Geologic Map of The Buttes, San Bernardino County, California

Geology by J.M. Fletcher, M.W. Martin and J. Bendixen

North Lockhart Fault

Brittle Detachment?

Stratigraphic Legend

Cenozoic

- Q — Quaternary undifferentiuated surficial deposits.
- fc — Hydrothermal carbonate. Layered yellow and brown carbonate found along faults and fractures.
- Tp? — Undifferentiated sedimentary and volcanic rocks, possibly Miocene Pickhandle Formation.
- Tg — Medium grained Miocene granite typically containing 10-15% biotite.
- pd — Porphyritic dacite. Phenocrysts of bioitite and plagioclase +- granet. Groundmass is brown, yellowish brown or orangish brown.
- f — Aphanitic felsite. Fresh surfaces are white, tan or light grey.

Mesozoic

- bg — Brecciated granite typically containing <5% biotite.
- lg — Two-mica granite. Found as either thin (<1 m) coarse-grained to pegmatitic dikes or larger bodies with a bluish tint.
- mc — Mafic igneous complex predominantly composed of hornblende gabbro, hornblende-biotite diorite and granodiorite with minor leucocratic granite.

Proterozoic and Paleozoic

- cm — Undifferentiated calcite marble, most often white and rarely contains siliceous layers.
- bm — Bluish-grey calcite marble with silceous layers and porphyroclasts. Also seen as white siliceous marble with graphitic layers.
- dm — Coarse-grained orange dolomite marble. Contains up to 30% mica and quartz.
- a — Amphibolite Containing up to 90% hornblende with subordinate plagioclase.
- q — Purpliish grey quartizite containing greenish grey pelitic horizons.
- xgn — Undifferentiated metaigneous and metasedimentary gneiss. Predominately composed of aluminous calcareous quartzite with subordinate peltic migmatite.

Lithologic Contacts

Known
Approximate
Inferred

Lithologic formline showing trace of thin (<1m) marker horizon.

Known
Approximate

Faults

Known
Approximate
Inferred

Trace of greenschist-facies mylonitic shear zone.

Structural Symbols

- Foliation and stretching lineation of high-grade deformation fabric.
- Axial planar cleavage, intersection lineation and trace of mesoscopic fold projected onto a horizontal surface.
- Foliation and streching lineation of greenschist-facies mylonitic fabric.
- Kink-band cleavage and/or en echelon tension gash arrays.
- Foliation and lineation of cataclastic fabric.
- Trace of Fault with maximum dip direction (ball) and striae (arrow).

Topography from United States Geological Survey
Lockhart and The Buttes 7.5 Minute Quadrangles

0.0 km 0.5 km 1.0 km 1.5 km 2.0 km