already become classic; generally speaking, they go to show that the mineralogical character of the stratified rocks as affecting the conduction of heat and the relative pressures between the bedded rocks and the intruded igneous rock-material, influenced the subsequent processes of consolidation in the latter, and determined the orientation of crystals and the modifications of structure.

In many active and extinct volcanoes, it would appear that the character of the ejected rock-material gradually alters with each successive eruption, so that the first and the last products of eruption represent the extremes of a petrographical series. In the Rocky mountains, and in the Sierra Nevada, Baron von Richthofen (1868) recognised a definite sequence of propylite, andesite, trachyte, rhyolite, and basalt, and his observations have since been confirmed by American geologists. The more recent works of Professor Broegger on the eruptive district of Southern Norway have extended the observations so ably initiated by Baron von Richthofen. Professor Broegger has given an admirable exposition of the eruptive rocks in that district with respect to their mineralogical, structural, and chemical constitution, their geological occurrence, their eruptive sequence, the division and differentiation of the original magma.

In the year 1890, Professor Broegger contributed a paper to the *Zeitschrift für Krystallographie und Mineralogie*, in which he sub-divided the eruptive rocks in the neighbourhood of Christiania into two chief series, an older and a younger, the younger containing only basic intrusive rocks (diabases), the older comprising very different acid and basic rocks, which may be again sub-divided into five groups according to their mineralogical and chemical composition. All the products of this older group form a transitional series of rocks passing petrographically into one another, and closely related chemically. They have clearly proceeded from an originally continuous molten mass which has been segmented, and has undergone differentiation into several rock-types. The oldest members of the genetic series are basic, the youngest strongly acid. In the opinion of Broegger, the original magma was an aquo-igneous solution of silicates, and rich in soda. Towards the close of the Devonian epoch, the first fissure eruptions took place, the magma being still fairly basic, and these were succeeded from time to time by outbreaks of increasingly acid