as subordinate to the conglomerate (evidently of tertiary formation) of the Barigon and of the mountain of the castle of Cumana, because a little to the north of that castle I had found shelves of hardened clay containing lamellar gypsum inclosed in the tertiary strata. I believed that the muriatiferous clay might alternate with the calcareous conglomerate of Barigon; and near the fishermen's huts situated opposite Macanao, conglomerate rocks appeared to me to pierce through the strata of clay. During a second excursion to Maniquarez and the aluminiferous slates of Chaparuparu, the connexion between tertiary strata and bituminous clay seemed to me somewhat problematical. I examined more particularly the Peñas Negras near the Cerro de la Vela, E.S.E. of the ruined castle of Araya. The limestone of the Peñas is compact, bluish grey, and almost destitute of petrifactions. It appeared to me to be much more ancient than the tertiary conglomerate of Barigon, and I saw it covering, in concordant position, a slaty clay, somewhat analogous to muriatiferous clay. I was greatly interested in comparing this latter formation with the strata of carburetted marl contained in the Alpine limestone of Cumanacoa. According to the opinions now most generally received, the rock of the Peñas Negras may be considered as representing muschelkalk (limestone of Göttingen); and the saliferous and bituminous clay of Araya, as representing variegated sandstone; but these problems can only be solved when the mines of those countries are worked. Those geologists who are of opinion that the gem-salt of Italy penetrates into a stratum above the Jura limestone, and even the chalk, may be led to mistake the limestone of the Peñas Negras for one of the strata of compact limestone without grains of quartz and petrifactions, which are frequently found amidst the tertiary conglomerate of Barigon and of the Castillo de Cumana; the saliferous clay of Araya would appear to them analogous to the plastic clay of Paris,* or to the clayey shelves (dief et tourtia) of secondary sandstone with lignites, containing salt-springs, in Belgium and Westphalia. However difficult it may be to distinguish separately the strata of marl and clay belonging to variegated sandstone, muschel-

* Tertiary sandstone with lignites, or molassus of Argovia.