

SHORT COMMUNICATIONS

Datolite from Meldon, Okehampton, Devonshire

DATOLITE occurs in abundance at Meldon within the contact metamorphic aureole on the north-west margin of the Dartmoor granite. The geological setting has been described recently (Dearman, 1959; 1963) so that it will suffice to say that a group of calcareous sediments, including both cherts and limestones, crop out three times at increasing distances from the granite margin within a narrow inlier of the Lower Culm Measures (Lower Carboniferous).

The presence of datolite is associated with evidence for metasomatic activity involving at least tin, iron, and boron; datolite replaces wollastonite in malayaite-wollastonite hornfels from the dumps of Red-a-ven mine (Sharkawi and Dearman, 1966). From the same locality, non-reactive dilatation veins in calc-flintas contain idiomorphic stanniferous grossular, datolite, and heulandite. Datolite may be associated with axinite as, for example, in the Meldon aplite quarry where reaction along joints cutting aplite veins in calc-flinta has produced coarsely crystalline axinite-datolite-fluorite rock.

In the north bay of Meldon railway quarry the calcareous horizon is faulted down against keratophytic tuffs and shales. The fault-plane appears to have acted as the main channel for circulation of metasomatizing fluids and the different rocks on both sides are extensively altered. Irregular veins of datolite, grossular, and diopside are developed in the calc-flintas. The exact plane of the fault is masked by the changes, but metasomatic contributions from the footwall tuffs and shales are apparent in datolite-axinite-actinolite-quartz and datolite-axinite-diopside-grossular-calcite assemblages. Arsenopyrite, chalcopyrite, molybdenite are present in small amounts in the veins, whilst in the tuffs and shales quartz-actinolite veins are common and joint surfaces are plated with pyrrhotine.

Datolite has been found in well-formed crystals in this setting; typical examples are illustrated in fig. 1. The first drawing (fig. 1*a*) is of a fragment from a very large crystal; its habit is dominated by the forms¹ $a\{100\}$, $c\{001\}$, $m_x\{011\}$, and $\epsilon\{\bar{1}12\}$ with smaller forms $t\{013\}$, $g\{012\}$, $m\{110\}$, and $n\{111\}$. Crystals are usually of a much smaller prismatic habit with prominent development of $m_x\{011\}$ terminated by $a\{100\}$.

¹ Axial ratios and letters as in Dana's System of Mineralogy, 6th edn, 1892.

A typical example (fig. 1b) is a composite drawing of five measured crystals. Other forms present are $c\{001\}$, $g\{012\}$, $m\{110\}$, $o\{120\}$, $b\{010\}$, $n\{111\}$, and $\epsilon\{\bar{1}12\}$. Not shown on the drawing are the form $t\{013\}$ present as very narrow but brilliant faces between $c\{001\}$ and $m_x\{011\}$, and narrow faces of $\lambda\{\bar{1}13\}$, $\kappa\{\bar{1}15\}$ between forms $\epsilon\{\bar{1}12\}$ and $c\{001\}$. This habit is similar to that of the crystals from Andreasberg figured by Dana.

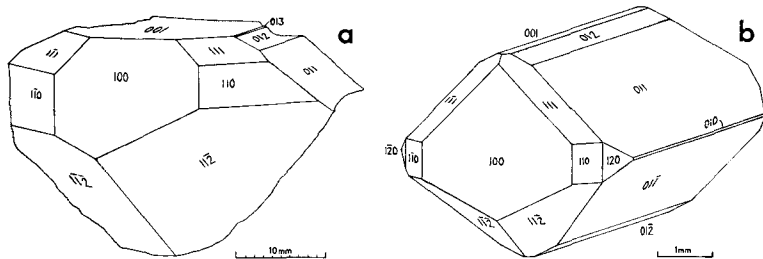


FIG. 1. Crystals of datolite from the north bay of Meldon railway quarry.

The well-known pseudomorphs of 'haytorite' after datolite in the calc-silicate assemblage at Haytor iron mine on the east side of Dartmoor (Reid *et al.*, 1912) have not been found at Meldon where there is no evidence for the late action of siliceous solutions following the pneumatolytic changes.

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References

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Lamellae of uncertain origin in the gem garnets from Simla village, Jhunjhunu district, Rajasthan, India

DURING the sinking of a well, gem variety grossular and almandine garnets were recovered from a soft pinkish calcareous fine-grained clayey rock associated with ortho-amphibolite below the sandy soil capping