sustained by the analogies offered in cases of local hydro-thermal action on sediments, and by the resemblances which recomposed materials frequently offer to their parent crystalline rocks. It is here maintained that the great formations of stratiform crystalline feldspathic, hornblendic and micaceous rocks, which, in various parts of the world, have been alternately described as plutonic masses, and as metamorphosed paleozoic, mesozoic or cenozoic strata are, in all cases, neptunean rocks, pre-Cambrian or pre-Silurian in age, and that we know of no uncrystalline sediments which are their stratigraphical equivalents.

We have then before us two schools, the one maintaining the secondary origin of a great, and, by them, undefined portion of the crystalline stratiform rocks, while assigning to certain older (pre-Cambrian) crystalline rocks (of which they admit the existence), either a neptunean or a plutonic origin. The other, or plutonist school, while asserting the plutonic derivation of the greater part of the crystalline formations, accepts, to some extent also, the notion of secondary and neptunean metamorphic schists. It is believed that the above concise statements cover the ground held by the hitherto prevailing neptunean and plutonist schools, neither of which, it is maintained, expresses correctly the present state of our knowledge. In opposition to both of these are the views taught for the last twenty years by the writer, and now accepted by many geologists, which may be thus defined:—

1*st*. All gneisses, petrosilexes, hornblendic and micaceous schists,* olivines, serpentines, and in short, all silicated crystalline stratified rocks, are of neptunean origin, and are not primarily due to metamorphosis or to metasomatosis either of ordinary aqueous sediments or of volcanic materials.

2*d*. The chemical and mechanical conditions under which these rocks were deposited and crystallized, whether in shallow waters, or in abyssal depths (where pressure greatly influences chemical

* It is a question how far the origin of such crystalline aluminous silicates as muscovite, margarodite, damourite, pyrophyllite, kyanite, fibrolite and andalusite is to be sought in a process of diagenesis in ordinary aqueous sediments holding the ruins of more or less completely decayed feldspars. Other aluminous rock-forming silicates, such as chlorites and magnesian micas, are however connected, through aluminiferous amphiboles, with the non-aluminous magnesian silicates, and to all of these various magnesian minerals a very different origin must be ascribed.