

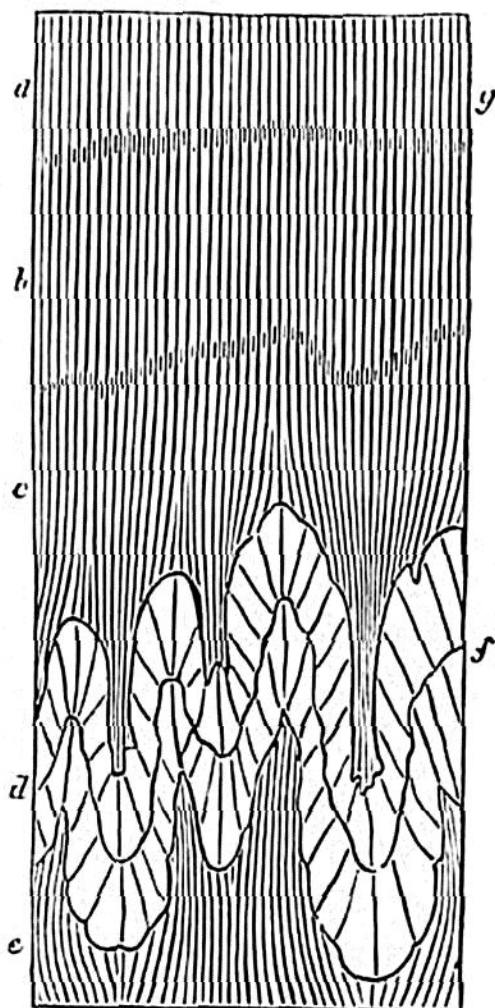
and the same bed exhibits cleavage-planes in the direction of the greatest movement, although they are much fewer than in the slaty strata above and below.

Above the sandy bed *d f*, the stratum *c* is somewhat disturbed, while the next bed *b* is much less so, and *a* not at all; yet all these beds, *c*, *b*, and *a*, must have undergone an equal amount of pressure with *d*, the points *a* and *g* having approximated as much towards each other as have *d* and *f*. The same phenomena are also repeated in the beds below *d*, and might have been shown, had the section been extending downwards. Hence it appears that the finer beds have been squeezed into a fourth of the space they previously occupied, partly by condensation, or the closer packing of their ultimate particles (which has given rise to the great specific gravity of such slates), and partly by elongation in the line of the dip of the cleavage, of which the general direction is perpendicular to that of the pressure. "These

and numerous other cases in North Devon are analogous," says Mr. Sorby, "to what would occur if a strip of paper were included in a mass of some soft plastic material which would readily change its dimensions. If the whole were then compressed in the direction of the length of the strip of paper, it would be bent and puckered up into contortions, whilst the plastic material would readily change its dimensions without undergoing such contortions; and the difference in distance of the ends of the paper, as measured in a direct line or along it, would indicate the change in the dimensions of the plastic material."

The student will readily conceive that, when the shape of a fossil or of a crystal of some mineral, or of a spheroidal concretion, has been altered by lateral pressure, the new forms which they assume respectively will vary according to whether they have yielded in one or more directions. They may have been drawn out solely in the direction of the

Fig. 708



(Drawn by H. C. Sorby.)

Vertical section of slate rock in the cliffs near Ilfracombe, North Devon.

Scale one inch to one foot.

*a, b, c, e.* Fine-grained slates, the stratification being shown partly by lighter or darker colors, and partly by different degrees of fineness in the grain.

*d, f.* A coarser-grained light-colored sandy slate with less perfect cleavage.