INDEX MAP
SHOWING LYON QUADRANGLE AND AREA MAPPED IN DETAIL

Scale 50 0 50 100 Miles

EXPLANATION

SEDIMENTARY ROCKS

Qhw — Hillwash
Deep soil developed dominantly on gentle slopes underlain by Kootenai formation and rhyolite.

Qal — Alluvium

Km — Mesaverde formation
Poorly consolidated conglomerate of pebbles and cobbles, derived from underlying pre-Cambrian chlorite schist; in a matrix of sand and volcanic ash; overlain by poorly sorted layers of sand, mud, and volcanic ash.

Kb Kbsh — Bear River formation
Buff to tan, well sorted sandstone (Kb), interbedded with layers of fissile shale (Kbsh).

Kk — Kootenai formation
Pebble conglomerate consisting of small rounded chert pebbles in matrix of salt-and-pepper sandstone; overlain by coarse salt-and-pepper sandstone interbedded with a few buff sandstone layers which is in turn overlain by fresh-water limestone containing layers rich in small gastropods near middle and top.

QUATERNARY; CRETACEOUS

SEDIMENTARY ROCKS

Jsm — Swift and Morrison formations (undifferentiated)
Calcareous, glauconitic sandstone containing a few conglomerate layers and numerous small corals (Swift formation); overlain by very fine-grained freshwater limestone containing numerous veinlets of calcite and overlain by buff and green mottled siltstone (Morrison formation).

Js — Sawtooth formation
Friable fine-grained white limestone; contains abundant star crinoids and cephalopods; pencil-like fragments abundant on weathered outcrops.

Rt — Thaynes formation
Buff to tan sandstone, locally calcareous.

Rw — Woodside formation
Red siltstone and shale; some layers are calcareous.

Rd — Dinwoody(?) formation
Silty, flaggy limestone; cream and buff where fresh, tan to chocolate brown where weathered. Contains abundant *Lingula*.

JURASSIC; TRIASSIC

SEDIMENTARY ROCKS

Pp — Phosphoria formation
Calcareous phosphatic chert, which contains a basal oolitic phosphate bed and is overlain by dense chert and black to red shale which locally contains phosphatic nodules and lenses.

Cq — Quadrant quartzite
White to gray, slightly calcareous quartzite, locally crossbedded.

Ca — Amsden formation
Porous, somewhat friable pink to white, sandy dolomite; poorly exposed.

Cmcu Cmcl — Mission Canyon dolomite
Upper member: White, coarsely crystalline dolomite, several hundred feet thick; numerous thin lenses and beds of chert in upper part; forms prominent cliffs.
Lower member: Gray thick-bedded medium- to fine-grained gray dolomite containing some layers of limeston.

Cl — Lodgepole limestone
Dark-gray, thin-bedded, highly fossiliferous limestone containing thin shale partings, several hundred feet thick, base not exposed in area mapped.

Pennsylvanian; Mississippian; Madison group; PERMIAN; CARBONIFEROUS

IGNEOUS ROCKS

Tr — Rhyolite
Characterized by phenocrysts of glossy alkalic feldspar; contains a few obsidian beds.

Tb — Basalt
Characterized by numerous large phenocrysts of hornblend

Tt — Trap rock
Dominently fine-grained andesite. Mostly present in sills intruded between the Kootenai and Bear River formations.

Miocene (?); TERTIARY

MAP SYMBOLS

U D — Fault
Dashed where position approximate, dotted where concealed.
U, Upthrown side; D, downthrown side.

Contact
Dashed where position approximate, dotted where position uncertain.

25 — Strike and dip of beds.

(NOTE: State boundary dashed where position uncertain.)

Base: uncontrolled photo mosaic.

Geology by George Kennedy-1947

GEOLOGY OF A PORTION OF THE LYON QUADRANGLE, MONTANA-IDAHO

Scale in miles (approximate)
1 ½ 0 1