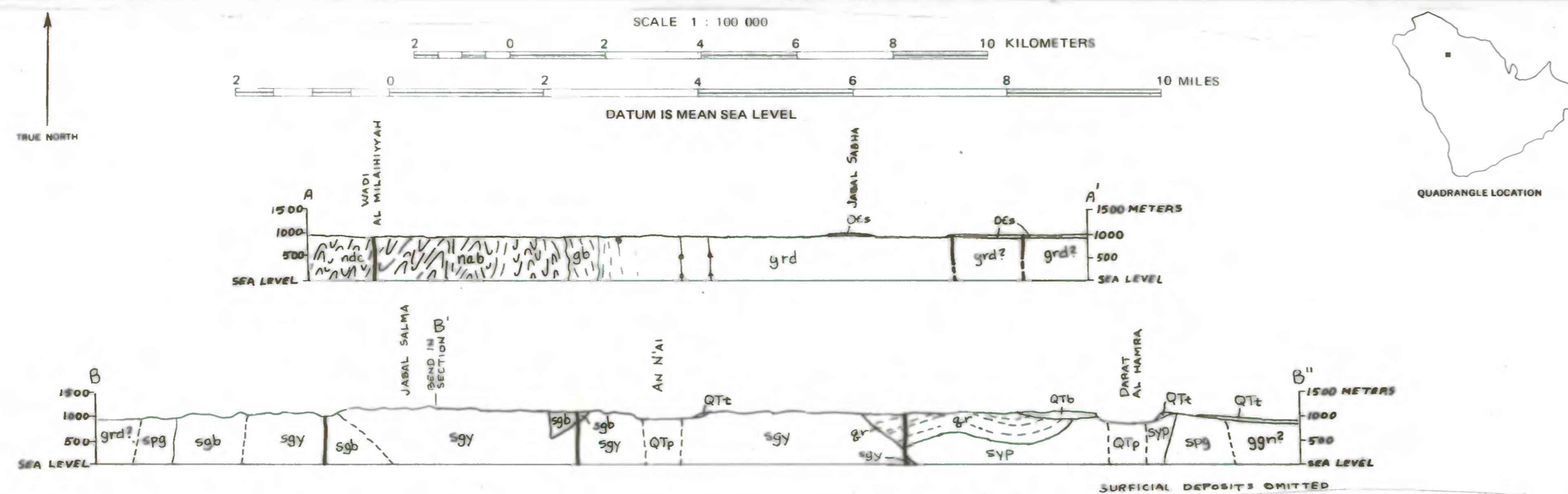




Aerial photography 1956 and controlled mosaic 1959  
 Aero Service Corporation, Philadelphia, Penn., U.S.A.

This report has not been edited or reviewed for conformity  
 with U.S. Geological Survey standards and nomenclature.



**EXPLANATION**

**CORRELATION OF MAP UNITS**

**INTRUSIVE ROCKS**

**SEDIMENTS, SEDIMENTARY, VOLCANIC, AND METAMORPHIC ROCKS**

QUATERNARY: Qa1, Qa, Qd, Qp

QUATERNARY AND TERTIARY: 1-8 Ma, QTb, QTp, QTt, QTc, QTcb

UNCONFORMITY: Ocs

ORDOVICIAN AND CAMBRIAN: Ocs

FAULTING, UNCONFORMITY: SAQA SANDSTONE

**PRECAMBRIAN**

AKASH GRANITE: gra

QARFA FORMATION: qc, qr, qt

LOCAL SHEARING, METAMORPHISM: grd, ggn, grh, gyd

OROGENY, METAMORPHISM: c. 620 Ma?

SAMRA INTRUSIVE SUITE: qd, dl, gb, px

NUF FORMATION: nu, ndc, nab

**DESCRIPTION OF MAP UNITS**

**QUATERNARY SEDIMENTS**

Qp: PLAYA DEPOSITS

Qd: DUNE DEPOSITS

Qa: RENOWNED VOLCANIC ASH DEPOSIT

Qa1: ALLUVIAL DEPOSITS

**TERTIARY AND QUATERNARY VOLCANIC ROCKS**

QTcb: MIXED CINDER AND LAVA FLOW DEPOSITS

QTc: BASALTIC CINDER DEPOSITS

QTt: BASALTIC TUFF DEPOSITS

QTp: BASALTIC PIPE BRECCIA—On cross-section only

QTb: ALKALI-OLIVINE BASALT

**PALEOZOIC ROCKS**

Ocs: SAQA SANDSTONE—Mostly sandstone, minor shales, local basal conglomerate

**PRECAMBRIAN, METAVOLCANIC, VOLCANIC, AND SEDIMENTARY ROCKS**

**QARFA FORMATION**

qc: Conglomerate member

qt: Trachyte member

qr: Rhyolite member—Mostly brown porphyritic ash flows

**NUF FORMATION**

nu: Nuf formation, undivided

ndc: Metadacite and metarhyodacite member

ab: Metabasalt and meta-andesite member

**PRECAMBRIAN INTRUSIVE ROCKS**

**SALMA GRANITE COMPLEX**

A: Diabase dike

smg: Hornblende-biotite monzogranite

sgy: Salma granophyre, and granophyre sheet

sgb: Biotite syenogranite

sgn: Peralkaline granite

syp: Iron-oxide granite — mostly syenogranite

syp: Quartz syenite porphyry

gra: AKASH GRANITE—Biotite monzogranite and syenogranite

**GRANDIORITE AND MONZOGANITE SUITE**

q-i: Quartz vein and plug intruding Dhiyyab granite

A: Mafic dike

F: Felsic dike

X: Dike, undifferentiated

grd: Dhiyyab granite — mostly biotite granodiorite and monzogranite

gyd: Granophyre

grh: Ha'il granite, and dike — mostly cataclastically deformed biotite-hornblende monzogranite

ggm: Cataclastic granite gneiss

qd: QUARTZ DIORITE

dl: HORNBLende DIORITE

**SAMRA INTRUSIVE SUITE**

gb: Metagabbro

px: Metaproxenite

**SYMBOLS**

CONTACT—Showing dip; dashed where approximately located, dotted where concealed

FAULT—Showing dip; dashed where approximately located, dotted where concealed; arrows show direction of apparent relative motion

TREND LINE—Interpreted from aerial photographs, represents strike of cataclastic or metamorphic foliation, cleavage, bedding, fault, or combination of these structures

**STRIKE AND DIP OF BEDS**

Inclined, showing dip

Vertical

Horizontal

**STRIKE AND DIP OF FOLIATION**

Inclined, showing dip

Vertical

Inclined, parallel to fracture cleavage

Vertical, parallel to fracture cleavage

Inclined, showing plunge of mineral lineation

MINERAL OR CATACLASTIC LINEATION—Showing plunge

STRIKE AND DIP OF FRACTURE CLEAVAGE—Showing plunge

Inclined

Vertical

STRIKE AND DIRECTION OF DIP OF GRANOPHYRE SHEET

CRATER RIM OF TUFF CONE OR CINDER CONE—Hatchures point inward

**RECONNAISSANCE GEOLOGY OF THE RAK QUADRANGLE, SHEET 27/42 C, KINGDOM OF SAUDI ARABIA**

by  
**Karl S. Kellogg**  
 1984