



Charnockite: An international stone as potential Global Heritage Stone Resource

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Humans have always been fascinated by the varying colours and textures of natural rocks as demonstrated by the grandiose monumental depictions in all civilizations around the world. The techniques of construction and decorative niceties of the architectonic heritage were essentially decided by the durability, aesthetics and availability of geological materials. Here, we discuss a unique rock 'charnockite', described for the first time from the Indian subcontinent. Thomas Holland (the then director, Geological Survey of India) named Job Charnock's tombstone rock in Calcutta as charnockite in honour of Job Charnock (the founder of city of Kolkata, erstwhile Calcutta) [1]. Charnockite and its variants later identified from different continents were already integral part of the numerous architectonic heritage built in the historic past.

The charnockite had a contentious genesis for long, and now it broadly incorporates orthopyroxene-bearing, high-grade felsic-granulites and granitoids [2]. The charnockite is commonly described as dark greasy-green coloured, coarse-grained granoblastic rock with occasional faint gneissic fabric. It is generally anhydrous, essentially containing orthopyroxene as the characteristic ferro-magnesium mineral with quartz and feldspar. Charnockite and its variants have been reported in high-grade terrains all around the globe *viz.* Southern Granulite Terrain, Eastern Ghats Mobile Belt, Aravalli Mountain Belt, and Meghalaya Massif (India), Ubatuba and Venda Nova (Brazil), Mozambique and Limpopo Belts (Africa), Minto Terrain (Canada), Bamble Sector (Norway), Bjørnesund (Greenland), Ivrea Zone (Italy), Adirondacks and Wyoming (USA), Musgrave Block (Australia), North China Craton, Antarctica etc. [3-4].

Some of renowned architectonic heritage such as group of monuments at Mahabalipuram (UNESCO world heritage site since 1984), Madura Meenakshi and Sri Padmanabha temples and Vivekananda memorial (India), Ruins of Lagoinha, Christ the Redeemer, José Bonifácio (Banco do Brasil building) and base of the Peace Landmark-São Paulo city (Brazil), famous sculpture of Oscar Wilde (Ireland), Canadian and Australian War Memorials (United Kingdom) and statue in memory of Douglas Mawson (Australia), flanked by charnockite are few of the many examples of use of charnockite.

Charnockite and its variants used for commercial purposes are referred by different names such as Black and Green granites in India, Green Ubatuba in Brazil, Laguna Green in Australia etc. The charnockite in contemporary times have a huge market in countries like India, Brazil, Japan, Germany, Italy, Netherlands, United Kingdom, USA, Africa, Australia and so forth. We consider charnockite, with its extended cultural and historical use in significant architectonic heritage with wide geographic use, to be recognised as a truly Global Heritage Stone Resource.

[1] Holland (1893) *J. Asiatic Soc. Bengal*, **62**, 162–164; [2] Ravindra Kumar and Sreejith (2016) *Lithos*, **262**, 334–354; [3] Newton (1992) *Precam. Res.*, **55**, 399–405; [4] Frost and Frost (2008) *Gond. Res.*, **13**, 30–44.