

in regular succession, each stratum conformable in bedding to the preceding. This was true of the 40,000 feet of rock of the Appalachian region (referred to on page 353), out of which the Appalachian Mountains were finally made. This is an example of *conformability*, as the term is used in geology. Through the long series there is *conformity in bedding*.

But these conformable strata rest on older rocks that have the bedding upturned and standing at various angles. Between the two there is *unconformability in bedding*.

Fig. 130 illustrates this subject. The beds 2, 3, 4a, 4b, are conformable to one another, but unconformable to the flexed rocks numbered 1. The



1, Upturned Archæan rocks; 2, 3, 4a, 4b, overlying strata, conformable with one another, but unconformable with the Archæan. Logan.

flexing of the rocks antedated the deposition of No. 2; and knowing the geological age of No. 2, some approximation is made toward a knowledge of the time of flexure. There may be three or four cases of unconformability in the same region. For in each mountain-making epoch, new rocks are upturned, and the succeeding ones are laid down horizontal, as usual, over the upturned. Such unconformabilities belong especially to regions of mountain-making; for there occur the upturned rocks. Only a few miles away from the region of the mountain, the rocks that are unconformable in the latter may rest on one another in regular order, or conformably, as if no disturbance had anywhere taken place.

The preceding figure has a fault-plane at *f*, and there is an *unconformity* between the beds on each side of it, but not *unconformability*. The *unconformity* introduced by faults is easily mistaken for true *unconformability*. Such *unconformity* is of frequent occurrence in all formations; while *unconformity in bedding* indicates an epoch of mountain-making, a thing of rare occurrence in the geological history of a region.

Besides this most important species of unconformability, that of the *first* kind, there are also two other kinds: (1) through *changed sea-limit* or *overlap*; (2) through *surface erosion*.

*Through overlap.*—When, after the deposition of beds, a slight sinking of the region takes place, the next deposits there made may extend beyond the limits of the preceding, and overlap those outside. In such cases, although both deposits are approximately horizontal, there is still a degree of unconformability. Oscillations of the land surface, or of the water level, have gone on through the successive periods, so that *unconformity by overlap* is of very frequent occurrence, and of minor significance, though always of great geological interest.