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Title of article Geochronology of Precambrian metamorphic rocks, north-  
central New Mexico

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## APPENDIX. SAMPLE LOCATIONS AND DESCRIPTIONS

Reference numbers of maps are for the U.S. Geological Survey topographic map series.

UAKA-71-23. Map reference: N3622.5-W10600/7.5 (La Madera). Location: T26N, R8E, Sec. 35 (36°26'; 106°03').

Megascopic: Hornblende-chlorite-biotite schist. Fine-grained green matrix with large (up to 2 cm.) non-oriented hornblende porphyroblasts. A few mm-sized layers of biotite parallel to schistosity.

Microscopic: Fine-grained matrix of chlorite, plagioclase, and quartz, with scattered opaque oxides. Large hornblende porphyroblasts are pleochroic from dark emerald green to light green to yellowish olive-green. Hornblende has sieve texture with inclusions of quartz, plagioclase, and opaque oxides. Somewhat smaller biotite porphyroblasts also contain inclusions, but are not as extensively sieved as hornblende. Both hornblende and biotite transect, and thus postdate, the chlorite matrix; both are free of retrogressive chloritization.

UAKA-71-24. Map reference: N3630-W10600/7.5 (Las Tablas). Location: T27N, R8E, Sec. 11 (36°35'; 106°04').

Megascopic: Muscovite, green, 5-cm diam. "book," from quartzo-feldspathic pegmatite (Kiowa Mine).

UAKA-71-25. Map reference: N3630-W10600/7.5 (Las Tablas). Location: T27N, R8E, Sec. 24 (36°33'; 106°03').

Megascopic: Medium-grained quartz-muscovite schist.

Microscopic: Well-developed muscovite schistosity. A few percent of large opaque oxide grains and minor piemontite. Muscovite generally in clear crystals free of inclusions, except for a few grains that are partially replaced by piemontite.

UAKA-71-26. Map reference: N3600-W10530/7.5 (El Valle). Location: Twnshp-rng unsurveyed (36°04.5'; 105°43').

Megascopic: Coarse-grained, light-gray, biotite granite.

Microscopic: Typical coarse-grained igneous texture of interlocking quartz, plagioclase, and twinned microcline. Biotite is a prominent accessory mineral; a minor amount of opaque oxide is present. Some quartz crystals show strain shadows, and some biotite flakes are bent. Biotite is completely free of chloritization; feldspars show minor sericitization.

UAKA-71-27. Map reference: N3630-W10600/7.5 (Las Tablas). Location: T27N, R8E, Sec. 13 (36°34'; 106°02.5')

Megascopic: Medium-grained quartz-muscovite schist.

Microscopic: Quartz-muscovite-microcline schist. Cross-hatched twinning of microcline; traces of biotite and garnet. Schistosity well-developed due to muscovite alignment. Muscovite in relatively large flakes with no alteration or inclusions.

Remarks: Believed to be metasomatically altered metarhyolite.

UAKA-71-28. Map reference: N3630-W10600/7.5 (Las Tablas). Location: T27N, R8E, Sec. 4 (36°36'; 106°06').

Megascopic: Fine-grained quartz-muscovite schist; nearly white color. Collected from schistose interbed between massive cross-bedded quartzites.

Microscopic: Schistose texture, with fine muscovite flakes. Approximately 80% quartz; approximately 1% opaque oxides present.

Remarks: Separated muscovite is snowy-white and very fine-grained. Chemical analysis showed that it is exceptionally low in trace element

content, suggesting isochemical metamorphism of sandstone containing small amounts of pure clay.

UAKA-71-29. Same specimen as UAKA-71-23.

UAKA-71-30. Map reference: N3630-W10600/7.5 (Las Tablas). Location: T27N, R8E, Sec. 13 (36°34'; 106°02.5').

Megascopic: Medium-grained granitic gneiss.

Microscopic: Metamorphic fabric of intergrown quartz, plagioclase, and cross-hatched microcline in approximately equal amounts. Minor biotite scattered through the rock imparts a weak schistosity. Biotite is not chloritized, feldspars are free of sericitization.

UAKA-71-31. Map reference: N3630-W10600/7.5 (Las Tablas). Location: T27N, R8E, Sec. 16 (36°35'; 106°06').

Megascopic: Fine-grained quartz-muscovite-biotite schist. Collected from a metasedimentary sequence of rocks.

Microscopic: Relatively fine-grained groundmass of quartz, plagioclase, and muscovite with scattered minor opaque oxides and epidote. The fine-grained groundmass imparts a definite schistosity to the rock. Larger, ragged biotite porphyroblasts transect the schistosity. They have a tendency toward sieve texture, with small amounts of inclusions. No chloritization of biotite was observed.

UAKA-72-14. Map reference: N3637.5-W10515/7.5 (Red River Pass). Location: Twnshp-rng unsurveyed (36°41'; 105°20').

Megascopic: Coarse, red-colored muscovite (2.5-cm diam. "book") from pegmatitic segregation in granitic gneiss.

UAKA-72-15. Map reference: N3607.5-W10545/7.5 (Trampas). Location: T23N, R11E, Sec. 28 (36°12'; 105°47').

Megascopic: Coarse, intergrown green muscovite, K-feldspar, and quartz from quartz-feldspathic pegmatite.

UAKA-72-17. Map reference: N3615-W10545/7.5 (Carson). Location: T24N, R11E, Sec. 32 (36°16'; 105°47.5').

Megascopic: Quartz-muscovite schist with fine-grained, pink-colored muscovite.

Microscopic: Dominantly quartz and muscovite, with minor plagioclase and piemontite. Abundant relict phenocrysts of quartz as ovoidal clusters of quartz grains. Quartz phenocrysts are invariably strained, and some finer-grained groundmass quartz also shows strain shadows. Muscovite is relatively fine-grained and is aligned in a prominent schistosity.

UAKA-72-18. Map reference: N3615-W10537.5/7.5 (Taos SW). Location: T24N, R12E, Sec. 30 (36°17'; 105°42.5').

Megascopic: Nearly pure muscovite schist with large biotite porphyroblasts in a finer-grained matrix. Minor garnet porphyroblasts.

Microscopic: A complex metamorphic texture with porphyroblasts of several minerals. Muscovite forms an interlocking nest of fine-grained crystals that impart the schistosity. Muscovite is generally in monomineralic films, but sometimes has interstitial quartz. The schistosity is strongly microfolded. Locally it is coarser-grained in pressure shadows adjacent to porphyroblasts. In addition to biotite porphyroblasts visible in hand specimen, the specimen contains staurolite and chloritoid porphyroblasts with sieve textures. Biotite porphyroblasts contain tiny inclusions of muscovite. Smaller garnet porphyroblasts and minor cigar-shaped cross-sections of opaque oxide grains are present.

8945. Map reference: N3630-W10607.5/7.5 (Canon Plaza). Location: T27N, R7E, Sec. 13 (36°34'; 106°08').

Megascopic: Dark, brownish-red metarhyolite; fine-grained, with distinct feldspar phenocrysts up to 5 mm in length.

Microscopic: Fine-grained groundmass with incipiently recrystallized feldspar phenocrysts. Boundaries of phenocrysts are still sharp. Contains traces of randomly-oriented muscovite.

LMMR-1. Map reference: N3622.5-W10600/7.5 (La Madera). Location: T26N, R8E, Sec. 10 (36°29.5'; 106°05.5').

Megascopic: Dark gray, weakly laminated, fine-grained metarhyolite with distinctive pink feldspar phenocrysts up to 4 mm in length. Lamination may be relict flow banding or tectonically-produced foliation.

Microscopic: Generally fine-grained matrix with abundant phenocrysts. Phenocrysts are dominantly feldspars, but a few are quartz. Some feldspar phenocrysts are exceptionally large. Although most phenocrysts retain sharp boundaries, a few have blurred boundaries accompanied by local coarsening of the matrix. A few percent of fine-grained biotite is aligned in folia that sweep around relict phenocrysts but are absent within phenocrysts. Small amounts of muscovite are randomly scattered in both matrix and phenocrysts. A few large, subhedral opaque oxide grains occur in both matrix and phenocrysts.

LMMR-4. Map reference: N3622.5-W10600/7.5 (La Madera). Location: T26N, R8E, Sec. 10 (36°29'; 106°05.5').

Megascopic: Light-gray, well-laminated, weakly schistose, fine-grained metarhyolite with small (1 mm) quartz phenocrysts. Lamination parallel to weak mica schistosity may be relict flow banding with superposed schistosity or may be entirely tectonic in origin.

Microscopic: Generally fine-grained groundmass with quartz phenocrysts and a few feldspar phenocrysts, all with sharp boundaries preserved. Small amounts of muscovite and opaque minerals are present. A distinct foliation is formed by trains of opaque oxides and dusty clots of a fine-grained, unidentified mineral. Foliation does not pass through phenocrysts, but deflects around them. Muscovite folia parallel the opaque folia, and they locally cut phenocrysts. A few quartz stringers also parallel the foliation.