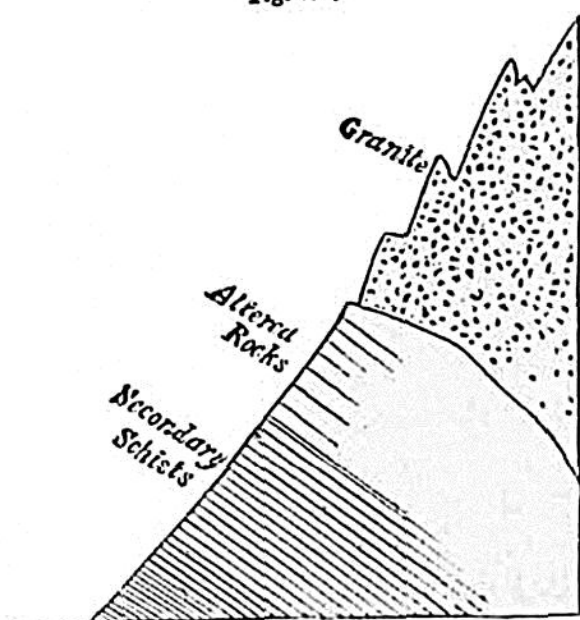


Fig. 699.



Junction of granite with Jurassic or Oolite strata in the Alps, near Champoleon.

mass the argillaceous beds are hardened, the limestone is saccharoid, the gritz quartzose, and in the midst of them is a thin layer of an imperfect granite. It is also an important circumstance that near the point of contact, both the granite and the secondary rocks become metalliferous, and contain nests and small veins of blende, galena, iron, and copper pyrites. The stratified rocks become harder and more crystalline, but the granite, on the contrary, softer and less perfectly crystallized near the junction.*

Although the granite is incumbent in the above section (fig. 699), we cannot assume that it overflowed the strata, for the disturbances of the rocks are so great in this part of the Alps that they seldom retain the position which they must originally have occupied.

A considerable mass of syenite, in the Isle of Skye, is described by Dr. MacCulloch as intersecting limestone and shale, which are of the age of the lias.† The limestone, which, at a greater distance from the granite, contains shells, exhibits no traces of them near its junction, where it has been converted into a pure crystalline marble.‡

At Predazzo, in the Tyrol, secondary strata, some of which are limestones of the Oolite period, have been traversed and altered by plutonic rocks, one portion of which is an augitic porphyry, which passes insensibly into granite. The limestone is changed into granular marble, with a band of serpentine at the junction.§

Carboniferous period.—The granite of Dartmoor, in Devonshire, was formerly supposed to be one of the most ancient of the plutonic rocks, but is now ascertained to be posterior in date to the culm-measures of that county, which, from their position, and as containing true coal-plants, are regarded by Professor Sedgwick and Sir R. Murchison as members of the true carboniferous series. This granite, like the syenitic granite of Christiania, has broken through the stratified formations without much changing their strike. Hence, on the north-west side of Dartmoor, the successive members of the culm-measures abut against the granite, and become metamorphic as they approach. These strata are

* Elie de Beaumont, sur les Montagnes de l'Oisans, &c. Mém. de la Soc. l'Hist. Nat. de Paris, tom. v.

† See Murchison, Geol. Trans., 2d series, vol. ii., part ii., pp. 311—321.

‡ Western Islands, vol. i. p. 330, plate 18, figs. 3, 4.

§ Von Buch, Annales de Chimie, &c.