

a longitudinal valley between the mountains of Parima and the great mass of the mountains of Brazil.

I was surprised to find by actual measurement that the rapids of the Orinoco, the roar of which is heard at the distance of more than a league, and which are so eminently picturesque from the varied appearance of the waters, the palm-trees and the rocks, have not probably, on their whole length, a height of more than twenty-eight feet perpendicular. In reflecting on this, we find that it is a great deal for rapids, while it would be very little for a single cataract. The *Yellalas* of the Rio Congo, in the contracted part of the river from Banza Noki as far as Banza Inga, furnish, between the upper and lower levels, a much more considerable difference; but Mr. Barrow observes, that among the great number of these rapids there is one fall, which alone is thirty feet high. On the other hand, the famous pongos of the river Amazon, so dangerous to go up, the falls of Rentema, of Escurrebragas, and of Mayasi, are but a few feet in perpendicular height. Those who are engaged in hydraulic works know the effect that a bar of eighteen or twenty inches' height produces in a great river. The whirling and tumultuous movement of the water does not depend solely on the greatness of partial falls; what determines the force and impetuosity is the nearness of these falls, the steepness of the rocky ledges, the returning sheets of water which strike against and surmount each other, the form of the islands and shoals, the direction of the counter-currents, and the contraction and sinuosity of the channels through which the waters force a passage between two adjacent levels. In two rivers equally large, that of which the falls have least height may sometimes present the greatest dangers and the most impetuous movements.

It is probable that the river Orinoco loses part of its waters in the cataracts, not only by increased evaporation, caused by the dispersion of minute drops in the atmosphere, but still more by filtrations into the subterraneous cavities. These losses, however, are not very perceptible when we compare the mass of waters entering into the *raudal* with that which issues out near the mouth of the Rio Anaveni. It was by a similar comparison that the