Polhemusite $(Zn, Hg)S$

Crystal Data: Tetragonal. *Point Group:* $4/m$ or $4/m\ 2/m\ 2/m$. As stubby prisms and dipyramids, to 25 μm; as microscopic grains. *Twinning:* Knee-shaped twins with {605} as composition plane; contact twins on {*hkl*} less common; twinning on {*h*0*l*} may also be present, developing trains of prisms and discontinuous lamellae.

Physical Properties: *Cleavage:* Rare. Hardness = n.d. VHN = 262 (25 g load). D(meas.) = n.d. D(calc.) = 4.23–5.63

Optical Properties: Nearly opaque; translucent in thin section. *Color:* Black; gray in polished section, with intense red internal reflections. *Luster:* Resinous to adamantine. *Pleochroism:* Very slightly brownish gray to slightly lavender-gray. *Anisotropism:* Moderate in air, strong in oil.
R_1–R_2: n.d.

Cell Data: *Space Group:* $P4/n$, $P4_2/n$, $P4/nbm$, $P4/nmm$, $P4_2/nnm$, or $P4_2/ncm$. $a = 8.71$ $c = 14.74$ $Z = 24 - 32(?)$

X-ray Powder Pattern: B and B deposit, Idaho, USA.
3.08 (vs), 1.888 (s), 3.16 (ms), 1.608 (ms), 3.60 (m), 1.222 (m), 1.086 (m)

Chemistry:

	(1)
Zn	49.1
Hg	25.8
Fe	0.5
S	26.7
Total	102.1

(1) B and B deposit, Idaho, USA; by electron microprobe, average analysis of 15 grains, corresponding to $(Zn_{0.87}Hg_{0.15}Fe_{0.01})_{\Sigma=1.03}S_{0.97}$.

Occurrence: As part of a replacement deposit of stibnite (B and B deposit, Idaho, USA).

Association: Stibnite, cinnabar, mercurian sphalerite, zincian metacinnabar (B and B deposit, Idaho, USA); realgar (Getchell mine, Nevada, USA).

Distribution: In the USA, from the B and B deposit, Big Creek district, Valley Co., Idaho [TL], and in the Getchell mine, Potosi district, Humboldt Co., Nevada.

Name: In honor of Clyde Polhemus Ross (1891–1965), American economic geologist.

Type Material: National Museum of Natural History, Washington, D.C., USA, 145549.

References: (1) Leonard, B.F., G.A. Desborough, and C.W. Mead (1978) Polhemusite, a new Hg–Zn sulfide from Idaho. Amer. Mineral., 63, 1153–1161.