

I shall now proceed to describe the rocks denominated primary, without any reference to theory; and shall propose an arrangement of them that will, I trust be found conformable to the present state of the science.

Primary rocks are composed chiefly of the hard minerals, quartz, felspar, and hornblende; the minerals, mica and talc, are disseminated in smaller proportions, and limestone and serpentine occur in beds or masses, but less frequently than the above-named minerals. If we refer the slate rocks to the transition class, the few simple minerals here enumerated constitute nearly the whole of the mountains denominated primary.

The structure of primary rocks is crystalline; they form the central parts of the most elevated mountains chains, and they occur also at the lowest depths that have yet been explored, and are, hence, believed to be the most ancient of rock formations.

Werner has enumerated fourteen primary rocks; but as some of these have hitherto been found in only one place, it appears improper to consider them as distinct orders, unless we arrange every variety of rock in the same manner, and increase the number of orders indefinitely.

The following arrangement of primary rocks includes only three principal rocks as primary—granite, gneiss, and mica slate, which are nearly allied to granite, and form an incrustation over it: these never contain organic remains, and they have, rarely, been observed lying over other rocks in which such remains are found. It comprises also the rocks which are sometimes found imbedded in granite, gneiss, and mica slate, and are regarded as subordinate formations.

CLASS. I.

Principal Rocks denominated Primary.

1. Granite, comprising all the varieties of this rock, and small-grained granite passing into porphyry, the Eurite of the French geologists, primitive porphyry of the Germans.
2. Gneiss or slaty granite.
3. Mica slate.

Subordinate Rocks which occur among Primary.

Hornblende rock.
Serpentine.
Crystalline limestone.
Quartz rock.

Some of these subordinate rocks occur also among rocks of the transition class.

The three principal rocks of the primary class,—granite, gneiss, and mica slate,—might, with propriety, be regarded as belonging to one formation. They are, composed essentially, of the same min-