ARTICLE V.

On the Crystals developed in Vermiculite by Heat. By Andres Del Rio, Professor of Mineralogy in the Mexican School of Mines. Read before the American Philosophical Society November 1st, 1833.

A PUPIL of the celebrated Werner, I have always been more of a Neptunian than a Plutonist, notwithstanding the many crystallizations produced in the dry way. A new instance which has come under my observation in the crystals of vermiculite, has contributed materially to change my opinions.

Dr Meigs first showed me the numerous worm-like filaments which shoot out from this mineral when held in the flame of a candle: it is this property which gives to the mineral its name of vermiculite. Under the blow-pipe, and when exposed on a small capsule to the heat of a fire, the whole mass started up into numerous oblique rhombic prisms, nearly an inch long and more than a line in thickness, crooked and wormlike, like the filaments just referred to. These prisms are composed of very thin plates of the colour and lustre of silver, placed parallel to each other, and oblique to the axes of the prisms. I also observed some twin crystals among these groups.

These crystals were digested in sulphuric acid, which separated the plates from each other, probably by dissolving out portions of the mineral which were between the plates; these latter remained unattacked by the acid. A partial examination of the solution, made at

my request by professor Bache, yielded much alumina, some lime, lithia and oxide of iron, but neither magnesia nor potash. It is possible that the vermiculite, which bears the appearance of a decomposed mineral, has lost part of its potash and silex, like the porcelain earth; and that the remaining part combines under the influence of heat in proper proportion to form the plates, while a portion containing no potash remains interposed between them.

These crystals then are probably a potash and lithia mica, of which the crystalline form indicates two axes of refraction, and the constituents of which, being contained in the vermiculite, are combined and crystallize suddenly by the action of heat; the reverse operation of crystallizing by cooling.

The formation of mica in the minerals of Mount Vesuvius may be explained on similar principles, though in that case we have a magnesian mica, with a single axis of refraction.