

planes of stratification, which here are inclined from the spectator. The steep faces in light are defined by the strike-joints or "backs." The faces in shadow have been quarried out along dip-joints or "cutters." It will be observed that the long face in sunlight is cut by parallel lines of dip-joints not yet opened in quarrying, while, in like manner, the shaded face to the right is that of a dip-joint which is traversed by parallel lines of strike-joint.

Ordinary household coal presents a remarkably well-developed system of joints. A block of such coal may be observed to be traversed by fine laminæ, the surfaces of many of which are soft and soil the fingers. These are the planes of stratification. Perpendicular to them run divisional planes, which cut each other at right angles or nearly so, and thus divide the mineral into cubical fragments. One of these sets of joints makes clean sharply defined surfaces, and is known as the *face*, *slyne*, *cleat*, or *bord*; the other has rougher, less regular surfaces, and is known as the *end*. The face remains persistent over wide areas; it serves to define the direction of the roadways in coal-mines, which must run with it.

According to observations made by Jukes, both strike-joints and dip-joints occur in beds of recently-formed coral-rock in the Australian and other reefs.<sup>2</sup> In like manner, a remarkably definite system of jointing has been noticed by Mr. Gilbert in the recent clays and muds of the dried-up bed of the Sevier lake in Utah. Such modern sediments have certainly never been subject to the pressure of any superincumbent rock, nor to the torsion or other disturbance incident to subterranean movement. That great force has

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<sup>2</sup> "Manual of Geology," 3d edition, p. 184.