

ter would be to accumulate so great a quantity of snow and ice that these could not be removed in the short tho warm summer, and so would go on accumulating from year to year. Actual experience and observation do not confirm this supposition. In those parts of North America which have a long and severe winter, the amount of snow deposited is not in proportion to the lowness of the temperature, but, on the contrary, the greatest precipitation of snow takes place near the southern margin of a cold area, and the snow disappears with great rapidity when the spring warinth sets in. Nor is there, as has been imagined, any tendency to the production of fogs and mists which have been invoked as agencies to shield the snow from the sun. In North America the melting snow is ordinarily carried off as liquid water or as invisible vapor, and the sky is usually clear when the snow is melting in spring. It is only when warm and moist winds are exceptionally thrown upon the snow-covered land that clouds are produced; and when this is the case the warm rain that ensues promotes the melting of the snow. Thus there is no possibility of continued accumulations of snow on the lower parts of our continents, under any imaginable conditions of climate. It is only on elevated lands in high latitudes and near the ocean, like Greenland and the antarctic continent, that such permanent snow-clad conditions can occur, except on mountaintops. Wallace very properly maintains, in connection with these facts, that permanent ice and snow cannot under any ordinary circumstances exist in low lands, and that high land and great precipitation are necessary conditions of glaciers. He attaches, however, rather too much importance to snow and ice as cooling agents; for tho it is true that they absorb a large amount of heat in passing from the solid to the liquid state, yet the quantity of snow or ice to be melted in spring is so small in comparison with the vast and continuous pouring of solar heat on the surface, that a very short time suffices for the liquefaction of a deep covering of snow. He quotes the remarks of Siberian travellers on this, and the same fact is a matter of ordinary observation in North America.

Setting aside, then, these assumptions, which proceed from incorrect or insufficient information, we may now refer to a consideration of the utmost importance, and which Mr. Croll, tho