ART. XXXII.—*On the Presence of Phosphoric Acid in Igneous Rocks*; by JAMES SCHIEL.

DESCENDING from the Sierra Nevada into the plains of the Sacramento river by the route which leads along Black Butte, we meet west of the Butte with a phosphoritic trachyte crumbling into pieces and covering the surface for many miles. As there is hardly a trace of organic substance to be discovered in the soil from which a luxuriant vegetation is springing, it was to be expected that the rock contained phosphoric acid.* This analysis showed to be the case. The phosphoric acid is contained in the precipitate obtained by ammonia after a pulverized portion of the rock has been disintegrated by fluohydric acid, heated and dissolved in chlorhydric acid. The washed precipitate is dissolved in a small quantity of hot chlorhydric acid, much tartaric acid and some sulphate of magnesia added, and then the phosphoric acid precipitated with an excess of ammonia; the crystals of the phosphate are forming immediately. The amount of phosphoric acid contained in the rock was thus found to be 0.26 per cent corresponding to 0.78 per cent of phosphate of lime.

* Fownes (*Prize Essay*, 1845) demonstrated the general presence of phosphoric acid in crystalline rocks.—EDS.