Launayite $Pb_{22}Sb_{26}S_{61}$

Crystal Data: Monoclinic. *Point Group:* 2, m, or $2/m$. Material dug from polished surfaces tends to be somewhat fibrous by elongation ‖ [010], resulting from the two perfect cleavages.

Physical Properties: *Cleavage:* Perfect on {100} and {001}. Hardness = n.d. VHN = 179 D(meas.) = n.d. D(calc.) = 5.83

Optical Properties: Opaque. *Color:* Lead-gray. *Streak:* Black. *Luster:* Metallic. *Pleochroism:* Fairly strong, from white to gray. *Anisotropism:* Strong.
R_1–R_2: (470) 42.6–38.6, (546) 43.8–36.9, (589) 42.7–36.2, (650) 40.9–35.5

Cell Data: *Space Group:* $C2$, Cm, or $C2/m$ (pseudocell). $a = 42.6$ $b = 8.04$ $c = 32.3$ $\beta = 102°5(45)'$ Z = 2

X-ray Powder Pattern: Madoc, Canada.
3.45 (100), 4.17 (80), 2.92 (80), 2.010 (70), 3.40 (60), 2.836 (50), 3.97 (30)

Chemistry:

	(1)	(2)	(3)
Pb	48.5	44.95	47.09
Cu		1.35	
Sb	29.5	31.35	32.70
As	1.5	1.75	
S	21.25	20.85	20.21
Total	100.75	100.25	100.00

(1) Madoc, Canada; by electron microprobe, average of two analyses; corresponds to $Pb_{21.55}(Sb_{22.30}As_{1.84})_{\Sigma=24.14}S_{61.00}$. (2) Do.; by electron microprobe, average of two analyses; corresponds to $Pb_{20.35}Cu_{1.99}(Sb_{24.16}As_{2.19})_{\Sigma=26.35}S_{61.00}$. (3) $Pb_{22}Sb_{26}S_{61}$.

Occurrence: Of hydrothermal origin, in marbles.

Association: Veenite, boulangerite.

Distribution: From Madoc, Ontario, Canada [TL].

Name: For Professor Louis Alphonse Auguste de Launay (1860–1938), French student of mineral deposits, National School of Mines, Paris, France.

Type Material: Canadian Geological Survey, Ottawa, 12176; Canadian Museum of Nature, Ottawa, Canada.

References: (1) Jambor, J.L. (1967) New lead sulfantimonides from Madoc, Ontario. Part 2 – mineral descriptions. Can. Mineral., 9, 191–194. (2) (1968) Amer. Mineral., 53, 1423 (abs. ref. 1). (3) Jambor, J.L., J.H.G. Laflamme, and D.A. Walker (1982) A re-examination of the Madoc sulfosalts. Mineral. Record, 13, 93–100, esp. 95.