Berlinite $Al(PO_4)$

Crystal Data: Hexagonal. *Point Group*: 32. Granular, to 6 mm, massive. *Twinning*: Subparallel twinning lamellae by rotation around [00*1].

Physical Properties: *Fracture*: Conchoidal. Hardness = ~6.5 D(meas.) = 2.64-2.66 D(calc.) = 2.618 May fluoresce dark red under UV.

Optical Properties: Transparent to translucent. *Color*: Colorless, pale gray, may be pale rose; colorless in transmitted light. *Luster*: Vitreous.
Optical Class: Uniaxial (+). $\omega = 1.524(1)$ $\varepsilon = 1.532(1)$

Cell Data: *Space Group*: $P3_121$. $a = 4.9458(10)$ $c = 10.9526(20)$ Z = 3

X-ray Powder Pattern: Synthetic.
3.369 (100), 4.28 (25), 1.835 (16), 2.471 (12), 2.306 (12), 1.393 (12), 1.389 (12)

Chemistry:

	(1)	(2)
P_2O_5	58.43	58.20
SiO_2	0.13	
Al_2O_3	41.88	41.80
Fe_2O_3	0.04	.
Total	100.48	100.00

(1) Mt. Perry, Australia; by electron microprobe, total Fe as Fe_2O_3. (2) $AlPO_4$.

Occurrence: A rare high-temperature hydrothermal or metasomatic mineral; also in a cave in heavily compacted phosphate-bearing clay sediments that underwent heating, probably by in situ combustion of guano.

Association: Augelite, attakolite, kyanite, pyrophyllite, scorzalite, lazulite, gatumbaite, burangaite, amblygonite, phosphosiderite, purpurite, apatite, muscovite, quartz, hematite (granite pegmatites); alunite, aragonite, collophane, crandallite, francoanellite, gypsum, huntite, hydromagnesite, leucophosphite, nesquehonite, niter, nitrocalcite (Paddy's River mine, Australia).

Distribution: In the Västanå mine, near Näsum, Skåne, and at Hålsjöberg, Värmland, Sweden. In Rwanda, in the Buranga and Rusororo pegmatites, Gatumba district. In Australia, on Mt. Perry, 75 km southwest of Bundaberg, Queensland, and at Paddy's River mine, Australian Capital Territory. From the Sapucaia pegmatite mine, about 50 km east-southeast of Governador Valadares, Minas Gerais, Brazil. From Cioclovina Cave, Sureanu Mountains, Romania.

Name: Honors Professor Nils Johan *Berlin* (1812-1891), pharmacologist, University of Lund, Lund, Sweden.

Type Material: Wroclaw University, Wroclaw, Poland, II-9574; Harvard University, Cambridge, Massachusetts, USA, 101252.

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