

Western Territories are in many places protected by the sage-brush and grease-wood. The growth of shrubs and brushwood along the course of a stream not only keeps the alluvial banks from being so easily undermined and removed as would otherwise be the case, but serves to arrest the sediment in floods, filtering the water, and thereby adding to the height of the flood-plain. On some parts of the west coast of France, extensive ranges of sand-hills have been planted with pine woods, which, while preventing the destructive inland march of the sand, also yield a large revenue in timber, and have so influenced the climate as to make these districts a resort for pulmonary invalids.³³⁴ In tropical countries, the mangrove grows along the sea-margin, and not only protects the land, but adds to its breadth, by forming and increasing a maritime alluvial belt.

3. Some marine plants likewise afford protection to shore rocks. This is done by the hard incrustation of calcareous nullipores; likewise by the tangles and smaller fuci which, growing abundantly on the littoral zone, break the force of waves, or diminish the effects of ground-swell.

4. Forests and brushwood protect soil, especially on slopes, from being washed away by rain. This is shown by the disastrous results of the thoughtless destruction of woods. According to Reclus,³³⁵ in the three centuries from

³³⁴ De Lavergne, "Economie rurale de la France depuis 1789," p. 297. Edin. Review, Oct. 1864, article on Coniferous Trees.

³³⁵ "La Terre," p. 410. J. C. Brown, "Reboisement en France," London, 1876. According to Dr. J. Carret, however, the deterioration of the climate of Savoy and the diminution of the population there cannot be attributed to deboisement. The cutting down of the forests dates from the First Empire, but replanting has been going on for some time, and the forest area is now a little larger than it was last century. Nevertheless the depopulation of the higher tracts, which had begun before last century, continues, notwithstanding the replanting of the slopes: Assoc. Française, 1879, p. 538.