Rectorite $(Na, Ca)Al_4(Si, Al)_8O_{20}(OH)_4 \cdot 2H_2O$

Crystal Data: Monoclinic. *Point Group:* n.d. As aggregates of microscopic crystals, producing foliae or matted masses resembling the "mountain leather" variety of palygorskite.

Physical Properties: *Cleavage:* Perfect on {001}. *Tenacity:* Flexible but not elastic; plastic and greasy when hydrated. Hardness = < 1 D(meas.) = n.d. D(calc.) = [2.34]

Optical Properties: Semitransparent (?). *Color:* White. *Luster:* Pearly to greasy when massive.
Optical Class: [Biaxial.] α = n.d. β = n.d. γ = n.d. 2V(meas.) = n.d.

Cell Data: *Space Group:* n.d. $a = 5.13$ $b = 8.88$ $c = 23.85$ $\beta = 96.3°$ Z = [2]

X-ray Powder Pattern: Baluchistan Province, Pakistan, air dried sample; after heating to 600 °C, $d_{(001)}$ = 19.3 Å; after ethylene glycol treatment $d_{(001)}$ = 26.8 Å.
23.8 (100), 11.9 (65), 3.40 (16), 2.971 (16), 1.970 (12), 4.75 (10), 1.827 (4)

Chemistry:

	(1)
SiO_2	52.72
Al_2O_3	36.60
Fe_2O_3	0.25
MgO	0.51
CaO	0.45
Na_2O	2.83
K_2O	0.26
H_2O^+	7.76
Total	101.38

(1) Blue Mountain district, Arkansas, USA.

Polymorphism & Series: A 1:1 regular interstratification of a dioctahedral mica and a dioctahedral smectite.

Occurrence: In some low-temperature hydrothermal argillic alteration zones, along veins and pervasively replacing potassic feldspar. In altered bentonites; may develop from muscovite during diagenesis of shales.

Association: Quartz, cookeite, ankerite, apatite, pyrite, sphalerite, galena, rutile (Jeffrey quarry, Arkansas, USA).

Distribution: In the USA, from the Blue Mountain district, Garland Co., and in the Jeffrey quarry, North Little Rock, Pulaski Co., Arkansas; and in Buckeye Gulch, eight km from Leadville, Lake Co., Colorado. In France, from Allevard, Isère, and near Sibert, Rhône. From the Fort Sandeman district, Baluchistan Province, Pakistan. Reported from numerous other localities but the material is not as well characterized as from the foregoing.

Name: For E.W. Rector (1849–1917), lawyer of Hot Springs, Arkansas, USA.

Type Material: National Museum of Natural History, Washington, D.C., USA, 80607.

References: (1) Dana, E.S. (1892) Dana's system of mineralogy, (6th edition), 687. (2) Korolev, Y.M. (1961) The structure of allevardite. Kristallografiya (Sov. Phys. Crystal.), 5, 848–852 (in Russian). (3) Brown, G. and A.H. Weir (1963) The identity of rectorite and allevardite. Proc. Inter. Clay Conf., 27–36. (4) (1964) Amer. Mineral., 49, 446 (abs. ref. 3). (5) Kodama, H. (1966) The nature of the component layers of rectorite. Amer. Mineral., 51, 1035–1055. (6) Korolev, Y.M. (1971) Some features of rectorite from Pakistan. Kristallografiya (Sov. Phys. Crystal.), 16, 250–253 (in Russian). (7) Bailey, S.W. (1982) Nomenclature for regular interstratifications. Amer. Mineral., 67, 394–398.