

**Cockercombe tuff: an exclusive building stone from the Middle Devonian of the eastern Quantock Hills**

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# COCKERCOMBE TUFF: AN EXCLUSIVE BUILDING STONE FROM THE MIDDLE DEVONIAN OF THE EASTERN QUANTOCK HILLS

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## SUMMARY

*The very distinctive and attractive Cockercombe Tuff is a medium-grained, grey-green, volcanic lithic tuff, confined to a small outcrop area in the eastern Quantock Hills around Cockercombe, Keeper's Combe and Plainsfield. It was a valued and exclusive building stone, mainly employed for local ashlar and rubblestone, notably in the construction of the Grade II listed Quantock Lodge and its accompanying Gatehouse. The tuff is also frequently encountered in the neighbouring villages of Plainsfield, Aley and, occasionally, Over Stowey.*

## INTRODUCTION AND HISTORICAL BACKGROUND

Amongst the various purple-red or red-brown sandstones and silver-brown slates which are so characteristic of the stone buildings and structures on the Quantock Hills, there is a small range of lesser-known stones represented by various limestones and volcanic rocks that were only occasionally employed for building purposes. One of these rocks is the very distinctive and attractive, grey-green coloured volcanoclastic Cockercombe Tuff which has been worked exclusively from a single quarry adjoining Keeper's Combe.

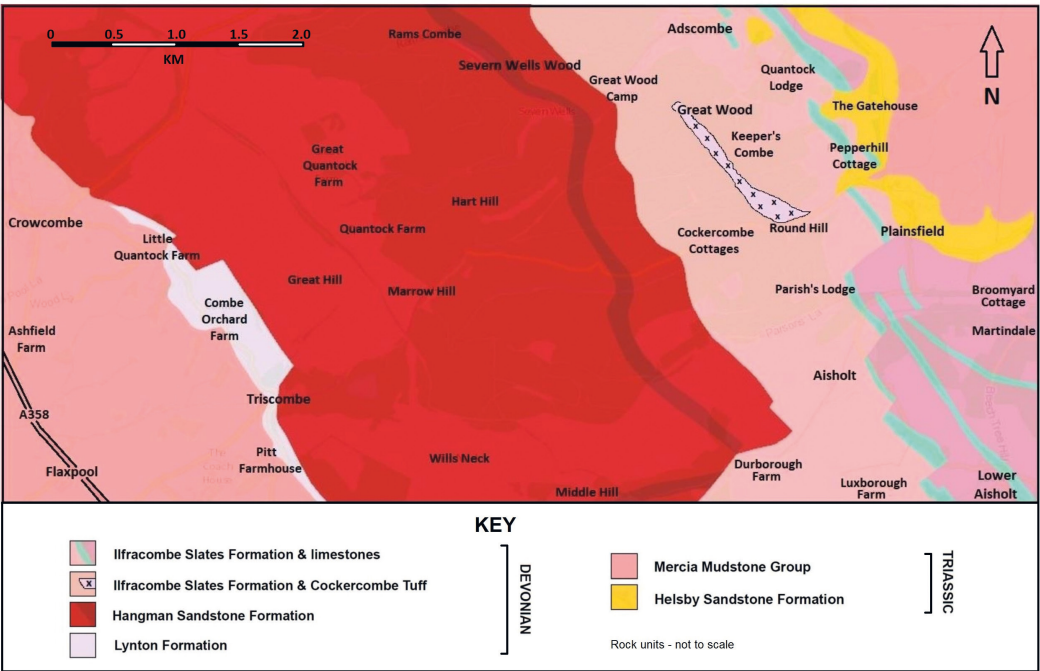


Fig. 1 Geological Map of the central Quantock Hills showing the distribution of the Cockercombe Tuff within the Devonian-aged Ilfracombe Slates Formation (map contains British Geological Survey materials © UKRI 2024 under Open Government Licence terms).

The first published reference to Cockercombe Tuff that the authors have traced was by Leonard Horner (1816) who reported the discovery 'near Ely Green in the side of a combe called Dibbles, towards the summit of the Quantock Hills' of 'a variety of slate of a bluish-green colour apparently derived from chlorite, with purplish stains and including small spherical masses of a white earthy texture which gives to the mass an amygdaloidal structure'. Horner also mentioned that the slate rock was very useful as a firestone and consequently it is likely that Dibbles Quarry was actively working at that time (Horner 1816; Ussher 1908).

Cockercombe Tuff was extensively employed in the construction of Quantock Lodge and Quantock Lodge Gatehouse in 1857 by Lord Taunton who conducted a prior search of his estate for a suitable building stone. According to the account by Jeboult (1873), a hard, greyish-green rock, capable of being worked by the chisel, was found in a quarry close by. Furthermore, Mr Davis, a builder from Taunton, has discovered that it will take a high polish, and pillars from this stone have been introduced into the 'new' church at Buckland St Mary (constructed 1853-63). Prudden (2001, 89) provides an informative and historical summary of Cockercombe Tuff including

its geological origins as a volcanic ash which accumulated under marine conditions.

### Occurrence and Stratigraphy

Detailed accounts of the Devonian geology of the Quantock Hills are provided by Webby (1965) and Edmonds and Williams (1985). Cockercombe Tuff is only known to crop out as a narrow band of strata within the Middle Devonian Ilfracombe Slates Formation on the eastern side of the central Quantock Hills between Great Wood and Round Hill (Fig. 1). Another much thinner band of purplish tuff occurring in Holford Glen may be at the same stratigraphic level (Webby 1965, 325; Edmonds and Williams 1985, 9) but this requires further study.

Historically, Cockercombe Tuff has only been worked at Dibbles Quarry (NGR ST 18275 37095), located on the edge of Keeper's Combe, approximately 660m SW of Quantock Lodge (Fig. 2). Assuming there is no duplication by folding or other structural deformation, the Cockercombe Tuff is reported to be approximately 18m thick in Dibbles Quarry, with cleavage planes dipping 20 to 25 degrees to the east - south-east (Ussher 1908, 28; Edmonds and Williams 1985, 9).

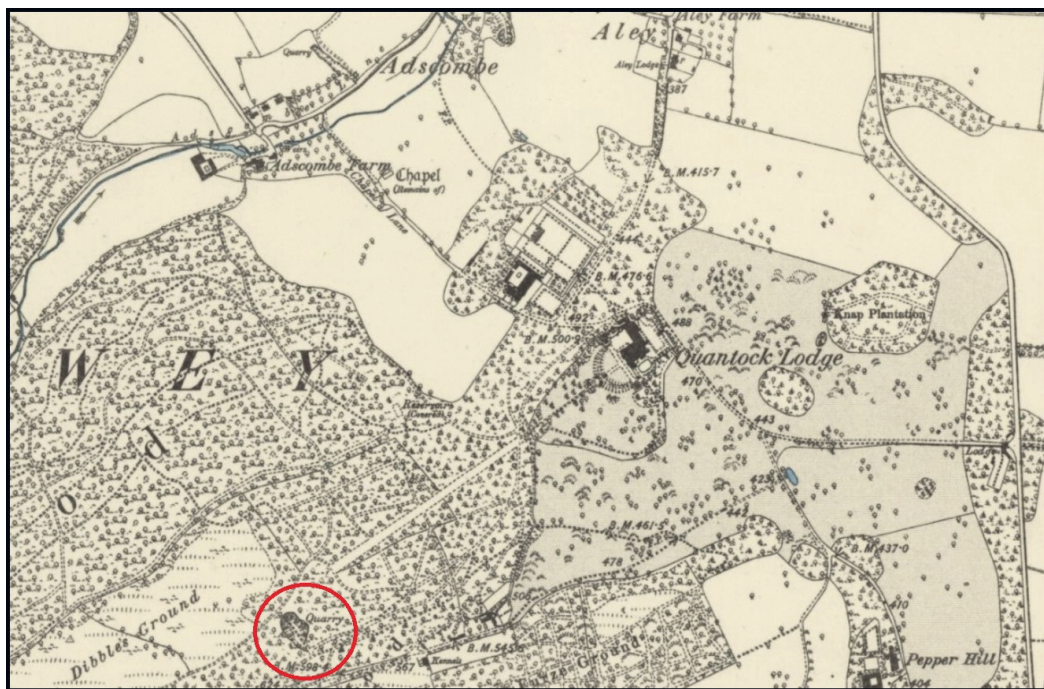


Fig. 2 Location (red circle) of Dibbles Quarry (NGR ST 18275 37095), Keeper's Combe, 660m SW of Quantock Lodge (base map OS Six-inch England and Wales. Somerset XLIX.SW, published 1887).

Webby (1965, 324) recorded a band within the tuff on the north side of Cockercombe which contained fossil bryozoans or small, ramose, tabulate corals, crinoid ossicles and indeterminate brachiopods indicating that the tuff accumulated under marine conditions.

Dibbles Quarry has long been disused, is now heavily overgrown and is not readily or safely accessible. However, hand samples of Cockercombe Tuff may still be obtained from the forest trackside and banks located immediately south of the former quarry (at ST 18320 37054).

### Appearance and Petrography

In hand specimen, Cockercombe Tuff is a distinctive, medium-grained volcanoclastic rock with an attractive grey-green colour and silvery sheen (Fig. 3). The greenish colour is due to the presence of the phyllosilicate mineral chlorite. Weathered and cleavage surfaces of the tuff typically exhibit a deep red-brown or purplish colour. When viewed at a right-angle to the bedding, some surfaces may exhibit cross-bedding and coarse lamination structures which further indicate that the tuff was deposited under water (Fig. 4).

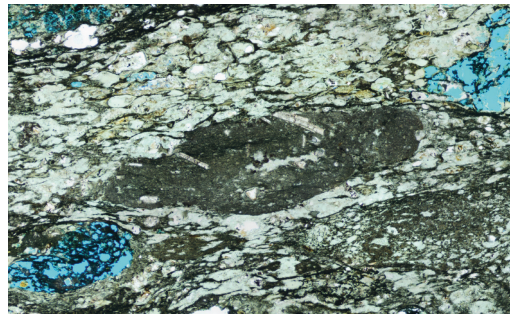
In thin section, the rock can be described as an altered, much decomposed lithic tuff containing dark basalt (spilite) fragments and lapilli set in a banded groundmass of quartz and chlorite with volcanic glass-rich fragments, occasional feldspar and some opaque black iron oxides (Fig. 5). Chlorite is a secondary mineral here replacing ferromagnesian minerals, likely pyroxenes and possibly amphiboles. Individual



*Fig. 3 Hand specimen of Cockercombe Tuff collected from Dibbles Quarry in February 2023 showing the characteristic grey-green colouration and silvery sheen on fresh faces (sample length 115mm). (Image and all following): Andy King*



*Fig. 4 Side view of a hand specimen of brown weathered Cockercombe Tuff collected from Dibbles Quarry in February 2023 showing cross-bedding and coarse lamination indicating deposition under water (sample length 125mm).*



*Fig. 5 Thin-section of Cockercombe Tuff showing basaltic lapilli (containing occasional albite plagioclase feldspar laths) set in a banded groundmass of quartz, feldspar and chlorite with volcanic glass-rich rock fragments and some black iron oxides. The bright blue stained areas represent resin impregnation (part of thin section preparation) and indicate the various forms of porosity within the tuff. Field of view, left to right 4.5mm; image taken in PPL, plane polarized light).*

lapilli are typically up to 3mm in length and contain relatively fresh, elongate crystals (laths) of albite plagioclase feldspar. These albitised feldspars are also an indicator of marine conditions. Occasionally the lapilli may be represented by amygdaloidal basalt fragments (1-2mm in diameter), the rounded vesicles of which have become infilled by secondary minerals including chlorite.

### Use as a Building Stone

The most impressive and extensive use of Cockercombe Tuff can be seen in Quantock Lodge



and Quantock Lodge Gatehouse (Figs 6 and 7), located near Over Stowey. Formerly part of Quantock School, these Grade II listed buildings were designed by Henry Clutton for Henry Labouchere, Lord Taunton and constructed in 1857 with additions made during the mid-1860s. The main building walls and wings are in 'Free Tudor' style and employ green-grey squared and snecked blocks ('ashlar') of Cockercombe Tuff laid in irregular courses up to

40cm thick (Fig. 8). Accompanying stone dressings and ornamentalations are in Bath Stone; occasional use is also made of reddish-brown Helmsby Sandstone ('Otter Sandstone') blocks for decorative purposes, as seen in the interior archway of the Gatehouse (Historic England 2023).

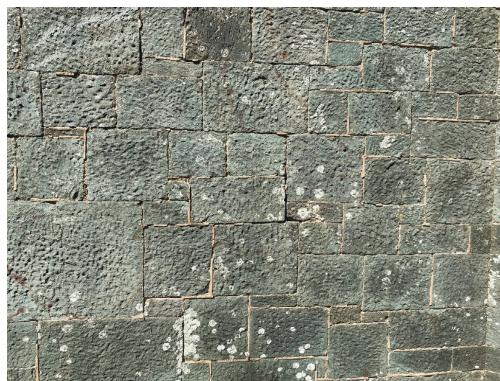
Cockercombe Tuff is also frequently encountered in walls throughout Plainsfield and less commonly in the villages of Over Stowey and Aley (Prudden



*Fig. 6 Quantock Lodge (ST 18797 37542), near Over Stowey. Grade II listed. Built in 1857 (additions made in the 1860s) in Free Tudor style using dressed ashlar blocks of Cockercombe Tuff with Bath Stone dressings.*



*Fig. 7 Quantock Lodge Gatehouse (ST 19354 37371), near Over Stowey, formerly part of Quantock School. Grade II listed, built in 1857 of dressed blocks of Cockercombe Tuff with Bath Stone and Helmsby Sandstone ('Otter Sandstone') dressings.*



*Fig. 8 Squared and snecked blocks of Cockercombe Tuff 'ashlar' in northern flanking quadrant wall of Quantock Lodge Gatehouse, near Over Stowey (ST 19354 37382).*



Fig. 9 Former barn wall adjoining Plainsfield Court showing use of Cockercombe Tuff rubblestone laid randomly with other blocks of Hangman Sandstone and Ilfracombe Slates (ST 19560 36582).



Fig. 10 Entrance wall at Plainsfield Court with Cock and Hen arranged capping slabs of Cockercombe Tuff atop blocks of Hangman Sandstone and Ilfracombe Slates (ST 19557 36571).

2003; Dawson and Wright 2018). In the hamlet of Plainsfield, random blocks of this tuff commonly occur in roadside walls extending from Plainsfield Farm (ST 19528 36721) to Plainsfield Court (ST 19555 36568). In all the examples observed, Cockercombe Tuff is employed in association with random blocks and slabs of locally sourced purple-brown and reddish-brown sandstones and slates assigned to the Hangman Sandstone and Ilfracombe Slates formations (Fig. 9). Cockercombe Tuff blocks laid in an attractive Cock and Hen capping arrangement can be seen atop roadside stone walls at Plainsfield Court (ST 19557 36571) (Fig. 10) and Aley Lodge (ST 18841 37949).

Occasional blocks of Cockercombe Tuff can also be observed in the walls of shops and cottages along Castle Street in Nether Stowey, but the use of the tuff here is sparse and most of the stonework employed is of other sandstones of Devonian or Triassic age.

Further afield, the use of Cockercombe Tuff is rare. Isolated blocks are recorded from the walls of the Wyndham Gallery in Taunton Castle Museum (Prudden 2001, 89) and it was also employed in pillars of the Church of St Mary at Buckland St Mary, built in 1853-63 (Jeboult 1873).

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