

GEOLOGIC MAP

of the BLACK HILLS

EXPLANATION

SEDIMENTARY ROCKS

CENOZOIC (TERTIARY)

- White River group
*Brule clay and Chadron formation
Gravel at base*
- UNCONFORMITY
- IGNEOUS ROCKS
 - Porphyries, granodite, phonolite
quartz monzonite
Rhyolite tuff and obsidian
Stocks, sills, and dikes

UNCONFORMITY

SEDIMENTARY ROCKS

MESOZOIC

- Hell Creek formation
*Sandstone and shale; coal
Fox Hills sandstone
Lower limit variable; local coal*
- Pierre shale
- Niobrara formation
Impure chalk and limy shale
- Carlile shale
- Greenhorn limestone
- Belle Fourche and Mowry shales
Dark shale including sandstones
- Skull Creek shale and Inyan Kara group
*Fall River sandstone (Dakota Sandstone)
Fossil shale, Minnewaste limestone
and Lakota sandstone*
- Morrison formation
Shale, mostly gray, sandstone and limestone
- UNCONFORMITY
- Sundance formation
*Greenish shale, buff and red sandstone,
overlain locally by Unkpapa sandstone*
- Spearfish formation
*Red sandy shale and sandstone;
gypsum members
"The Red Valley"*

PALEOZOIC

- Minnekahta limestone and Opeche formation
Red sandy shale
- Minnelusa sandstone
*Gray, red, and buff sandstones, mostly limy;
red shale at base*
- Pahasapa limestone and Englewood limestone
UNCONFORMITY
- Whitewood limestone
*Hard, massive, buff limestone
in northern Black Hills*
UNCONFORMITY
- Deadwood formation
*Gray to red sandstone and greenish shale,
in part glauconitic, slabby limestone,
flat-pebble limestone conglomerate,
quartz conglomerate at base,
thins to south*

PRECAMBRIAN

- UNCONFORMITY
- METAMORPHIC ROCKS
 - Amphibolite
*Metadiorite and megacrysts; many
small dikes not shown*
 - Schists, slates, and quartzites
 - Sandstone, arkosic, grit,
and conglomerate
Purity quartzite
- UNCONFORMITY
- IGNEOUS ROCKS
 - Granite and pegmatite
*Some granite is gneissoid; granite has
many inclusions of schist*

FAULT
SCALE
1 0 1 2 3 4 5 10 Miles

After N. H. Darton, 1951
Geologic Map of South Dakota
U. S. Geol. Survey

