

points. They admit the conversion of certain granites to gneissoid rocks, but do not agree that dynamo-metamorphism has had any part in the origin of the true Archæan gneisses and schists. Credner finds it difficult to understand how such a uniform succession as is presented by the fundamental crystalline rocks in the ancient mountain-systems could have been the product of variable and accidental processes of crushing and permeation by water.

Zirkel draws attention to the fact that the typical fundamental rocks and even the younger schists in many districts show only very slight traces of mountain-pressure, and on the other hand sedimentary rocks have often suffered gigantic tectonic disturbances and pressures, and yet have not been much changed in their original constitution. The petrographical researches of Professor Salomon have during the last few years attracted considerable attention. Professor Salomon has investigated the contact phenomena associated with deep-seated eruptive rocks in the Alps, more especially in the Adamello group, and has shown that different kinds of rocks have throughout long distances been altered by contact metamorphism into crystalline schists. On the basis of his observations in the Adamello, in the Cima d'Asta, and Predazzo districts, and in other parts of the Alps, Salomon has inferred that the granite-grained bosses of the Tyrol Central Alps are not, as Broegger concluded, of Triassic age, but were intruded in the Tertiary epoch. The magmas solidified in the form of laccolites and batholites, and as the form of the intruded material frequently varied in its relation to the crystalline schists during its cooling and contraction, Professor Salomon thinks it possible that the latest Alpine upheaval may have been induced by such variations and the consequent disturbances of crust equilibrium.

Although the hypothesis of dynamo-metamorphism has now very numerous adherents, many questions regarding the origin of the fundamental and the younger schistose rocks have yet to be solved before the principles of metamorphism can be securely defined, and as the subject is still under discussion, it is not well suited for historical interpretation.