

on red sandstone, or on compact limestone and gypsum ; it varies according as periodical inundations accumulate mud on the lower grounds, or as the shock of the waters carries away from the small elevations the little soil that has covered them. Many solitary cultivated spots already exist in the midst of the pastures, where running water, and tufts of the mauritia palm, have been found. These farms, sown with maize, and planted with cassava, will multiply considerably if trees and shrubs be augmented.

The aridity and excessive heat of the *mesas* do not depend solely on the nature of their surface, and the local reverberation of the soil ; their climate is modified by the adjacent regions ; by the whole of the Llano of which they form a part. In the deserts of Africa, or Arabia, in the Llanos of South America, in the vast heaths extending from the extremity of Jutland to the mouth of the Scheldt, the stability of the limits of the desert, the savannahs, and the downs, depends chiefly on their immense extent, and the nakedness these plains have acquired from some revolution destructive of the ancient vegetation of our planet. By their extent, their continuity, and their mass, they oppose the inroads of cultivation, and preserve, like inland gulfs, the stability of their boundaries. I will not enter upon the great question, whether in the Sahara, that Mediterranean of moving sands, the germs of organic life are increased in our days. In proportion as our geographical knowledge has extended, we have discovered in the eastern part of the desert islets of verdure, oases covered with date-trees, crowd together in more numerous archipelagos, and open their ports to the caravans ; but we are ignorant whether the form of the oases have not remained constantly the same since the time of Herodotus. Our annals are too incomplete to enable us to follow Nature in her slow and gradual progress. From these spaces entirely bare, whence some violent catastrophe has swept away the vegetable covering and the mould ; from those deserts of Syria and Africa, which, by their petrified wood, attest the changes they have undergone ; let us turn to the grass-covered Llanos and to the consideration of phenomena that come nearer the circle of our daily observations. Respecting the possibility of a more general cultivation of the steppes of America, the colonists, settled there, concur in the