

disappear but very slowly by fire and the axe, when the trunks of trees are from eight to ten feet in diameter; when in falling they rest one upon another, and the wood, moistened by almost continual rains, is excessively hard. The planters who inhabit the Llanos or Pampas, do not generally admit the possibility of subjecting the soil to cultivation; it is a problem not yet solved. Most of the savannahs of Venezuela have not the same advantage as those of North America. The latter are traversed longitudinally by three great rivers, the Missouri, the Arkansas, and the Red River of Nachitoches; the savannahs of Araura, Calabozo, and Pao, are crossed in a transverse direction only by the tributary streams of the Orinoco, the most westerly of which (the Cari, the Pao, the Acaru, and the Manapire) have very little water in the season of drought. These streams scarcely flow at all toward the north; so that in the centre of the Llanos, there remain vast tracts of land called *bancos* and *mesas*\* frightfully parched. The eastern parts, fertilized by the Portuguesa, the Masparro, and the Orivante, and by the tributary streams of those three rivers, are most susceptible of cultivation. The soil is sand mixed with clay, covering a bed of quartz pebbles. The vegetable mould, the principal source of the nutrition of plants, is everywhere extremely thin. It is scarcely augmented by the fall of the leaves, which, in the forests of the torrid zone, is less periodically regular than in temperate climates. During thousands of years the Llanos have been destitute of trees and brushwood; a few scattered palms in the savannah add little to that hydruret of carbon, that extractive matter, which, according to the experiments of Saussure, Davy, and Braconnot, gives fertility to the soil. The social plants, which almost exclusively predominate in the steppes, are monocotyledons; and it is known how much grasses impoverish the soil into which their fibrous roots penetrate. This action of the killingias, paspalums, and cenchri, which form the turf, is everywhere the same; but where the rock is ready to pierce the earth, this varies according as it rests

\* The Spanish words *banco* and *mesa* signify literally 'bench' and 'table.' In the Llanos of South America, little elevations rising slightly above the general elevation of the plain are called *bancos* and *mesas*, from their supposed resemblance to benches and tables.