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INVESTIGATIONS OF THE WEKA PASS SHELTER S.61/4

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The 1870s were years of lively controversy in New Zealand archaeology. The great men of science became involved in discussions and arguments about who and when and why in prehistory. Some of their theories were widely off the mark, but there were others that were remarkably close to present-day thinking.

One of the liveliest of these "discussions" centred around the investigation of a rock shelter in Weka Pass, North Canterbury, and echoes of the altercations that took place, largely under the auspices of the Philosophical Institute of Canterbury, seem still to resound around the limestone hills and occasionally even further afield.

With the object of answering some of the questions posed by almost a century of speculation, an investigation was recently made of this site. The background to this work has been outlined by Beverley McCulloch in an interim report of her comprehensive study of the whole Weka Pass area (McCulloch, 1968).

The site has been generally called the Weka Pass Shelter because for over 70 years it was the only one known in the area. As over 50 shelters have now been found in Weka Pass, it is better called the "Timpendean" Shelter from the name of the farm through which access to it is most easily gained. The shelter itself is in a Historic Reserve administered by the Department of Lands and Survey. It is located in a large outcrop of limestone having a 100-metre-long north-facing escarpment running east-west at about 100°. Along the face, particularly beneath a deep room-like overhang at the western end (see Fig. 1; overhang indicated by dotted line), is a mass of prehistoric drawings in black and red covering an area 22 metres long by up to two metres high. The combination of partial superpositioning of the individual drawings, and the fading, flaking and vandalism that has taken place since they were drawn, makes it difficult to determine the original outlines of a large proportion of them (see, for example, Trotter and McCulloch, 1971: 19). The clearer figures have been copied by a number of investigators at different times since 1876 with varying degrees of accuracy (see

McCulloch 1968: 77), and in 1967 a team comprising about 40 people - mostly members of the Canterbury Museum Archaeological Society - made a tracing of the main figures on a single sheet of clear polythene almost 23 metres long. This is for use as a key to detailed tracings, and to photographic recording which was made with a variety of light types and films.

Because the ground in front of the rock face and beneath the overhang is of earth, rather than rock as it is in many shelters, it contains occupational debris from those who have sheltered there. Realizing this and hoping that he could learn something about the people who had made the drawings, Julius Haast in 1876, as Director of the Canterbury Museum, had a member of the staff dig five trenches in the floor of the western end overhang. According to Haast's report (Haast, 1877: 51-53), the excavations showed evidence of two periods of occupation. There was a moa hunter deposit comprising mostly ashes with fragments of bone ("all the leg bones having been broken for the extraction of the marrow") from two small species of moa, other bird bones including kiwi, seal bones, shells of Mesodesma novaezealandiae, Mactra discors and Mytilus smaragdinus, small pieces of wood, fragments of chert and flint, several pieces of sandstone, and some polished pieces of stone. Principally towards the centre of the shelter this deposit was partly overlaid by a later deposit "of Maori and European origin" containing Haliotis iris shell, pieces of coal, sheep bones and iron. Haast concluded that "the rock-shelter was only seldom visited by man, and then was only inhabited for a very short time." He also gave some rather fanciful interpretations of the drawings, and it was principally these that gave rise to furore of the late 1870s (see Trotter and McCulloch, 1971: 15-16).

While we did not take seriously Haast's suggestion that the shelter had been occupied by Tamils or Indians, we were hopeful in 1968 that excavations in the shelter floor might reveal some evidence as to when and for how long the shelter had had prehistoric use. Pieces of chert and moa bone, charcoal and burnt stones, were not uncommonly found on the surface where they had been kicked out of the loose dusty soil by visitors and sheep. We were optimistic that Haast's museum employee's diggings had not been too extensive and that at least some undisturbed original deposit could be found.

Four trenches excavated at approximate right angles to the rock face (Fig. 1) did indeed reveal some undisturbed prehistoric occupational deposit. There were in fact three distinct periods of shelter utilization.

At one place were bones of a moa which appeared to have died naturally and was doubtless prehuman, particularly as a radiocarbon age of moa bone collagen gave an age of 1525 ± 60 years B.P. (NZ 918) (carbonate from the same sample gave a result of 290 ± 75 years B.P. indicating the usual atmospheric contamination).

The main period of human occupation had left a layer up to 25 centimetres thick of darkish stained limey matrix containing bones, shells, burnt stones, charcoal, ash, wood and artifacts. This prehistoric deposit will be described in more detail below.

Overlying the main occupational deposit, was about five centimetres of loose matrix, largely of stained limestone dust and pulverized sheep droppings, containing sparsely distributed material similar to that in the main deposit as well as seven small pieces of nephrite and material of European origin. This included a Jew's harp, fragments of clay pipe, a horse's tooth, opalescent glass, sheep and rabbit bones, coal and spent .22 shells. This historic period material intruded into the underlying prehistoric layer in a filled-in rabbit-hole and where a fence had been put across the shelter in a vain effort to deter vandals. Most of it dates to the 19th Century (probably 60 to 90 years B.P.); the coal, incidentally, was used by traction engines for threshing grain.

Reverting to the prehistoric human occupational deposit; it was clearly recognizable in trenches 2 and 3 (see Fig. 1) where it contained the following (weights given to nearest gram except those less than one gram):

Midden Shells

Tuatua	<i>Amphidesma subtriangulatum</i>	5 gm
Pipi	<i>Amphidesma australe</i>	129 gm
Blue mussel	<i>Mytilus edulis</i>	1 gm
Mussel	<i>Perna canaliculus</i>	23 gm
F.W. Mussel	<i>Hyridella menziesi</i>	116 gm
Top-shell	<i>Melagraphia aethiops</i>	0.3 gm
Paua	<i>Haliotis iris</i> and <i>H. australis</i>	122 gm

Total weight of midden shell 396 gm

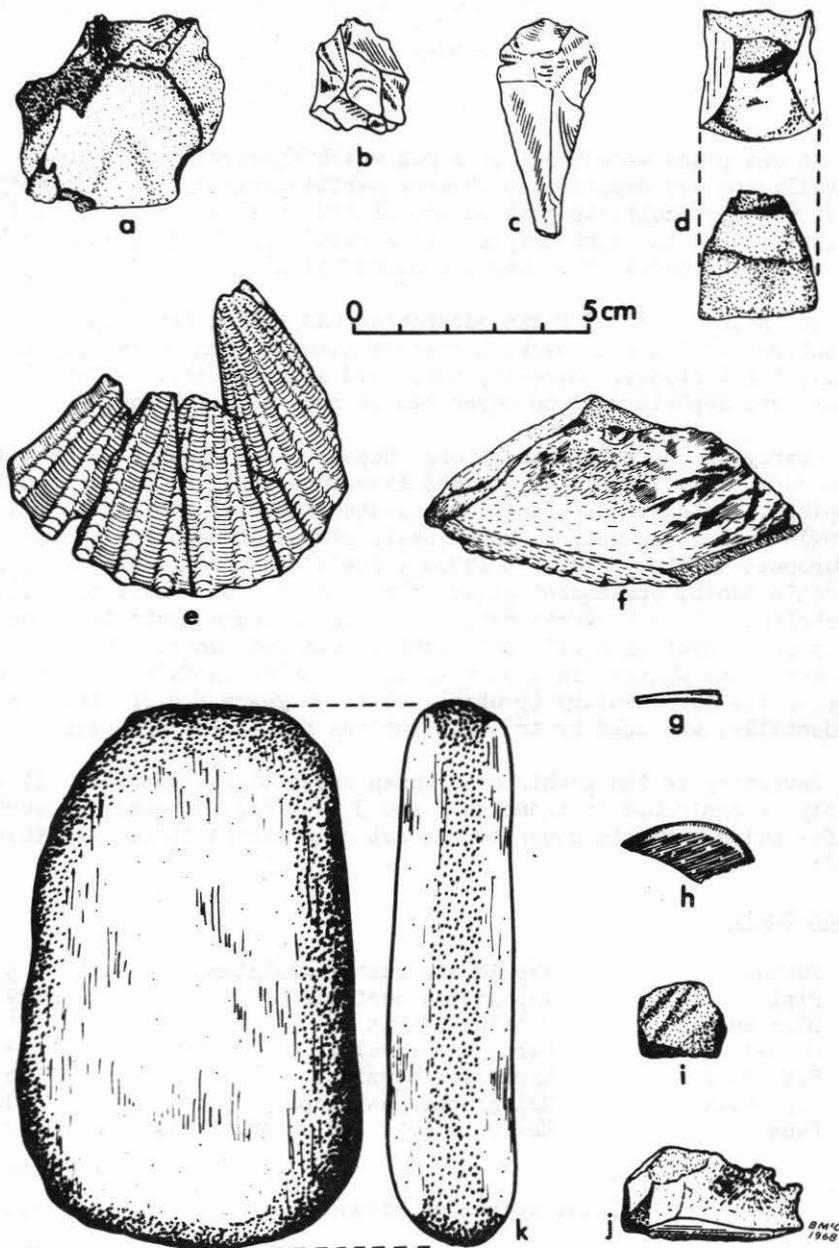


Figure 2. (a) Flake of orthoquartzite; (b) Flake of obsidian; (c) Flake of flint; (d) Fragment of adze made of indurated mudstone; (e) Scallop shell; (f) Scraper made of moa bone; (g) Dentalium shell; (h) Piece of sharpened Amphidesma shell; (i) Piece of haematite; (j) Piece of nephrite from top layer; (k) Grindstone.

<u>Midden Bones</u> (R. J. Scarlett, det.)		Total weight	783 gm
Moa	<i>Eurapteryx gravis</i>	Bone pieces, traceal ring, gizzard stones	
Kiwi	<i>Apteryx australis</i>		3 bones
Grey Kiwi	<i>Apteryx haasti</i>		1 bone
Mollymawk	<i>Thalassarche cauta</i>		1 bone
Duck	<i>Anas sp.</i>		4 bones
Paradise duck	<i>Tadorna variegata</i>		2 bones
S.I. Weka	<i>Gallirallus australis</i>		10 bones
Small weka	<i>Gallirallus minor</i>		1 bone
Pukeko	<i>Porphyrio melanotus</i>		2 bones
N.Z. Quail	<i>Coturnix novaezealandiae</i>		100+ bones
N.Z. Pigeon	<i>Hemiphaga novaezealandiae</i>		3 bones
Falcon	<i>Falco novaezealandiae</i>		1 bone
Harrier	<i>Circus approximans gouldi</i>		2 bones
Extinct Kaka	<i>Nestor n.sp. (R.J.S.)</i>		12 bones
Tui	<i>Prosthemadera novaezealandiae</i>		3 bones
Rat	<i>Rattus exulans</i>		207 bones
Dog	<i>Canis familiaris</i>		
Fish	Barracoutta and other marine species		

Artifacts

1	Dentalium shell	1 gm
2	Scallop shells (broken)	12 gm
1	Sharpened <i>Amphidesma</i> shell	1 gm
1	Scraper made of moa bone	15 gm
2	Work-polished moa bone	3 gm
1	Pointed bird bone	0.25 gm
5	Sandstone	1,177 gm
2	Schist	97 gm
5	Argillite	2 gm
24	Fired clay	24 gm
13	Flint flakes	36 gm
5	Orthoquartzite flakes	35 gm
127	Other silica materials	467 gm
7	Green obsidian	13 gm
4	Grey obsidian	1 gm
1	Haematite	3 gm
5	Adze pieces	93 gm

Burnt and broken stones (greywacke and limestone).

Burnt wood and charcoal (*Podocarp*, *Sophora*, *Hebe*, *Discaria*, and at least two genera of undetermined woody dicotyledons - B. J. Molloy, det.).

Although the pieces of scallop shell (Fig. 2e), which are both of the flat valve of Notovola novaezealandiae, have not been cut or ground, they are listed as artifacts because they both show signs of wear, indicating that they are not from molluscs collected for food, and also because this species is very rare on Canterbury beaches. Probably these valves were used as pendants as is known from some other sites (e.g., Duff, 1956: 131, 134). The Dentalium nanum shell (Fig. 2g) was also doubtless for ornamental purposes. The five fragments of adzes are of varieties of indurated mudstone, probably of Nelson-Marlborough origin. None of the artifacts is particularly diagnostic, but they are similar in shape, size and materials to those found on some other Canterbury and Otago sites having a radiocarbon age of four to six hundred years. The five pieces of argillite in the above list are of a fairly soft stone with a slaty cleavage. The artifacts listed as "other silica materials" are flakes, chips and cores of a variety of chalcedonies, cherts, jaspers, etc. There seems to be little point in trying to describe the materials in detail; different geologists give different names and different sources for them. Some flakes have been deliberately retouched; some have work chipping on their edges. It seems reasonable to assume that the piece of haematite found is the same stuff that was used to make the red drawings.

The proportion of marine faunal remains is higher than usual for inland rock shelter sites and suggests a fairly direct connection with the coast which is 19 kilometres away at its nearest point. Mollusc shells include those from both sandy beach and rocky coast habitats. Three of the species that Haast noted were common in our excavations (Mesodesma novaezealandiae = Amphidesma australe, and Mytilus smaragdinus = Perna canaliculus in current nomenclature; and Haliotis iris, which he considered to be recent), but we did not find Mactra discors anywhere, whereas Hyridella menziesi, the fresh-water mussel, was common throughout yet was not mentioned by Haast. It seems likely that Haast did not actually supervise or even see the digging that was carried out by a member of his museum staff, and this may account for the discrepancies.

Only one fragment of the excavated bird bone was of a marine species and it could well have been an artifact. Of the rest, at least two species, the moa and the extinct kaka, probably died out about 500 years ago (the small weka also died out before European settlement). Seven other bird species are no longer found in the area, and this is probably due to a change in the nature of the vegetation of the area between the time of occupation and the present day. The two kiwis, pigeon, kaka, tui and the rat are principally forest-dwelling species and it seems likely that they were caught in forest before being eaten in the shelter.

This does not of course in itself indicate that the said forest grew in the immediate vicinity of the shelter - the marine shellfish had been carried several kilometres - but together with evidence of relict totara logs and surface dimpling on nearby hillsides (McCulloch, pers. comm.) and the Podocarp charcoal from the occupational deposit, it strongly suggests the presence of some forest in the area of the shelter at the time it was occupied. On the other hand, however, the quail, wekas, falcon and harrier, are birds of a more open habitat, and the likelihood of some open country with light scrub and bushes is increased by the finding of Hebe and Discaria charcoal in the occupational deposit. Analysis of material from other shelters in the area is being undertaken and this could provide a more accurate picture of the country in pre-historic times. In the meantime it would appear most probable that there were heavily bushed valleys with patches of open scrubby vegetation on drier hillsides.

Evidence as to the age of the occupational deposit is provided by the extinct bird bones (moa and kaka n.sp.), the type of artifacts and the materials from which they were made, and somewhat more tenuously, by the assumed presence of bush and by the rock drawings on the wall of the shelter (most South Island rock drawings seem to be 500 or more years old). More definite are radiocarbon dates obtained for samples of fresh-water and of marine shell from the deposit. Results of their analyses are:

NZ 892	Shells of <i>Amphidesma</i> and <i>Mytilus</i>	436 ± 53 B.P.
NZ 893	Shells of <i>Hyridella</i>	704 ± 41 B.P.

While these ages do overlap if three standard deviations are added to the first and three subtracted from the second, this is really stretching probability a bit too far. It seems likely that the Hyridella lived in a local stream which contained calcium carbonate dissolved from the limestone and that its shell therefore contained some fossil carbonate, creating a falsely early date. However, the marine shell should be fairly reliable - it was tested by X-ray diffraction - and its radiocarbon age, equal to a date of within a hundred years of approximately A.D. 1500 in terms of the Christian calendar, is acceptable.

In summary, my interpretation of the archaeological evidence is that the "Timpendean" shelter (S61/4) was occupied some 500 years ago, on probably more than one occasion (the complexity of the mass of drawings and superposition of figures suggest that they were not all done at one time). The occupants had travelled from the coast and had brought some fish and shellfish with them, and while based at the shelter they caught

rats and birds of several species. They carried artifacts and haematite with them, and used the latter as well as charcoal to make drawings on the shelter wall. Vegetation in the area at the time of occupation comprised areas of both forest and more open scrub and bushes.

This interpretation is somewhat different to Haast's, but it is based on different material, different techniques of excavation and analysis, and more available information on other sites in the area and on New Zealand prehistory as a whole.

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