plates, in opposite states of electricity, and one of them, consequently, more favourable than the other for the reception of metallic deposits and other bases from their solutions.

"Indeed, the general laminated structure of the clay appears to indicate that a series of voltaic poles were produced throughout the clay, the symmetrical arrangement of which had a corresponding effect on the structure of the clay. This view is still more strikingly confirmed by the occurrence, in several instances, of veins, or rather laminæ, of oxide of iron, the edges of which are shown by the shaded lines *k*, *l*, *m*. In these cases sulphate of iron was substituted for sulphate of zinc; and laminæ of oxide of copper were sometimes formed, in like manner, when a solution of that metal was employed; and moreover, numerous minute insulated portions or specks of the oxide of copper were detected in different parts of the mass of clay when broken."

These facts appear highly favourable to the opinion that the direction of cleavage planes in slate depends on *some form* of electrical excitement, and currents of electricity passing in given directions; but they do not at all negative the probability, from other and more general facts, that it is to the application of heat that the electrical currents owed their origin. In fact, when we remember that it is only among dislocated primary strata that real clay slate occurs, and that it is only in the vicinity of pyrogenous rocks, or fractures of the strata, that rocks of later date assume, however imperfectly, the slaty aspect, and that dislocations of the strata with unequal conducting powers for heat and electricity necessarily generate electrical disturbance and currents to restore the equilibrium, we see that the general opinion which geologists had adopted, of the dependence of the directions of cleavage and other symmetrical structures in rocks, upon local or general application of heat, may be very correct, though certainly it is incomplete. Mr. Fox's experiments will doubtless