Crystal Data: Cubic. *Point Group*: $2/m\,\bar{3}$. Rare as euhedral crystals with combinations of {001}, {111}, and rarely {011}, to 2 mm; also as reticular skeletal growths, distorted aggregates and granular; {001} typically warped. *Twinning*: On {112} as sixlings; commonly complex and distorted.

Physical Properties: *Cleavage*: Distinct on {001} and {111}, in traces on {011}. *Tenacity*: Brittle. *Fracture*: Conchoidal to uneven. Hardness = 5.5-6 VHN = 642-740 (100 g load).
D(meas.) = 6.5 D(calc.) = [5.07-6.90]

Optical Properties: Opaque. *Color*: Tin-white to silver-gray, may tarnish gray or iridescent; in reflected light, yellowish white, but anisotropic zones may be somewhat reddish. *Streak*: Black. *Luster*: Bright metallic on fresh surfaces. *Anisotropism*: Weak to distinct in some zones.
R: (400) 52.0, (420) 52.5, (440) 53.3, (460) 53.8, (480) 54.5, (500) 55.0, (520) 55.3, (540) 55.4, (560) 55.3, (580) 55.1, (600) 54.7, (620) 54.3, (640) 53.9, (660) 53.4, (680) 52.8, (700) 52.5

Cell Data: *Space Group*: $Im\bar{3}$. a = 8.2653(6) Z = 8

X-ray Powder Pattern: Timiskaming mine, Cobalt, Ontario, Canada.
2.61 (100), 1.841 (90), 1.616 (90), 2.20 (80), 1.681 (70), 1.410 (70), 1.213 (70)

Chemistry:

	(1)	(2)	(3)
Ni	12.89	17.82	20.71
Co	5.95	2.88	
Cu			
Fe	3.06	0.25	
S		0.06	
As	78.10	78.64	79.29
Total	[100.00]	99.92	100.00

(1) Bullard Peak, New Mexico, USA; recalculated to 100.00% after deduction of SiO_2 4.56% and Ag 8.38%; then corresponds to $(Ni_{0.58}Co_{0.27}Fe_{0.15})_{\Sigma=1.00}As_{2.78}$. (2) Schneeberg, Germany; electron microprobe analysis, corresponds to $(Ni_{0.85}Co_{0.14}Fe_{0.01})_{\Sigma=1.01}(As_{2.99}S_{0.01})_{\Sigma=3.00}$. (3) $NiAs_3$.

Polymorphism & Series: Forms a series with skutterudite.

Occurrence: In hydrothermal veins deposited at medium temperature.

Association: Arsenopyrite, silver, bismuth, calcite, siderite, barite, quartz.

Distribution: In the USA, in the Black Hawk district, on Bullard Peak, 24 km southwest of Silver City, Grant Co., New Mexico, from the Rose and Alhambra mines. In Canada, at the O'Brien mine and elsewhere, Cobalt, Ontario. In Germany, at Bieber and Riechelsdorf, Hesse; St. Andreasberg, Harz Mountains; and Annaberg and Schneeberg, Saxony. From Horní Slavkov (Schlaggenwald) and Jáchymov (Joachimsthal), Czech Republic. At Dobšiná (Dobschau), Slovakia. From Saint-Marie-aux-Mines, Haut-Rhin, France. In the Khovuasinsk Ni-Co deposit, Tuva, Siberia, Russia.

Name: As the nickel member of the series; skutterudite from its locality at Skutterud, Norway.

References: (1) Palache, C., H. Berman, and C. Frondel (1944) Dana's system of mineralogy, (7^{th} edition), v. I, 342-346. (2) Berry, L.G. and R.M. Thompson (1962) X-ray powder data for the ore minerals. Geol. Soc. Amer. Mem. 85, 117-118. (3) Ramdohr, P. (1969) The ore minerals and their intergrowths, (3^{rd} edition), 867-873. (4) Criddle, A.J. and C.J. Stanley, Eds. (1993) Quantitative data file for ore minerals, (3^{rd} edition). Chapman & Hall, London, 393. (5) Schumer, B.N., M.B. Andrade, S.H. Evans, and R.T. Downs (2017) A new formula and crystal structure for nickelskutterudite, $(Ni,Co,Fe)As_3$, and occupancy of the icosahedral cation site in the skutterudite group. Amer. Mineral., 102, 205-209.