

**Syncline, or synclinal axis** (Fig. 245). An anticlinal or synclinal axis must always die out unless abruptly terminated by dislocation. In the case of the anticline, the axis, after continuing horizontal, or but slightly inclined, at last begins to turn downward, the angle of inclination lessens, and the arch then ends or "noses out." In a syncline, the axis eventually bends upward, and the beds, with gradually lessening angles, swing round it. In a symmetrical anticline or syncline, the angle of slope is the same or nearly so on either side (Figs. 244, 245). But a difference of inclination



Fig. 244.—Section across the folded rocks of the Appalachian Chain (H. D. Rogers).



Fig. 245.—Trough, or Syncline, with strata (*a c*) rising from each side of a central axis (*b*).

is frequently to be observed. The Appalachian coal-field, for example, as shown by H. D. and W. B. Rogers, presents an instructive series of plications, beginning with symmetrical folds, succeeded by others with steep fronts toward the west, until at last these steeper fronts pass under the opposite sides of the arches, giving rise to a series of inverted folds (Fig. 246).

**Inversion.**—Inverted folds occur abundantly in regions of great plication. The Silurian uplands of the south of Scotland, for instance, have the arches and troughs tilted in one direction for miles together, so that in one-half of each of them the strata lie bottom upward