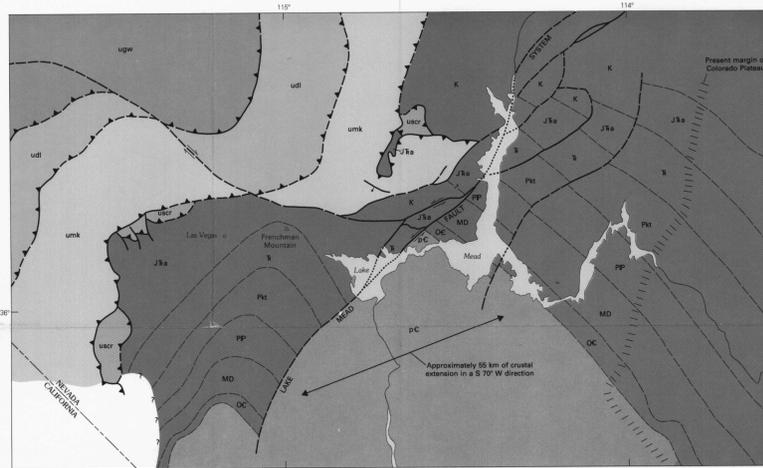
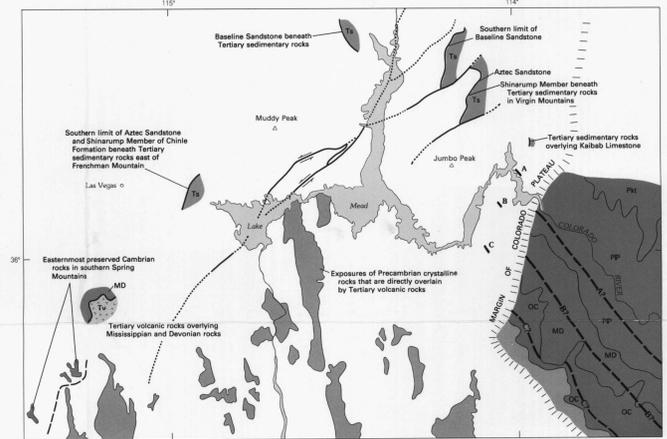


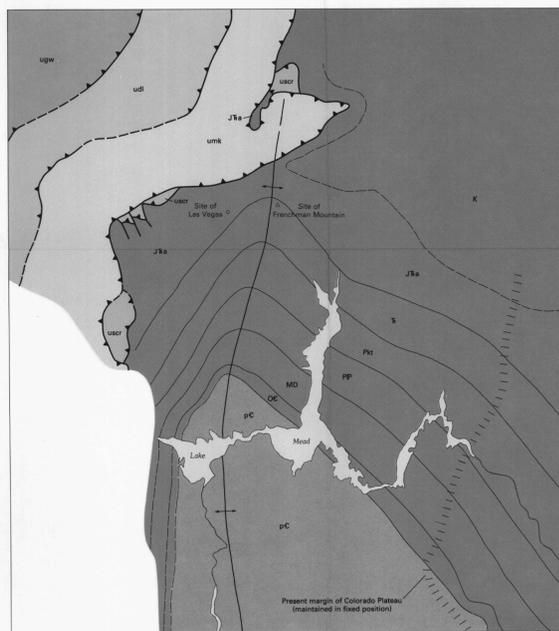
A. Highly simplified geology of the Lake Mead region.



B. Geology of Lake Mead region with Tertiary stratal tilting, Tertiary sedimentary rocks, and Tertiary volcanic rocks removed.  
Contacts have been restored to their probable pre-Rainbow Gardens Member position. Deformation resulting from Lake Mead fault system and Las Vegas Valley shear zone as well as distortion from crustal extension south of Lake Mead have not been removed.

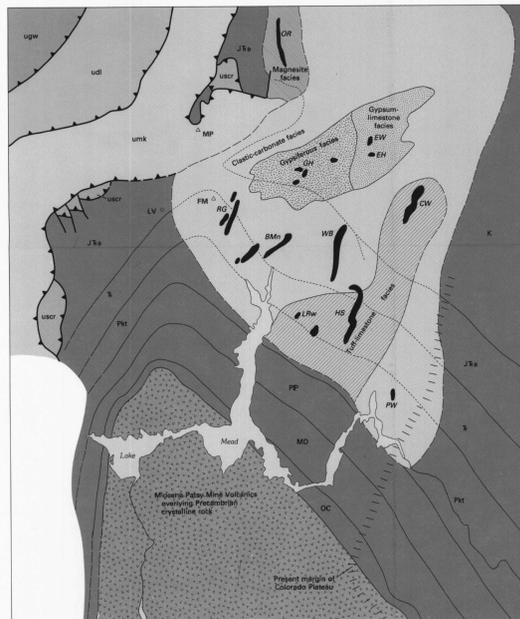


C. Data used to reconstruct pre-Rainbow Gardens arch.



D. Paleogeology of middle Tertiary pre-Rainbow Gardens time.

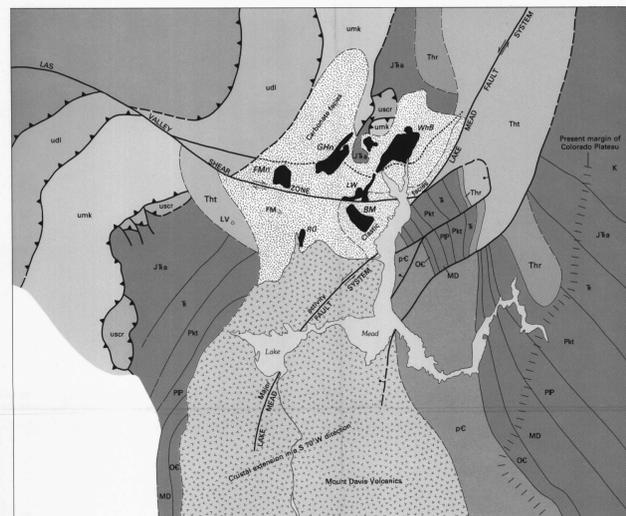
Chronologic data pertaining to initiation of Rainbow Gardens deposition is sparse, but map probably represents time period prior to about 20 m.y. ago.



Rainbow Gardens Member  
Clastic-carbonate facies  
Tuft-limestone facies  
Cypselurus facies  
Gypsum-limestone facies  
Magnesian facies  
Outcrop restored to original depositional position

E. Paleogeology of Rainbow Gardens time.

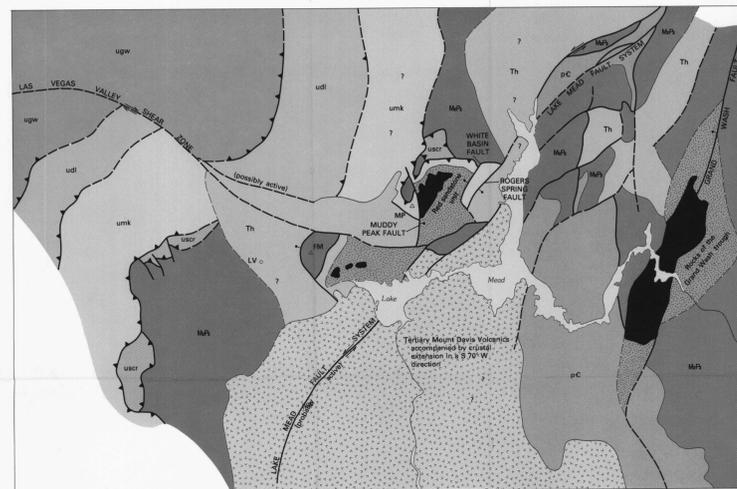
Although the member is not dated, map probably depicts period about 20 to 17 m.y. ago.



Lovell Wash and Bitter Ridge Limestone Members  
Carbonate facies  
Clastic facies  
Outcrop restored to original depositional position  
Thumb Member  
Rainbow Gardens Member

G. Paleogeology of Bitter Ridge Limestone and Lovell Wash time.

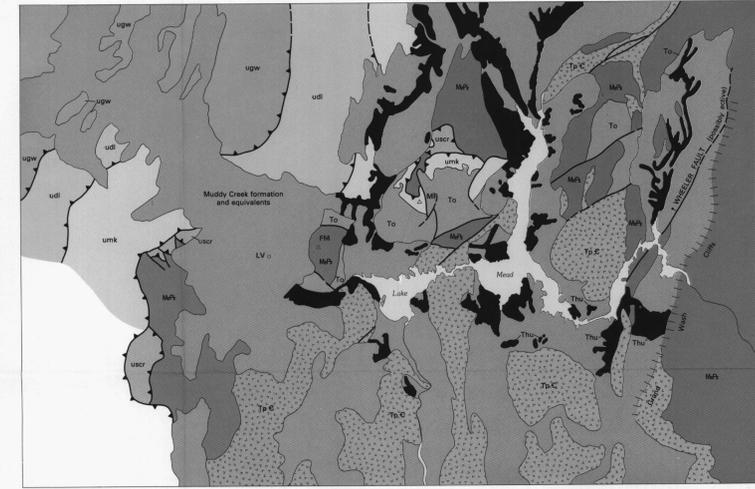
About 13.5 to 12 m.y. ago.



Red sandstone unit and rocks of the Grand Wash trough  
Area of outcrop  
Horse Spring Formation  
Stress is covered by younger deposits here

H. Paleogeology of time of red sandstone unit and rocks of Grand Wash trough.

About 12 to 10 m.y. ago.



Extent of deposition of Muddy Creek Formation and its equivalents  
Area of outcrop  
Hualapai Limestone  
Pre-Muddy Creek Tertiary rocks

I. Paleogeology of late Muddy Creek time.

About 6 m.y. ago after major episode of basin-range faulting.

EXPLANATION	
[Symbol]	Quaternary surficial deposits
[Symbol]	Tertiary sedimentary rocks
[Symbol]	Cretaceous rocks
[Symbol]	Triassic and (?) Atlatz Sandstone
[Symbol]	Tertiary rocks
[Symbol]	Permian, Karoo, and Toroweap Formations
[Symbol]	Permian and Pennsylvanian rocks
[Symbol]	Mississippian and Devonian rocks
[Symbol]	Oedocyan and Cambrian rocks
[Symbol]	Precambrian crystalline rocks
[Symbol]	Tertiary volcanic rocks
[Symbol]	Mesozoic and Paleozoic rocks (autochthon)
[Symbol]	Tertiary volcanic rocks and Precambrian crystalline rocks

THRUST PLATES	
[Symbol]	Upper plate of Gas Peak and Wheeler thrusts
[Symbol]	Upper plate of Dry Lake and Lee Canyon thrusts
[Symbol]	Upper plate of Muddy Mountain and Koyunse thrusts
[Symbol]	Upper plate of Summit, Contact, and Red Spring thrusts
[Symbol]	Contact—Dashed where inferred, dotted where concealed
[Symbol]	Normal fault—Dashed where approximately located, queried where uncertain. Bar and ball on downthrown side.
[Symbol]	Thrust fault—Dashed where approximately located, dotted where concealed. Sawtooth on upper plate.
[Symbol]	Strike-slip fault—Dashed where approximately located. Arrows indicate relative direction of movement.
[Symbol]	Anticline—Queried where uncertain
[Symbol]	Outcrop of Precambrian rapakivi granite at Jumbo Peak
[Symbol]	Rapakivi clast locality
[Symbol]	Measured section of Rainbow Gardens Member of Horse Spring Formation
[Symbol]	Hamblin-Cleopatra volcano
[Symbol]	Direction of plunge of Mesozoic formations beneath Horse Spring Formation (Map A)

ABBREVIATIONS	
LAKE MEAD FAULT SYSTEM AND RELATED FAULTS	
A	Fault between River Mountains and Eldorado Mountains
B	Fault north of Black Ridge
BR	Bitter Ridge fault
BSV	Bitter Spring Valley fault
CC	Cabin Canyon fault
GB	Gold Butte fault
HB	Hamblin Bay fault
LR	Lime Ridge fault
LAS VEGAS VALLEY SHEAR ZONE(?)	
GHF	Gale Hills fault
FL	Fault between north side of Frenchman Mountains and Lake Mead fault system
AA	Fault between Altonith and autochthon
REFERENCE POINTS	
FM	Frenchman Mountain
LV	Las Vegas
MP	Muddy Peak
OUTCROPS	
BM	Black Mesa
EMe	East of Black Mesa
EMn	Northern Black Mountains
BS	Bitter Spring Valley
CW	Cottonwood Wash
EH	Echo Hills
EW	Echo Wash
FMn	North of Frenchman Mountain
GH	Gale Hills
GHn	Northwestern Gale Hills
HS	Horse Spring
HSn	North of Horse Spring
LW	Western Lime Ridge
LW	Lovell Wash
OR	Overton Ridge
PW	Pigeon Wash
RG	Rainbow Gardens
WB	Wachech Basin
WB	White Basin

