

are frequently observed to modify very much the characters of igneous rocks, as mica, quartz, garnet, schorl, zircon, olivine, mesotype, epidote, hypersthene, diallage, oxydulous iron, iron pyrites; cyanite, pinite, spodumene, topaz, beryl, corundum, chromate of iron, prehnite, apatite, sphene, molybdena, &c. also occur—in particular rocks even abundantly.

According to the views previously established, every definite chemical mixture of earthy substances in fusion may be of crystalline, earthy, or vitreous texture; of uniform or unequal aspect in its parts; compact, cellular, or spumous; according to the circumstances of solidification.

The most correct way of describing a rock would be to give the formula of its mineral composition; but in uncrystalline masses this cannot be done, and the chemical composition of the same rock is not the same in even neighbouring parts. Geologists, therefore, whose more immediate object is to record the principal phenomena associated with rocks, have generally preferred to give distinctive names to those *aspects* of solidified igneous products which depend rather on the circumstances of their solidification, and indicate characteristic physical conditions of the globe, than on original and real differences of their own nature. Thus igneous rocks, with crystals lying detached in an uncrystallised basis, are generally called porphyries (as felspar porphyry, clay porphyry, trap porphyry, &c.); such as have concretions of quartz or mesotype, in place of those cavities which occur in modern lavas, are called amygdaloids. This method, though not strictly scientific, will perhaps always prevail; because the variations to which these rocks are subject are such as to baffle all mineralogical strictness; and because the most prominent and characteristic circumstances which accompany them, the form and manner of their exhibition, their relative antiquity, and the induration, metamorphism, and elevation of strata, appear but very indistinctly related to the formulæ which represent their chemical or mineralogical nature. On this ground Dr.