

like the rocks of the Orinoco, a glossy surface, of a blackish-grey, or almost leaden colour, and of which some of the fragments seem coated with tar. Recently, in the unfortunate expedition of Captain Tuckey, the English naturalists were struck with the same appearance in the *yellalas* (rapids and shoals) that obstruct the river Congo or Zaire. Dr. Kœnig has placed in the British Museum, beside the syenites of the Congo, the granites of Atures, taken from a series of rocks which were presented by M. Bonpland and myself to the illustrious president of the Royal Society of London. "These fragments," says Mr. Kœnig, "alike resemble meteoric stones; in both rocks, those of the Orinoco and of Africa, the black crust is composed, according to the analysis of Mr. Children, of the oxide of iron and manganese." Some experiments made at Mexico, conjointly with Señor del Rio, led me to think that the rocks of Atures, which blacken the paper in which they are wrapped,\* contain, besides oxide of manganese, carbon, and supercarburetted iron. At the Orinoco, granitic masses of forty or fifty feet thick are uniformly coated with these oxides; and, however thin these crusts may appear, they must nevertheless contain pretty considerable quantities of iron and manganese, since they occupy a space of above a league square.

It must be observed that all these phenomena of coloration have hitherto appeared in the torrid zone only, in rivers that have periodical overflowings, of which the habitual temperature is from twenty-four to twenty-eight centesimal degrees, and which flow, not over gritstone or calcareous rocks, but over granite, gneiss, and hornblende rocks. Quartz and feldspar scarcely contain five or six thousandths of oxide of iron and of manganese; but in mica and hornblende these oxides, and particularly that of iron, amount, according to Klaproth and Herrmann, to fifteen or twenty parts in a hundred. The hornblende contains also some carbon, like the Lydian stone and *kieselschiefer*. Now, if these black crusts were formed by a slow decomposition of

\* I remarked the same phenomenon from spongy grains of platina one or two lines in length, collected at the stream-works of Taddo, in the province of Choco. Having been wrapped up in white paper during a journey of several months, they left a black stain, like that of plumbago or supercarburetted iron.