A large, layered, basic, deformed and metamorphosed intrusion in the Highland Series of Sri Lanka

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A large, layered, basic intrusion is found in the Highland Series near Kandy. It fills the following synforms: Hulu Ganga synform, Dumbara synform, Harispattuwa synform, Gadaladeniya synform and Aranayake synform. Its present thickness is 300 - 400 m, after flattening to 1/20 of original thickness. The E-W extension is now about 50 km. The N-S extension is now about 30 km, extended by strong stretching. The intrusion seen now is a relict of an originally much larger body, preserved in the synforms. It must have intruded parallel to bedding of sediments, very early in the deformational history or before all deformation. Most of the strong flattening and stretching occurred near the climax of metamorphism. The higher parts are metamorphosed in amphibolite facies, the lower ones in granulite facies.

Over the whole extent the sequence of rocks from the base upwards is similar. Homogeneous gabbro-amphibolites form the base. They are followed upwards by a 'critical zone' composed of gabbroic, anorthositic and hornblendic (partly pyroxene-bearing) layers. The higher parts are formed by less well-layered and mostly unlayered gabbros. Ultramafic layers consisting of orthopyroxene and clinopyroxene, hornblende and magnetite are found in the middle of this sequence. The top is formed by diorites, largely changed into (hornblende-) biotite-plagioclase schists. Stosch (personal communication) has found trace elements typical for cumulates. This and grading in the critical zone prove the nature of layering.

Less deformed lenses of metres to kilometers dimensions are found locally. Their magmatic grain fabrics are partly preserved. Granitic, aplitic and pegmatitic dykes are intruded into the higher, strongly altered parts. They are folded and flattened by compression during late F_4 - folding. Locally they constitute more than 75% of the rock volume.