glacier around the two rocky islets in the Brenva Glacier (south of Mont Blanc), that the movement was by molecular displacement.

(*d*) *Slipping along planes of bedding or straticulation, or those of the blue bands.* — This slipping has been shown to be a fact in several glaciers, by Forel (1889); among them, the Bossons Glacier at Chamouni. In the lower part of a glacier these planes have a dip up stream, and as a consequence the mass of the glacier above, as it flows along, rises by slipping along one or more of the planes of lamellar structure.

Mr. Forel observes that the fact explains the difference of velocity between the upper and lower beds; the little movement at the extremity of a glacier; the reappearance, at the surface, of bodies buried in the interior of the glacier; and the preservation of the thickness of the ice at the lower extremity, notwithstanding the annual loss from melting. The cause must have great influence over the direction of crevasses, and in all adjustments to resistances (1889). Guyot described (1832) the up-stream dip of the stratification at the termination of a glacier, and attributed to it the origin of the caverns.

(*e*) *Sliding along the bottom of the valley.* — By the preceding methods, the ice might move by yieldings and adaptations to surfaces, and not necessarily move on the surface beneath so as to abrade it. But the amount of abrasion in glaciated regions shows that these means of yielding and adaptation only help toward an actual flow or sliding of the material along its valley in river-like style.

(*f*) *Movement through the dilatation of freezing in the permeating water of a glacier.* — This cause of movement was appealed to by Agassiz, and has been sustained by others. It has taken a new form through Forel, who has suggested that movement may be produced by the freezing of water between the large crystalline grains constituting the glacier. Freezing at night, according to the view, by expanding the mass, would force the glacier forward. The fact that the grains are so much larger in the lower than in the upper part of the glacier is supposed to favor it; but this is far from conclusive. Forel proposes to give the subject further investigation.

With regard to the motion of glaciers, Canon Moseley, after experimenting on the shearing force of pure ice, and making it too great to be overcome by gravity alone, presented a view that glaciers descend as a plate of lead descends a sloping surface, through alternate changes of temperature, the movement from expansion by heat being mainly downward because of gravity, and contraction working the same way. To this theory the obvious objection holds, as has been observed, that glaciers do not undergo the needed change of temperature.

Professor Croll, in his *Climate and Time* (and in earlier memoirs) accepts Moseley's deduction as to the shearing force of ice, and brings forward a molecular theory to account for the motion of glaciers. He says: "We find that the heat applied to one side of a piece of ice will affect the thermal pile on the opposite side"; and explains this, not by radiation through the ice, but on the view that the heat applied passes from molecule to molecule through the mass; the transmission of the heat-energy conveyed by A to B melts B, but crystallizes A, and so it goes on through the ice. Gravitation is the source