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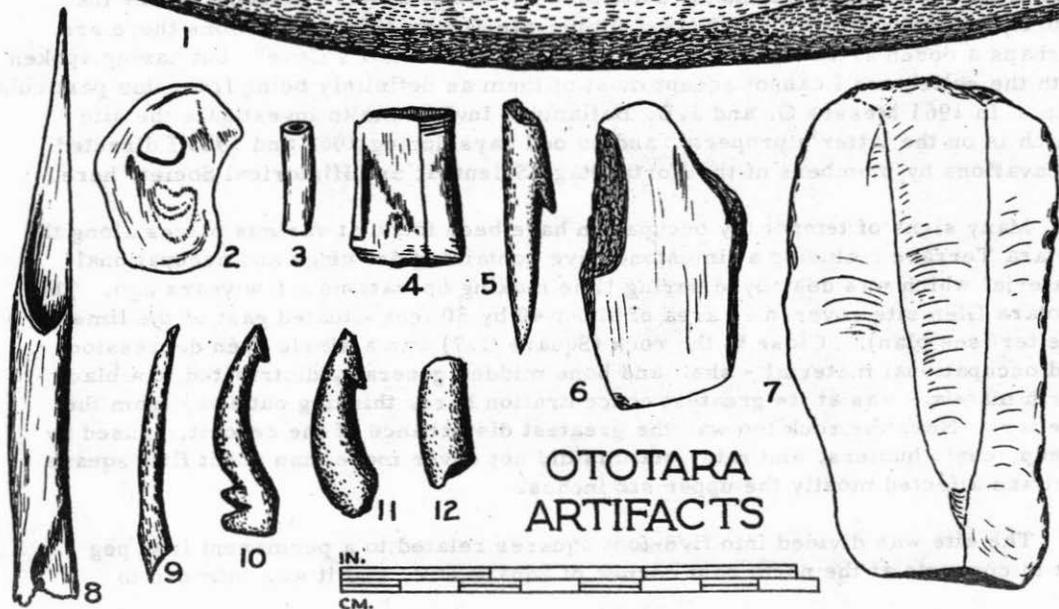
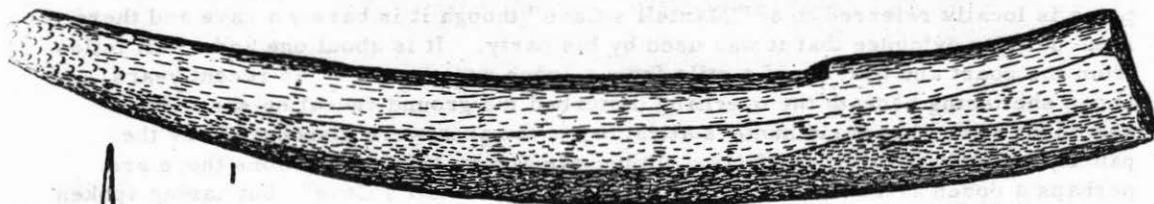
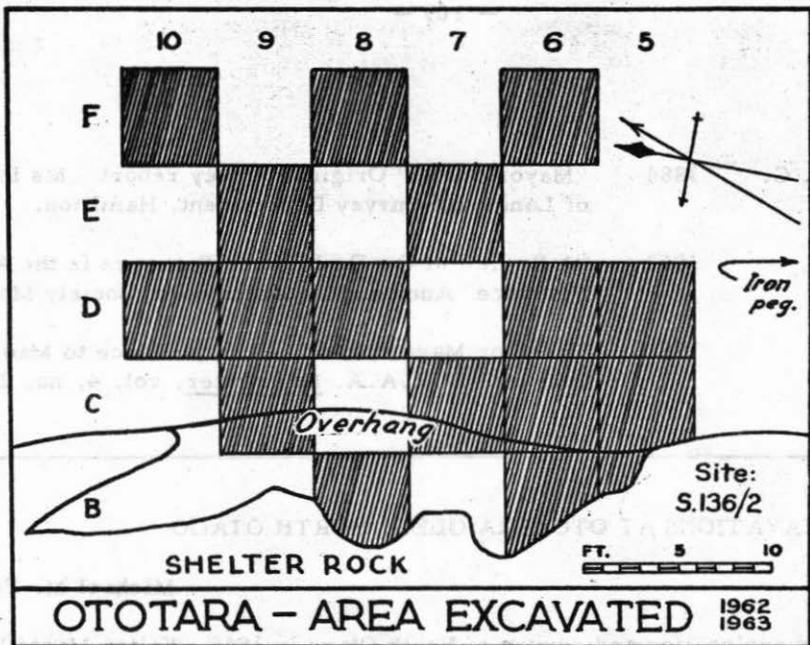
EXCAVATIONS AT OTOTARA GLEN, NORTH OTAGO

Michael M. Trotter

During his exploration and survey of North Otago in 1848, Walter Mantell and his party camped at the southern end of the Totara Terrace limestone outcrop in a hollow which he called Ototara Glen (Mantell 1848). An overhanging rock at this place is locally referred to as "Mantell's Cave" though it is barely a cave and there is no definite evidence that it was used by his party. It is about one and a half miles from the coast and quarter of a mile from a fresh water creek. In recent years sheep sheltering beneath the overhang disturbed the ground revealing shell, bone and burnt stone, but curio hunters attracted to the area were discouraged by the paucity of finely finished artifacts. In private and museum collections there are perhaps a dozen artifacts labelled as being from "Mantell's Cave", but having spoken with the collectors I cannot accept most of them as definitely being from this particular site. In 1961 Messrs G. and J.B. Ballantyne invited me to investigate the site which is on the latter's property, and on odd days during 1962 and 1963 I directed excavations by members of the North Otago Scientific and Historical Society here.

Many signs of temporary occupation have been found at various places along the Totara Terrace including a limestone cave containing drawings and occupational material which was destroyed during lime making operations a few years ago. The Ototara Glen site covered an area of about 40 by 30 feet situated east of the limestone shelter (see plan). Close to the rock (Square C.7) was a single oven depression, and occupational material - shell and bone midden generally distributed in a black earth matrix - was at its greatest concentration here, thinning out away from the shelter. Near the rock too was the greatest disturbance of the deposit, caused by sheep, curio hunters, and rats, but this did not cover more than about fifty square feet and affected mostly the upper six inches.

The site was divided into five-foot squares related to a permanent iron peg set in concrete at the north east corner of Square D.2, and it was intended to



BONES

#Moa: Euryapteryx gravis	+
Flightless Goose: Cnemiornis calcitrans	-
Extinct Swan: Chenopsis sumnerensis	-
Yellow-eyed Penguin: Megadyptes antipodes	-
♂Mollymawk: Thalassarche cauta subspecies	-
Prions: Pachyptila species	-
Diving Petrel: Pelecanoides urinatrix	-
#Black Shag: Phalacrocorax c. novaehollandiae	-
Spotted Shag: Phalacrocorax p. punctatus	-
Paradise Duck: Tadorna variegata	-
Grey Duck: Anas s. superciliosa	+
Duck (smaller than A. superciliosa)	-
Shoveller: Spatula rhynchotis variegata	-
Barracouta: Thyrsites atun	+
Ling: Genypterus blacodes	+
Groper: Polyprion oxygeneios	+
Cod: Physiculus brevisculus	-

SHELLS

Triangle: Spisula aequilateralis	-
Mactra: Mactra discors	-
Rock Mussel: Mytilus planulatus	+
Large Mussel: Mytilus canaliculus	-
Nesting Mussel: Musculus impacta	-
Fresh-water Mussel: Hyridella sp	+
#Oyster: Ostrea sp (= O. tatei)	+
Catseye: Lunella smaragda	*****
Paua: Haliotis iris	+
Sea-slug: Scutus breviculus	-
Limpets: Cellana species	*
♂Dentalium	+
Chitons	-
Beach shells (i. e. not used for food)	+
Sea Urchin: Evechinus chloroticus	-
Crustacean (? crab)	-

KEY: # = Also used for artifacts. ♂ = Used for artifacts only.
 - = 1 - 10, + = 10 - 100 * = 100 - 1000.

Teal: Anas species	+
Harrier: Circus approximans gouldi	+
Falcon: Falco novaeseelandiae	-
Quail: Coturnix n. novaeseelandiae	-
Pukeko: Porphyrio porphyrio melanotis	-
Takahe: Notornis mantelli hochstetteri	-
Black-billed Gull: Larus bulleri	-
White-fronted Tern: Sterna striata	-
Pigeon: Hemiphaga n. novaeseelandiae	-
Parakeet: Cyanoramphus n. novaeseelandiae	-
Morepork: Ninox novaeseelandiae	-
Laughing Owl: Sceloglaux albigacies	-
#Dog: Canis familiaris	+
Rat: Rattus exulans	+
Seal species	-
♂Whale species	-

ARTIFACTS

Adzes	4
Hammer	1
Chopper	1
Grindstones	2
Worked pumice	1
Obsidian flakes	+
Other flakes	16
Shells	18
Fish-hooks	4
Bird-spear "harpoons"	2
Points, awls	3
Worked whale bone	2
Worked moa bone	11
Worked mammal bone	2
Worked bird bone	1

excavate only every second square leaving the others for possible future excavation. In the course of investigation however it was found necessary to excavate several of the intermediate squares to determine the extent of variations in stratigraphy and to obtain more occupational material for analysis. Where present a two inch layer of turf was removed by spade and the underlying soil trowelled and removed. Immediately beneath the turf were signs of mid nineteenth century European occupation, namely pieces of "Johnny Jones" heavy gauge iron wire, hand-made iron nails and staples, part of a clay pipe stem, a broken bone button, and cut sheep bones. The Polynesian occupational deposit at four to ten inches cover was trowelled and then sieved in a quarter inch riddle to facilitate recording the constituents (see Trotter 1964). Generally this layer was about four inches thick, but reached a maximum of twelve inches in Square C.7.

The proportion of opercula to actual shells of Lunella smaragda, the predominant species of the midden, was much higher in the immediate vicinity of the oven than elsewhere (e.g. C.6 = 1020:200, F.6 = 10:30) and could not be accounted for by fragmentation. This suggests that the fish were extracted - and eaten - close to the fire and the shelter rock and the empty shells thrown further out. On the outskirts of the oven was a quantity of "consolidated ash", a calcium carbonate deposit formed from burnt shell common to most Moa-hunter oven areas in North Otago, if not elsewhere. The midden is basically the same as that from local coastal sites, but the amount of small bird bone is greater and fish bone less. A total of twenty-five bird species were represented and these included a moa, Euryapteryx, the Flightless Goose, Cnemioornis, and the extinct Swan, Chenopsis (Trotter 1965a). Although midden analysis of any one square could not be considered typical of those excavated, results of B.6 listed here give an indication of the material found. Charcoal was present in the midden in the form of a powder (1/16") which could not be separated from the matrix or measured by the methods of analysis used. The Volume column in the list refers to the approximate volume occupied by constituents as they would in situ, and would normally be considered only within size groups.

	No.	% No.	% Vol.	% Weight
Lunella Shells	20	3.19	6.67	2.78
Lunella Opercula	450	71.89	8.75	18.75
Freshwater shells	5	.80	1.66	1.10
Other shells	35	5.59	10.00	4.44
Moa bone	6	.96	16.68	4.46
Small bird bone	55	8.78	2.50	2.22
Mammal bone	12	1.92	.83	.42
Fish bone	10	1.60	.42	.28
Artifacts	3	.48	.22	.22
Obsidian flakes	6	.96	.20	.20
Other flakes	4	.64	.40	1.24
Firestones	20	3.19	51.67	63.89

To a certain extent artifacts reflect the location of the site; there being little fishing gear, no indication of fish-hook manufacture, and parts of two bird-spear "harpoon" heads were found (proximal portion, Fig 5). This type of harpoon is rare or completely absent in Murihiku Moa-hunter sites (most of which are situated on the coast), and its presence at Ototara may be due either to the greater availability of birds inland, or to the late date indicated by 14.C analysis as A.D. 1422 \pm 32 (R.137/2). Portions of four fish-hooks (Fig 9-12), of composite (trolling), two-piece, and one-piece types, are similar to those from other North Otago sites of comparable age (Trotter 1965b). Sections of Dentalium shell (Fig 3) and a perforated oyster (Fig 2) were the only personal ornaments found. The awl in Fig 8 is of Shag humerus, and Fig 4 is a cut section of Mollymawk humerus. Large flaked cutting and scraping tools of "quartzite" which are a distinctive feature of Murihiku Moa-hunter culture were present (e.g. Fig 7), and other flake material included porcellanite (from Katiki Point) and obsidian. Apart from the obsidian only those flakes obviously fashioned for a particular purpose or with work chippings along an edge are included in the table of artifacts, and these account for 26% of those found. Three adzes of indistinctive quadrangular type were represented by broken pieces, and another small untanged quadrangular specimen (Fig. 6) had been broken and resharpened. The broken object illustrated in Fig. 1 is of whale bone, with the longitudinal faces sharply cut - its purpose is unknown.

Conclusions:

Ototara Glen was probably occupied by a small party engaged in fowling operations, possibly en route to an inland destination. The close proximity of the site to the coast (one and a half miles) suggests that the locality had some special attraction, probably bush (Mantell described the place as "a romantic recess ... surrounded by mingled shrubs and rocks" in 1848). Their diet however included a considerable quantity of marine foods as indicated by remains of fish, seal, molluscs, crustaceans, and echinoderms. Although artifact numbers are too low for accurate statistical analysis, the assemblage is comparable to those from other larger sites in North Otago (Waimataitai, Mata Kaea) which are considered to be aspects of a cultural phase intermediate to "typical" Moa-hunter and Classic Maori in Murihiku (Trotter 1965b). Most of the moa bone found, including pelvic pieces, had been broken, cut, chiselled, or ground, indicating the scarcity and value of this material for artifact manufacture at the time of occupation.

Acknowledgements:

The success of even a small investigation such as this is due to the cooperation of many people, and I wish to make grateful acknowledgement of my indebtedness to Messrs G. and J. B. Ballantyne for their interest and permission to excavate; to members of the North Otago Scientific and Historical Society who did the actual excavating (often in somewhat inclement weather); to Messrs R. J. Scarlett and J. Moreland for bone identification; to Mrs G. M. Strathern of the Hocken Library for obtaining microfilm of Mantell's journals; to Mr J. Linzey of McSkimming Industries for differential thermal analyses; and to Mr A. Rafter and the Institute of Nuclear Sciences for radiocarbon analysis.

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