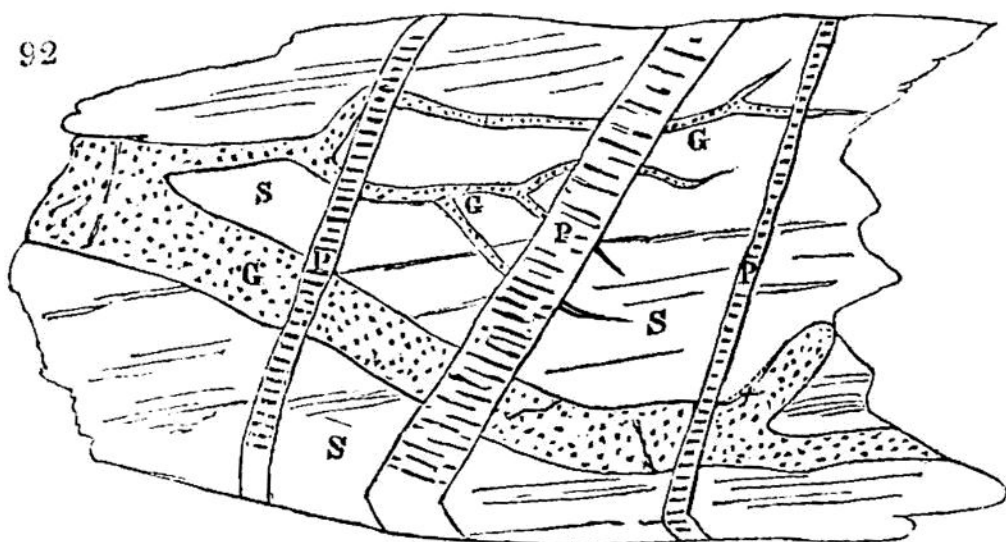


at different successive times, rocks of different chemical composition existed in a melted state, and were forced upwards through rifts in the strata. The same thing is known with respect to modern volcanic accumulations, which change with time ; and there remains for each case the same further question of the cause of these mineral changes under a given area of the earth's face.

The principle upon which the inquiry proceeds in the case of the older rocks, was strongly enforced and applied by Werner ; but is not universally, though perhaps it is generally, admitted. Dykes fill fissures in stratified and unstratified rocks ; mineral veins appear under the same circumstances. Where the rocks are distinctly stratified, and are of different qualities in the different beds, and contain organic remains in some or all of the beds, the proof that the fissures alluded to are of later date than the formation of the rocks is conclusive : therefore the dykes, which fill these fissures, are of still later date ; and the same conclusion is extended to unstratified rocks : nor is it limited to the great masses of rocks. When dykes or veins intersect one another, that which is divided is the older, that which cuts through another is the newer. Thus, in the diagram (No. 92.), taken from Dr. Macculloch's drawing in the Geological Transactions, vol. iv. pl. 6. (S) the schist rock is divided by veins of granite (G),



S. Schist.

G. Granite veins.

P. Porphyry dykes.