

# Lithotectonic units, age relationships and Gondwana linkage of the Precambrian rocks in Sri Lanka

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The basement rocks of Sri Lanka have traditionally been named and subdivided on the basis of lithostratigraphic principles. However, their tectonic and metamorphic evolution as well as the intrusion of voluminous igneous rocks have completely erased the original stratigraphic sequence, and it is therefore proposed to abandon such terms as 'Group' 'Series' and use the informal term 'Complex' for the following major units: The old Highland Series and Southwestern Groups should be combined into the Highland/Southwestern Complex (HSWC); the old Vijayan Complex should be separated into a western domain for which the name Wannu Complex (WC) has been proposed, and an eastern domain E and SE of the major tectonic break with the HSWC, for which name Vijayan Complex (VC) should be retained. The name 'Kadugannawa Domain' (KD) is proposed for a lithotectonic unit comprising hornblende- and biotite-gneisses in the Kandy-Peradeniya area and for which the term 'Arena Structures' has previously been used.

The HSWC consist of a predominantly shallow-water, supracrustal assemblage which was deposited some 2 Ga ago on an Archaean basement which has, so far, only been identified as a tectonic sliver N of Anuradhapura. These rocks were intruded by a variety of mostly granitoid plutons, now largely charnockites, between *ca.* 1940 and 655 Ma ago. The Wannu Complex consists predominantly of *ca.* 1000-1100 Ma old charnockitic and migmatitic granitoids with rare metasedimentary intercalations, including cordierite gneisses, whose age is distinctly younger than the supracrustal rocks of the HSWC. The predominantly granitoid Vijayan Complex originated some 1000-1100 Ma ago and is virtually time-equivalent with the Kadugannawa orthogneisses and the Wannu Complex. The tectonic relationship between the WC, the HSWC and the KD is still unresolved. Granulite metamorphism is restricted to the WC, HSWC and KD.

New age and isotopic data show that the high-grade rocks of Sri Lanka were not linked to the Archaean granulite domain of southern India but experienced their main structural and metamorphic development during the Pan-African event some 950 to 550 Ma ago. This occurred when West Gondwana and East Gondwana collided to form one of the longest collisional structures in the Supercontinent — the Mozambique belt that extends from Mozambique to Ethiopia and Sudan. A major tectonic boundary, interpreted as a thrust zone, divides the HSWC Complex in the central part of Sri Lanka from the VC in the E and SE. The former is interpreted to represent the remnant of a once extensive passive margin extending west, in a Gondwana reconstruction, via Madagascar to Tanzania and Mozambique. The VC may have been part of a separate continental margin plutonic assemblage, perhaps connected with the Yamato-Belgica Complex in East Antarctica, and its collision with the HSWC marks the final amalgamation of East and West Gondwana into a supercontinent some 550 Ma ago. The Sri Lankan granulites cannot be correlated with the distinctly older granulites of the Eastern Ghats belt of India, and this suggests that Sri Lanka was situated close to the SE coast of Madagascar in a Gondwana reconstruction.