

agents that are busy modifying the surface of the land, we must remember that the ultimate result achieved may be greatly modified by two potent factors—geological structure and the concomitant working of some other agents which likewise affect the terrestrial surface. How geological structure comes into the question will be best explained in later parts of this volume from actual examples of its local influence. The co-operation of the different disintegrating and denuding forces upon the land is governed in great measure by varying conditions of climate. Where, for instance, the mean annual temperature falls below 32° Fahr., frost, snow, and ice take their place as powerful agents in land-sculpture. Where the climate is dry, the disintegrating effects of saturation and desiccation are eliminated, and the general surface of the land is exposed only to such influences as great and rapid alternations of temperature. In such cases, rivers that are copiously fed from mountains beyond or above the arid plains are allowed to exert their own peculiar modes of land-sculpture with the least interference from other agents. On the other hand, where the climate, if not humid, is at least characterised by an average rainfall and by warm summers and somewhat severe winters, the general waste of the surface of the land probably reaches its maximum, and the rivers are then not permitted to exercise their functions without constant modification. A river can only act upon the rocks over which it flows. Hence when it is allowed to work with its utmost power and speed, its maximum effect is seen in the excavation of a long deep ravine. On the arid plains of Utah and Arizona, for instance, the Colorado river and its tributaries have eroded lines of cañon hundreds of miles long, and in some places more than six thousand feet deep. But where the banks of a river-channel are attacked by vigorous atmospheric disintegration, they are not