http://www.geology.19thcenturyscience.org/books/1901-Zittel-HistGeol/README.htm

great depths previously to any surface eruption of the magma; whereas the younger and minute mineral elements probably originated during the epoch of eruption. With the outflow of a glowing rock-magma at the surface, and the escape of the water vapours, the chemical constitution of the rock-material is changed. The structure of the ground-mass is holocrystalline, hemicrystalline or glassy, according to the more rapid or slower cooling of the magma.

Rosenbusch sub-divides the rocks of eruptive flows into *palæovolcanic* (porphyry, porphyrite, augite porphyrite, melaphyre, and picrite porphyrite) and *neovolcanic* (liparite, trachyte, phonolite, andesite, basalt, etc.). Some of the older flows, such as the diabase porphyrite and picrite porphyrite, resemble granitic-porphyritic intrusive rocks so closely that they seem to bear the same relationship to them which the typical intrusive rocks bear to the plutonic or deep-seated masses. They may be distinguished from true eruptive flows by the absence of tuffs.

The new classificatory scheme of Rosenbusch showed quite clearly that he had been strongly influenced by the views of MM. Fouqué and Michel-Lévy, and these two French petrographers felt it incumbent to declare the position they assumed towards it. In 1889, Michel-Lévy discussed the work of Rosenbusch in a special memoir, agreeing with many of its principles, but disputing others. Regarding the sub-division of the eruptive rocks into deep-seated masses, intrusions, and flows, Lévy points out that the intrusive group is quite artificial and untenable, as intrusions may either take the form of narrow vertical dykes or almost horizontal sheets or "sills." He also contests the conclusion of Rosenbusch that only one generation of the crystalline constituents took place in the deep-seated rocks, a group which almost precisely corresponded with the granitoid group of MM. Fouqué and Lévy.

In Michel-Lévy's opinion, the geological aspects and associations of the eruptive rocks, as well as the geological age, have too little connection with the structure of the rocks to provide a good basis of classification. Michel-Lévy cites cases where rocks belonging to the "deep-seated group" of Rosenbusch, *e.g.*, granite, ophite, and gabbro, occur in the form of eruptive sheets. According to Michel-Lévy, the different types of structure in eruptive rocks are due to variations of temperature