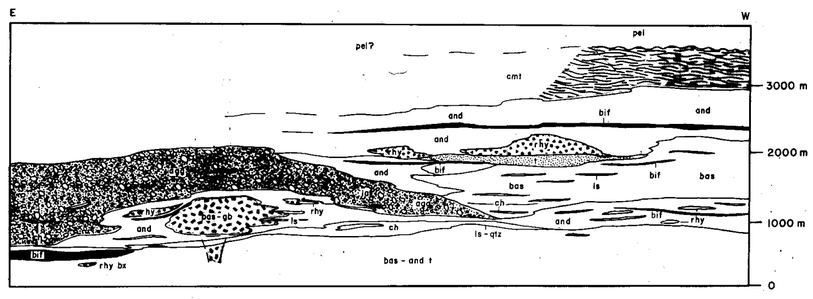
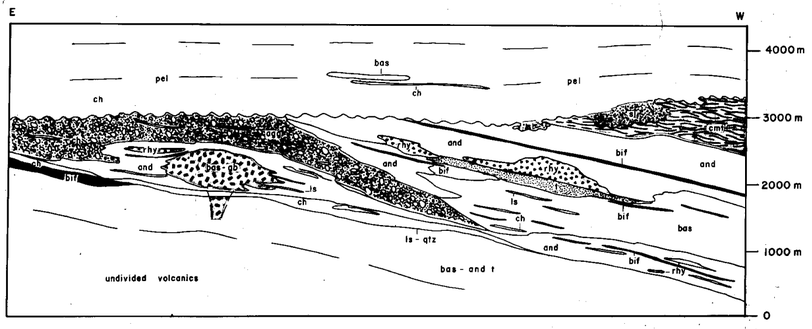
MM 76-B
1 of 2



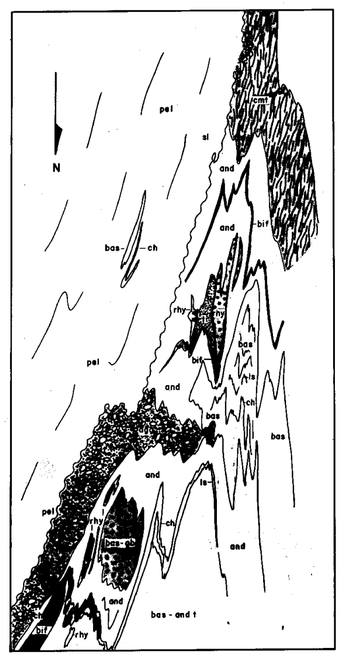
I. Initial Deposition of Volcanic Rocks



II. Tilting & Unconformable Deposition of Pelites

0 8000 m

V.E. = 2X



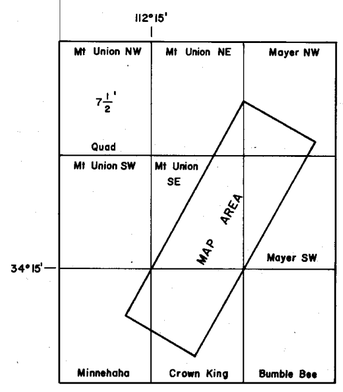
III. Regional Isoclinal Folding and Metamorphism

0 5 10 km

GEOLOGIC RECONSTRUCTION MAYER-CROWN KING AREA

I. & II. Idealized cross sections prior to folding

III. Simplified plan geologic map prior to Precambrian and Laramide plutonism



Location of Map Area

EXPLANATION

Sedimentary and Volcanic Rocks

TQv — Tertiary – Quaternary Volcanic and Sedimentary Rocks. Includes Tertiary Hickey Formation and Quaternary alluvium and travertine

Plutonic Rocks

T bas — Tertiary Basalt Porphyry dikes *(plagioclase, augite, hornblende, epidote, nepheline, calcite)*

T rhy — Tertiary Rhyolite Porphyry dikes *(plagioclase, quartz, orthoclase, biotite, diopside, epidote)*

TK gd — Tertiary – Cretaceous (Laramide) Granodiorite *(plagioclase, orthoclase, quartz, biotite, hornblende)*

Unconformity

peg — Pegmatites *(quartz, orthoclase, plagioclase, muscovite, tourmaline, beryl)*

gm gj — Quartz Monzonite – Alaskite Crazy Basin Quartz Monzonite (Anderson & Blacet, 1972) *(plagioclase, orthoclase, quartz, biotite)*

Post Precambrian — 1.62 b.y. (K-Ar, Wasserburg et al, 1963) — MARGINAL PLUTON DEFORMATION, METAMORPHISM

LOCAL PLUTON RELATED DEFORMATION

sh — Shale *(quartz-muscovite schist)*

sltst — Siltstone *(quartz-muscovite-plagioclase schist)*

qtz — Quartzite *(quartz-biotite quartzite)*

ss — Subgraywacke *(quartz-hornblende-plagioclase schist)*

Texas Gulch Formation (Anderson & Blacet, 1972)

Note – sh age-stratigraphic relationships implied in the above columnar diagram.

Unconformity

Pre 1.77 b.y. — 1.77 b.y. U-Pb zircon, Anderson, et al 1971 — REGIONAL DEFORMATION, METAMORPHISM — Inferred — Weaver

gd — Granodiorite – foliated, gneissic near western margin – contains abundant mafic inclusions. Brady Butte Granodiorite (Anderson & Blacet, 1972) *(plagioclase, orthoclase, quartz, biotite)*

gb — Gabbro *(hornblende-plagioclase schist and massive amphibolites)*

lat — Latite tuff *(quartz-plagioclase-muscovite schist)*

pel — Pelites *(quartz-muscovite-biotite ± garnet ± staurolite ± andalusite ± sillimanite schist)*

cg — Conglomeratic slate *(quartz-jasper-biotite-garnet-actinolite-chlorite-epidote schist)*

Unconformity

Precambrian

cmt — Calcareous mafic tuff *(diopside-hornblende-garnet-plagioclase-quartz schist)*

and — Andesitic Flows & tuffs *(hornblende-plagioclase-quartz-epidote ± calcite schist)*

bif — Banded iron formation *(quartz-magnetite-hematite ± pyrite schist)*

t — Tuff – mudstone *(quartz-biotite-chlorite schist)*

ch — Chert *(quartz ± magnetite ± muscovite quartzite)*

ls — Limestone *(calcite ± siderite-quartz-muscovite schist)*

ATT — Andesitic – basaltic agglomerate with clasts of chert, andesite, limestone, and dacite *(hornblende-plagioclase-quartz schist)*

bas — Basaltic Flows *(hornblende-plagioclase schist)*

rhy / lat — Rhyolitic flows, crystal tuffs, breccias, and minor agglomerates and clastic flows. Massive sulfide deposits in rhyolites or at rhyolite contact with intense alteration locally. Minor latite flows.

Rhy *(quartz-muscovite-plagioclase ± calcite schist)*
M.S. *(pyrite-chalcopyrite-sphalerite-galena)*
Alt *(quartz-chlorite-calcite-tremolite-biotite)*
Lat *(quartz-plagioclase-muscovite schist)*

bas-and t — Basalt Flows with interbedded andesite tuffs *(hornblende-plagioclase-quartz ± calcite ± tremolite ± epidote schist)*

Note – due to repetition of rock types the columnar tabulation at left is not strictly time – stratigraphic. Refer to the geologic reconstruction maps for detailed stratigraphy.

Structural Features

- Strike and dip of contact, dashed where inferred
- Foliation, orientation shown, with plunging lineation in plane of foliation
- Joint, orientation shown
- Plunging lineation, orientation and amount shown
- Orientation and plunge of stretched pebble
- Plunge of stratiform massive sulfide ore bodies
- Orientation and plunge of minor isoclinal folds
- Orientation and plunge of minor kink band folds
- Major overturned plunging anticline
- Major overturned plunging syncline
- Minor shear zone
- Fault zone, contacts shown

FIGURE 2. GEOLOGIC MAP OF THE MAYER – CROWN KING AREA, YAVAPAI COUNTY, ARIZONA

Base from preliminary 7½' U.S.G.S. quads, 1976
and 7½' U.S.G.S. quads, 1969

SCALE 1:24,000

½ 0 1 mile
0 3000' 7000'
0 1 kilometer

Geology by Ed DeWitt, 1975

Cartography by Ed DeWitt, 1976

ABG & MT
MM 76-B
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DEWITT, ED, M.S. THESIS, DEPARTMENT OF GEOSCIENCES, 1976