EXPLANATION

QUATERNARY

Recent

Qls — Landslide material and alluvial-fan deposits
Locally derived sand, gravel, conglomerate, and diversified rock debris. Not a source of water in the county.

Qds — Dune sand
Fine windblown sand. Infiltration medium for recharge from precipitation.

Qsw — Slope wash
Clay, silt, sand, and gravel. Not a source of water in the county.

Pleistocene

Qf — Flood-plain deposits
Fine to very coarse sand and gravel; contains lenses and beds of fine sand, silt, clay, sandstone, siltstone, cobbles, boulders, and large chunks of limestone. Yield moderate to large quantities of water to wells.

Qt — Terrace deposits
Sand, gravel, cobbles, and boulders; contain a few lenses of clay and silt. Yield water to many domestic and stock wells; yield moderate amounts of water to some irrigation wells.

Pliocene

Qc — Channel deposits
Sand and gravel, poorly to moderately cemented; contain cobbles and boulders. Not a source of water in the county.

TERTIARY

Miocene

Ta — Arikaree formation
Locally to moderately cemented very fine to fine-grained tuffaceous to gray sand and silt containing many layers and concretions of hard, tough sandstone. The beds consist mainly of coarse channel conglomerate. Yields water to many domestic and stock wells and, if sufficient saturated thickness is penetrated, will yield moderate quantities of water to irrigation, industrial, or municipal wells.

Tmo — Miocene and Oligocene rocks, undivided

Tb — Tertiary deposits, undifferentiated
Gray to red loosely consolidated sand, gravel, and volcanic conglomerate interbedded with clayey sand or tuffaceous clay. Yield small quantities of water to wells in places where a saturated section is penetrated.

Oligocene

Tb — Brule formation
Moderately hard, brittle argillaceous siltstone; contains channel deposits of sand and sandstone, lenticular beds of limestone, moderately thick beds of clay, and a few beds of volcanic ash, hard, tough sandstone. The beds consist mainly of coarse channel conglomerate. Yields water to wells from fractures, fissures, or saturated lenses of sandstone and conglomerate.

Tch — Chadron formation
Consists mainly of green, red, brown, or buff locally to moderately cemented bentonitic clay and silt; contains channel deposits of sandstone and conglomerate and a heavy unit consists of variegated fluviatile deposits. Ground-water possibilities unknown.

CRETACEOUS

Lower Cretaceous

Km — Mowry shale
Black to dark-gray siliceous shale containing thin beds of hard sandy shale, sandstone, and bentonite. Generally deeply buried. Ground-water possibilities unknown.

Kt — Thermopolis shale
Fine-grained hard gray mudstone containing thin beds of hard black brittle shale. Generally deeply buried. Ground-water possibilities unknown.

Kc — Cloverly formation
Consists of an upper and a lower sandstone unit separated by a thick sequence of beds of dark-gray to black shale. Sandstone yield water to springs.

JURASSIC

Upper Jurassic

Jm — Morrison formation
Dull variegated claystone, fine-grained fresh-water limestone, and lenticular sandstone. Generally deeply buried. Ground-water possibilities unknown.

Js — Sundance formation
Glauconitic green shale and shaly sandstone overlying red to yellowish-tan to white sandstone and shaly sandstone. Generally deeply buried. Ground-water possibilities unknown.

Mu — Mesozoic rocks, undivided
Outcrops too small to show division at scale of this map

TRIASSIC

Rc — Chugwater formation
Red siltstone containing small amounts of red shale, fine-grained red silty mudstone, and thin zones of gypsum or anhydrite. Generally deeply buried. Ground-water possibilities unknown.

PERMIAN

Pu — Permian rocks, undifferentiated
Generally deeply buried. Ground-water possibilities unknown.

MISSISSIPPIAN(?), PENNSYLVANIAN, AND PERMIAN

PPHc — Hartville and Casper formations
The Hartville formation, PPHc, of Permian, Pennsylvanian, and Mississippian(?) age consists primarily of limestone with a thin to 130-foot bed of soft gray to yellow porous sandstone at the top. There are some beds of cherty dolomite and sandstone, and thin beds of dolomitic and hematitic limestone. The upper sandstone is called the "Converse sand" and yields small quantities of artesian water. The Hartville formation intertongues with the predominantly sandstone Casper formation, PPc, which consists of arkosic, quartzitic, and cross-bedded sandstone interbedded with gray fossiliferous limestones. Other sandstone and porous limestone may contain water.

PRE-DEVONIAN AND MISSISSIPPIAN

MCg — Guernsey formation
Hard gray moderately cherty coarsely bedded limestone and thin-bedded shaly very fine-grained to red, brittle silty purple to gray dolomite; interbedded with hard dolomitic purple shale and siltstone. Generally deeply buried. Ground-water possibilities unknown.

PRE-CAMBRIAN

pC — Igneous and metamorphic rocks
Complex sequence of gneiss, schist, phyllite, quartzite, and limestone, intruded by coarse-grained granite, ultrabasic rocks, and pegmatite dikes. Generally deeply buried. Ground-water possibilities unknown.

— Contact
Dashed where approximately located

— Fault
Dashed where approximately located; dotted where concealed. U, upthrown side; D, downthrown side

— Reverse fault
T, indicates overriding block. Solid where exposed; dashed where inferred

— Axis of anticline
Arrow indicates direction of plunge

— Axis of syncline

— Strike and dip of beds

— Strike and dip of overturned beds

— Apparent dip of beds

— Canal

—4800— Water-table contours
Dashed where approximately located. Altitudes of water level where mean sea level are based on measurements made during the summer of 1951. Contour interval 100 feet.

■ Location of test hole

● Location of a stock, domestic, or unused well
Upright number indicates depth to water below land surface; inclined number indicates altitude of water level of soil site, in feet above mean sea level. Parentheses around upright number indicates that depth to water is reported. Altitudes of water levels are shown only where depths to water were measured or where reported data are thought to be reliable.

×5000 — Altitude of water surface in stream

◉ — Irrigation well

⊙ — Industrial or railroad well

● — Public-supply well

▼ — Flowing well

▽ — Flowing irrigation well

● — Spring

◇ — Oil-test hole

ch — Well or spring sampled for chemical analysis

▲ — Stream sampled for chemical analysis

INDEX MAP

Platte County area, showing previous studies in the area that were used in compiling this plate
1. Love, J. D., Denson, N. M., and Botinelly, T. (1949)
2. Denson, N. M., and Botinelly, T. (1949)
3. Rapp, J. R., and Babcock, H. M. (1953)
4. Smith, W. B. T. (1903)
5. McGrew, L. W. (1953)
6. Littleton, R. T. (1950)
7. Lyon, J. E. (1947)
8. Jenkins, P. T. (1958)
9. Haun, J. D. (1949)

GEOLOGIC MAP AND SECTIONS OF PLATTE COUNTY, WYOMING, SHOWING CONTOUR OF THE WATER TABLE
LOCATION OF TEST HOLES, AND LOCATION OF WELLS AND SPRINGS