

**Crystal Data:** Orthorhombic. *Point Group:*  $mm2$ . Crystals short prismatic to tabular, typically striated, as much as 11 cm across; commonly as subparallel aggregates. Also massive, granular to compact. *Twinning:* On {110}, commonly forming cross or cogwheel aggregates.

**Physical Properties:** *Cleavage:* {010}, imperfect; {100} and {001}, less perfect. *Fracture:* Subconchoidal to uneven. *Tenacity:* Brittle. Hardness = 2.5–3 VHN = 176–205 (100 g load).  $D(\text{meas.}) = 5.83$   $D(\text{calc.}) = 5.84$

**Optical Properties:** Opaque. *Color:* Steel-gray to iron-black. *Streak:* Steel-gray to iron-black. *Luster:* Brilliant to dull. *Pleochroism:* Very weak. *Anisotropism:* Weak in air.  $R_1$ – $R_2$ : (400) 37.0–37.4, (420) 36.8–37.3, (440) 36.5–37.2, (460) 36.1–37.0, (480) 35.6–36.8, (500) 35.2–36.6, (520) 34.8–36.4, (540) 34.3–36.2, (560) 33.8–35.8, (580) 33.4–35.5, (600) 33.0–35.1, (620) 32.7–34.7, (640) 32.3–34.0, (660) 32.0–33.4, (680) 31.4–32.7, (700) 30.8–32.1

**Cell Data:** *Space Group:*  $Pnm2_1$ .  $a = 8.153(3)$   $b = 8.692(3)$   $c = 7.793(2)$   $Z = 4$

**X-ray Powder Pattern:** Neudorf, Germany.  
2.74 (100), 3.90 (80), 1.765 (60), 2.59 (50), 4.37 (40), 2.99 (40), 2.69 (40)

Chemistry:	(1)	(2)		(1)	(2)
Pb	42.34	42.40	Sb	24.44	24.91
Cu	12.80	13.01	S	19.58	19.68
Zn	0.04		rem.	0.37	
Fe	0.27		Total	99.84	100.00

(1) Herja (Kisbánya), Romania. (2) PbCuSbS<sub>3</sub>.

**Polymorphism & Series:** Forms a series with seligmannite.

**Occurrence:** In hydrothermal veins formed at medium temperatures.

**Association:** Galena, tetrahedrite, sphalerite, chalcopyrite, pyrite, stibnite, zinkenite, siderite, quartz, rhodochrosite, dolomite, barite.

**Distribution:** Numerous localities, even for fine crystals. In England, from Wheal Boys, St. Endellion [TL], and in exceptional crystals from the Herodsfoot mine, Lanreath, Cornwall. At the Mogul mine, Silvermines, Co. Tipperary, Ireland. From the Georg mine, near Horhausen, North Rhine-Westphalia, and at Clausthal, Neudorf, and Wolfsberg, Harz Mountains, Germany. From Příbram, Czech Republic. At Baia Sprie (Felsőbánya), Cavnic (Kapnikbánya), and Săcărîmb (Nagyág), Romania. In France, from Pontgibaud, Puy-de-Dôme; large crystals at St. Laurent Le Minier, Gard; and from Prunières [ck??Gard??also], Isère. In Bolivia, from Chorolque, Colquechaca, Pacuani, Machacamamarca, and Oruro; at Cerro Rico, and as fine crystals from the Víboras mine, Machacamamarca, Potosí. At the Quiruvilca mine, La Libertad, and from Pachapaque. Peru. At Park City, Summit Co., Utah, USA. In Mexico, in the Noche Buena mine, Mazapil, Zacatecas, and at Naica, Chihuahua. From Broken Hill, New South Wales, Australia. In the Chichibu mine, Saitama Prefecture, and the Nakaze mine, Hyogo Prefecture, Japan. At the Yaogangxian mine, Chenzhou, Hunan Province, China.

**Name:** In honor of Jacques Louis de Bournon (1751–1825), French crystallographer and mineralogist.

**References:** (1) Palache, C., H. Berman, and C. Frondel (1944) Dana's system of mineralogy, (7th edition), v. I, 406–410. (2) Edenharter, A., W. Nowacki, and Y. Takéuchi (1970) I. Verfeinerung der Kristallstruktur von Bournonit [(SbS<sub>3</sub>)<sub>2</sub>][Cu<sub>2</sub><sup>IV</sup>Pb<sup>VII</sup>Pb<sup>VIII</sup>] und von Seligmannit [(AsS<sub>3</sub>)<sub>2</sub>][Cu<sub>2</sub><sup>IV</sup>Pb<sup>VII</sup>Pb<sup>VIII</sup>]. Zeits. Krist., 131, 397–417 (in German with English abs.). (3) Berry, L.G. and R.M. Thompson (1962) X-ray powder data for the ore minerals. Geol. Soc. Amer. Mem. 85, 133. (4) Criddle, A.J. and C.J. Stanley, Eds. (1993) Quantitative data file for ore minerals, 3rd ed. Chapman & Hall, London, 57.

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