

ite to sienite in the same rock, in the granite of Charnwood Forest. The same change may be noticed also in the granite of the Malvern Hills. That able and accurate observer Dr. MacCulloch maintains the identity of granite and sienite, from their frequent passage into each other in the same rocks in Scotland. When the hornblende becomes abundant, and is closely intermixed with felspar, it forms a dark finely granular rock, which has been denominated trap or greenstone: it nearly resembles basalt. In the Charnwood Forest hills, and at Shap in Westmoreland, well defined granite may be seen passing into a dark coloured trap-rock nearly compact. I have even broken off hand specimens, in which one part was granite and the other trap, and the passage from one to the other might be distinctly observed.

The crystallized earthy minerals which occur most frequently in granite, are schorl or tourmaline, and pinite, a mineral nearly allied to mica,—the emerald, corindon, axinite, and topaz, are also found occasionally in granite. Sometimes, the tourmaline is so abundantly disseminated, as to form a constituent part of the rock.

Common granite, or massive granite, contains few beds of any other rock, nor is it rich in metallic ores. Tin ore, however, occurs chiefly in granite, either in veins accompanying quartz, or disseminated through the rock at a distance from the veins. Ores of other metals, as copper, iron, wolfram, bismuth, and silver, are also found occasionally in granite.

Granite supplies durable materials for architecture, but it varies much in hardness, and care is required in its selection. I was told, when in Cornwall, that granite, got from a considerable depth in the quarry, is so soft when it is first raised, that it can be easily sawed into blocks, but it soon acquires great hardness by exposure to the air. In the mountains of Auvergne, the granite is extremely soft, and the felspar appears earthy; this is probably the original state of the stone. I believe it is the soft earthy granite from this district, which supplies the kaolin used in the porcelain manufacture at Sevres. Mons. Brongniart, who obligingly accompanied me through the works, showed me a specimen of their best kaolin: it contained crystals of pinite. I had recently arrived from Auvergne, and I thought I recognised its locality.

Granite is regarded as the foundation rock on which all other rock formations rest, and has hence been called the most ancient formation; but if the age of a rock is to be dated from the period in which it became consolidated, the inference respecting its relative antiquity would not be conclusive. According to the Huttonian theory, granite is made of the melted crust of a former world, and the fusion may have taken place after this ancient crust was covered with the upper rocks; but, admitting that it has been fused under pressure, the matter that now constitutes granite must have existed in some mode or other, and have served as the foundation for the rocks that are upon