

would have been inaccessible. (See Pl. 65. Fig. 3. and Pl. 66. Fig. 2.) Had the strata of Shale and Grit, that alternate with the Coal, been continuously united without fracture, the quantity of water that would have penetrated from the surrounding country, into any considerable excavations that might be made in the porous grit beds, would have overcome all power of machinery that could profitably be applied to the drainage of a mine; whereas by the simple arrangement of a system of *Faults*, the water is admitted only in such quantities as are within control. Thus the component strata of a Coal field are divided into insulated masses, or sheets of rock, of irregular form and area, not one of which is continuous in the same plane over any very large district; but each is usually separated from its next adjacent mass, by a dam of clay, impenetrable to water, and filling the fissure produced by the fracture which caused the Fault. (See Pl. 66. Fig. 2. and Pl. 1. Figs. 1,—1, 7.)

If we suppose a thick sheet of Ice to be broken into fragments of irregular area, and these fragments again united, after receiving a slight degree of irregular inclination to the plane of the original sheet, the reunited fragments of ice will represent the appearance of the component portions of the broken masses, or sheets of Coal measures we are describing. The intervening portions of more recent Ice, by which they are