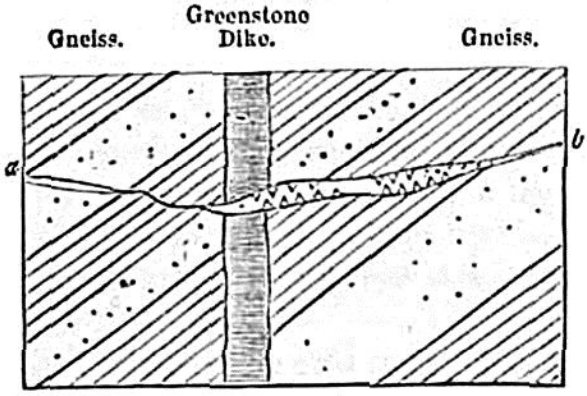
Veins of pure quartz are often found in granite, as in many stratified rocks, but they are not traceable, like veins of granite or trap, to large bodies of rock of similar composition. They appear to have been cracks, into which siliceous matter was infiltered. Such segregation, as it is called, can sometimes be shown to have clearly taken place long subsequently to the original consolidation of the containing rock. Thus, for example, I observed in the gneiss of Tronstad Strand, near Drammen, in Norway, the annexed section on the beach. It appears that the alternating strata of whitish granitiform gneiss, and black hornblende-schist, were first cut through by a greenstone dike, about 2½ feet wide; then the crack *a b* passed through all these rocks, and was filled up with quartz. The opposite walls of the vein are in some parts encrusted with transparent crystals of quartz, the middle of the vein being filled up with common opaque white quartz.

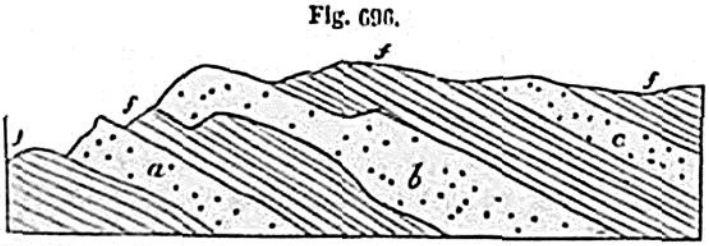
Fig. 695.



a, b. Quartz vein passing through gneiss and greenstone, Tronstad Strand, near Christiania.

We have seen that the volcanic formations have been called overlying, because they not only penetrate others, but spread over them. Mr. Necker has proposed to call the granites the underlying igneous rocks, and the distinction here indicated is highly characteristic. It was indeed supposed by some of the earlier observers, that the granite of Christiania, in Norway, was intercalated in mountain masses between the primary or palæozoic strata of that country, so as to overlie fossiliferous shale and limestone. But although the granite sends veins into these fossiliferous rocks, and is decidedly posterior in origin, its actual superposition in mass has been disproved by Professor Keilhau, whose observations on this controverted point I had opportunities in 1837 of verifying. There are, however, on a smaller scale, certain beds of euritic porphyry, some a few feet, others many yards in thickness, which pass into granite, and deserve perhaps to be classed as plutonic rather than trappean rocks, which may truly be described as interposed conformably between fossiliferous strata, as the porphyries (*a c*, fig. 696), which divide the bituminous shales and

Fig. 696.



Euritic porphyry alternating with primary fossiliferous strata, near Christiania.

argillaceous limestones, *f f*. But some of these same porphyries are partially unconformable, as *b*, and may lead us to suspect that the others