68-275

Geologic Explanation

QUATERNARY

Qes

Eolian sand

Mostly mobile, confined to easternmost map area - the Paleozoic sandstone outcrops of the Hisma plateau

Qu

Silt, sand and gravel, undifferentiated

Unconsolidated surficial deposits of clay, silt, sand, alluvium and gravel

TERTIARY MIOCENE & PLIOCENE

Tfl

Poorly indurated sediments and alluvial fan deposits

Poorly indurated buff, white, salmon pink, argillaceous silts, thin pebbled beds with plant fragments; overlying is a boulder pediment containing iron formation pebbles, polished jasper and flint; questionable late Tertiary or possibly Quaternary age

Tra

Raghama formation

Vuggy limy fossiliferous sandstone, buff fossiliferous limestone, thin beds of gypsum, and coarse conglomerate outcrop at Al Bad' and in a small faulted basin 5 km. northeast of Ash Sharmah

CAMBRIAN(?) & ORDOVICIAN

OCru

Ram and Umm Sahm sandstones, undivided

Variable color, crossbedded sandstone locally interbedded with ferruginous sandy shale; upper part. Lower part massive quartz sandstone in distinctive rounded forms. For a detailed description of these and older sandstones see Bramkamp et al, 1963.

CAMBRIAN

Cq

Quweira sandstone

Reddish-brown, massive to crossbedded sandstone, locally becomes sub-graywacke

Cs

Siq sandstone

Dark-red sandstone forming cliffs at Shaib as Siq above crystalline rocks

CRYSTALLINE ROCKS

da

Hypabyssal siliceous intrusive rocks

Dacite, granite, rhyolite porphyry often red; mostly dikes too small to map but larger intrusive masses occur in Jabal Rawa area and 10 km. northwest and southeast of the Jabal in mixed, sheared rock.

sr

Shammar rhyolite

Unmetamorphosed volcanic and sedimentary rocks; mainly porphyritic rhyolite and andesite flows, in part amygdaloidal, dacite, trachyte, local rhyolite breccias, tuffs and agglomerates. Tuffaceous shales and coarse purple conglomerates (volcanic cobbles and boulders) are interbedded in and underlie the flow rocks.

gm

Granite

Massive, light colored, medium to coarse grained, calc-alkalic biotite granite, mostly without dikes in a large discordant pluton on the flanks of Jabal ash Shati. Magnetite is the main accessory mineral

PRECAMBRIAN

gh

Hornblende granite

Dark alkalic hornblende granite, gh, with dark zenoliths common; local zones of fresh biotite granite.

gr

Granite

Red, medium-to coarse-grained alkalic biotite granite, gr; sphene apatite, and magnetite main accessory minerals; porphyritic, in part; weathers to massive rounded hills; many dikes of basalt, rhyolite, dacite, microgranite and diabase; Bogue's "massive granite" (Bogue, R. G., 1953).

gb

Biotite granite

Gray, fine-grained biotite granite, gb, in the core of a ring structure within greenstone 10 km. south of Jabal Rawa.

h

Hadiyah slate

Green siltstone, maroon fine grained sandstone, banded phyllites and argillites, feldspathic wackes, conglomerate and intraformational breccias. Tightly folded and contact metamorphosed to hornfels and slates bordering intrusives. Rounding poor, material not transported far.

gg

Granite and granodiorite

Light, medium and coarse grained granite, granodiorite, and local monzonite. Zenoliths of older volcanic and sedimentary rocks common; felsite and lamprophyre dikes abundant; Bogue's "cave granite" (Bogue, R. G., 1953) because it weathers with concave surfaces; weathers to a light grus mantle covering large outcrop areas.

d

Diorite

Gray, medium to coarse grained hornblende diorite, includes some amphibolite, and quartz diorite

si

Silasia formation

Green, folded slates with arkosic sandstone, conglomerate, calcareous schist, and minor marble. Interbedded iron formation, thickness variable 1/2 to 20 meters in upper half of the formation, jaspilite type.

gd

Greenstone

Mostly dark flows, metandesite, metabasalt, with some metarhyolite, all locally porphyritic; slates, wackes, iron formation, and conglomerate; contains mafic dikes mostly; locally sheared schist and hornfels adjacent to faults and intrusive masses. Iron formation interbedded in slates and greenstone, thin bedded chert-hematite-magnetite type.

Geologic contact

long dashed where approximately located; short dashed where indefinite; dotted where concealed.

Fault or shear zone

dashed where approximately located; dotted where concealed

Strike and dip of beds

Trend lines showing lineation in basement rocks

Fe Outcrop of iron formation

Dikes

Wadi sand sample location having 20 ppm(parts per million) or less copper, 100 ppm or less zinc, and 2 ppm or less molybdenum.

Wadi sand sample location with 30 to 70 ppm copper

Wadi sand sample location with 300 to 700 ppm copper

Sample with 3 to 7 ppm molybdenum in wadi sand (located by adjacent copper symbol)

Sample with 10 to 20 ppm molybdenum in wadi sand

Rock sample location

4168 Sample number

10257 Rock sample submitted for age determination

4053 Rock sample submitted for chemical analysis

4182 TH Rock sample with thin section