

The changes of the day determine alternations in amount of evaporation, and, with greater effects, alternations in the supply from snow-covered heights. The night suspends part of the supply by the freezing that goes forward; and the day starts the flow again, the effects reaching the plains below some hours after the change in the mountains, so that the night is often the time of greatest flow.

With the alternating seasons, the changes are of great magnitude. All rivers have their annual season of quiet flow, when work is often wholly suspended, extending usually through most of the months of the year; and then, once or twice annually, their periods of floods, when lazy streams become impetuous torrents, and narrow streams mighty rivers, sweeping over the bordering lands for miles, defying human attempts at management.

In mountain regions, and especially those of dry, almost rainless climates, storms, called cloud-bursts, sometimes pass hurriedly and fill the narrow valleys to a depth of 100 feet or more in a few hours, doing quick, short, destructive work over small areas.

The flood season is geologically the working-time of rivers. After their floods have passed, in which all work is of a broad sweeping style, rivers return to quiet action along the bed, and often are divided into several feebly chiseling strands along the channel. Sometimes only the stony bottoms of portions of the channel are left dry; or, as in parts of Australia, there remains merely a string of small, distant muddy pools, in which only Fishes that are doubly equipped with breathing apparatus, like the *Ceratodus*, could survive.

Rivers that rise in snowy heights, like the Rhine, Rhone, and Danube, have their channels kept well filled in summer, the time of drought, because that is the melting-time of the snows.

The flood season has its effects prolonged in many regions by the great natural reservoirs over the land—the lakes and marshes. These stow away the surplus waters and let them out gradually. Many temporary lakes are made by floods which prolong greatly the period of high water under a condition that is convenient for mill-uses. Man makes reservoirs for the same purpose.

Forest regions also keep the soil beneath them charged with moisture, and, like lakes, help to give rivers constancy of supply and uniformity of flow. And evil often comes when the forests are cut away; for the rain waters then speedily reach the river-channels and may occasion alternate periods of wasteful violence and worthless feebleness. The cutting away of the forests in the French Alps (*Dauphiné*) has led to uncontrollable erosion, despoiled fields, and impoverishment of the people; and, in America, to annual seasons of dry mill-ponds, an immense sacrifice of available water-power, and the desertion of many a mill-site.

Where a river has its rainy region confined to the mountains about its source, and flows below through dry plains, the floods travel gradually down the stream, losing by evaporation and soil absorption as they flow on. There is often much hard work done in the mountains, and little below.