Laphamite $As_2(Se,S)_3$

Crystal Data: Monoclinic. *Point Group:* $2/m$. As prismatic crystals, to less than 5 mm, elongated along [100] and tabular (010). Crystals are commonly resorbed to give incomplete individuals.

Physical Properties: *Cleavage:* Perfect on {010}. *Tenacity:* Flexible but not elastic, extremely malleable. Hardness = Soft. VHN = n.d. D(meas.) = 4.5(1) D(calc.) = 4.60

Optical Properties: Nearly opaque. *Color:* Dark red; gray-white in reflected light, strong fiery red internal reflections, golden yellow internal reflections occur along scratches. *Streak:* Reddish orange. *Luster:* Resinous. *Pleochroism:* Moderate, from white to gray. *Anisotropism:* Moderate, in tints of gray.

R_1–R_2: (400) 34.4–42.1, (420) 33.9–41.0, (440) 33.8–39.9, (460) 33.8–38.8, (480) 33.2–37.4, (500) 32.3–36.3, (520) 30.9–35.1, (540) 29.5–34.0, (560) 28.4–33.1, (580) 27.6–32.3, (600) 26.9–31.6, (620) 26.4–31.1, (640) 26.4–30.9, (660) 26.3–30.6, (680) 26.1–30.4, (700) 25.9–30.1

Cell Data: *Space Group:* $P2_1/n$ (synthetic As_2Se_3). $a = 12.0774(4)$ $b = 9.9037(6)$ $c = 4.2835(6)$ $\beta = 90.458(9)°$ Z = 4

X-ray Powder Pattern: Burnside, Pennsylvania, USA.
2.833 (100), 2.773 (80), 4.87 (70), 2.905 (60), 1.777(50), 1.709 (50), 3.72 (40)

Chemistry:

	(1)
As	47.0
Se	43.7
S	8.7
Total	99.4

(1) Burnside, Pennsylvania, USA; by electron microprobe, corresponding to $As_{2.00}(Se_{1.91}S_{0.93}As_{0.16})_{\Sigma=3.00}$.

Occurrence: As a secondary incrustation, probably by sublimation, on clinker adjacent to a surface vent on a burning pile of waste material from an anthracite coal mine.

Association: Arsenolite, orpiment.

Distribution: From Burnside, Northumberland Co., Pennsylvania, USA [TL].

Name: To honor Dr. Davis M. Lapham (1931–1974), former Chief Mineralogist of the Pennsylvania Geological Survey.

Type Material: The Natural History Museum, London, England, 1984,843 and E.1036; National Museum of Natural History, Washington, D.C., USA, 163039.

References: (1) Dunn, P.J., D.R. Peacor, A.J. Criddle, and R.B. Finkelman (1986) Laphamite, an arsenic selenide analogue of orpiment, from burning anthracite deposits in Pennsylvania. Mineral. Mag., 50, 279–282. (2) (1987) Amer. Mineral., 72, 1024–1025 (abs. ref. 1). (3) Stergiou, A.C. and P.J. Rentzeperis (1986) The crystal structue of arsenic selenide, As_2Se_3. Zeits. Krist., 173, 185–191.