

to the little remnant of ice at the foot of the steep slope, as seen by travellers of last summer.

The anatomy of the greatest glacial system of Switzerland, that which forms the Aletsch glacier, is excellently shown in a folded map. The scale is 1 : 50,000 ; contour lines are drawn in blue on the ice and snow every thirty metres ; the moraines are marked in detail ; and the peculiar zigzag bands in the ice, like the grain of wood, so conspicuous in the wonderful view from the Eggischhorn, are carefully represented. This map may therefore be ranked even above the interesting one of the 'Mer de glace' system (scale, 1 : 40,000) on Viollet-le-Duc's sheet of the 'Massif du Mont Blanc,' published about ten years ago.

The question of glacial erosion has always been fruitful of opposite views since it was first given importance by Ramsay ; and we have to regret that the summary of the matter presented by Heim does not go further in reconciling the apparently contradictory facts quoted by the advocates of the contrasted theories. Heim writes, 'Glaciation is a period of rest in valley-making.' Professor Newberry concludes¹ that a great glacial sheet, shod with stones and gravel, "would not only be capable of sweeping away any ordinary barriers that opposed its progress, but would grind down the underlying rock with a resistless and comparatively rapid action."

Neither of these authors gives sufficient indication of the more judicious middle ground taken by James Geikie and some others, to the effect that glacial action may be destructive in one district, and constructive in another ; that glaciers, like rivers, erode chiefly in their upper streams, and deposit the detritus quietly on the flood-plains and deltas of drift near their termination. The great amount of glacial drift undoubtedly affords the strongest argument that can be made in favor of the marked changes effected by glaciers, just as the vast volume of stratified fragmental rocks testifies to the successful persistence of water-action ; and for North America, at least, we cannot accept Heim's conclusion, that pre-glacial weathering afforded the chief part of the drift, while direct glacial erosion gave rise only to fine sand and mud. The occurrence of angular, unweathered, and unworn boulders, and of drift rich in limestone, forbids such a conclusion, and has been successfully quoted against it. On the other hand, the evidence of the protective, or at least the very moderately destructive, action of the old glaciers near their

termination, and the not excessive erosion in any part, is ably stated ; and, to our mind, this leads much nearer to the truth than does the path followed by those who see an argument for glacial erosion in nearly every lake of northern countries and every fiord of western coasts.

HOUSEHOLD SANITATION.

If the author succeeds in winning the audience she desires, she may justly claim pioneership in one direction of the higher education of women. The path indicated is not well beaten. Sanitary science is of late origin ; so late, indeed, that the men who formulated it are still young. Its proposition to prevent disease by removing the conditions that provoke disease, merits the popular approval, and legislation has been quick to help sanitarians put their science to the test. With plenty of money, and in fair localities, it is not difficult to satisfy all the demands of the sanitarians. It will, however, hardly be contended that the sanitarians have formulated insurance against the outbreak of the zymotic diseases for the ordinary householder in any locality where necessity has placed him. And yet this is the very problem which sanitary science is to solve. Much can be done in one home to make it healthful ; but the influences that affect one home are so intermixed with the influences that affect large areas, that state and national interference is demanded by sanitary science. The author has stated the sanitary conditions of healthful homes with accuracy, and with sufficient fulness to make these conditions readily comprehended. She appeals to the women of the land to familiarize themselves with the results of sanitary science, that they may be able to critically examine their own homes, and influence opinion, so that healthful conditions may be made compulsory under the law. This is good work, and the more of it the better. There is an immense chasm between crazy-quilts and sewer-pipes, sonatas and bad drainage ; but it can be bridged by informing the women, and teaching the girls. If rosy children and long-lived husbands are worth the while, this education in what constitutes a healthy home is worth a place in the school curriculum for girls.

Sanitary science is so new, that 'consulting sanitary engineers,' without warrant of author-

Women, plumbers, and doctors ; or, Household sanitation. By H. M. PLUNKETT. New York, Appleton, 1885. 248 p., illustr. 8°.

¹ School of mines quarterly, vi. 1885, 152.