

formation than the secondary rocks. We must not be surprised that the doubts which arise in the mind of the geologist when endeavouring to decide on the relative age of the limestone of the high mountains in the Pyrenees, the Apennines (south of the lake of Perugia), and in the Swiss Alps, should extend to the limestone strata of the high mountains of New Andalusia, and everywhere in America where the presence of red sandstone is not distinctly recognized.

IX. SANDSTONE OF THE BERGANTIN.—Between Nueva Barcelona and the Cerro del Bergantin a quartzose sandstone covers the Jura limestone of Cumanacoa. Is it an arenaceous rock analogous to green sandstone, or does it belong to the sandstone of Cocollar? In the latter case, its presence seems to prove still more clearly that the limestones of Cumanaco and Caripe are only two parts of the same system, alternating with sandstone, sometimes quartzose, sometimes slaty.

X. GYPSUM OF THE LLANOS OF VENEZUELA.—Deposits of lamellar gypsum, containing numerous strata of marl, are found in patches on the steppes of Caracas and Barcelona; for instance, in the table-land of San Diego, between Ortiz and the Mesa de Paja; and near the mission of Cachipo. They appeared to me to cover the Jura limestone of Tisnao, which is analagous to that of Caripe, where we find it mixed with masses of fibrous gypsum. I have not given the name *formation* either to the sandstone of the Orinoco, of Cocollar, of Bergantin, or to the gypsum of the Llanos, because nothing as yet proves the independence of those arenaceous and gypsous soils. I think it will one day be ascertained that the gypsum of the Llanos covers not only the Jura limestone of the Llanos, but that it is sometimes enclosed in it like the gypsum of the Golfo Triste on the east of the Alpine limestone of Cumanacoa. The great masses of sulphur found in the layers, almost entirely clayey, of the steppes (at Guayuta, valley of San Bonifacio, Buen Pastor, confluence of the Rio Pao with the Orinoco), may possibly belong to the marl of the gypsum of Ortiz. These clayey beds are more worthy of attention since the interesting observations of Von Buch, and several other celebrated geologists, respecting the cavernosity of gypsum, the irre-