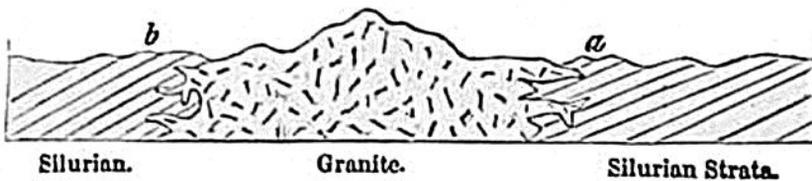


also penetrated by granite veins, and plutonic dikes, called "elvans."\* The granite of Cornwall is probably of the same date, and, therefore, as modern as the Carboniferous strata, if not much newer.

*Silurian period.* — It has long been known that the granite near Christiania, in Norway, is of newer origin than the Silurian strata of that region. Von Buch first announced, in 1813, the discovery of its posteriority in date to limestones containing orthocerata and trilobites. The proofs consist in the penetration of granite veins into the shale and limestone, and the alteration of the strata, for a considerable distance from the point of contact, both of these veins and the central mass from which they emanate. (See p. 572.) Von Buch supposed that the plutonic rock alternated with the fossiliferous strata, and that large masses of granite were sometimes incumbent upon the strata; but this idea was erroneous, and arose from the fact that the beds of shale and limestone often dip towards the granite up to the point of contact, appearing as if they would pass under it in mass, as at *a*, fig. 700, and then again on the opposite side of the same mountain, as at *b*, dip away from the same granite. When the junctions, however, are carefully examined, it is found that the plutonic rock intrudes itself in veins, and nowhere covers the fossiliferous strata in large overlying masses, as is so commonly the case with trappean formations.†

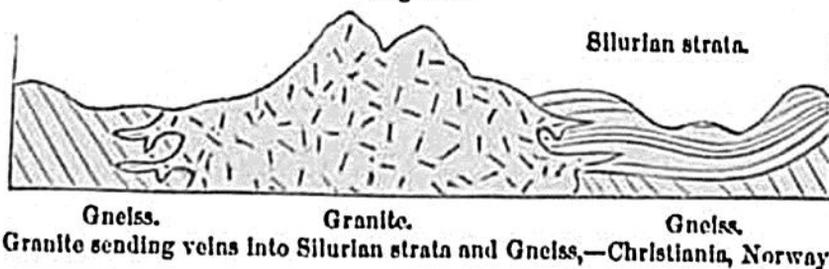
Fig. 700.



Now this granite, which is more modern than the Silurian strata of Norway, also sends veins in the same country into an ancient formation of gneiss; and the relations of the plutonic rock and the gneiss at their junction, are full of interest when we duly consider the wide difference of epoch which must have separated their origin.

The length of this interval of time is attested by the following facts:—The fossiliferous, or Silurian beds, rest unconformably upon the truncated edges of the gneiss, the inclined strata of which had been denuded before the sedimentary beds were superimposed (see fig. 701). The signs of denudation are twofold; first, the surface of the

Fig. 701.



\* Proceed. Geol. Soc. vol. ii. p. 562, and Trans. 2d ser. vol. v. p. 686.

† See the *Gæa Norvegica* and other works of Keilhau, with whom I examined this country.