

**Crystal Data:** Orthorhombic. *Point Group:* *mm*2. Fine-grained, compact, massive, commonly intimately intermixed with other species.

**Physical Properties:** Hardness = 3.5 D(meas.) = 7.35(2) D(calc.) = [9.50]

**Optical Properties:** Semitransparent. *Color:* Pale yellow, greenish.  
*Optical Class:* Biaxial.  $\alpha$  = n.d.  $\beta$  = n.d.  $\gamma$  = n.d. 2V(meas.) = n.d.

**Cell Data:** *Space Group:* *Pca*2<sub>1</sub> (synthetic).  $a$  = 5.43726(2)  $b$  = 16.43018(5)  
 $c$  = 5.45842(20)  $Z$  = 4

**X-ray Powder Pattern:** Synthetic.

3.151 (100), 2.738 (29), 2.729 (22), 2.719 (22), 1.646 (21), 1.575 (21), 1.650 (20)

**Chemistry:**

	(1)	(2)	(3)
WO <sub>3</sub>	25.50	31.30	33.22
Fe <sub>2</sub> O <sub>3</sub>	trace	1.92	
As <sub>2</sub> O <sub>3</sub>	0.26		
Bi <sub>2</sub> O <sub>3</sub>	68.26	59.04	66.78
PbO		1.89	
LOI	4.86		
insol.	1.60		
Total	100.48	94.15	100.00

(1) Castle-an-Dinas mine, England. (2) Flo property, Canada; by electron microprobe, total Fe as Fe<sub>2</sub>O<sub>3</sub>; corresponding to (Bi<sub>1.59</sub>Pb<sub>0.05</sub>)<sub>Σ=1.64</sub>(W<sub>0.85</sub>Fe<sub>0.15</sub>)<sub>Σ=1.00</sub>O<sub>6</sub>. (3) Bi<sub>2</sub>WO<sub>6</sub>.

**Occurrence:** An alteration product of earlier bismuth minerals in Sn–W-bearing high-temperature hydrothermal mineral deposits, greisens, or granite pegmatites.

**Association:** Bismuth, bismuthinite, bismite, wolframite, ferberite, scheelite, ferritungstite, anthoinite, mpororoite, koechlinite, cassiterite, topaz, muscovite, tourmaline, quartz.

**Distribution:** In England, at the Castle-an-Dinas mine, St. Columb Major, and the Hingston Down quarry, Calstock, Cornwall; and from Buckbarrow Beck, Corney Fell, Cumbria. In Germany, at the Himmelsfürst mine, Erbsdorf, near Freiberg, and at Altenberg, Saxony, and in the Clara Mine, near Oberwolfach, Black Forest. From Krupka, Krušné hory Mountains, Czech Republic. In Canada, on the Nug-4 claim, Nahani River area, Northwest Territories, and the Flo property, Kalzas Mountain, 67 km southeast of Mayo, Yukon Territory. At Sylvanite, Hidalgo Co., New Mexico, USA. From near Poona, Western Australia. At Bugaya, Uganda. In the Kara-Oba Mo–W deposit, the Bom-Gorkhon deposit, and the Spokoynoye deposit, Kazakhstan.

**Name:** To honor Sir Arthur Edward Ian Montagu Russell (1878–1964), British mineralogist and mineral collector, of Swallowfield Park, Berkshire, England.

**Type Material:** National School of Mines, Paris, France; The Natural History Museum, London, England, 1934,615.

**References:** (1) Palache, C., H. Berman, and C. Frondel (1944) Dana's system of mineralogy, (7th edition), v. I, 604–605. (2) Hodge, L.C. (1970) Russellite: a second occurrence. *Mineral. Mag.*, 37, 705–707. (3) Knight, K.S. (1992) The crystal structure of russellite; a re-determination using neutron powder diffraction of synthetic Bi<sub>2</sub>WO<sub>6</sub>. *Mineral. Mag.*, 56, 399–409. (4) Ercit, T.S. and G.W. Robinson (1994) A refinement of the structure of ferritungstite from Kalzas Mountain, Yukon, and observations on the tungsten pyrochlores. *Can. Mineral.*, 32, 567–574.

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise without the prior written permission of Mineral Data Publishing.