

Biliner Stein, in Bohemia, which contains fragments of gneiss embedded in its mass.

Does there exist in South America another group of rocks, which may be preferably designated by the name of volcanic rocks, and which are as distinct from the chain of the Andes, and advance as far towards the east, as the group that bounds the steppes of Calabozo? Of this I doubt, at least in that part of the continent situated north of the Amazon. I have often directed attention to the absence of pyroxenic porphyry, trachyte, basalt, and lavas, (I range these formations according to their relative age,) in the whole of America eastward of the Cordilleras. The existence even of trachyte has not yet been verified in the Sierra Nevada de Merida, which links the Andes the littoral chain of Venezuela. It would seem as if volcanic fire, after the formation of primitive rocks, could not pierce into eastern America. Possibly the scarcity of argentiferous veins observed in those countries may be owing to the absence of more recent volcanic phenomena. M. Eschwege saw at Brazil some layers (veins?) of diorite, but neither trachyte, basalt, dolerite, nor amygdaloid; and he was therefore much surprised to see, in the vicinity of Rio Janeiro, an insulated mass of phonolite, exactly similar to that of Bohemia, piercing through gneiss. I am inclined to believe that America, on the east of the Andes, would have burning volcanos, if, near the shore of Venezuela, Guiana, and Brazil, the series of primitive rocks were broken by trachytes, for these, by their fendillation and open crevices, seem to establish that permanent communication between the surface of the soil and the interior of the globe, which is the indispensable condition of the existence of a volcano. If we direct our course from the coast of Paria, by the gneiss-granite of the Silla of Caracas, the red sandstone of Barquisimeto and Tocuyo, the slaty mountains of the Sierra Nevada de Merida, and the eastern Cordillera of Cundinamarca, to Popayan and Pasto, taking the direction of west-south-west, we find in the vicinity of those towns the first volcanic vents of the Andes still burning, those which are the most northerly of all South America; and it may be remarked that those craters are found where the Cordilleras begin to present