blende, mica, augite, olivine, etc.), and of disseminated crystals of iron oxides (magnetite, titaniferous iron); a prevailing more or less thoroughly crystalline structure; the frequent presence of vitreous and devitrified matter, visible megascopically or microscopically; and the occurrence of porphyritic, cellular, pumiceous, slaggy, amygdaloidal, and fluxion structures. These characters are never all united in the same rock. They possess likewise various values as marks of eruptivity, some of them being shared with crystalline schists which were certainly not eruptive. On the whole, the most trustworthy lithological evidence of the eruptive character of a rock is the presence of glass, or traces of an original glassy base. We do not yet certainly know of any natural vitreous substance, except of an eruptive nature. The occurrence or association of certain minerals, or varieties of minerals, in a rock, may also afford presumptive evidence of its igneous origin. Sanidine, leucite, olivine, nepheline, for example, are, for the most part, characteristic volcanic minerals; and mixtures of finely crystallized triclinic felspars with dark augite, olivine, and magnetic iron, or with hornblende, are specially met with among eruptive rocks.

But it is the geotectonic characters on which the geologist must chiefly rely in establishing the eruptive nature of rocks. These vary according to the conditions under which the rocks have consolidated. We shall consider them as they are displayed by the Plutonic, or deep-seated, and Volcanic, or superficial phase of eruptivity.[2]

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[2] As already stated (p. 220), a chronological basis has been proposed for the classification of eruptive rocks. Some writers have even gone so far as to suggest that different names should be given to eruptive rocks according to the geological formation in which they occur, as Carbophyre, Kohlephyre, Triaphyre, Juraphyre. See Th. Ebray, Bull. Soc. Geol. France (3), iii. p. 291.