U. S. GEOLOGICAL SURVEY
CHARLES D. WALCOTT, DIRECTOR

STRUCTURE-SECTION SHEET

MONTANA
FORT BENTON QUADRANGLE

LEGEND
(continued)

IGNEOUS ROCKS

SHEET SYMBOL | SECTION SYMBOL

POST-CRETACEOUS *probably Eocene*

- hs — Highwood syenite *(in part sodalite-syenite)*
- mz — Monzonite *(basic syenite)*
- sh — Shonkinite *(including missourite)*
- Basaltic sheets and dikes *(augite, mica, and analcite basalts in Highwood Mts.; minette in Little Belt Mts.; mica-basalt on Missouri River)*
- bbr — Basaltic breccia, flows, and scoria
- Trachytic dikes and sheets *(trachyte and phonolite porphyries in Highwood Mts.; trachyte, syenite, and rhyolite porphyries in Little Belt Mts.)*
- abr — Andesitic breccia and tuffs

POST-CRETACEOUS ? *(Great Falls)*

- sp — Syenite-porphyry
- sy — Syenite
- wp — Wolf porphyry *(granite-porphyry)*
- bp — Barker porphyry *(granite-porphyry)*
- dp — Diorite-porphyry

Dip and strike of stratified rocks

Horizontal stratified rocks

Known productive formations

- Coal *(Cascade formation, containing coal seam at the top, and formations directly overlying this coal)*
- Silver *(contact zones favorable for ore deposits)*
- Iron *(contact zone between syenite-porphyry laccolith and shale)*
- Gypsum *(in Quadrant formation)*

LEGEND

SURFICIAL ROCKS

SHEET SYMBOL

PLEISTOCENE

- Pal — Alluvium *(stream bottoms)*
- Pbg — Bench gravels
- Pgd — Glacial drift and till
- Ps — Stanford conglomerate *(sand and gravel locally cemented by lime)*

SEDIMENTARY ROCKS

SHEET SYMBOL | SECTION SYMBOL

CRETACEOUS

- Km — Montana formation *(clay shale with sandstone interbedded and at the top)*
- Ke — Eagle formation *(white sandstone with lignite seams and clay)*
- Kc — Colorado formation *(black shale at the base, gray shale above, and sandstone interbedded; contains an ash bed, ab)*
- Kd — Dakota formation *(sandstone and interbedded clay shale)*
- Kcd — Cascade formation *(sandstone and shale with coal seam at the top)*

JURATRIAS

- Je — Ellis formation *(limestone grading upward into sandstone and pebbly sandstone at the base)*

CARBONIFEROUS

- Cq — Quadrant formation *(sandstone, green and red shale, and white limestone)*
- Cm — Madison limestone *(thinly bedded limestone)*

DEVONIAN *and probably Silurian*

- Dm — Monarch formation *(brown and black granular limestone capped by shale)*

CAMBRIAN

- Ꞓb — Barker formation *(limestone and micaceous shale, containing beds of limestone-conglomerate, and quartzite at the base)*

UNCLASSIFIED CRYSTALLINE ROCKS

SHEET SYMBOL | SECTION SYMBOL

ARCHEAN

- Ꞓgn — Gneiss and schist

Legend is continued on the left margin.

E. M. Douglas, Topographer in charge.
Triangulation by E. M. Douglas.
Topography by Northern Transcontinental Survey, E. M. Douglas, and R. H. Chapman.
Surveyed in 1883, 87, and 96.

Douglas
N.T. Survey
R.H.C.

Scale $\frac{1}{250\,000}$

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