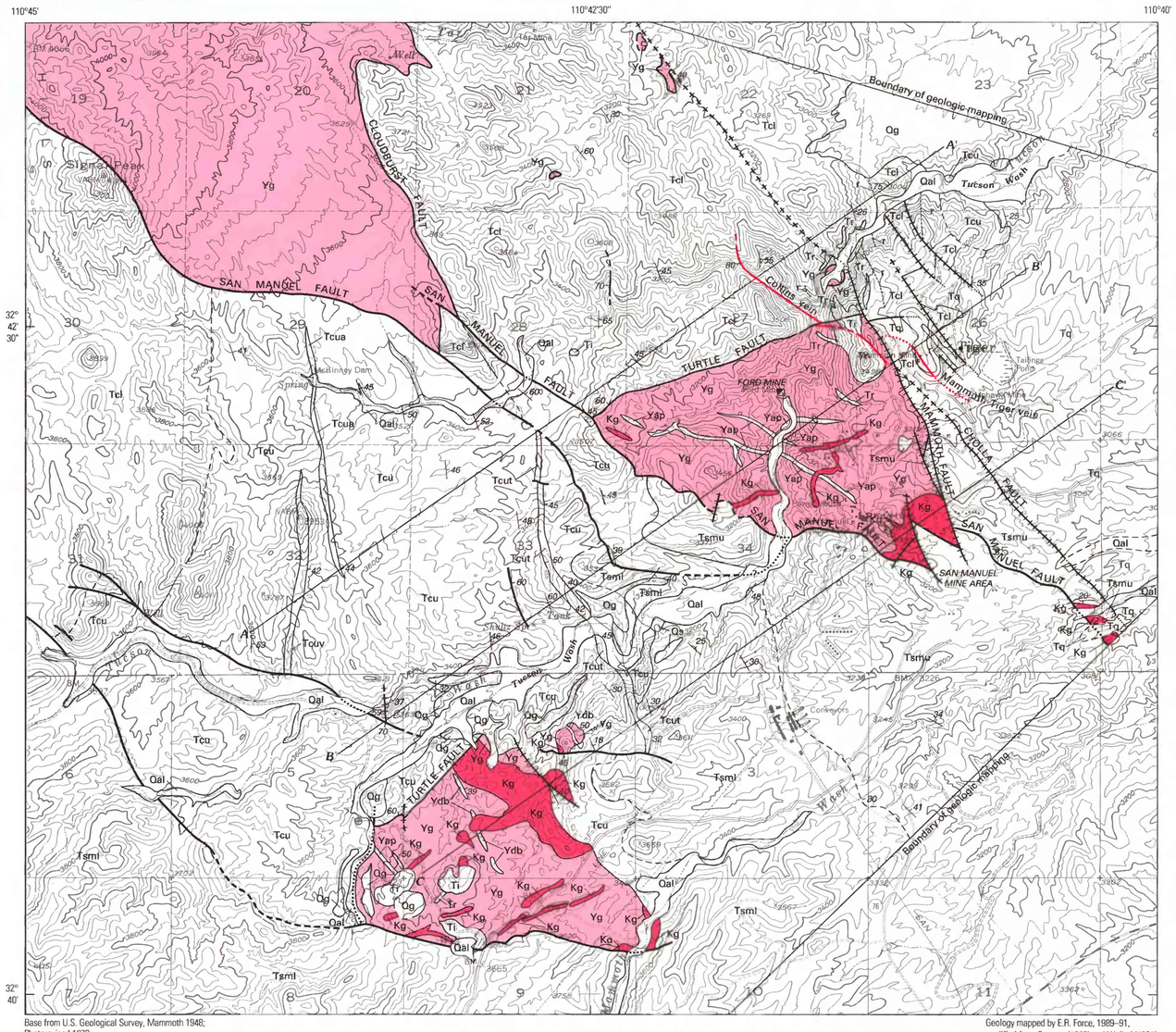

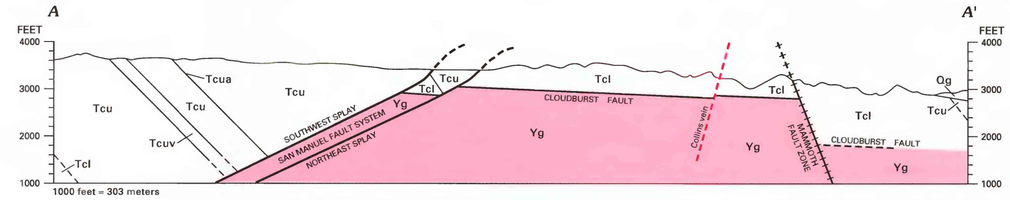

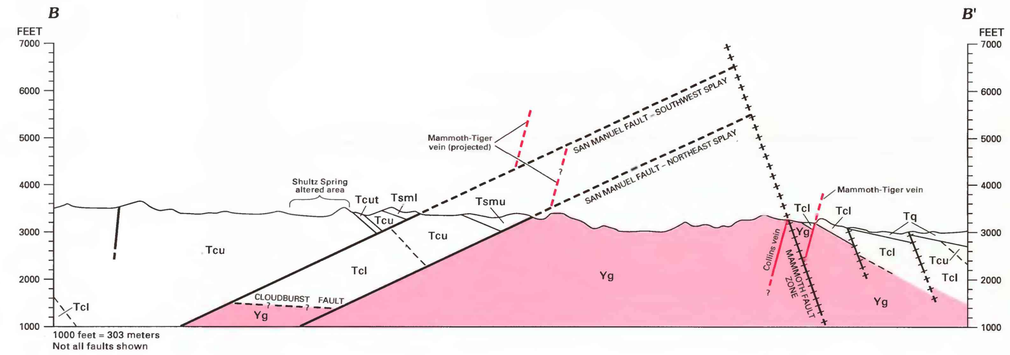

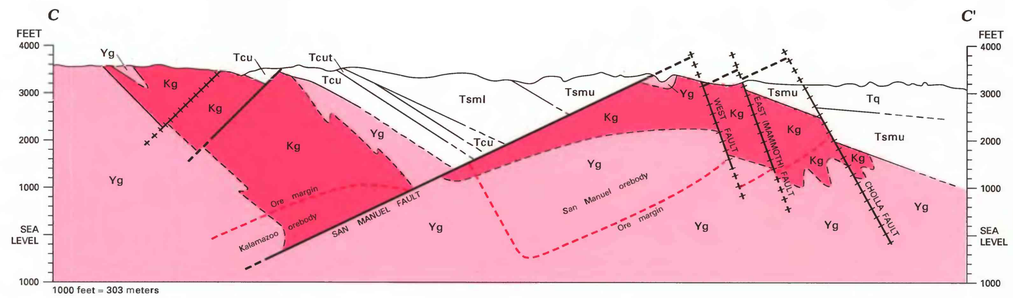

GEOLOGIC MAP AND CROSS SECTIONS, MAMMOTH-SAN MANUEL AREA, SOUTHEASTERN ARIZONA

By

Eric R. Force

1992

CORRELATION OF MAP UNITS

Unit	Epoch	Period
Qal		QUATERNARY
Unconformity		
Qg		QUATERNARY
Unconformity		
Tq	Upper Miocene or Pliocene	TERTIARY
Unconformity		
Tsmu	Lower Miocene	TERTIARY
Tsml	Lower Miocene	TERTIARY
Unconformity		
Tcu, Tcua, Tcl	Lower Miocene and upper Oligocene	TERTIARY
Ti, Tr, Tcut, Tcuv	Lower Miocene and upper Oligocene	TERTIARY
Kg	Upper Cretaceous?	CRETACEOUS?
Ydb, Yap, Yg		MIDDLE PROTEROZOIC

DESCRIPTION OF MAP UNITS

Qal — **Alluvium (Quaternary)**—Fills present valleys

Qg — **Gravel (Quaternary)**—Forms terraces

Tq — **Quiburis Formation (Pliocene or late Miocene)**—Gravel. Crops out east of and locally overlaps the Cholla and Mammoth faults

San Manuel Formation (early Miocene)—Conglomerate. Divided into:

Tsmu — **Tucson Wash Member**—Contains an upper and lower part

Tsml — **Kannally Member**

Tr — **Rhyolite (Tertiary)**—Intrusive in all units predating San Manuel Formation; extrusive (r) in lower member of Cloudburst Formation

Ti — **Intrusive rocks (Tertiary)**—Mostly porphyritic rhyodacite

Cloudburst Formation (early Miocene and late Oligocene)—Divided into:

Tcu — **Upper member**—Mostly conglomerate; also includes:

Tcut — **Tuff**

Tcua — **Arenite**

Tcuv — **Volcanic flow**

Tcl — **Lower member**—Interlayered volcanic rocks and conglomerate

Kg — **Granitic porphyry of San Manuel mine (Late Cretaceous?)**—Known as San Manuel porphyry of Laramide age

Ydb — **Diabase dikes (Middle Proterozoic)**—In Oracle Granite

Yap — **Aplite dikes (Middle Proterozoic)**—In Oracle Granite

Yg — **Granitic rocks (Middle Proterozoic)**—Includes Oracle Granite (Peterson, 1938), generalized in northern part of area

50 — **Contact**—Showing dip; dashed where approximately located; dotted where concealed

25 — **Faults approximately contemporaneous with accumulation of the Cloudburst Formation (oldest faults)**—Showing dip; dashed where approximately located; dotted where concealed

25 — **Faults approximately contemporaneous with accumulation of the San Manuel Formation**—Showing dip; dashed where approximately located; dotted where concealed

25 — **Faults approximately contemporaneous with accumulation of the Quiburis Formation (youngest, basin-range faults)**—Showing dip; dashed where approximately located; dotted where concealed

Strike and dip of beds

45 — **Inclined**

Vertical

Horizontal

35 — **Mammoth vein set**—Showing dip; dashed where approximately located; dotted where concealed

Force, E.R. and Cox, L.J., 1992, Structural context of mid-Tertiary mineralization in the Mammoth and San Manuel Districts, southeastern Arizona: U.S. Geological Survey Bulletin 2042–C