folded dotted layers below are quartzytes, and the beds below, shales. (La Fouche, India Survey, 1888.)

3. *Arctic upturned rocks.* — Flexures as a result of lateral pressure occur in the Arctic regions. On Grinnell Land, from Scoresby Bay to Cape Cresswell, in lat. 82° 40′ N., slates, limestone, grits, and quartzytes are in sharp folds, and often vertical, with the strike E.N.E. — Feilden & De Rance on the results of the Sir George Nares Expedition in 1875–76.

For other examples of orogenic movements see pages 534, 808–812, under Historical Geology.

Conclusion. — Orographic work has been carried forward, in general, by means of flexures, fractures, and slips or faultings along fractures; and the faults have largely been flexure-faults, — that is, have been made in connection with the production of more or less pronounced flexures.

Subordinate Effects attending Orographic Movements.

Among subordinate orographic effects are *first*, those incidental to the friction, and the heat thereby produced, namely: (1) part of *metamorphism*, (2) of *vein-making*, and (3) of *volcanic* phenomena — subjects already considered.

Second, those incidental to the pressure: these are (4) *variations* in the characters of flexures; (5) *distortions* of beds and of fossils; (6) slaty *cleavage or foliation;* (7) *joints.*

Third, (8) *earthquakes.*

1. Effects Incidental to the Pressure.

1. *Variations in flexures.* — The characteristics of flexures have already been illustrated and explained (page 101). The pressure producing them encounters unequal resistance from inequality of mass in the pile of strata along the axis of the area of disturbance; from unequal consolidation, or firmness, or rigidity, in the beds; and also from friction against the floor of rock beneath. For these reasons flexures of the ordinary kind always have the *ridge-line inclined*, and are irregularly distributed along an area of disturbance.

The Wasatch Mountains (Fig. 335) illustrate the influence, on the flexures, of the floor of rock underneath the moving strata, and show that a flexure may be made with its axis *in the line of the pressure* and be thrust forward end foremost.

The minor flexing or wrinkling of beds, not uncommon in the fine slaty rocks and schists, is often occasioned by unequal yielding to pressure in the beds, unequal rigidity, unequal contraction; and it may also come from feeble oscillations in the action of the moving force, and from the action of gravity on the highly upturned or vertical beds.

2. *Distortions of beds and their fossils.* — The beds subjected to the enormous pressure were more or less yielding. Argillaceous strata are soft