

Gothard, and in the serpentine at the Lizard in Cornwall. For a considerable time, it was unknown where saussurite occurred *in situ*; it has since, been discovered in immense beds, associated with serpentine, in the valley of Sass, in the Haut Valois. Near Nyon, on the Lake of Geneva, one hundred and twenty miles distant, there is a field, over which are scattered large blocks of the same stone, and on account of their unconquerable hardness, the proprietor has been unable to remove them by blasting. Beds of saussurite occur on the southern side of the Alps, and in the Appennines. A very interesting description of the saussurite and serpentine of the Appennines has been published by M. Brongniart, entitled *Sur le Gisement ou Position relative des Ophiolites, Euphotides, et Jaspes, dans quelques Parties des Appennines*.* In these mountains, the serpentine rests upon saussurite, the saussurite on strata of jasper, and the latter on secondary limestone. This position is remarkable, for geologists had long supposed that all serpentines were more ancient than the secondary rocks. It has, however, been recently discovered, that some trap-rocks which are in contact with beds of limestone, or cut through beds of limestone, are changed into serpentine, apparently by intermixture with calcareous earth. This discovery throws much light on the true nature of serpentine: we can no longer be surprised at finding these rocks in formations of different epochs. Though serpentine may, in many instances, be considered as a rock whose quality has been changed as before stated, yet it would be contrary to sound induction to maintain that serpentine may not, in other instances, be an original rock formation. Wherever the earths that compose serpentine have occurred together in due proportions, the same causes which have produced other mineral combinations, may have formed serpentine: it is rendered almost certain that this has been the case, as many rocks containing chlorite and hornblende, appear to pass by gradation into serpentine.

Hornblende-Rock and Hornblende-Slate.—This mineral has been described Chap. III. When it forms the principal parts of rocks, the colour is commonly a greenish black. Massive hornblende, in rocks, is generally coarsely granular and lamellar; in hornblende-slate, it is frequently radiated or fibrous, and when the fibres are very minute it has a velvet-like lustre. Hornblende-slate occurs in beds in granite, gneiss, and mica-slate, and occasionally in common slate: it appears to pass by gradation into serpentine: the change is effected by an increase of magnesia, which forms one of the constituent parts of hornblende.

Hornblende in large lamellar grains intermixed with felspar, forms sienite, which it was remarked in the last chapter is not unfrequent-

* It is to be regretted that so excellent an observer and mineralogist as M. Brongniart, who is so justly eminent for his scientific labours, should have thought it necessary to burden Geology with two additional new names. Serpentine he has denominated *ophiolic* and saussurite *euphotidic*.