Mcnearite $NaCa_5(AsO_4)(AsO_3OH)_4 \cdot 4H_2O$

Crystal Data: Triclinic. *Point Group:* $\overline{1}$ or 1. As bundles of fibers, to 2 mm, in radial aggregates. *Twinning:* Lamellar ‖ elongation.

Physical Properties: *Cleavage:* Perfect ‖ elongation. *Tenacity:* Very brittle. Hardness = n.d. D(meas.) = 2.60 (low due to porosity of fibrous aggregates). D(calc.) = 2.85 Fluoresces violet under LW UV.

Optical Properties: Translucent to transparent. *Color:* White; colorless in transmitted light. *Luster:* Pearly.
Optical Class: Biaxial (+). *Orientation:* $Y \wedge c = 6°–22°$; positive elongation. *Dispersion:* Moderately strong. $\alpha = 1.559$ $\beta = 1.562$ $\gamma = [1.572]$ 2V(meas.) = 60°

Cell Data: *Space Group:* $P\overline{1}$ or $P1$. $a = 13.50$ $b = 14.10$ $c = 6.95$ $\alpha = 90°$ $\beta = 92°$ $\gamma = 119°$ Z = 2

X-ray Powder Pattern: Sainte-Marie-aux-Mines, France.
12.33 (100), 3.92 (60), 3.122 (60), 6.94 (50), 2.748 (40), 4.40 (30), 3.400 (25)

Chemistry:

	(1)	(2)
As_2O_5	59.19	57.80
CaO	25.71	28.21
Na_2O	3.40	3.12
H_2O	11.32	10.87
Total	[99.62]	100.00

(1) Sainte-Marie-aux-Mines, France; by AA, original total given as 100.62%, H_2O by TGA, average of two analyses; corresponding to $H_{3.91}Na_{1.09}Ca_{4.99}(AsO_4)_{5.00} \cdot 4.32H_2O$.
(2) $NaCa_5(AsO_4)(HAsO_3OH)_4 \cdot 4H_2O$.

Occurrence: A secondary mineral in the oxidized zone of an arsenic-bearing deposit.

Association: Picropharmacolite, pharmacolite, guérinite, haidingerite.

Distribution: From Sainte-Marie-aux-Mines, Haut-Rhin, France.

Name: Honors Elizabeth McNear, mineralogist and crystallographer, University of Geneva, Geneva, Switzerland.

Type Material: Natural History Museum, Geneva, Switzerland, 435/40.

References: (1) Sarp, H., J. Deferne, and B.W. Liebich (1981) La mcnearite, $NaCa_5H_4(AsO_4)_5 \cdot 4H_2O$, un nouvel arséniate hydraté de calcium et de sodium. Schweiz. Mineral. Petrog. Mitt., 61, 1–6 (in French with English abs.). (2) (1982) Amer. Mineral., 67, 856 (abs. ref. 1).