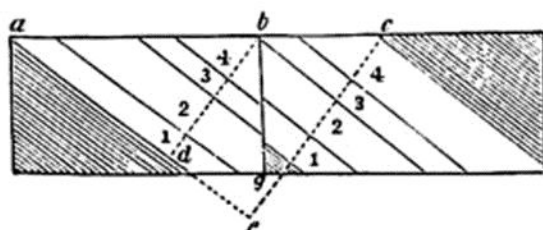


The figure (128) represents a fault at bg , so that the strata 1, 2, 3, 4 to the left are repeated to the right; and hence the whole thickness is bd instead

128.

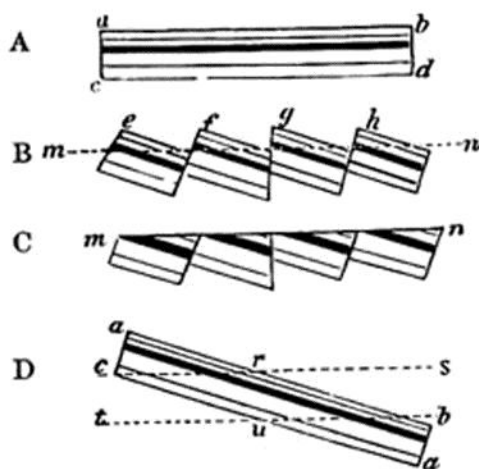


of ce . ab is the width at surface of the strata 1, 2, 3, 4; but by the fault, ab is increased to ac . There may be many such faults, in the course of a few miles; and each one would increase the amount of error, if not guarded against.

So other faults might go on increasing the extent of the surface

exposure. This is further illustrated in Fig. 129. Let A be a stratum 10,000 feet thick (a to c) and 100,000 feet long (a to b). Let it now be faulted, as in Fig. B, and the parts uplifted to a dip of 15° , — taking a common angle for the parts, for the sake of simplicity of illustration. The projecting portions being worn off by the ordinary processes of denudation, it is reduced to Fig. C, mn being the surface exposed to the observer. The first error that might be made from hasty observation would be that there were four distinct outcropping coal layers (calling the black layer thus), instead of *one*; and the second is the one above explained with regard to calculating the thickness of the whole stratum from the entire length mn in connection with the dip. Very often the beds have been shoved up over one another in the making of a monocline to such an extent that the faults are almost or wholly obliterated. A calculation of the thickness in such a case is impossible.

129.



If the stratum (Fig. 129 A) were inclined 15° without faulting, it would stand as in D; and if then worn off to a horizontal surface, the widest extent possible would be cr , which is less than half what it has with the three faults. A block of the size mentioned would require, in order to make it a monocline of 45° , that one end should be dropped down 70,000 feet, or the other end raised as much, or that this amount of change should be divided between the two ends; and for a monoclinical block having a dip of 60° , the drop-down or upthrust would have to be nearly 87,000 feet, or more than 16 miles. Calculating the thickness from the dip in a region is liable, therefore, to enormous error.

5. Conformability, Unconformability.

Successive strata in a region may be *conformable* to one another or *unconformable*. In the series of strata made over the earth's crust, the rocks of successive periods and ages have, in large parts of the world, been made