

and to euphotides, analogous to those I found in the mountains of Guanabacoa.

The central and western parts of the island contain two formations of compact limestone; one of clayey sandstone, and another of gypsum. The former has, in its aspect and composition, some resemblance to the Jura formation. It is white, or of a clear ochre-yellow, with a dull fracture, sometimes conchoidal, sometimes smooth; divided into thin layers, furnishing some balls of pyromac silex, often hollow, (at Rio Canimar, two leagues east of Matanzas), and petrifactions of pecten, cardites, terebratules, and madrepores.* I found no oolitic beds, but porous beds almost bulbous, between the Potrero del Conde de Mopox, and the port of Batabano, resembling the spongy beds of Jura limestone in Franconia, near Dondorf, Pegnitz, and Tumbach. Yellowish cavernous strata, with cavities from three to four inches in diameter, alternate with strata altogether compact,† and poorer in petrifications. The chain of hills that borders the plain of Guines on the north, and is linked with the Lomas de Camua, and the Tetas de Managua, belongs to the latter variety, which is reddish white, and almost of lithographic nature, like the Jura limestone of Pappenheim. The compact and cavernous beds contain nests of brown ochreous iron; possibly the red earth (tierra colorada) so much sought for by the coffee planters (haciendados) owes its origin to the decomposition of some superficial beds of oxidated iron, mixed with silex and clay, or to a reddish sandstone‡ superposed on limestone. The whole of this formation, which I shall designate by the name of the limestone of Guines, to distinguish it from another much more recent, forms, near Trinidad, in the Lomas of St. Juan, steep declivities, resembling the mountains of limestone of Caripe, in the vicinity of Cumana. They also contain great caverns, near Matanzas and Jaruco, where I have not heard that any fossil bones have been found. The frequency of

* I saw neither gryphites, nor ammonites of Jura limestone, nor the nummulites and cerites of coarse limestone.

† The western part of the island has no deep ravines; and we recognize this alternation in travelling from the Havannah to Batabano, the deepest beds (inclined from 30° to 40° N.E.) appear as we advance.

‡ Sandstone and ferruginous sand; iron-sand?