

where terraces have been formed by sudden elevation. But if river terraces have generally been formed without paroxysmal movements, as they must have been, and if terraces on lakes and the ocean may have been produced in some cases by the drainage of the country (as was the case upon Lake Lungern, in Switzerland, by artificial drainage), it is reasonable to suppose that such may have been their usual origin.

#### THE HISTORIC PERIOD.

We are now brought to the period when the country had attained essentially its present altitude. All the agencies that produced drift, viz., icebergs, glaciers, land-slips and waves of translation, are still in operation in some parts of the world, and therefore drift is still being produced. Ever since the tertiary period these causes have been acting, but their intensity has varied in different ages.

The same is true of the agencies that have produced beaches, osars, escars, subaqueous ridges and terraces, viz., the action of rivers and the ocean, combined with the secular elevation of continents. In other words, the agencies producing drift and modified drift have run parallel to each other from the very first. Hence they both are varieties of the same formation, extending from the close of the tertiary period to the present.

The sections describing aqueous, igneous and organic agencies contain the history of this period in detail. The Flora and Fauna are those now existing.

Man has existed on the earth a comparatively short part of the alluvial period. We have a few records of the commencement of this period. There are many examples of river beds on a former continent, which became so filled by drift and modified drift, while the continent was beneath the ocean, that when it emerged, the rivers were compelled to abandon the old beds and seek new channels. And the amount of erosion effected by them since that time is before our eyes. The gorge through which the present Niagara river runs, between the Falls and Lake Ontario, seven miles long, is one of these cases. Another case of similar erosion is the Genesee river between Portage and Mount Morris; where it has cut a channel deeper, in most places, than that of the Niagara, some fourteen miles long. There are other examples in