

Mississippi, where the area of drainage is so extensive as to embrace different climates and varieties of rainfall, the amount of discharge, being in a great measure independent of local influences of weather, remains tolerably uniform, or is subject to regular periodically-recurrent variations. In smaller rivers, such as those of Britain, whose basins lie in a region having the same general features of climate, the quantity of water is regulated by the local rainfall. A wet season swells the streams, a dry one diminishes them. Hence, in estimating and comparing the geological work done by different rivers, we must take into account whether or not the sources of supply are liable to occasional great augmentation or diminution. In some rivers, there is a more or less regularly recurring season of flood followed by one of drought. The Nile, fed by the spring rains of Abyssinia, floods the plains of Egypt every summer, rising in Upper Egypt from 30 to 35 feet, at Cairo 23 to 24 feet, and in the seaward part of the delta about 4 feet. The Ganges and its adjuncts begin to rise every April, and continue doing so until the plains are converted into a vast lake 32 feet deep. In other rivers, sudden and heavy rains, occurring at irregular intervals, swell the usual volume of water and give rise to floods, freshets, or "spates." This is markedly the case with the rivers of Western Europe. Thus the Rhone sometimes rises 11½ feet at Lyons and 23 feet at Avignon; the Saône from 20 to 24½ feet. In the middle of March, 1876, the Seine rose 20 feet at Paris, the Oise 17 feet near Compiègne, the Marne 14 feet at Damery. The Ardèche at Gournier exceeded a rise of 69 feet during the inundations of 1827.¹⁰⁷ The cause of floods,

¹⁰⁷ For a graphic account of rivers swollen by heavy rainfall, see Sir T. D. Lauder's "Morayshire Floods." On torrents consult Surell and Cézanne, "Études sur les Torrents des Hautes Alpes."