

- DESCRIPTION OF MAP UNITS**
- Qa1 ALLUVIAL DEPOSITS (Quaternary)
 - Qt TALUS DEPOSITS (Quaternary)
 - Qs SEDIMENTARY DEPOSITS (Quaternary)—Mainly sand and unconsolidated gravel belonging to range-front fan conglomerates
 - Qc COLLUVIUM (Quaternary)
 - Qos OLDER SEDIMENTARY DEPOSITS (Quaternary)—Unconsolidated sand and gravel veneer on terraces and benches along streams
 - Tc CONGLOMERATE (Tertiary)
 - Tt WATER-LAID TUFF AND SEDIMENTARY ROCKS (Miocene)
 - Tr RHYOLITE FLOWS AND INTRUSIVE ROCKS (Miocene)—Fine-grained, locally contains glass phase
 - Tir INTRUSIVE RHYOLITE (Miocene)—Mostly fine-grained, contains some glass near the contacts. Minor flows occur locally
 - Tro RHYOLITIC OSSIDIAN (Miocene)—Glass phase of rhyolite flows
 - Trd RHYOLITE (Miocene)
 - Tq1 QUARTZ LATITE (Miocene)—Includes flows, dikes, and small hypabyssal intrusive masses. Widely varying amounts of hornblende, biotite, and quartz phenocrysts. K-Ar ages of 15.8 m.y. (dillite zone) and 17.4 m.y. were obtained by S. C. Creasey (see table) from hornblende and biotite, respectively, separated from a small body of quartz latite, intrusive into water-laid tuff and sedimentary rocks (unit Tt) at locality A in the NW sec. 35, T. 3 S., R. 11 E.
 - Tb OLIVINE BASALT (Miocene)—Fine-grained flows occurring mostly in water-laid tuff and sedimentary rocks (unit Tt)
 - Tq QUARTZ BLOOMIT (Miocene)
 - Tpg PEBBLY GRIT (Miocene)—Derived principally from underlying Pinal Schist (units Xw and Xps). Contains angular fragments of rhyolite
 - Tog OLDER GRAVEL (Miocene)—Mostly brick red sandstone including pebble- to cobble-sized angular fragments of underlying Pinal Schist (unit Xw)
 - Tal APACHE LEAP TUFF (Miocene)—Ash-flow tuff. Welded
 - Tw WHITE-TAIL CONGLOMERATE (Oligocene)
 - Tg GRANODIORITE DIKES AND SMALL INTRUSIVE BODIES (Palaocene)—Mostly medium- to fine-grained, porphyritic biotite-hornblende granodiorite, but grading laterally into granodiorite porphyry. Includes several small regions of slightly porphyritic hornblende granodiorite in the SW sec. 3 and in the SW sec. 2, T. 3 S., R. 11 E., containing about 5 volume percent phenocrysts of well-rounded quartz. The olive-brown hornblende (Z) in these bodies of rock are strongly chloritized, and some hornblende crystals are altered along their rims to tightly intergrown chlorite, epidote, and calcite
 - Tnd HORNBLende DACITE DIKES (Palaocene)
 - Tad ALTERED DACITE DIKES (Palaocene)—Porphyritic hornblende dacite dikes altered intensely to chlorite-white mica-carbonate-epidote assemblages. Sparse ovoid quartz phenocrysts
 - Tkq QUARTZ MONZONITE DEKE (Tertiary or Cretaceous)—Fine grained. Contains 5-10 volume percent biotite
 - Tkgd GRANODIORITE (Tertiary or Cretaceous)
 - Tknq QUARTZ MONZONITE OF MINERAL MOUNTAIN (Tertiary or Cretaceous)—K-Ar ages of 123.6 m.y. and 65.3 m.y. were obtained from primary hornblende and primary biotite, respectively, separated from a sample collected from locality B in the SW sec. 20, T. 3 S., R. 11 E. (see table)
 - Tka APLITE, QUARTZ MONZONITE OF MINERAL MOUNTAIN (Tertiary or Cretaceous)
 - Yd DIABASE (Precambrian Y)
 - Yt TROY QUARTZITE (Precambrian Y)
 - APACHE GROUP (Precambrian Y)—Includes:
 - Yn MISCAL LIMESTONE
 - Yd DRIPPING SPRING QUARTZITE—Dot pattern indicates Beres Conglomerate Member at base of formation
 - Yp PIONEER SHALE—Dot pattern indicates Scanlon Conglomerate Member at base of formation
 - Yr RISEN GRANITE (Precambrian Y)—Porphyritic biotite quartz monzonite
 - Ygr TWO-MICA GRANITE (Precambrian Y)—Generally a medium-grained leucocratic granite containing less than 5 volume percent primary white mica and biotite, and about 50 to 60 percent potassium feldspar and 5 to 15 percent plagioclase. Locally contains secondary biotite, a separate of which from locality C, NW sec. 32, T. 3 S., R. 11 E., yielded a K-Ar age of 66.7 m.y. (see table)
 - Yprn PEEMBITTE, TWO-MICA GRANITE (Precambrian Y)
 - Ym MADERA DIORITE (Precambrian Y or X)—Locally divided into and includes:
 - Yma APLITE
 - Ymp HORNBLende PEEMBITTE
 - Ypns PINAL SCHIST (Precambrian X)—Includes:
 - Xw WHITE-MICA RICH SPOTTED SCHIST—Mostly grey to silver
 - Xpe WHITE-MICA RICH MARKER UNIT
 - Xqe QUARTZITE
 - Xpn AMPHIBOLITE, WHITE-MICA RICH SPOTTED SCHIST
 - Xpm QUARTZ-RICH MARKER UNIT
 - Xps PSAMMITIC SCHIST—Mostly brown
 - Xpsa AMPHIBOLITE, PSAMMITIC SCHIST
 - Xpsq QUARTZ-RICH MARKER UNIT



Zone of intensely developed foliation, generally in fine-grained, very quartz-rich schist. Foliation typically planar, and macroscopically continuous. Overfold where contact uncertain

Veins, showing dip

Quartz, mostly unmineralized

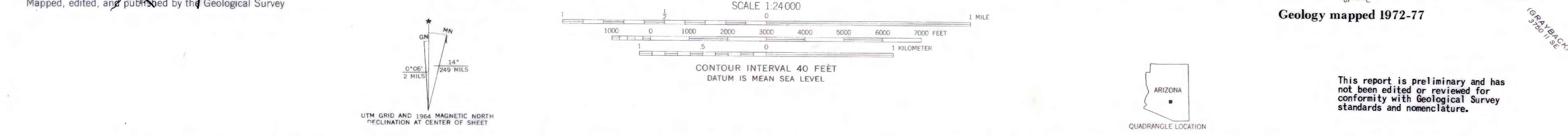
Fissure veins containing crustification textures, strongly mineralized locally

Fine dump

Analytical data for K-Ar ages for the Mineral Mountain 7 1/2-minute quadrangle, Arizona
by S. C. Creasey
[Analysts, KAr: Scott R. Morgan and Sara T. Nell]

Locality	Sample	Mineral	Wt. Percent K ₂ O	⁴⁰ K/ ³⁹ K ratio	⁴⁰ Ar/ ³⁹ Ar ratio	Age, 10 ⁶ years
A	196-15	Hornblende	0.967, 0.955	2.1963 × 10 ¹¹	36.65	15.8 ± 0.5
B	196-15	Biotite	0.78	2.2097 × 10 ¹⁰	64.1	17.4 ± 0.5
B	76730	Hornblende	.631	1.16214 × 10 ¹⁰	56.0	123.6 ± 4
B	76730	Biotite	7.36, 7.32	7.68582 × 10 ¹⁰	65.3	71.3 ± 2
C	77740	Biotite	9.0	2.03826 × 10 ¹⁰	72.2	66.8 ± 2

$t_0 = 0.572 \times 10^{10}$ yr
 $t_0 = 4.963 \times 10^{10}$ yr
 $t_{0\text{total}} = 1.167 \times 10^9$



PRELIMINARY GEOLOGIC MAP OF THE MINERAL MOUNTAIN 7 1/2-MINUTE QUADRANGLE, ARIZONA

By
Ted G. Theodore, William J. Keith, Alison B. Till, and Jocelyn A. Peterson
including
Analytical data for K-Ar ages for the Mineral Mountain 7 1/2-minute quadrangle, Arizona
By
S.C. Creasey
1978

This report is preliminary and has not been edited or reviewed to conform with Geological Survey standards and nomenclature.