

thrown out in a softened state, and had afterwards been subject to a rotary motion. They contain a quantity of vitreous feldspar, of a snow-white colour, and the most brilliant pearly lustre. These obsidians are, nevertheless, but little transparent on the edges; they are almost opaque, of a brownish black, and of an imperfect conchoidal fracture. They pass into pitch-stone; and we may consider them as porphyries with a basis of obsidian. The second variety is found in fragments much less considerable. It is in general of a greenish black, sometimes of murky gray, very seldom of a perfect black, like the obsidian of Hecla and Mexico. Its fracture is perfectly conchoidal, and it is extremely transparent on the edges. I have found in it neither amphibole nor pyroxene, but some small white points, which seem to be feldspar. None of the obsidians of the Peak appear in those gray masses of pearl or lavender-blue, striped, and in separate wedge-formed pieces, like the obsidian of Quito, Mexico, and Lipari, and which resemble the fibrous plates of the crystalites of our glass-houses, on which Sir James Hall, Dr. Thompson, and M. de Bellevue, have published some curious observations.*

The third variety of obsidian of the Peak is the most remarkable of the whole, from its connexion with pumice-stone. It is, like that above described, of a greenish black, sometimes of a murky gray, but its very thin plates alternate with layers of pumice-stone. Dr. Thomson's fine collection at Naples contained similar examples of lithoid lava of Vesuvius, divided into very distinct plates, only a line thick. The fibres of the pumice-stone of the Peak are very seldom parallel to each other, and perpendicular to the strata of obsidian; they are most commonly irregular, asbestoidal, like fibrous glass-gall; and instead of being disseminated in the obsidian, like crystalites, they are found simply adhering to one of the external surfaces of this substance. During my stay at Madrid, M. Hergen showed me several specimens in the mineralogical collection of Don Jose Clavijo; and for

* The name crystalites has been given to the crystalized thin plates observed in glass cooling slowly. The term *glastenized glass* is employed by Dr. Thompson and others to indicate glass which by slow cooling is wholly unvitified, and has assumed the appearance of a fossil substance, or real *glass-stone*.