Crystal Data: Cubic. *Point Group:* $4/m\ \bar{3}\ 2/m$. As octahedra, to 2 cm; earthy, massive.

Physical Properties: Hardness = n.d. D(meas.) = n.d. D(calc.) = 7.195 (synthetic). Radioactive.

Optical Properties: Translucent to transparent. *Color:* Dark greenish amber-yellow, yellow to buff in ocherous aggregates.
Optical Class: Isotropic. $n = > 2$

Cell Data: *Space Group:* $Fm3m$. $a = 5.41$–5.42 $Z = 4$

X-ray Powder Pattern: Synthetic; may be confused with thorianite or uraninite.
3.124 (100), 1.913 (51), 1.632 (44), 2.706 (29), 1.241 (15), 0.9146 (13), 1.1044 (12)

Chemistry:

	(1)		(1)
Nb_2O_5	1.8	Y_2O_3	1.2
Ta_2O_5	0.6	La_2O_3	1.5
CeO_2	80.0	Yb_2O_3	1.1
ZrO_2	0.6	F	0.0
ThO_2	5.1	Total	

(1) Sudbury, Canada; partial analysis by semiquantitative emission spectroscopy.

Occurrence: Sparingly, in partially absorbed inclusions of wall-rock in a dikelike zone of carbonate rock cutting nepheline syenite (Sudbury, Canada); a secondary mineral weathered from phonolites and nepheline syenites (Minas Gerais, Brazil); in pegmatite (Kåbuland, Norway).

Association: Nepheline, tremolite, feldspar, apatite, magnetite, ilmenite, calcite (Sudbury, Canada); hydromica, kaolinite, "limonite" (Morro do Ferro, Brazil); fluocerite, bastnäsite, törnebohmite (Kåbuland, Norway); fluocerite, bastnäsite (Karonge, Burundi).

Distribution: From about 11 km northeast of Nemegos, Lackner Township, Sudbury district, Ontario, and in the Lake Zone deposit, Thor Lake, Northwest Territories, Canada. In Paramount Canyon, Taylor Creek district, Catron Co., New Mexico, and on North Sugarloaf Mountain, Bethlehem, Grafton Co., New Hampshire, USA. From Cañon Colorado, Sierra de Bermjillo, Durango, Mexico. On Morro do Ferro, Poços de Caldas plateau, Minas Gerais, Brazil. In Norway, large crystals from near Kåbuland, Iveland; at Tysfjorden, Nordland; and from Høydalen, Telemark. At the Bellerberg volcano, two km north of Mayen, Eifel district, Germany. From the Khoda-Achkan massif, Alai Range, Kyrgyzstan. In the Karonge rare-earth deposit, Burundi. At Mount Weld, Laverton, Western Australia.

Name: For CERium in its composition, and by analogy to *thorianite* and *uraninite*.

Type Material: Canadian Geological Survey, Ottawa, 16588; Royal Ontario Museum, Toronto, Canada, M34491, M37257.

References: (1) Graham, A.R. (1955) Cerianite: a new rare-earth oxide mineral. Amer. Mineral., 40, 560–564. (2) Frondel, C. and U.B. Marvin (1959) Cerianite, CeO_2, from Poços de Caldas, Brazil. Amer. Mineral., 44, 882–884. (3) Neumann, H. and S. Bergstøl (1963) Cerianite from cleavelandite pegmatite dikes in Iveland. Norsk. Geol. Tidsskr., 43(2), 247–255. (4) van Wambeke, L. (1977) The Karonge rare earth deposits, Republic of Burundi: new mineralogical–geochemical data and origin of the mineralization. Mineralium Deposita, 12, 373–380. (5) (1953) NBS Circ. 539, 1, 56.