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Gordons Valley Chert, South Canterbury

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Introduction

In 2016 the occurrence of chert at a rock shelter near Gordons Valley, about 15 km inland from Pareora, was brought to my attention by Michael Trotter, who had carried out a small excavation at the site (J39/16) in 1973. The site was revisited in March 2017 to determine the nature and extent of the chert, and subsequent examination of artefact collections held by Canterbury Museum and South Canterbury Museum revealed that the same type of chert had also been found at other shelters in the area, as well as one site at Pareora. This paper provides a brief account of this previously unrecorded chert source and its pre-European exploitation.

Geological Context

The chert occurs within the Otekaieke Limestone of late Oligocene-early Miocene age, though there is no mention of this in the geological literature on the area (Gair 1959, Forsyth 2001). It is rare, and found only as isolated nodules and irregular masses (up to 40cm across) which in many cases appear to be closely associated with fossil burrows in the well-bedded limestone. Only a single layer or zone of chert nodules, up to 1.5-2 metres in thickness, has been observed in limestone outcrops.

Fieldwork suggests the chert has a very restricted natural distribution, and may be confined to the Gordons Valley-Frenchmans Gully area (Figure 1), though a wider search could reveal other occurrences. The main occurrence is near the Big Dog shelter (J39/16), where nodules are found in the limestone bluffs within a narrow zone extending eastwards from the shelter for at least 50 metres (Figure 2). Nodules have also been seen (in situ) at two locations in an unnamed gully to the southwest, near another rock shelter (J39/85). Additionally, the chert appears to be present at the well-known Te Manunui rock shelter (J39/17) further north on Frenchmans Gully Road, in the form of small nodules, but this could not be confirmed because of the protective fence surrounding the site.

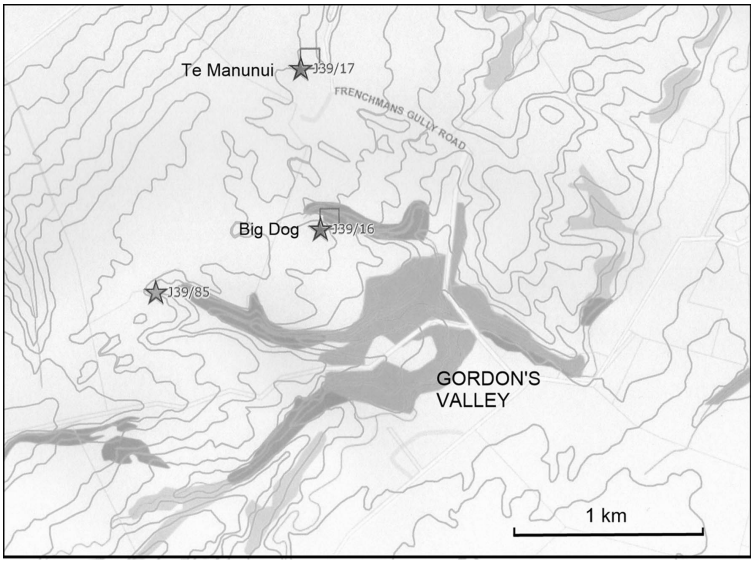

Figure 1. Location of recorded rock shelters in the Gordons Valley-Frenchmans Gully area (base map from Archsite).

Figure 2. The Big Dog shelter (site J39/16), March 2017. Chert is exposed in the floor of the shelter.

Description

The chert is mostly brownish grey to greyish brown (10YR 5/2 – 6/2), generally includes irregular patches of white limestone, and has a distinctive speckled or mottled texture and dull lustre (Figure 3). It is of average quality but has a conchoidal to irregular fracture and is capable of yielding flakes with a sharp edge. Geological samples from near the Big Dog shelter contain rare to abundant sponge spicules (up to 0.5 mm), common foraminifera (circa 0.1 mm), tiny grains of green glauconite and rare mica. Sponge spicules and other microfossils are also visible, under low magnification, in some artefacts. Notably, the visual characteristics of the Gordons Valley chert are remarkably similar to those of the Pahautane chert (or 'heaphyite') on the West Coast, which also occurs within limestone. At present there is no obvious means of distinguishing between them.

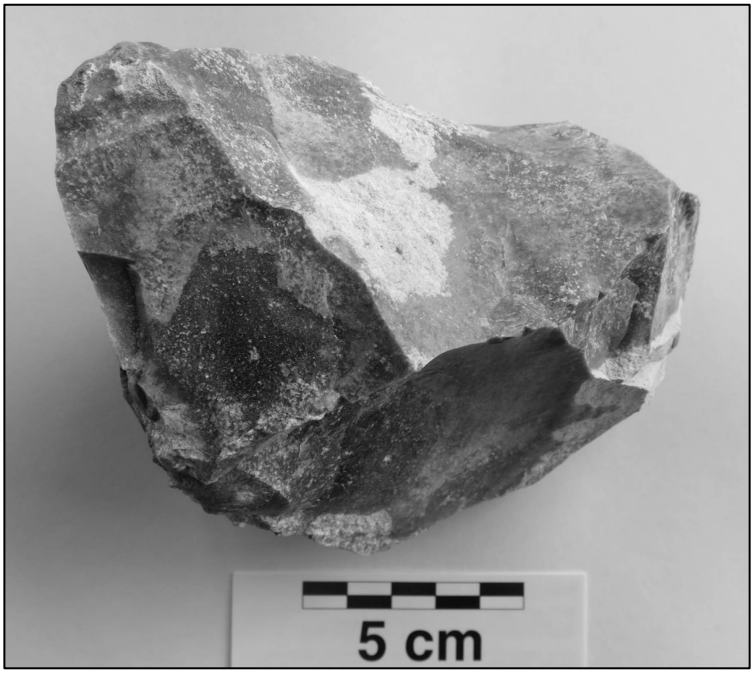

Figure 3. Sample of chert from near the Big Dog shelter. White patches are composed of limestone.

Archaeological Distribution

Through an examination of collections at Canterbury Museum and South Canterbury Museum, artefacts of this chert have now been identified from three rock shelters – the Big Dog shelter, and two previously unrecorded shelters located in a gully approx. 700 metres to the southwest which were excavated or surface collected by G.M. (Graeme) Mason in 1964. One of these has now been recorded as site J39/85 (Figure 1).

At the Big Dog shelter, which was originally recorded by Tony Fomison in 1959 (and referred to as Shelter no.1), a small collection of flakes was made by Michael Trotter in 1973. In the next gully Mason recovered a range of artefacts from what were simply referred to as the 'top shelter' and 'lower shelter'; the top shelter may also have been known as Evans No.2. (Based on a grid reference provided by Mason, Evans No.2 is probably what is now recorded as site J39/85. The 'lower shelter' was not relocated but is presumably further down the gully. Most likely these were originally located by R.A. Evans, who was involved in recording rock shelters in South Canterbury around 1960, Fomison 1962). Canterbury Museum collections include 3 broken nodules of poor quality chert from the 'top shelter', and approx. 112 flakes and pieces, and a possible core, from the 'lower shelter'. From 'Evans No.2' there are about 25 flakes, 1 possible core, and 1 large piece that may have been worked. Other items from these shelters include a large, well-rounded, water-worn cobble of dense yellow-brown chert (foreign to the area), possibly used as a hammer stone, and several flakes of greywacke which were perhaps also derived from hammer stones.

The collections held by South Canterbury Museum from Gordons Valley appear to have all come from 'Evans workshop/shelter', which may or may not be the same as Evans No.2. They include 4 flakes, 5 cores (up to 10 cm across), and a broken nodule of chert (Figure 4), along with a roughly reworked polished adze of schistose greywacke with a laterally reduced butt (Duff Type 1B?).

Significantly, South Canterbury Museum collections also include 2 flakes (both of which show use wear) of the chert from Galletly Road near the St. Andrews golf course, about 2.5 km south of Pareora. This is the same location as what was known as Smith's Pareora (site J39/30). There is also a single, unused flake of limestone/greyish brown chert from 'Pareora', but whether this came from Smith's site or the Pareora River mouth (J39/29) is unknown.

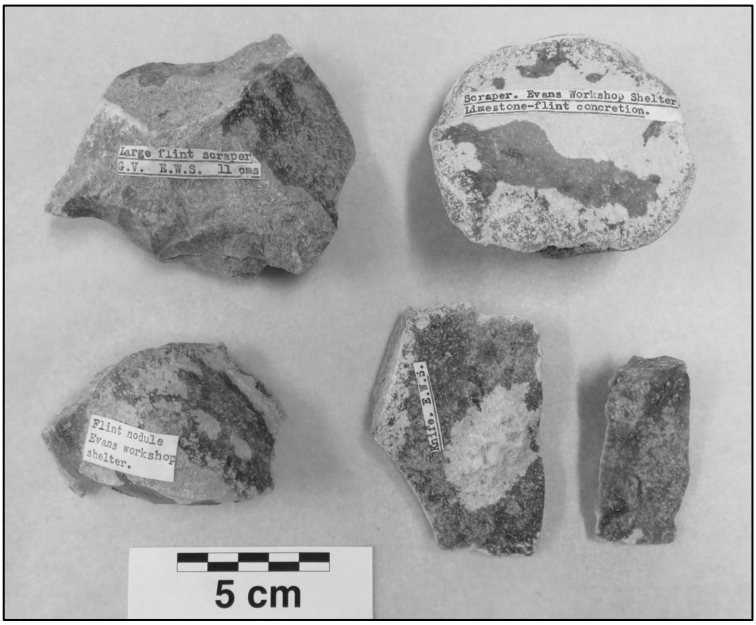

Figure 4. Selection of chert artefacts from 'Evans workshop/shelter', Gordon's Valley, consisting of 2 cores (upper left and lower left, 1998/144.067, 068), 2 flakes (lower right, 1998/144.059, 064), and broken nodule (upper right, 1998/144.070). South Canterbury Museum collection.

So far the Gordons Valley chert has not been identified from any sites further afield. Although Griffiths (1941) refers to 'flint' knives and scrapers from an excavated site at Normanby, elsewhere in his paper he states these are made of silcrete. No artefacts of this material have been found among Canterbury Museum collections from Dashing Rocks (K39/1) at Timaru or the Opihi River (K38/11) further north (pers obs). Whether it is present at any sites in North Otago is unknown.

Discussion

There is no clear indication of *when* the chert was exploited. None of the rock shelters have been dated, though the depiction of moa and what is believed to be the extinct Haast's eagle or Pouakai at the Te Manunui shelter suggests the area was visited relatively early (Heritage New Zealand 2014). Unfortunately the Galletly Road site (Smith's Pareora) is also undated, but according to Duff (1956: 271) it contained 'plentiful' nephrite, along with a

hog-back adze and an unfinished minnow lure, which suggests it was occupied during both the early and late prehistoric periods. The two chert flakes from this site could indicate a direct connection between the occupants of this coastal site and the inland shelters.

It is interesting that the three rock shelters (and possibly Te Manunui) in the Gordons Valley-Frenchmans Gully area either contain, or are located in close proximity to, natural occurrences of the chert. This poses the question of whether these sites might have been utilised, in part, because of the presence of this material. Certainly the chert would have been suitable, in the absence of other readily available cutting materials, for the butchering of moa or other birds.

Acknowledgements

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