D-17: Occurrence of moonstones along a boundary zone between crustal units in Central Sri Lanka

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During a detailed geological survey, several moonstone deposits and old pits were located along a linear zone which stretched from Victoria towards Ukuwela in central Sri Lanka. Some of the important deposits were found at Gangapitiya, Aluthwatta, Malpahana, near Wattegama and Yatawara. Moonstones are unmixed alkali feldspars; albite exsolution bodies occur in K-feldspar host. These deposits were located along a wide crustal shear zone (Digana shear zone) which separated the Wanni Complex (WC) from the Highland Complex (HC) running over 30 km in the NW direction from Victoria towards Ukuwela. The lithologies around these deposits were marble, garnetiferous gneiss, highly deformed quarzo-feldspathic rocks (these were once pegmatites), pegmatite and mafic rock layers. All these were intensely sheared along the Digana shear zone which is folded by large D_5-folds.

The monostones were found in pegmatites most of which were syenite in composition. The pegmatites had intruded along the above shear zone and had later been deformed. Most of the moonstone feldapsr crystals were very large (up to -25 cm in length). Borders of all the feldspar crystals had been recrystallized to very fine grains, and their centres were unaffected, forming a core-mantle texture. Since these feldspars were not strongly deformed as the surrounding rocks, moonstone-bearing pegmatites may have intruded after the granulite facies metamorphism and main phase of deformation. Based on colour, moonstones may be subdivided into white moonstones, blue-white moonstones and blue moonstones. The colour variation in different crystals and observed colour zoning in individual crystals seems to be due to the variation in the size of the exsolution bodies in the host K-feldspars. Although the moonstone deposits described, were located along the boundary

zone between the WC and HC, their genetic relationship had yet to be determined.