

NORITE AND CHARNOCKITE

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NORITE and Charnockite in Manbhum are regarded by Sen¹ as non-consanguineous. Turner and Verohngen² while describing the characters of the Adirondack anorthosites regard that charnockites should not be included in the differentiation of the magma which gave rise to norite, anorthosite, granite, diorite and syenite of the area. Probably they restrict the term charnockite to the original description given by Holland, namely, that it is a Hypersthene-granite, and the term norite to a plagioclase-hypersthene rock described by Fay. Holland³ himself gave the term norite to a two-pyroxene plagioclase granulite which formed a basic member of his charnockite series which extended from the acid to the ultrabasic. Subramaniam⁴ describes the hypersthene-bearing rocks of Sittampundi as eclogite-gabbro series, without using the term charnockite series. But Holland has described identical rocks in Pallavaram, the type area in Madras, as members of the charnockite series, though he also, while describing them, uses such classical terminology as norites, pyroxenites, etc. Subramaniam⁵ again describes the pyroxene-granulites of Kadavur as noritic anorthosite, gabbroic anorthosite, metagabbro, etc., without specifically mentioning that they are members of the charnockite series, though this noritic gabbro is also a two-pyroxene granulite like any other similar granulite described by scores of petrographers from the hypersthene-bearing rocks of the Madras State. There, thus seems to be a tendency to use the term norite-eclogite, noritic-gabbro, etc., when one wishes to relate these hypersthene-bearing rocks to anorthosites by way of consanguinity. This leads to the inference that there are two series of rock types in the Madras State, (1) the igneous series-norite, norite-gabbro, eclogite, etc., and (2) the charnockite series whose members are also described as norites, pyroxenites, etc., which are regarded by some as metamorphic in origin. These hypersthene-bearing rocks occur in several geological settings, (1) the granulitic members among them occur in a granulite setting along with sillimanite-quartzite, calc-silicate rocks and quartz-magnetite rocks bearing hypersthene or hedenbergite, cummingtonite and grunerite in most of the char-

nockitic areas and occasionally with hornfelses, bearing cordierite, pleonaste, etc., of the Madras State including the type area, (2) these granulites are also associated with, (a) peridotites, dunites, eclogites and magnetite iron ores in Salem, (b) anorthosites in Sittampundi, Kadavur and Palni, (c) granites and enderbites, etc., in the type area, (d) syenites, etc., in Nagarcoil, and (e) nepheline syenites in Kangayam.

It is amazing that a "charnockite" magma could differentiate into these variegated types, dunites, peridotites, eclogites and iron ores in Salem, anorthosites of the Adirondack type in Kadavur and the Bushveld type in Sittampundi, into the charnockite series, acid to ultrabasic (Holland) and into alaskite, birkremite, enderbite, granite and syenite (Subramaniam⁶) in the type area, syenites in Nagarcoil and nepheline syenites in Kangayam.

I am of the opinion that without linking these rocks to any mode of origin, it is more convenient to describe them in the Zirkel-Rosenbusch fashion, i.e., on mineralogy and texture so that their origin would still be open to debate. I accordingly propose the descriptive terms as granulites, gneisses, granites, etc. The term hypersthene may be prefixed to these rock types if one wishes to emphasise the presence of hypersthene in them so that they read as hypersthene-granulites, hypersthene-gneisses, hypersthene-granites, etc. True norites however, i.e., having only orthopyroxene and plagioclase have not been reported from any one of the charnockitic areas of the Madras State, but their dyke equivalents with porphyritic crystals of hypersthene and tachylitic ground mass have been reported from the southern and the northern borders of the Nilgiri range of hills (Naidu,⁷ Govinda Rajulu⁸).

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