and is purely of interest in that it provides another source of absolutely fresh meteoritic iron with troilite inclusions for geochemical study. The entire recovery is held by the Western Australian Museum, except for small specimens supplied to the British Museum (Natural History) and the School of Mines, Kalgoorlie.

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Reference

Wilson (R. B.) and Cooney (A. M.), 1967. Nature, vol. 213, p. 274.

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Quartz twin on {30$\bar{3}$2}

The presumed twin here described was found at the Ariranha pegmatite in the Municipio de Pavão, about 60 km north-east of Teofilo Otoni, Minas Gerais, Brazil. Only one specimen is known, although it is reported that other specimens resembling the one at hand were observed at the locality. Hence proof is lacking that this particular intergrowth is not accidental but has a frequency of occurrence greater than chance. The probability that the intergrowth actually is a twin is increased by the very close agreement in zonal and angular relations with the requirements for twinning on {30$\bar{3}$2}, by the symmetrical distortion of the two joined individuals—a feature shown by many types of growth twins—and by the correspondence of the supposed twin law with a geometrically equivalent law, the Belowda {30$\bar{3}$2} twin, in high-quartz. The planar nature of the surface of juncture and its coincidence with the apparent twin plane also is indicative of a twinned relation between the two individuals.

The intergrowth consists of two euhedral prismatic individuals united to give a V-shaped appearance (fig. 1). The intergrowth was attached to the matrix at the apex. The two crystals weigh 107 g and are about 8½ cm long. Each crystal is considerably foreshortened along the shared a-axis perpendicular to the plane of the c-axes. The terminations of the joined individuals consist of large faces of r {10$\bar{1}$1} and small faces of z {01$\bar{1}$1}. None of the faces present on the two individuals is parallel, although certain faces of the trigonal prisms {11$\bar{2}$0} and {2$\bar{1}\bar{1}$0} would fall into this relation if present. The re-entrant angle is occupied by faces of $\{10\bar{1}0\}$ and $\{01\bar{1}1\}$. One crystal has single tiny faces of the trigonal trapezohedron x and of the trigonal pyramid s. The terminal rhombohedral faces are quite smooth, but the prism faces locally are etched or pitted. A few small isolated areas apparently of

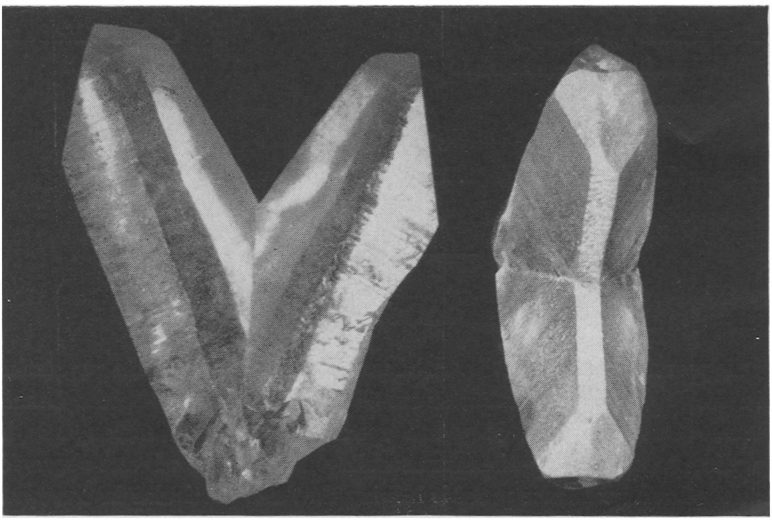

FIG. 1. Two views of the quartz twin on $\{30\bar{3}2\}$.

Dauphiné and Brazil twinning are present. One of the crystals is right-handed and the other left-handed.

The intergrowth was measured, although with some difficulty because of its size and weight, on a Stoe-type two-circle optical goniometer. The rhombohedral faces gave excellent signals, but the precision of the measurements is low because of the necessity found for repeated extended traverses of the translatory sledges. The average of numerous measurements made in two different settings gave the angle $c\underline{c}$ as $55°\ 24' \pm 31'$. There may be a systematic error of about the same magnitude. The twin plane evidently is $\{30\bar{3}2\}$, for which the angle $c\underline{c}$ is calculated as $55°\ 23'\ 00''$ from the axial ratio $a{:}c = 1{:}\,1{\cdot}10009$. The nearest other rational twin planes are $\{70\bar{7}5\}$ and $\{80\bar{8}5\}$, with angles $c\underline{c}$ of $58°\ 42'$ and $52°\ 24'$ respectively. The faces of $\{10\bar{1}1\}$ and $\{01\bar{1}1\}$ in the two individuals that fall into a zone with the shared a-axis did not vary from a zonal relation by more than about $30'$ in different measurements. Reflections could not be obtained from the two prism faces also present in this zone.

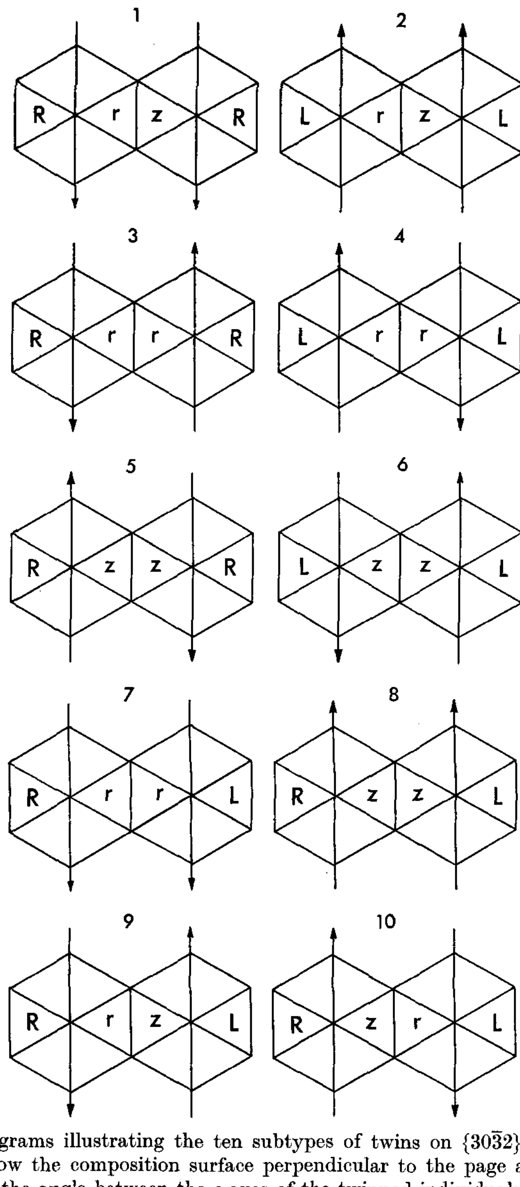

FIG. 2. Diagrams illustrating the ten subtypes of twins on $\{30\bar{3}2\}$–$\{03\bar{3}2\}$. The diagrams show the composition surface perpendicular to the page and simplified by reducing the angle between the *c*-axes of the twinned individuals to zero. The arrow representing the polarity of the shared *a*-axis points in the direction of the prism edge on which would be located the appropriate right or left trigonal trapezohedron. The symbols are R right-handed, L left-handed, *r* $\{10\bar{1}1\}$, *z* $\{01\bar{1}1\}$. The subtypes can be conveniently symbolized by statement of the hand and of the identity of the rhombohedral forms facing across the re-entrant, thus R*rz*R for subtype 1.

This new type of twin can be specialized into ten subtypes depending on the hand of the twinned individuals and on the relation between the polarity of the *a*-axes in the twinned axial systems. These subtypes are represented in fig. 2. The present twin or intergrowth corresponds to subtype 8. The subtypes are analogous to those in Japan Law twins. It may be noted that the designation of the twin law as $\{30\bar{3}2\}$ is correct only for subtypes 5, 6, and 8. It would be $\{03\bar{3}2\}$ in subtypes 3, 4, and 7. In the remaining subtypes planes of both $\{30\bar{3}2\}$ and $\{03\bar{3}2\}$ are in opposition across the twin plane.

A number of twin laws of the $\{h0\bar{h}l\}$ type are known in high-quartz, including the Sardinian $\{10\bar{1}2\}$, Esterel $\{10\bar{1}1\}$, Belowda $\{30\bar{3}2\}$, Cornish $\{20\bar{2}1\}$, and (doubtful) $\{30\bar{2}1\}$ laws. All can have geometrical equivalents in low-quartz. Of these, only the Sella $\{10\bar{1}2\}$ and Reichenstein-Grieserntal $\{10\bar{1}1\}$ laws have hitherto been described. The high-quartz Belowda $\{30\bar{3}2\}$ law was recognized by Drugman (1928) in a number of specimens from Belowda Beacon and Wheal Coates in Cornwall and from the Esterel Mts., France.

The writer is indebted to Dr. Richard V. Gaines for an opportunity to examine the specimen.

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DRUGMAN (J.), 1928. Min. Mag., vol. 21, p. 368.

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Reconnaissance of the prehnite stability field

PREHNITE is common as a late-stage mineral in the veins and amygdales of basic igneous rocks, and it occurs on a regional scale in rocks of the prehnite–pumpellyite facies, which form under (P,T) conditions between those of the zeolite facies on the one hand, and the greenschist and glaucophane schist facies on the other. Prehnite also occurs in thermally metamorphosed impure limestones, and in some hydrothermal veins.

Earlier experimental work was reported by Coombs *et al.* (1959), who synthesized prehnite from glasses of prehnite, prehnite$+4SiO_2$, and