Lepageite $Mn^{2+}_3(Fe^{3+}_7Fe^{2+}_4)O_3[Sb^{3+}_5As^{3+}_8O_{34}]$

Crystal Data: Triclinic. *Point Group*: $\bar{1}$. As crystals to 30 μm. *Twinning*: Non-merohedral twin-component (180° rotation about *c**) indicated by structure analysis, twin law [-0.998 -0.001 0.005/0.000 -1.000 -0.002/0.729 -0.025 0.998].

Physical Properties: *Cleavage*: None. *Fracture*: n.d. *Tenacity*: n.d. Hardness = n.d. D(meas.) = n.d. D(calc.) = 5.192

Optical Properties: Opaque. *Color*: Brownish black. *Streak*: n.d. *Luster*: Metallic. *Optical Class*: n.d.

Cell Data: Space Group: $P\bar{1}$. a = 10.607(3) b = 10.442(3) c = 15.260(5) α = 89.58(1)° β = 104.479(8)° γ = 89.706(9)° Z = n.d.

X-ray Powder Pattern: Calculated pattern.
2.831 (100), 2.854 (92), 2.846 (88), 2.898 (85), 2.487 (34), 2.474 (34), 2.463 (34)

Chemistry:

	(1)	(2)
As_2O_3	31.62	30.68
Sb_2O_3	26.23	28.26
Fe_2O_3	21.17	21.67
FeO	10.74	11.14
MnO	8.44	8.25
MgO	0.26	.
Total	98.46	100.00

(1) Szklary pegmatite, Lower Silesia, southwest Poland; average electron microprobe analysis, overall 2^+ cation and Fe^{3+} content fixed by stoichiometry; corresponds to $(Fe^{3+}_{6.90}Fe^{2+}_{3.89}Mn^{2+}_{3.10}Mg_{0.16})_{\Sigma=14.05}(As^{3+}_{8.32}Sb^{3+}_{4.68})_{\Sigma=13.00}O_{37}$. (2) $Mn^{2+}_3(Fe^{3+}_7Fe^{2+}_4)O_3[Sb^{3+}_5As^{3+}_8O_{34}]$.

Occurrence: A primary accessory mineral in a lens of granitic LCT (Li-Cs-Ta) pegmatite formed during injection of an evolved LCT-type melt related to anatectic processes within a metasedimentary-metavolcanic complex into serpentinite.

Association: Mn-Be-Na-Cs-bearing cordierite, schafarzikite, harmotome, Ba-bearing microcline, barite, hematite.

Distribution: From the Szklary pegmatite, ~6 km north of Ząbkowice Śląskie, Lower Silesia, southwest Poland.

Name: Honors Yvon Le Page (b. 1943) a crystallographer who developed the program MISSYM that has played a major role in the solution of complex mineral structures (including lepageite), solved the structures of many minerals, and was involved in the description of several new minerals.

Type Material: Mineralogical Museum, University of Wrocław, Poland (MMWr IV7926).

References: (1) Pieczka, A., M.A. Cooper, and F.C. Hawthorne (2019) Lepageite, $Mn^{2+}_3(Fe^{3+}_7Fe^{2+}_4)O_3[Sb^{3+}_5As^{3+}_8O_{34}]$, a new arsenite-antimonite mineral from the Szklary pegmatite, Lower Silesia, Poland. Amer. Mineral., 104(7), 1043-1050.