At the sides of the dyke the horizontal lamination is obscured, the shaly mass is indurated, and traversed by numerous vertical divisional planes parallel to the faces of the dyke, most numerous near the dyke, so as to occur in every half inch of breadth, but becoming less and less abundant in the parts removed from the dyke, till they entirely vanish. On the surface section, the lines of these vertical planes would, on a minute scale, represent the "cleavage" edges of slate.

This fact is an example of a large class of phenomena, often to be seen on the sides of basaltic and porphyritic dykes, which traverse argillaceous strata; and it is one of the most prominent illustrations which we have ever met with in favour of the opinion that the cleavage of slate is a metamorphic structure produced by the action of heat. This opinion is probably *correct*, but it is not *complete*, for the following reasons:—

1. We are acquainted with instances in which a similar structure (though certainly less perfect) is found parallel to, and limited to the region of, great fractures of the strata where no dyke of basaltic or other pyrogenous rock occurs. This is seen in limestone cliffs which border the north side of the Great Craven fault in Yorkshire, where it crosses Gigglewick Scar, near Settle, and certainly no igneous action is otherwise indicated or probable there.

2. Mr. R. Fox, in prosecuting his curious researches regarding the changes effected in metallic bodies by electrical currents, has been conducted to an unexpected result, which appears to be of importance in reasoning on the laminated structures of mineral masses generally, and especially on the "cleavage" planes. The following notice of the experiments is extracted from the Report of the Royal Cornwall Polytechnic Society for 1837.

"Some clay was exhibited by R. W. Fox, esq., which had become *laminated* by long-continued voltaic action, so as to resemble clay slate in its structure.