents glacially derived material contributed by southeast-flowing tributaries of the Bad River. A few feet to about 50 feet thick

Qyia

Yarmouth and Illinoian alluvium

Fine sand to pebble gravel of western derivation consisting predominantly of carbonate rock types, chert, and chalcedony. Several feet to 25 feet thick

—m— / Kpemv

Elk Butte, Mobridge, and Virgin Creek members, undifferentiated

Elk Butte member (at top) is gray shale and claystone more than 160 feet thick; distribution is limited to areas at altitudes of more than 1980 feet. Subject to slumping. Mobridge member is grayish-orange, laminated, calcareous shale about 30 feet thick. Base of member indicated on map —m— where exposed. Virgin Creek member (at base) is gray shale and claystone. Upper part weathers to gray gumbo; lower part weathers to flakes and chips and contains bentonite beds from less than an inch to 8 inches thick. Thickens westward from about 120 feet in Canning quadrangle to about 200 feet in Oahe quadrangle

Kpv

Verendrye member

Gray and olive-gray claystone that weathers to gumbo. Subject to extensive slumping. About 160 feet thick

Kpd

DeGrey member

Gray, moderately siliceous shale, claystone, and bentonite beds. More than 100 feet thick; base is not exposed in Oahe quadrangle. Upper 30 to 70 feet contains many thin bentonite beds and, locally, manganese-bearing concretions; it is subject to extensive slumping

Recent — QUATERNARY

Pleistocene — Wisconsin stage — Pre-Wisconsin — QUATERNARY

Upper Cretaceous — Pierre shale — CRETACEOUS

Contact
Dashed where approximately located

Contact, gradational

Contact, concealed beneath loess or colluvium not mappable as a separate unit

Glacial drift border
A line tangent to western limit of glacial deposits

Gravel pit

TRUE NORTH
12°
MAGNETIC NORTH
APPROXIMATE MEAN DECLINATION 1954

GEOLOGIC MAP OF THE OAHE QUADRANGLE, SOUTH DAKOTA

Base from U. S. Geol. Survey map of Oahe quadrangle, South Dakota

Geology mapped by D. R. Crandell in 1950 and 1952, assisted by D. W. Hammerquist (1950) and C. F. Erskine (1952).

Scale 1:62 500

1 0 3 Miles

Contour interval 20 feet
Datum is mean sea level