

distinguished, one mineral substance is almost universally found, viz. felspar, which equally abounds in the oldest granites and most recent lavas, and occurs, though not in equal abundance, in rocks of very different weight, colour, and chemical composition.

Very frequently, though not universally, we detect another mineral, which, under two forms, has been called by two distinct names, augite and hornblende (pyroxene and amphibole of Haüy). These, by the admirable researches of Rose and Mitscherlich, have been shown to acquire their characteristic differences of crystallisation from the *rate of cooling* to which they have been subjected. This protean mineral (which varies greatly in its chemical composition, by the substitution of different ingredients in combination with silica) constitutes a great proportion of the substance of greenstone and basalt, and many congeneric rocks. In general they present themselves under different circumstances from those which accompany rocks allied to granite, but offer near approximations to some of the products of actual volcanos, the flags of melting furnaces, and other fruits of artificial heat.

These two minerals, felspar and hornblende, appear at opposite points of the circle of plutonic and volcanic, of ancient and modern igneous products; so that mineralogists have generally found reason to coincide with the opinions of Cordier and Scrope, and to adopt them as the elements for a fundamental classification of the rocks of fusion.

Thus we have two series of rocks, viz. felspathic and augitic (or hornblendic) rocks, of every geological age, which, in the extremes (as granite and basalt, among the ancient, and trachyte and basalt, among the modern rocks), are perfectly and strikingly different; but yet graduate into one another by innumerable variations, which demonstrate the similarity of origin of all the unstratified rocks, and at the same time open wide fields of inquiry into the causes and effects of their differences.

Besides these predominant and typical minerals, others