found in rocks, which have some claim to be considered as mica slate, and in the schistose group in the western part of the island of Elba, near the promontory of Calamita, and the Fichtelgebirge in Baireuth, between Lomitz and Markleiten.*

Jasper, which,† as I have already remarked, is a production formed by the volcanic action of augitic porphyry, could only be obtained in small quantities by the ancients, while another material, very generally and efficiently used by them in the arts, was granular or saccharoidal marble, which is likewise to be regarded solely as a sedimentary stratum altered by terrestrial heat and by proximity with erupted rocks. This opinion is corroborated by the accurate observations on the phenomena of contact, by the remarkable experiments on fusion

distinct cause, but not losing their stratification, they somewhat resemble in their physical structure a brand of half-consumed wood, in which we can follow the traces of the ligneous fibers beyond the spots which continue to present the natural characters of wood." (See, also, the *Annales des Sciences Naturelles*, t. xiv., p. 118–122, and von Dechen, *Geognosie*, s. 553.) Among the most striking proofs of the transformation of rocks by Plutonic action, we must place the belemnites in the schists of Nuffenen (in the Alpine valley of Eginen and in the Griesglaciers), and the belemnites found by M. Charpentier in the so-called primitive limestone on the western descent of the Col de la Seigne, between the Enclove de Monjovet and the *chdlet* of La Lanchette, and which he showed to me at Bex in the autumn of 1822 (*Annales de Chimie*, t. xxiii., p. 262).

* Hoffmann, in Poggend., *Annalen*, bd. xvi., s. 552, "Strata of transition argillaceous schist in the Fichtelgebirge, which can be traced for a length of 16 miles, are transformed into gneiss only at the two extremities, where they come in contact with granite. We can there follow the gradual formation of the gneiss, and the development of the mica and of the feldspathic amygdaloids, in the interior of the argillaceous schist, which indeed contains in itself almost all the elements of these substances."

† Among the works of art which have come down to us from the ancient Greeks and Romans, we observe that none of any size—as columns or large vases—are formed from jasper; and even at the present day, this substance, in large masses, is only obtained from the Ural Mountains. The material worked as jasper from the Rhubarb Mountain (Raveniaga Sopka), in Altai, is a beautiful ribboned porphyry. The word *jasper* is derived from the Semitic languages; and from the confused descriptions of Theophrastus (*De Lapidibus*, 23 and 27) and Pliny (xxxvii., 8 and 9), who rank jasper among the "opaque gems," the name appears to have been given to fragments of *jaspachat*, and to a substance which the ancients termed *jasponyx*, which we now know as *opal-jasper*. Pliny considers a piece of jasper eleven inches in length so rare as to require his mentioning that he had actually seen such a specimen: "Magnitudinem jaspidis undecim unciarum vidimus, formatamque inde effigiem Neronis thoracatam." According to Theophrastus, the stone which he calls emerald, and from which large obelisks were cut, must have been an imperfect jasper.