

the preliminary researches. At the present time it is not precious metals solely which should fix the attention of new mining companies; the multiplication of steam-engines renders it indispensable, wherever wood is not abundant or easy of transport, to seek at the same time to discover coal and lignites. In this point of view, the precise knowledge of the red sandstone, coal-sandstone, quadersandstein, and molassus (tertiary formation of lignites), often covered with basalt and dolerite, is of great practical importance. It is difficult for a European miner, recently arrived, to judge of a country presenting so novel an aspect, and when the same formations cover an immense extent. I hope that the present work, as well as my Political Essay on New Spain, and my work on the Position of Rocks in the Two Hemispheres, will contribute to diminish those obstacles. They may be said to contain the earliest geologic information respecting places whose subterraneous wealth attracts the attention of commercial nations; and they will assist in the classification of the more precise notions which later researches may add to my labours.

The republic of Colombia, in its present limits, furnishes a vast field for the enterprising spirit of the miner. Gold, platinum, silver, mercury, copper, gem-salt, sulphur, and alum, may become objects of important workings. The production of gold alone amounted, before the outbreak of the political dissensions, on the average, to 4700 kilogrammes (20,500 marks of Castile) per annum. This is nearly half the quantity furnished by all Spanish America, a quantity which has an influence the more powerful on the variable proportions between the value of gold and silver, as the extraction of the former metal has diminished at Brazil, for forty years past, with surprising rapidity. The quint (a tax which the government raises on gold-washings), and which in the Capitania of Minas Geraes, was, in 1756, 1761, and 1767, from 118, 102, and 85 arobas of gold (of $14\frac{3}{5}$ kilogrammes), has fallen, during 1800, 1813, and 1818, to 30, 20, and 9 arobas; an arob of gold having, at Rio Janeiro, the value of 15,000 cruzados. According to these estimates, the produce of gold in Brazil, making deductions for fraudulent exportation, was, in the middle of the eighteenth century, the years of the greatest prosperity of the gold-washings, 6600