Uranospathite $HAl(UO_2)_4(PO_4)_4 \cdot 40H_2O$

Crystal Data: Tetragonal. *Point Group:* $4/m$ (probable). Rectangular platy crystals, to 1 mm, flattened on {001}, showing {100}, {010}, in fanlike groups. *Twinning:* May be twinned on {110}, forming cruciform groupings.

Physical Properties: *Cleavage:* On {001}, perfect; on {100}, {010}, good. Hardness = 2–2.5 D(meas.) = 2.50 D(calc.) = 2.49 Radioactive. Yellowish green fluorescence under UV. Readily dehydrates to sabugalite.

Optical Properties: Translucent. *Color:* Yellow to pale green.
Optical Class: Biaxial (–), anomalous. *Pleochroism:* X = pale yellow; $Y = Z$ = deep yellow.
Orientation: $X = c$; $Y = a$; $Z = b$. $\alpha = [\sim 1.49]$ $\beta = 1.510$ $\gamma = 1.521$ 2V(meas.) = 69°

Cell Data: *Space Group:* $P4_2/n$ (probable). $a = 7.00$ $c = 30.02$ Z = 2

X-ray Powder Pattern: Basset mines, Cornwall, England.
15.22 (10), 7.60 (10), 4.93 (10), 3.50 (8), 4.48 (6b), 2.21 (6), 4.08 (4)

Chemistry: (1) Basset mines, Cornwall, England; Al confirmed by electron microprobe, P and U confirmed by microchemical and spectrochemical techniques, formula established by analogy to the torbernite group.

Occurrence: A rare secondary mineral in the oxidized zone of uranium-bearing hydrothermal mineral deposits.

Association: Bassetite.

Distribution: From the Basset group of mines, Illogan, Cornwall, England. In France, at the La Crouzille and Sagnes mines, Haute-Vienne. From the Pedro Alvaro vanadium mine, Salamanca Province, and at El Padregal, Badajoz Province, Spain. In the Weisser Hirsch mine, Neustädtel-Schneeberg, Saxony, and at Menzenschwand, Black Forest, Germany. On Radium Hill, Olary, South Australia.

Name: For its content of *uranium* and the Greek for *a broad blade*, an allusion to the bladed character of its crystals.

Type Material: [Museum of Practical Geology, Ludlam collection, L1941] now in The Natural History Museum, London, England.

References: (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 990. (2) Walenta, K. (1978) Uranospathite and arsenuranospathite. Mineral. Mag., 42, 117–128.