titanite. The titanite will be analyzed using the LA-ICP-MS in order to identify the age at which metamorphism occurred.

The petrogenesis of calc-alkaline lamprophyres from Mali, West Africa

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Lamprophyres from west of the Morila Gold Mine, South Mali, and are being evaluated for their gold and REE potential and are being placed in a regional context. The lamprophyres are hosted in the Birimian paleoproterozoic metasedimentary rocks which were deformed and metamorphosed during the regionally extensive Eburnean orogeny (2.13–2.00 Ga). This orogeny caused the accretion of the Birimian volcano-sedimentary and plutonic belts onto the margin of a pre-Rhyacian continental block.

The lamprophyres have been termed calc-alkaline due to their modal mineral content, which is also how the types of lamprophyres were identified. Two variations of lamprophyres occur at the Morila Mine: (1) kersantites (plagioclase > orthoclase) with biotite phenocrysts; (2) minette (orthoclase > plagioclase) with biotite phenocrysts. The lamprophyres are porphyritic with phenocrysts of biotite and amphibole set in a feldspathic groundmass. The distribution of sulphide minerals is preferential to the phenocrysts and they can be used to infer the original sulphur contents of the magma. Several textures were observed petrographically including glomerocrysts of biotite and amphibole as well as poorly developed sagenitic biotite. The sagenitic biotite consists of sub- to euhedral grains of titanite that have aligned to form three-rod asterisks and equilateral triangles. Pilite recording the breakdown of olivine to Mg-silicates is locally observed. Also contained within these lamprophyres are several REE-rich minerals that are scattered throughout the samples. A metamorphic overprint has also been recognized based on the mantle overgrowths on biotite and amphibole, the pilite and sagenitic textures, and zoned

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