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Crystal Data: Hexagonal. Point Group: 6. Elongated crystals, pseudo-orthorhombic, showing $\{10\overline{1}0\}$, $\{11\overline{2}0\}$, $\{12\overline{3}0\}$, $\{13\overline{4}0\}$, $\{11\overline{2}1\}$, $\{11\overline{2}2\}$, $\{11\overline{2}3\}$, $\{20\overline{2}1\}$, $\{10\overline{1}1\}$, and $\{0001\}$, to 1.5 cm.

Physical Properties: Hardness = ~ 8 D(meas.) = 4.01-4.03 D(calc.) = 3.996-4.020

Optical Properties: Transparent. Color: Deep garnet-red, brownish red-orange. Optical Class: Uniaxial (–). Pleochroism: Ruby-red || [0001]; pale brownish orange or pale red-orange \perp [0001]. $\omega = 1.8159$ $\epsilon = 1.7875$

Cell Data: Space Group: $P6_3$. a = 8.715(2) c = 8.472(2) Z = 2

X-ray Powder Pattern: Near Ohngaing, Myanmar. 5.76 (vs), 2.520 (vs), 3.70 (s), 2.370 (s), 2.008 (s), 1.726 (ms), 1.423 (ms)

Chemistry:

	(1)	(2)
B_2O_3	n.d.	5.17
ZrO_2	18.77	18.31
Al_2O_3	69.02	68.19
CaO	7.17	8.33
${\rm H_2O}$	n.d.	
Total	94.96	100.00

(1) Near Ohngaing, Myanmar; by electron microprobe, B determined present by wet chemical analysis, IR, and crystal-structure analysis. (2) $CaZrAl_9O_{15}(BO_3)$.

Occurrence: In gem gravels.

Association: Corundum, phlogopite.

Distribution: From near Ohngaing village, Sagaing, Mogok district, Myanmar (Burma).

Name: For Arthur Charles Davy Pain (?–1971), British gem collector, who first noted the species.

Type Material: The Natural History Museum, London, England, 1954,192; National Museum of Natural History, Washington, D.C., USA, 142506.

References: (1) Claringbull, G.F., M.H. Hey, and C.J. Payne (1957) Painite, a new mineral from Mogok, Burma. Mineral. Mag., 31, 420–425. (2) (1957) Amer. Mineral., 42, 580 (abs. ref. 1). (3) Moore, P.B. and T. Araki (1976) Painite, $CaZrB[Al_9O_{18}]$: its crystal structure and relation to jeremejevite, $B_5[\Box_3Al_6(OH)_3O_{15}]$, and fluoborite, $B_3[Mg_9(F,OH)_9O_9]$. Amer. Mineral., 61, 88–94. (4) Shigley, J.E., A.R. Kampf, and G.R. Rossman (1986) New data on painite. Mineral. Mag., 50, 267–270.