PRELIMINARY GEOLOGIC RECONNAISSANCE MAP OF PART OF THE SOUTHEASTERN MOJAVE DESERT, CALIFORNIA

KUPFER & BASSETT

EXPLANATION

Symbols Applicable Throughout Map Area

QUATERNARY (?) — RECENT — YOUNGER CENOZOIC

Qa — Alluvium
valley fill, alluvial fan deposits, stream gravels, talus, & other modern deposits

Qs / Qsd — Wind-blown sand
Qs in sheets
Qsd in dunes

Qb2 — Basalt
cinder cones & associated flows

Qca | Qc | Qxc | Qx | Qxb | Qxg — Playa deposits
Qca - mixed clay & alluvium; Qc - hard clay; Qxc - salt & clay; Qx - salt; Qxb - wet mud & brine; Qxg - gypsum.

Qoa — Older alluvium
dissected alluvium related to present stream pattern

Qb1 — Quaternary basalt
flat-lying, dissected flow of Broadwell Mesa

QTh — High gravels
flat-lying, dissected alluvial & pediment gravels, topographically high & unrelated to present drainage pattern

QTs — Pleistocene (?) sediments near Twentynine Palms

QTg — Tilted gravels

Qp / Qpb / Qps — Pinto formation
Qp - coarse fanglomerate & talus breccia
Qpb - basalt flows
Qps - fine-grained lacustrine sediments

UNDIFFERENTIATED CENOZOIC

QTuv — Undifferentiated or uncorrelated rocks, mainly volcanic.

QTut — Undifferentiated tuff
tuffaceous sandstone, and fine-grained clastic or volcanic deposits of unknown correlation.

QTub — Undifferentiated basalt
basalt flows of several ages, mostly lying unconformably over andesite (Ta).

AGE UNKNOWN

u — Rocks of unknown age and lithology in areas not visited.

Rock Units Applicable Only Within Each Geographic Column and No Time Correlation Between Columns Is Implied Except Where Symbols Are Identical

TERTIARY (?) — OLDER CENOZOIC

NORTHERN BULLION MOUNTAINS

QTpr / QTps
Angular unconformity

Tpv / Tpa
Rocks of Pacific Mesa
- Upper Section:
  - QTpr - rhyolite tuff & flow
  - QTps - sediments: talus breccia, conglomerates, sandstone, shale, tuff and limestone
- Lower Section:
  - Tpv - volcanic rocks: dacitic pyroclastic rocks, basalt, andesite, volc. agl.
  - Tpa - basal andesite flow

Tql
Quartz latite porphyry
intrusive rock

Ta
Andesite of Lavic Ridge
massive andesite flows with minor interbedded pyroclastic material

Tp
Pyroclastic Rocks of Rainbow Canyon
intermediate & mafic pyroclastic rocks with interbedded basalt flows.

NORTHERN CADY MOUNTAINS

Tmf | Tmv | Tmb / Tm | Tmp
Miocene Rocks of the No. Cady Mts.
- Tmf - mafic lava flows; pyroclastics
- Tmv - coarse pyroclastics: breccias, agglomerates; lava flows
- Tm - fossiliferous sh. & tuffaceous ss.
- Tmb - thin basalt flow in Tm.
- Tmp - pumice, pumice breccias, & rhyolite flows

SOUTHEASTERN CADY MTS.

Tl
Lacustrine sediments
clay, tuff, & limestone containing celestite and jasper beds; and correlative gravels.

Tr
Welded rhyolite tuff
with irridescent sanidine phenocrysts.

Ta
Andesite of Lavic Ridge
massive andesite flows with minor interbedded pyroclastic material.

Tp
Pyroclastic Rocks of Rainbow Canyon
pyroclastic rocks with interbedded basalt flows.

BRISTOL MOUNTAINS

QTvg | QTvr / QTvb

QTv
Rocks of Broadwell Mesa
- QTvg - mafic & intermediate lava flows & some pyroclastic material.
- QTvr - rhyolite flows, perlite & pumice.
- QTvb - basalt flows.
- QTv - volcanic rocks: mafic rocks & breccias of andesite & andesite-basalt, tuff, tuffaceous sandstone, other pyroclastic rocks, & volcanic conglomerate.

Tql
Quartz latite porphyry
intrusive rock

OLD DAD MOUNTAINS

QTvr / QTvb
Rocks of Broadwell Mesa
- QTvr - rhyolite
- QTvb - basalt

QTt | QTta / QTtg
Rocks of the Old Dad Mountains
- QTt - tuff, tuffaceous sandstone & associated volcanic clastic deposits.
- QTta - andesitic flows, breccias, agglomerates.
- QTtg - volcanic conglomerates.

PRE - CENOZOIC

Major Regional Unconformity

m | mf | mg | ml | mv
Metamorphic Rocks
- m - undifferentiated metamorphic rocks
- mf - foliated metamorphic rocks
- mg - gneissic rocks
- ml - crystalline limestone
- mv - metavolcanic rocks

pm
Undifferentiated plutonic & metamorphic rocks.

pq | pd
Plutonic rocks
- pq - quartzose rocks mostly quartz monzonite and granodiorite
- pd - dioritic rocks

Strike and dip of beds where measured

Approximate strike and dip of beds
- F = flat dip
- M = moderate dip
- S = steep dip

Strike and dip of lineation in crystalline rocks where measured.

Approximate strike and dip of lineation in crystalline rocks.
- F = flat dip
- M = moderate dip
- S = steep dip

Geologic contact
solid where accurately located
dashed where inferred.

Fault
solid where accurately located
dashed where inferred
dotted where concealed.

Diamond drill hole

Basalt cinder cone

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