UNITED STATES GEOLOGICAL SURVEY

UNITED KINGDOM OF LIBYA
UNITED STATES OPERATIONS MISSION TO LIBYA
COOPERATINGS WITH THE MINISTRY OF
NATIONAL ECONOMY

MINERALS INVESTIGATION

GEOLOGIC EXPLANATION

QUATERNARY

Qes	Eolian sand; stipple indicates dune areas
Qal Qs	Qal; alluvium, wadi gravel, sand, silt and associated fine sediments. Stippled where local accumulations of eolian sand occur. Qs; saline deposits in undrained depressions
Qpg	Lag gravel and poorly consolidated surficial deposits of local origin composed of gravel with some sand and silt-size material. Deposits consist of sandstone and siltstone fragments but in the vicinity of iron-bearing beds ferruginous fragments predominate

TERTIARY OR QUATERNARY

~~Tc~~ QTc	Coquina occurring in sparse scattered outcrops lying unconformably on Carboniferous sediments, composed almost wholly of mollusk fragments

TERTIARY

Tls	Limestone, probably continental, gray to buff, massive with a basal conglomerate composed of clastic and limestone fragments and sparse pebbles of volcanic origin

Unconformity

CARBONIFEROUS

Cl1	Variegated marine shale and siltstone with interbedded gray and white sandstone overlying marginal marine and continental beds of light-red and purple sandstone and grayish-green shale. Dark-gray organic shale occurs at the base. Correlated to rocks of Visean and Tournasian age occurring in the Wadi Oubarracat area
Cl2	Light-brown and gray sandstone interbedded with grayish-green shale, considered continental. Contact with overlying beds is gradational; base is marked by an oolitic chamosite-hematite bed. Correlated to rocks of Tournasian age occurring in the Wadi Oubarracat area
Cl3	Beds of massive hematitic siltstone and oolitic to finely granular hematite alternating with light-red, purple, and brown sandstone, and grayish-green, gray, and brown shale and claystone, commonly limonitic. Numerous thin seams and lenses of gypsum. Heavily permeated by petroliferous material in places. Correlated to rocks of Tournasian age occurring in the Wadi Oubarracat area

DEVONIAN

D	Predominantly massive light-gray to white sandstone with some minor cross beds; minor thickness of white and gray shale and siltstone interbedded with sandstone and arenaceous units containing ferruginous concretions. No recognized disconformity with underlying beds

CAMBRIAN AND ORDOVICIAN

€O	Highly cross-bedded brown and yellowish-brown sandstone beds with abundant thin conglomeratic lenses

Contact
Dashed where approximately located; dotted where concealed

Doubtful or probable fault

Strike and dip of beds

(200)
R290
no.657

U.S. GEOLOGICAL SURVEY
LIBRARY

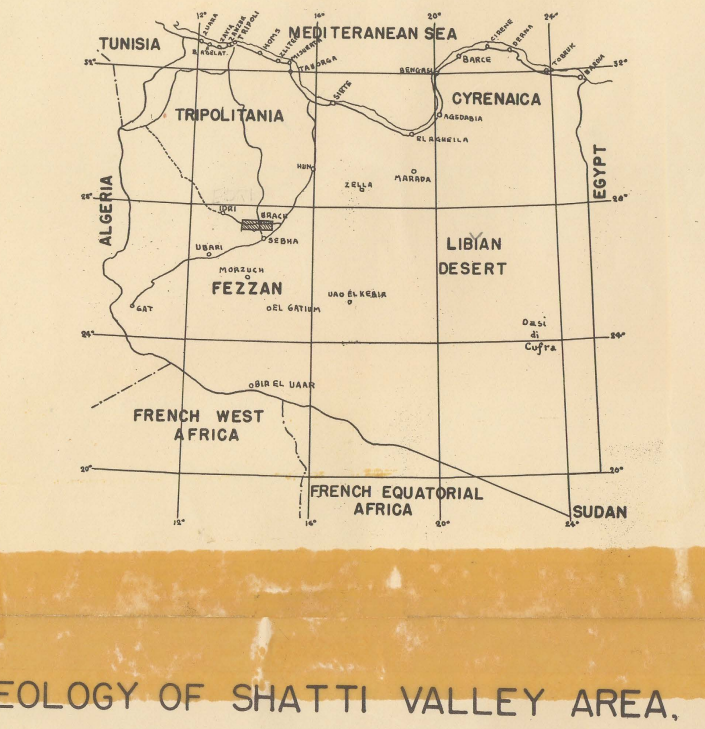
13°45'
13°50'
13°55'
14°00'
14°05'
14°10'
14°15'
14°20'
14°25'
14°30'
14°35'
14°40'
27°40'
27°35'
27°30'
27°25'
TAROOT
TAROUT MOUNTAIN (383.6)
EL DUESA
AIN GOTAH
EL GORDA
MAHARUGA
MAHARUGA MOUNTAIN
MAHARUGA MOUNTAIN WEST (375.9)
MAHARUGA MOUNTAIN SOUTH (375.0)
AGAR
AGAR MOUNTAIN (354.6)
AGAR SCHOOL
ZELWAZ
BRACK
AIN BISANTI (302.0)
AIN TELMIA (304.8)
AIN GASSER
AIN OBRUK
CHIRA
DEB DEB
ASHKEDA
GAL MOIA
SHEB
WADI TAROOT
WADI AGAP
WADI SUBAN
A
A'
N
S
Tls
Qpg
Qal
Qes
D
€O
Cl1
Cl2
Cl3
Road
Extended South of Mapped Area
Vertical Exaggeration Approximately 10X
Profile of Topography Approximate

DIAGRAMMATIC GEOLOGIC SECTION

MAP LEGEND

Roads
Secondary roads
Oasis; village with date garden
Area under cultivation
Brushy vegetation
▲304 Triangulation station; elevation in meters
× BM --- Bench mark; elevation in meters
○305 Diamond drill hole; elevation in meters

MAP of LIBYA


TUNISIA
MEDITERANEAN SEA
TRIPOLITANIA
CYRENAICA
ALGERIA
EGYPT
FEZZAN
LIBIAN DESERT
FRENCH WEST AFRICA
FRENCH EQUATORIAL AFRICA
SUDAN

GEOLOGY OF SHATTI VALLEY AREA, FEZZAN PROVINCE, LIBYA

by

GUS. H. GOUDARZI U.S.G.S.

Based on Uncontrolled Mosaic by Institute Geographique National Paris, France—1954

Elevations based on assumed datum of 400 meters at Sebha

Scale 1:40,000

1 0 1 2 3 4 5 Kilometers

1 0 1 2 3 Miles

Geology compiled 1956 by G.H.Goudarzi, USGS-USOM Libya

PLEASE REPLACE IN POCKET IN BACK OF BOUND VOLUME

① no.37 Plate 2b

This map is preliminary and has not been edited for conformity with Geological Survey format and nomenclature.

Plate 2b