

may sometimes be seen within the area of a neck. Where the altered materials are of a fragmentary character, the nature and amount of this change can best be estimated. What was originally a general matrix of volcanic dust has been converted into a crystalline and even porphyritic mass, through which the dispersed blocks, though likewise intensely altered, are still recognizable. Such blocks as, from the nature of their substance, must have offered most resistance to change—pieces of sandstone or quartz, for example—stand out prominently in the altered mass, though even they have undergone more or less modification, the sandstone being converted into vitreous quartz-rock.³⁹

³⁹ For a detailed account of the structure of some volcanic necks, the student may consult a monograph by the author on the Carboniferous volcanic rocks of the Basin of the Forth, *Trans. Roy. Soc. Edin.* xxix. p. 437.