ARIZONA GEOLOGICAL SURVEY *Contributed Map Series CM 96-E*

GEOLOGY II

RIO SALADO DEVELOPMENT DISTRICT - EASTERN PART, MARICOPA COUNTY, ARIZONA

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1985

PREPARED IN COOPERATION WITH
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RIO SALADO DEVELOPMENT DISTRICT
AND ARIZONA STATE LAND DEPARTMENT

Introduction

Coon Bluff is in the southeast corner of the Granite Reef Quadrangle, Arizona at the confluence of the Salt and Verde rivers, approximately 3.5 miles upstream from the Granite Reef Diversion Dam on the Salt River. Orme Dam was proposed to be built across the Salt River from the western part of Coon Bluff to the eastern end of Arizona Dam Butte. Geologic drill holes completed for the feasibility report for Orme Dam provided data to determine the subsurface geology of Coon Bluff and to construct geologic cross-sections (see cross-sections E and F).

The geology of Coon Bluff is similar to that of Mount McDowell, approximately 2 miles to the west. Both contain Tertiary deposits: the Camels Head Formation of arkosic fanglomerate, the Geronimo Head Tuff and interbedded basalts.

Drill hole data from Coon Bluff, along with subsequent field work, indicates that the Camels Head Formation and the Geronimo Head Tuff are of similar age in that they are interbedded. Arkosic fanglomerate lies both above and below the tuff. The basal bed of the upper fanglomerate contains clasts of the underlying Geronimo Head Tuff. It was previously believed that the Camels Head Formation was considerably older than the Geronimo Head Tuff (Stuckless and Sheridan,1971).

General Description of Formations

The following is brief description of the geologic formations that occur at Coon Bluff. A more complete description of each formation can be found on Plate 2A.

Camelback Granite is the bedrock basement for the study area. It is a pink, coarse grained to porphyritic granite containing large orthoclase feldspar crystals. The age of the granite has been dated to be 1.4 b.y. (Stuckless and Naeser,1972).

The Camels Head Formation is an arkosic fanglomerate composed of red, poorly to moderately sorted and stratified arkosic sandstones, boulder conglomerates and breccias. Clasts are composed of granite,schist,quartzite and dacite; and the sandstones are composed of angular grains of mainly quartz,orthoclase and plagioclase feldspars. In both Mount McDowell and Coon Bluff the Camels Head Formation lies directly upon the Camelback Granite. On Coon Bluff a basal sandstone member of coarse grained arkosic sandstone is present.

The Geronimo Head Tuff is a partially welded to nonwelded rhyolitic ash flows and epiclastic breccias. It originated from the Superstition cauldron complex southeast of the study area. The age of the tuff has been determined to be 16.3 m.y. (Stuckless and Sheridan,1971).

The youngest consolidated rock of Coon Bluff occurs as sills and dikes within the Camels Head Formation. Petrographic analyses of samples taken from Coon Bluff and Mount McDowell indicate that these rocks are fine grained basalts to basaltic andesites. These are composed of phenocrysts of pyroxene and olivine within a groundmass of plagioclase feldspars and opaque minerals. The samples are altered and secondary calcite has subsequently filled vesicles in some samples. Sills and dikes within the Camels Head Formation in Mount McDowell are 17.7 to 18.7 m.y. old (Scarborough,1981).

Capping all rock types on Coon Bluff are remnants of Salt River Quaternary terrace gravel deposits, from 10 to 190 feet above the present river channel. These terrace gravels are composed of well rounded cobbles and boulders of various lithologies. Blue Point Terrace gravels are weakly calichified and underlie the Phon D Sutton Recreation Area. Mesa and Sawik Terrace gravels are highly calichified and exist as small remnants atop Coon Bluff. Through the periodic uplift of the mountain ranges and the subsidence of the basins in the last 2 to 3 million years, these series of paired terraces have formed along the Salt River (Péwé,1978). The terraces are cut into alluvium and, like those found at Coon Bluff, into bedrock (strath terraces).

Selected References

Kokalis,P.G.,1971,Terraces of the lower Salt River Valley,Arizona:unpublished Master's Thesis, Arizona State University,103 pages.

Péwé,T.L.,1978,Terraces of the lower Salt River Valley in relation to the Late Cenozoic history of the Phoenix Basin,Arizona; in Burt,D.M. and Pewe,T.L.,editors,Guidebook to the geology of Central Arizona:Arizona Bureau of Geology and Mineral Technology,Special Paper no.2, 176 pages.

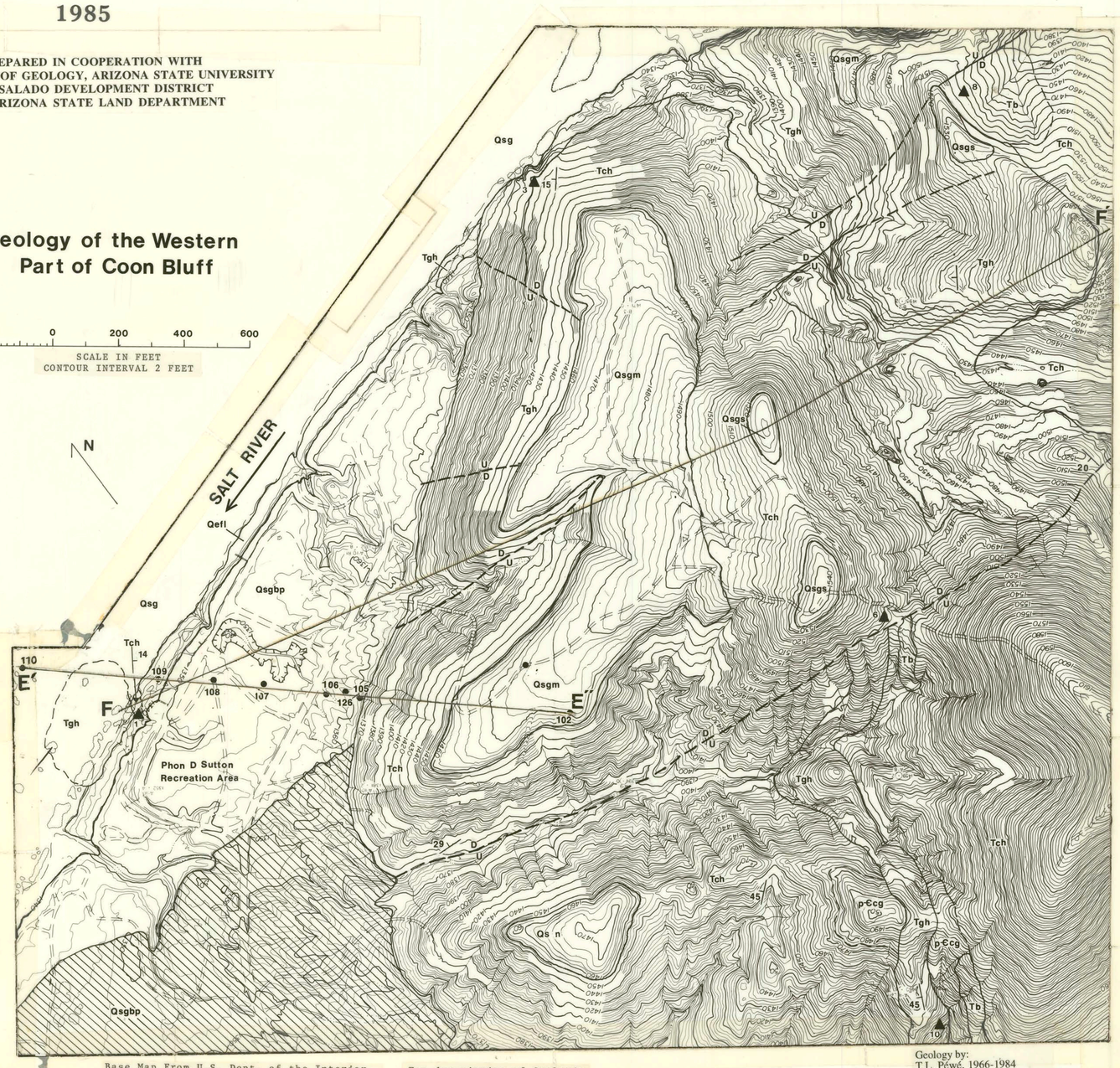
Scarborough,R.B.,1981,Reconnaissance geology:Goldfield and northern Superstition mountains:Field-notes,Bureau of Geology and Mineral Technology;vol.11,pg. 6-10.

Stuckless,J.S. and Naeser,C.W.,1972,Rb-Sr and fission track age determination in the Precambrian basement around the Superstition volcanic field,Arizona:U.S. Geol. Survey Prof. Paper 800B, pg. B191-B194.

Stuckless,J.S. and Sheridan,M.F.,1971,Tertiary volcanic stratigraphy in the Goldfield and Superstition mountains,Arizona:Geol. Society of America Bull.,vol.82,pg. 3235-3240.

Geology of the Western Part of Coon Bluff

200 0 200 400 600
SCALE IN FEET
CONTOUR INTERVAL 2 FEET



Base Map From U.S. Dept. of the Interior Bureau of Reclamation Map No. 344-330-1356 Phoenix,Arizona 1975.

For description of Geologic Units see Plate 2A.

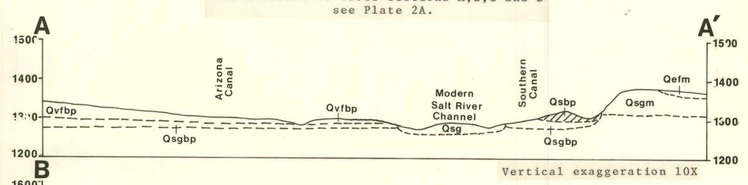
Geology by:
T.L. Péwé, 1966-1984
J.K. Drosendahl, 1982-1984

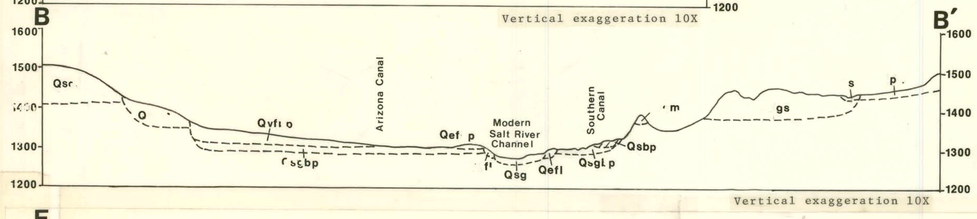
GEOLOGIC CROSS-SECTIONS

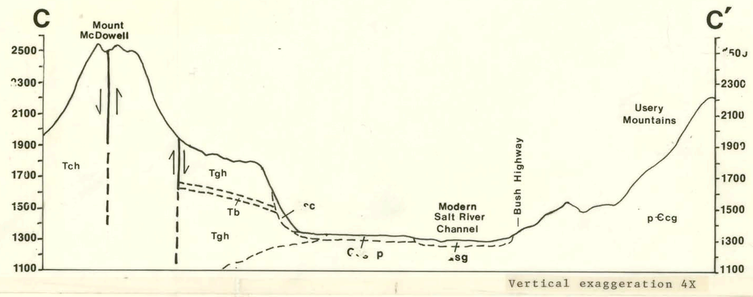
For location of cross-sections A,B,C and D see Plate 2A.

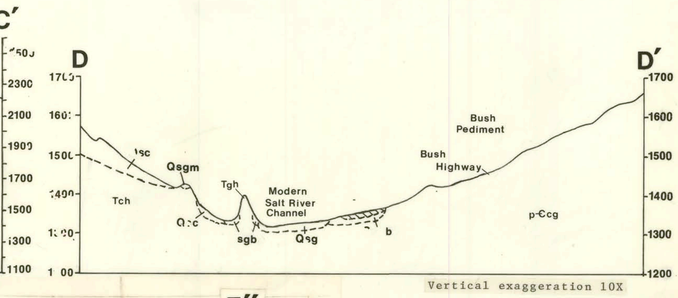
Scale for A,B,C and D.
Elevation in feet.

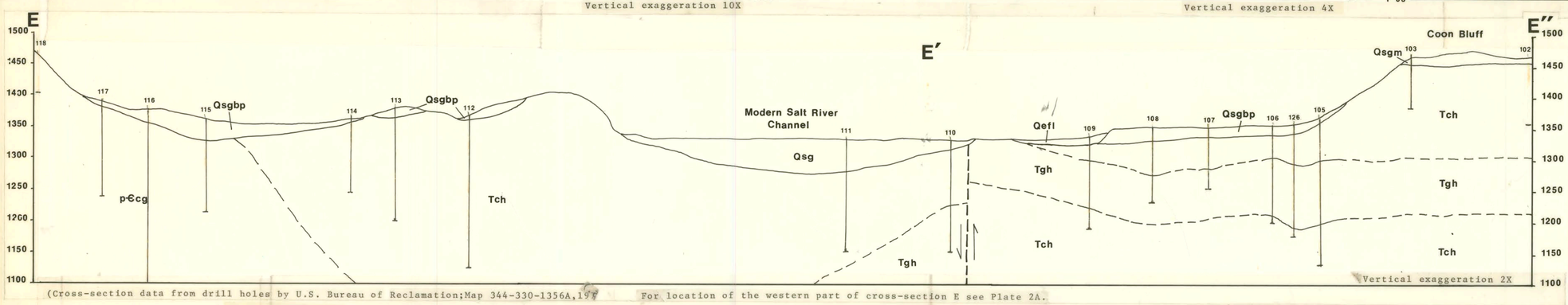
1 0 1 Mile







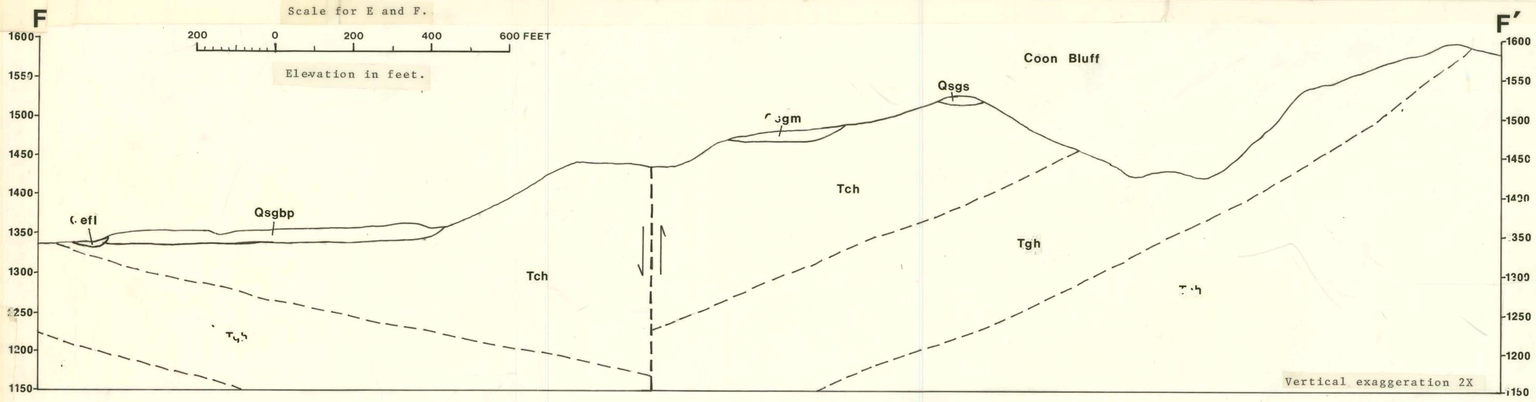




(Cross-section data from drill holes by U.S. Bureau of Reclamation;Map 344-330-1356A,197

For location of the western part of cross-section E see Plate 2A.

Scale for E and F.
Elevation in feet.



Map Symbols

Contact, dashed where gradational or inferred.

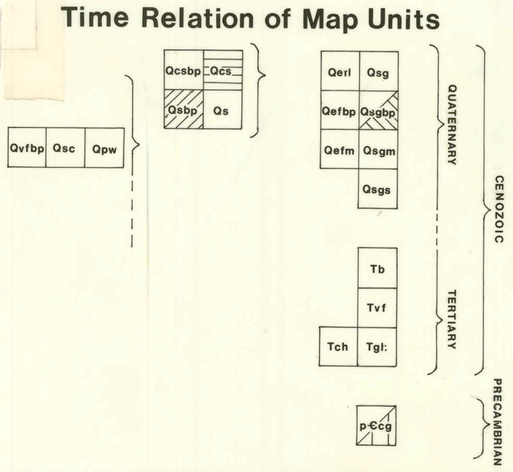
Fault, dashed where inferred; U,upthrown side; D,downthrown side; arrows indicate relative movement.

Geologic cross-section.

Dip and strike of beds, in degrees.

Drill hole locations.

Drill hole depths and locations on cross-section E.

Number and location of rock samples.

Time Relation of Map Units