On Tripuhyite, a new Antimonate of Iron, from Tripuhy, Brazil.

By Dr. E. Hussak, of the Geological Survey of S. Paulo; and

G. T. Prior, M.A., F.G.S., Assistant in the Mineral Department of the British Museum.

[Read June 17th, 1897.]

THIS new antimonate was found in the cinnabar-bearing gravel of Tripuhy, Minas Geraes, Brazil. The minerals associated with it in the gravel, including the two new titano-antimonates lewisite and derbylite, have already been described in this Magazine (Vol. XI. No. 50, p. 80, and No. 52, p. 176). The original source of the lewisite and derbylite has been proved to be the muscovite-schists accompanying itabirite in the neighbourhood of Tripuhy. From these schists, doubtless, is also derived the tripuhyite, although as yet this new mineral has only been found in fragments loose in the gravel, and not intergrown with fragments of the muscovite-schists as is often the case with both lewisite and derbylite.

Physical Characters.

The mineral does not occur in the gravel in crystals, but only in microcrystalline aggregates of a dull greenish-yellow colour. Examined in thin sections under the microscope, these are seen to consist of translucent, highly refractive and strongly doubly-refracting grains. Observation in convergent light, with the help of a Czapski eye-piece, showed that the mineral was biaxial, but the individual grains were too small to allow of more exact determinations. Under a $\frac{1}{12}$th immersion objective, a lightly crushed fragment was seen to consist almost wholly of crystalline doubly-refracting, non-pleochroic, material of a bright canary-yellow colour, which appeared to be fairly homogeneous, as the only impurity observed consisted of a few minute flakes of a colourless doubly-refracting mineral, most probably muscovite. The streak is canary-yellow.

The specific gravity (weight of 1 cc.) was 5·82 at 19° C., as determined on 0·3035 gram.

Chemical Characters (G. T. P.).

The mineral gave off no water when heated in the closed tube. In the Bunsen flame it was infusible, but blackened and gave off fumes colouring the flame pale greyish blue (Sb), and left finally a residue consisting mainly of red ferric oxide. It was insoluble in hydrochloric and nitric acids. Qualitative examination showed the presence of antimony and iron, with only traces of titanium and calcium.

For the quantitative analysis only 0·2475 gram was available. The mineral was decomposed by heating in hydrogen, and the analysis conducted as in the case of lewisite and derbylite (*loc. cit.*).

The numbers obtained were as follows :—

	Molecular ratios.
Sb_2O_5 = 66·68	·208
FeO = 27·70	·385
CaO = 0·82	·014
SiO_2 = 1·35	·023
Al_2O_3 = 1·40	·014
TiO_2 = 0·86	·010
Undet. (Alkalies ?) = (1·19)	
100·00	

The amount of material available for chemical investigation was not sufficient to allow of experiments to determine the state of oxidation of the iron. If the iron be considered, as above, to be in the ferrous state, the numbers obtained in the analysis agree approximately with the formula $2FeO.Sb_2O_5$.