D-31 Late-stage metasomatism of high-grade rocks around Ambagaspitiya

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Granitic looking, pink K-feldspar-bearing rocks occur around Ambagaspitiya in the Gampaha district, None of the published theories for the origin of these rocks explains their real field relations, mineral assemblages, structure and texture satisfactorily. In order to explain their origin, all the deformational features and textures of the rocks exposed around Ambagaspitiya were studied in the field and in the laboratory.

The mineralogical, textural and modal analyses showed that the predominant pink rocks, the so-called Ambagaspitiya granites, are not intrusive rocks, but are medium-to coarse-grained syenites and monzonites that were formed from the metasomatism of once metamorphosed and highly deformed porphyritic metagranite, granitic gneisses and felsic orthogneisses. The relicts of the original rocks found within these metasomatic rocks demonstrated that their protoliths were foliated, lineatd and isoclinally folded rocks metamorphosed under upper amphibolite facies conditions, before the metasomatism took place. Much of the undeformed K-feldspar, hornblende and magnetite in the younger rocks were formed during this late metasomatism that post-dates all ductile deformations and the regional metamorphism. Field studies showed that the rock body is not oval-shaped and that its extension is much larger.

It was found that the metasomatism has nucleated along some late shear zones through the migration of potassium-bearing metasomatic fluids, derived from a deep-seated K-rich plutonic source, and is very intense around Ambagspitiya. Original basic rocks have acted as barriers to the migration of the metasomatic front. The alkaline rocks in the Anuradhapura and Eppawala areas, the K-bearing fluids associated with vein graphite and these metasomatic rocks suggest

that a considerable part of the Wanni Complex was affected by late-stage K-rich fluids.