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U.S. GEOLOGICAL SURVEY
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Aerial photography 1955 and controlled mosaic 1956
Aero Service Corporation, Philadelphia, Penn., USA

QUADRANGLE LOCATION

1:100,000

2 0 2 4 6 8 10 KILOMETERS

2 0 2 4 6 8 10 MILES

Geology of the Precambrian area mapped by W. C. Overstreet and J. W. Whitlow, U. S. Geological Survey, and A. O. Ankary, Directorate General of Mineral Resources, April 1964. Geology east of the Precambrian area adapted from Bramkamp and others (1956).

EXPLANATION

PLUTONIC AND HYPABYSSAL INTRUSIVE ROCKS

ds — Andesite dikes
Dikes of andesite, dacite, and lamprophyre intrusive into biotite-hornblende granite (gh)

gh — Biotite-hornblende granite
Dominately gray, locally pink, biotite-hornblende granite; massive to faintly gneissic, equigranular, medium- to coarse-grained; locally biotite-rich, dark-gray granodiorite

dgp — Diorite, gabbro, and pyroxenite
Dark-gray, dark-green, dark-brown, and nearly black, very massive, fine- to coarse-grained diorite, gabbro, and pyroxenite

gg — Gray hornblende-biotite granite gneiss

LAYERED SEDIMENTARY, PYROCLASTIC, AND METAMORPHIC ROCKS

QUATERNARY

Qasd — Aeolian sand in prominent dunes
Mostly mobile; adapted from Bramkamp and others (1956)

Qas — Aeolian sand
Mostly mobile; adapted from Bramkamp and others (1956)

Qsi — Silt
Silt and associated fine sediments including caliche-like and gypsiferous deposits in undrained depressions; adapted from Bramkamp and others (1956)

Qal — Sand
Alluvial, sheet wash, and aeolian sand

Qg — Gravel
Composed mainly of limestone fragments; unidentified older gravels are included in some areas; adapted from Bramkamp and others (1956)

Qgq | Qgp — Gravel
Mostly lag gravels (Qgq) composed of quartz and other pebbles of Precambrian rocks; Qgp in south is a gravel sheet in which dark rocks predominate; possibly includes beds of Tertiary age; adapted from Bramkamp and others (1956)

TRIASSIC OR JURASSIC

JTrm — Minjur Sandstone
Buff-colored, massive, generally cross-bedded sandstone and irregularly distributed varicolored shale, sandy shale, and shaly sandstone; minor beds of ironstone at several horizons; quartz pebbles numerous in some sandstone beds; adapted from Bramkamp and others (1956)

TRIASSIC

Trj — Jihl Formation
Sandstone, silty to massive and coarse-grained; interbedded green, purple, and red siltstone and shale; minor limestone beds; arenaceous oolite and oolite sandstone in uppermost beds; thin layers of platy black and brown ironstone are abundant in the upper part; marine fossils in limestone in middle and upper part; adapted from Bramkamp and others (1956)

PERMIAN OR TRIASSIC

TrPs — Sudair Shale
Brick-red to dark-red massive shale; minor pale greenish-white siltstone and soft fine-grained sandstone near the base; adapted from Bramkamp and others (1956)

PERMIAN

PK — Khuff Formation
Interbedded light-colored limestone, argillaceous limestone, dolomite, marl, and gypsiferous clay; a varicolored sandstone and shale unit is commonly present at base; where exposures are poor much of the formation is probably shale and marl; adapted from Bramkamp and others (1956)

UNCONFORMITY

PRECAMBRIAN

BIR KHOLYNTRA GROUP

sg | sc — Abu Sawarir Formation
Gray, green, and brown graywacke sandstone and siltstone grading into dark argillite (sg) with some thin calcareous layers and rhythmic bedding; dark-gray to dark-green, fine- to coarse-grained, chlorite-sericite schist formed by contact metamorphism of graywacke and argillite by intrusive biotite- hornblende granite (gh); chlorite-sericite schist unit (sc)

UNCONFORMITY

HALAJAN GROUP

jrd | jrp | jra — Wadi al Jifr Formation
Gray, red, and dark-brown rhyolite and rhyolite porphyry massive to sheared, in dikes and dike swarms (jrd), and in extrusive and shallow intrusive masses, including tuff but most commonly rhyolite porphyry with blue quartz phenocrysts (jrp); where sheared, the rhyolite and rhyolite porphyry are converted to quartz-sericite schist and fine-grained biotite-muscovite schist; local layers of fine-grained hornblende schist and quartzite. Unit shown as altered rhyolite (jra) is bleached yellow to reddish-brown, iron-stained, pyritiferous rhyolite, rhyolite tuff, rhyolite porphyry with blue quartz phenocrysts, and quartz-sericite schist

ua — Umm Mushraha Formation
Dark-green to nearly black, layered to massive amphibolite formed by metamorphism of layered andesitic rocks and massive, coarse-grained gabbroic rocks

UNCONFORMITY

Contact
Dashed where approximately located or inferred; dotted where concealed

Fault
Concealed fault showing relative horizontal movement

Strike and dip of foliation and plunge of lineation

Quartz

Lineament mapped on aerial photography
Prominent lineament; may be dike, bedding, foliation, joint, or fault

Water well
Marked Dry Well where abandoned

20ppm Cu or less
25ppm Zn or less
<5ppm Mo
Location and copper content of wadi sand sample (chemical analysis expressed in parts per million)

2ppm Mo — 5ppm Mo
Molybdenum content of wadi sand sample, located by adjacent copper symbol (spectrographic analysis)

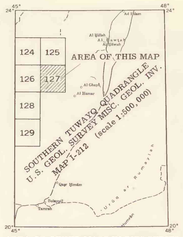
B — Boron, 50ppm; Pb — Lead, 50ppm; Ti — Titanium, 3000ppm
Threshold elements (spectrographic analysis) in wadi sand; located by adjacent copper symbol

W
Tungsten, 60ppm
Threshold element in concentrate (chemical analysis); located by adjacent copper symbol

Scheelite and/or powellite in concentrate from wadi sand; superimposed on copper symbol

PLEASE REPLACE IN POCKET
IN BACK OF BOUND VOLUME

U. S. Geological Survey
OPEN FILE REPORT
This report is preliminary and has not been edited or reviewed for conformity with Geological Survey standards or nomenclature.



AREA OF OTHER MAPS IN THIS SERIES

124 Jabal Bitran quadrangle
125 Ayn Qunay quadrangle
126 Bi'r al Badriyah quadrangle
128 Bi'r Ghamrah quadrangle
129 Wadi Mahraghah quadrangle

RECONNAISSANCE GEOLOGIC MAP OF THE SABKHAT MURAYSIS QUADRANGLE, KINGDOM OF SAUDI ARABIA

By
William C. Overstreet, Jesse W. Whitlow, and Abdullah O. Ankary

1972