



NEW ZEALAND
ARCHAEOLOGICAL
ASSOCIATION

**NEW ZEALAND ARCHAEOLOGICAL ASSOCIATION MONOGRAPH 17:
Douglas Sutton (ed.), *Saying So Doesn't Make It So: Essays in Honour of
B. Foss Leach***



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SAYING SO DOESN'T MAKE IT SO

PAPERS IN HONOUR OF B. FOSS LEACH

**Edited by
Douglas G. Sutton**

**New Zealand Archaeological Association
Monograph 17**

A Diary Discovered: Bayard Booth on the Shag Mouth Moa-hunting Site

Atholl Anderson

Anthropology Department, University of Otago

INTRODUCTION

Bayard Samuel Booth (1818–1888) undertook the first extensive excavations at Shag Mouth, east Otago, in 1875. Booth was an American who came to New Zealand in the 1860s as a goldminer from California, having earlier fled from Canada, “. . . so the story goes, with a price on his head as a result of the part he played in Reil’s Rebellion.” (Skinner 1924: 13). When the Otago goldrush passed he took up land at Hyde (central Otago), grew an orchard and became the village bootmaker. His avocational passion, though, was for natural history, and he was particularly interested in the moas (*Dinornithiformes*). His obituary remarked on his success in finding moa bones and in setting up “. . . several magnificent skeletons of that relict of bygone days.” (*Mt. Ida Chronicle*, 10 May 1888).

Booth’s most notable contribution to natural history was his discovery, in 1870, of the subfossil moa bone deposits at Hamiltons (central Otago), and the subsequent excavation of these, under the direction of Frederick Hutton, Director of the Otago Museum. Booth’s (1875, 1877) papers on these deposits provided more detailed description and thoughtful comment about natural deposits of moa remains than did any other publications until those on Pyramid Valley, 65 years later.

Hutton was clearly impressed with Booth’s abilities and, in January 1875, employed him to work for three months at the Shag Mouth moa-hunting site. Booth dug a main trench through the highest dune on the site (“the cutting”) and undertook various smaller excavations and surface collecting. Late in April he consigned 10 boxes of samples and his field diary to Hutton.

Hutton (1876) used some extracts from the diary in his paper challenging Julius von Haast’s interpretation of the site, but no other evidence from it was ever published. By the 1920s, when Shag Mouth became, once again, a major source of data in a debate about the antecedents of Maori, Skinner (1924: 13) believed the diary to be no longer in existence and lamented its absence as “. . . a heavy loss to the science of ethnology in New Zealand.”

In 1987 I found the diary amongst Augustus Hamilton’s papers in the National Museum. I present here a full transcript of it and a brief discussion of the context in which Booth’s research was carried out. There are, of course, many other matters which arise from the discovery of the diary: how and when it was acquired by Hamilton (he does not refer to it in

his own, brief, notes (Hamilton 1890) on Shag Mouth), what happened to the 10 boxes of samples, and what actual stratigraphy Booth encountered in "the cutting" amongst others. They must be left to another occasion, although, in reference to the last of these, I should record that I am writing this paper in a tent beside an excavation of the high dune at Shag Mouth, and our observations so far are in agreement with Booth's general conclusions about stratigraphy elsewhere in the site.

In transcribing the diary I have retained all the original organisation, grammar and spelling, except to remove the sketches, scattered through the pages, to a single sheet and number them; and with the occasional interpolation of a word or two in square brackets where the sense of Booth's remarks might otherwise seem unclear. Most of the diary was written in pencil, in an immature hand, and on loose sheets of paper folded into a booklet, but not pinned or sewn. Since Booth does not record an entry for each day, and some entries extend over several pages, I cannot be certain that the order in which it is transcribed was that of the original diary. It is also possible that further loose sheets might turn up to cover the periods, notably between the 4th and 24th of February, 1875, for which there are no entries. In the latter instance, though, I suspect that Hutton, who visited the excavation on February 11th, and judged it sufficient for his purposes (Hutton 1876: 104), may have taken the essential parts of Booth's notes up to that point. It is significant, I think, that there is no stratigraphical description of "the cutting" in Booth's diary, whereas the strata in his later excavations elsewhere are recorded (holes 2 and 3, see diary).

THE BOOTH FIELD DIARY

Left Hamilton for the mouth of the Shag River to work for Capt. Hutton Monday 25th of Jan 1875, arrived Tuesday evening following, commenced work on Wednesday.

Immense beds of shells and fish bones on the top, not charred, but steamed or boiled. Moa bones immediately under, nearly all charred and broken, especially [? those of a] large beast. A few heads entire—not brained. 2 modes of cooking of the Moa hunters and the fish and shell fish eaters (roasting and steaming). Few shells or fish bones among the moas, but plenty seal and a few dog bones.

Feb 4th. Found a bone trinket hook, not sure what layer it belonged to as I did not lift it from its bed, but as there were no shell bed over it, it must have come from amongst the moa bones.

Full life [? sized drawing: Fig. 1]

An other bone claw [Fig. 2] found on the debris, but from the clean colour it bore, judged it came from the clean sand & moa deposit.

Fossil [Fig. 3], 8 of these in hole 2.

Also the end of an odd jawbone [Fig. 4], round teeth like beads, may have been worn as an ornament.

Reel of white stone fossil [Fig. 5].

Only 4 whole thigh bones, and only 2 bones of young moa found up to this date, Feb 24th 1875.

Thursday 25th Feb. Found a pure piece of obsidian in the middens near the coal bore—among the moa bones where there are no shell beds. But [Friday] 26, came on 2 beds of shells, 2 ft between [with] scattering [of] shells from bottom to top, looking very fresh. All the round fossils, except the one on the flat found in the above place, also a rats head and the pipestem bone & the polished stone. The bone hook and bone valange were found at

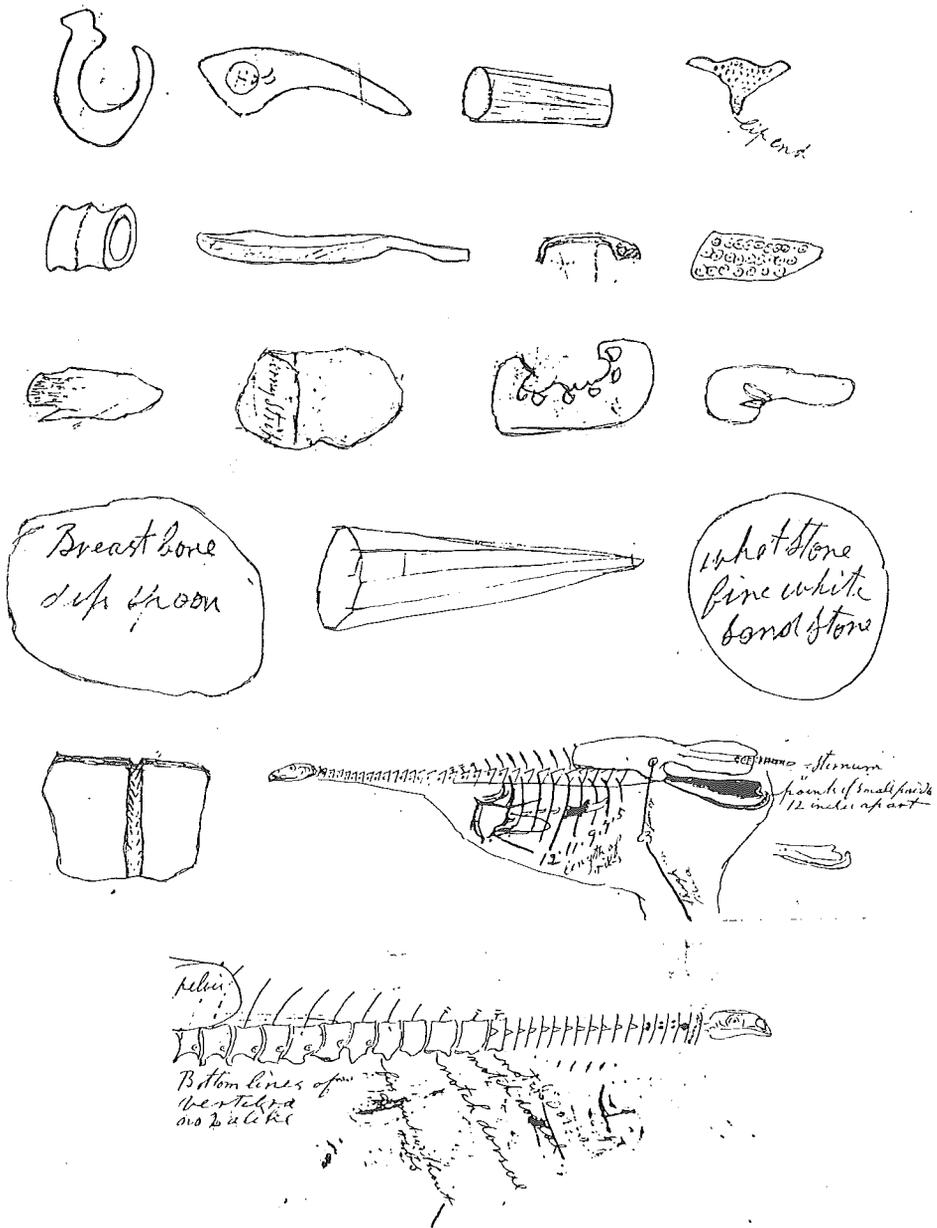


Figure 1-18 Sketches from Booth's diary. Top row: 1-4; second row: 5-8; third row: 9-12; fourth row: 13-15; fifth row: 16-17; bottom: 18.

the cutting. No moa bones to be found anywhere up the flat higher than the sand spit, nor on the hills.

Friday 26th Feb. In same place found a thin peice of polished stone 3 ft from where the obsidian was found, but deeper, in the lowest deposit, also red paint & more fossil. [Also

found] a good pelvis only lacking 2 end joints of the sternum, another perfect sternum and a complete neck. Between, came on 2 layers of shells 2 ft apart. Shells in lower bed the largest, moa bones in & on the top of the upper layer. Came on the third patch of eggshell—No. 3 egg.

A bone needle [made from] dogs rib; a doctors instrument.

Marrow spoon [Fig. 6]. Bone spoon, found another in same place on top of debris, uncertain where it came from.

Sunday 28th Feb. Part of another bone hook [Fig. 7]. (Same place as other hook). Dog vertebra, eggshells and moa bones on flat. Got 2 ft under the shell bed at the bluff down on the flat where you saw me pick up a fossil.

Some on top, some deep—peices of shells from the cutting [Fig. 8]. Half a shell of some large tooth [Fig. 9] got in No. 3.

Tuesday 2nd March. Pelvis with sternum, head with pallot & Tongue.

Wednesday 3rd March. Hole No 3; lumps of sticky clay with gizards pebels—one [?] some] in a row as if the neck throat had been thrown down full. Take [?] morsel up in the jaws. No. 3, a dog's upper jaw, bone very rotten—sand wet, perhaps the reason.

Thursday 4th. Rainy day, walked around the rubbish heaps. Found a peice of skin (moa) or grizel—1 in long 1 in wide [Fig. 10] wet, soft and tough, Singular Smell. Also a partly worked bone as if to make a hook; bored out or drilled [Fig. 11]. Don't know what to compare the smell of the skin to; tasted it, and it tastes same as smell. I think its from the Heel or gamble Knuckle on of the leg.

Friday 5th. A singular lot of fish bones, a perfect head [?] moa], mor gizards and lumps of clay.

Sat 6th. A perfect head, 2 skulls & breast bone.

Sunday 7th. Went to sandy creek, no bones over the new ploughed ground, no bone along the bluffs, very few at sandy creek. Moas all got at some distance and taken to the large encampments for grand feasts. If this was there feding ground, as Haast says, there would be some bones found over the ground. All the deposits commence on the pure sand—2 ft up to roots—could been no grass on the spit when the moa was hunted, all shows great antiquity. Necks not thrown away with meat on but roasted and picked. Dogs bones got most frequently in the deepest deposits. Bone partly worked [Fig. 12]. I find they have not all got 5 joints of out Toe, mostly 3-4-4.

Bones lying the deepest, if they lay in pure sand, are the best preserved. Can find no line of demarkation between 2 races as Dr Haast has it—although a great many years may have elapsed during the accumulation of deposits. [In] Many cooking places there is no stones but the sand made hard as if mixed with clay, then comes from 6 to 10 inches ashes, charcoal and burnt bones. I think they roasted or broiled most of the thick flesh on a blazing fire and used the stones for steaming shells or fish, as a little heat would do; their mode of raising steam would not cook tough moa.

Being of the nomad habits considerable long intervals may have elapsed between times of occupation—but one heavy wind storm of 2 or 3 days duration would be suficient to make any of the layers or stratas so much spoken of by Dr Haast, Such is the shifting nature of the sand. I know bones on the surface would not last so long in other places; such appearance is easily accounted for by their having been rooted up and brought down the gullies by extraordinary floods. In the gullies water cuts new channels and tears up & carries away everything before them; bones appears on the Hills as the surface wears away.

Bones greatly charred, may have burnt them a little by cooking, but chiefly by using them for fuel. Pelvis all broken, but don't appear always to have broken the skulls. Abundance of chipped implements, chiefly of the hill flint—none polished, no green stone. No grass appears to have been on the spit at the time of occupation as there are no roots that deep—and ovens in pure sand & ashes. No diseased bones or foot rot, no harpagornis [*H. moorei*, Haast's eagle], Goose [*Cnemiornis calcitrans*], no Lizard. Eshells frequently met with but not to say plentiful.

Many holes in the surface 10 or 12 [?] feet] across where I imagine to have been their huts or sleeping holes. The deposits appear fresher than at Hamilton, but still very ancient as it appears grass did not grow on the spit till after the deposits; then the roots made their way down through the upper deposits. The fresh appearance may be owing to the sand, as where ever a bone is in pure sand it is perfectly sound—but where the sand discoloured with ashes it is rotten. The great mistake will be found to be the advent of the Moaris. I believe they nor the white [man] knows no more about it than the white man knows about his origin.

Only found the Gizzard pebbles & gravel about one oven at the cutting; found plenty afterwards in No 3 hole also No 2.

Breast bone dip spoon [Fig. 13].

Most [moas] have 3 short ribs each side of breast bone—some have 4. Pelvises not all broken; found some quite perfect, with 3 & 4 joints vertebra. On an average find about 2 feet of bottom deposits before any grass grew on the spit. Not the smallest piece of wood found yet. The large shells ranging through the lower 2 ft under grass roots.

Sat 13th march. In a regular heap of bones it appears that the penguin has been very plentiful at time of the moa deposit as I get a great many of their bones. As there is only a few scattering moa bones in the upper shell beds I conclude that the upper shell beds were deposited at the time of the very last of the moas—perhaps not by the same tribe but by the same race. Their habits appear to have been the same: They all used the same kind of implements; they all had Dogs & ate them (and seal); they all caught penguin Ducks and other birds; they all ate shells, fish; they were all deep sea fishers, as the fish bones through all the deposits testify; they all had exactly the same mode of cooking, even to using the same stones and selecting the same place to squat on; they all used the same kind of paint; and don't appear to have been cannibals as I can find no pieces of human bones—if they were they must have burnt the bones carefully.

Rough sandstone full size—8 square [Fig. 14].

Whetstone, fine white sandstone [Fig. 15].

March 14—A great fact strikes my mind (what a loss that I did not know it when I wrote my paper at Hamilton [moa swamp]). I sent down from the bone pit at Hamilton 1 or 2 bones which I did not then know, which I have now ascertained to be the flipper bones of the penguins wing. Now how did they get there, unless the deposit was at the time of the lake period, the shores of which being close to the lagoon. The penguin never goes far from water—this would account for goose [at Hamiltons deposit, where *Cnemiornis* bones were common].

Monday 15th. Frequently find the sternum with the tip joint or end gone; it being the oil bag it would make a rich mouth full. The breast bones nearly all have been thrown away with the short ribs attached, it appears they have had no meat on them. Found one today with only 2 ribs on each side, one rib a malformation—am not certain but what the savages

had cut one rib away from each side. Found another short rib malformed like the 3rd joint of a birds wing.

Tuesday 16th march. Took out a pelvis of the gigantic dinornis, with the whole of the vertebra attached except 5 joints next to the head.

Friday march 19th. Came on plenty of moa bones in and some on top of a shell bed top layer—2 ft clean sand over, & layers with all bones and shells 8 ft. under—8 or 10 layers.

Sunday 21st. Down sick with a cold

Tuesday 23rd. Have frequently made close examination for a little flat bone for the end of the Tongue but cannot find any; I think there has been nothing but grizel. Nearly complete skeleton of a common penguin—even windpipe & pallot.

Wednesday 24. King penguin bones; Small penguin plentiful. Bones of an immense seal.

Friday 26th. No foot rot, no diseased bones. A most important discovery, to know what short ribs belong to each kind of breast bone and each species of Birds. I have it.

Sat 27. A shoulder blade, I think human, & 2 other bones can't make out, one gnawed by Dogs; I think they are young moa bones. Dug out the stump on the flat, found it had been planted by human hands for some purpose. It was about [words missing] long. One foot of top rotted off and laying one foot under the sand; the whole block appeared to have been hewed down from a much larger size by some implement having a smooth but very blunt edge. Split a slab to send down.

A piece of fine white sandstone with a crease cut across it [Fig. 16]. This stone is plentiful in small pieces in all the layers; in fact, where there is any indicating human work.

Inclusive from first short rib next to the Femour 3 in; to Head 30 joints in all, or 32 joints counting the 2 joints in the 3 in Space. In the 30 calculation there are eleven Dorsal joints, 4 of them being covered by the pelvis—7 joints clear of the pelvis—next the notch dorsal commences and gradually tapers down to the smooth forked neck dorsal, making 19 joints from the last dorsal to the head. 2 dorsals next the head have holes in the sides & no ribs. Ribs commences on 3rd dorsal; 9 ribs on each side including the short spike ribs on the pelvis. The side rib braces runs down the first 6 ribs from the neck, the other 3 ribs being under the pelvis, the braces points back and lap with the points on the outside. The longest and heaviest ribs is the 5th & sixth from femour end of vertebra. This species which I take to [be] the gigantic [moa] has 11 joints to the sternum. Outer or small pelvis paddle 11in long; center of the end to point of pelvis 9 in one side; main paddle one inch from pelvis at point. Length from end of pelvis to Head 5 ft. 5 in, tail 7 inches, making from tip to tip—allowing 6 in for head—6 ft 6 in or 78 inches [Fig. 17].

One very large neck had no split dorsal, others had one, & some 2 and three, according to species. Have since found several with no notch dorsal but invariably 19 joints from the head to the first whole dorsal. Set up one for Mr Rich. Head and 20 joints joining from lone bird that took in one dorsal. 6 joints of another section, but matched well; also wind pipe, tongue & pallot. [Fig. 18].

Think they have carried the gravel in a Gizzard and ate grass like a goose, instead of a crop; for the reason that if a 'crop' they [the hunters] having to carry some distance, would easily cut it out; but the gizzard being in the body by cutting it out they would loose too much blood and make it too dirty to carry. Breast bones frequently full of small fish bones as if, after eating, pick all small bones, put them in the breast bone for a dish and heave all away together. Think there has been no meat on breast bone or short ribs as in almost every instance the short ribs have been left attached to breast bone. Bones dont lay in continuous

heaps but in bunches as if not a regular supply but only after great feasts when the hunters would come in loaded with moa-seal-fish-and birds as they all lay together. Think they have ran in flocks, for the reason that [in] most every cluster of bones [of] 2, 3, 4, or 5 birds they are mostly of the same species, and the species would flock together and when the hunters came on them, would take the whole flock. They probably hunted them with dogs and if a dog got a kick to kill him—it was all good meat.

Dont think moa could run fast, not built for it, but kick like a mule. I think they could run about as fast as a man.

Sunday April 4th. A flock of woman visitors; largest end of Tongue bones goes to the point of the Tongue.

Monday Tuesday & wednesday 7th. Sick. Preservation of bones [crossed out phrase 'does not depend'] or best preserved ones is not owing to the latest deposit, as I have found some of the best preserved the deepest when lying in pure sand. Where ever they layed in pure sand they were sound. Neither is it owing to the size of the bone, as I have found a perfect Mouse Skull in the cavities of a large pelvis, when the pelvis was so rotten it fell to pieces.

Thursday 8th. Another perfect foot, & 2 skulls.

Sunday 11th. No boxes yet.

Tuesday 13. A rainy day. The Gizards have no doubt had a thick covering of meat. The cooks would naturally roast them under the ashes whole, then eat the meat off to the thick skin next to the gravel, then throw the ball of gravel with the skin around away—hence the gravel occurs in little heaps.

Shag sand spit, April 23rd 1875. Bills rendered to Captain Hutton—one Bill from 25th of Jan up to 20th of February with coach fair, 2-10 = 20-10-0. Second bill, from 20th of February up to 23 of April—19-10-0.

Measurement: Hole No. 2 by the bore

2 ft white pure sand.

6 in seal & moa; Brown sand.

6 in black shell bed, seal and moa right through.

6 in white sand, seal & moa, dog, obsidian (fresh fish scale).

2 ft colour thickens. Shells, Seal, polished stone & fossil.

2 ft Slightly spoiled with charcoal.

Marine sand.

Hole No 3

1 ft bones.

6 in bones.

6 in bones.

12 [? in] white sand no bone.

6 in quite black with bone.

6 in same as below.

6 in same as below.

6 in white sand & bones.

18 in middens. ["... a very few shells ..." down to this layer].

1 ft white sand, coal & ash; moa, dog & seal.
6 in oven stones, burnt bones & ashes.
2 ft no bones, slightly coloured coal & ashes, egg shell.
Marine sand.

Invoice—Box A contains:

No. 1, Kerosine tin; sample of bones got on & in the upper shell beds.
No. 2 loose in bottom; sample of stuff composing the shell beds at the cutting.
No. 3 sample of burnt & broken bones.
No. 4 sample of Shells in deepest deposit; for 2 or 3 feet thickness.
No. 5 sample of shells in upper or latest deposits.
No. 6 Slab of wood from the stump on the flat.
No. 7, 3 parts of legs with small bones tied to their places as found.
No. 8 a perfect foot, hind claw in its place as found.
No. 9 perfect foot with hind claw.
No. 10 perfect foot (found none with 5 joints outside claw).

Box B contains:

No. 11, kerosine Tin—wind pipe rings.
No. 12 kerosine Tin—Ribs with wind pipe on bottom.
No. 13, Stone implements—loose in bottom.
No. 14, all Sorts filled up.

Box C contains:

No. 15, lolly tin; 4 perfect heads, one of them you can only improve by putting life in it.
Ten Sternums, most types.
No. 16 lolly tin, 10 fallen heads.
No. 17 lolly tin, 10 skulls, bone of a young moa gnawed by a Dog, a shoulder blade—differs from all others which I have found (got amongst moa deposits).
Match Box: tongue & pallot belonging to the big burnt head in No fifteen—in match Box 2 two small Mammal Skeletons got close together in the shell beds on the flat.
No. 18. Lolly tin—9 moa skulls—match Box 2 Small Mammal skulls in match Box—the smallest Skull was got inside of the mended pelvis, the other got close by. Skull of a fish or reptile in a pepper Box. 2 complete mouth-bones set up—some small vertebra.
No. 19 lolly tin—12 skulls and a lot of head bones.
No. 20 lolley Tin—in sardine box—12 fossils, an octagon worked Stone bludgeon, 6 peices of whetstone & some flint points. In match box hind Toes. Match box, shell of a large tooth and other shells. match box, bones of a penguin, tongue and pallot & part of the a rim shell from in a moas eye Ball—I am certain of it as I got it from its exact natural position in a moas eye (I touched it with glue to keep it whole). Match box, mammal head & moa pallot and a very small babies head: I have found several of them don't know what they are unless they are the air chambers from the lungs of aquatic fowl. match Box obsidian and polished stone. Match Box. Bone ear trinket, part of a bone hook and other worked bones. Match box—a peice of moa skin, I found it after it had laid in the rain all night and swelled out it was 1 by $1\frac{1}{2}$ in, and $\frac{3}{16}$ ths of an inch thick. It had when wet, a most unearthy smell. Match

box, hind toes. Match Box, Jaw bones of fish and something unknown to me. Sardine box, specimens of Flint. Sardine box, bone needle, 2 marrow spoons, peice of breast bone been used for something, other wrought bone. Small skulls and a variety—match box bones and Shell. Sardine box, paint: some remarkably fresh looking shells got 2 ft under moa bones, for contrast, the shell in a paper was got with them. In paper: Seal & Dog from upper deposits. The very deepest deposits at the cutting 10 ft deep. In paper, bill of an albatross, upper jaw of a Dog from the upper deposits, penguin, Fish scales, paint, thick skull and other bones; the penguin and fish bone are plentiful through all deposits.

Everything in this tin, No. 20, came from amongst moa bones—in fact there was nothing worth saving in the upper shell beds, everything was rotten.

No. 21 Lolly tin; 14 moa skulls, 2 bird skulls, small vertebra & Dogs jaw—loose in Box C.

No. 22 2 large Sinkers, a gnawed Moa Bone, 2 sardine Boxes moa Eggshells, 22 inferior moa skulls, 2 Seal skulls, Seal neck. Jam Tin; Tongues & pallots, a large fish head bones, large molus shells, large bird of flight. A paper of allsorts—variety from under the shell beds on the flat. Variety from over the shell beds on the flat: a lot of perfect Ribs on top. In a match box on top you will find 2 bones and part of an other which I submit is the Smallest moa bones ever discovered; they belong to the Ear, one in each ear hole (sometimes the head in, and sometimes head out, but I think they have had a head on each end) undo the paper very careful (This fills Box C).

Box D contains:

21 Breast bones, mostly with the short ribs which I found attached to them. I have kept them seperate and even put up some decayed ones nearly to assist you in making out the different kinds. All the short [ribs] I gaurantee to belong to the breast bones they are put up with. A quantity of all kinds of ribs and other bones, filled up with loose vertebrae.

Box E contains:

1 Lolly tin small vertebrae; a quantity of detached vertebrae & 16 Sections of strung vertebra.

Box F contains:

68 sections of vertebra

Box G contains:

4 whole necks with heads belonging, marked with corresponding numbers. In the right Ear of head No 4 you will find the little ear pin sticking in its place—that is if it don't fall out—also tongue & pallot in its place. One whole spinal [column] from tip of sternum, to within 5 joints of the head—the pelvis fell to pieces [but] I was determined not to loose the pattern and stuck it together all well as I could. 2 other whole necks, one of them to within 3 or 4 joints of the pelvis & 18 other sections of vertebra closes Box G

Box H contains:

5 pelvises with sections of vertebra attached.

Box I contains:

5 pelvises with vertebra attached. Jaws of an immense seal and one smaller one, and 1 Dog jaw. 1 perfect fowl hind claw.

Box J contains:

4 pelvises with vertebra attached and 2 Gizards just as they were lifted—you will notice in them a peculiar fine white powder, it only occurred in the gizards. The pelvises are mostly bad but I thought they would be of use to you in making out the different species.

THE CONTEXT

The existence of the Shag Mouth site had been drawn to Haast's attention by the landowner, F. D. Rich, in April 1872, when Haast was at Palmerston. Obligated to return immediately to Christchurch, Haast left his servant to collect samples for him. These turned out to greatly resemble material from Rakaia Mouth (Canterbury), a site which provided the empirical linch pin of Haast's hypothesis about the great distinction in age and culture between the "Moa-hunters" and the Maoris or "shellfish eaters".

Consequently, in November 1874, Haast proceeded to Shag Mouth to dig trenches. His investigations revealed that

Both Moa-hunter and Maori ovens and kitchen middens are scattered all over the spit . . . in several places mixed together in a remarkable manner Generally, however, they are very distinct, and show clearly that a considerable period of time must have passed away before the Maoris, after the disappearance of the Moa-hunters, took again possession of that locality. (Haast 1875: 93).

Hutton took exception to this view and, invited by Rich, met with him on January 23rd 1875, to plan a further series of excavations. It was for these that Booth, occasionally assisted by one of Rich's labourers, was hired. According to Hutton (1876: 104), the results of the new trenching were plain, "... Maori middens were only surface deposits, seldom more than four feet deep . . ." Furthermore, "Moa bones were never found unassociated with beds of shells, and although shell beds did occur without moa bones, these just as often underlaid beds with moa bones as overlaid them." (ibid.: 105). There was, Hutton (ibid.: 107) concluded, "... not the slightest evidence to show that this spit was occupied at two distinct periods, with a long interval between, during which interval the moa became extinct, as stated by Dr von Haast. In my opinion, the very last Maoris who camped there fed occasionally on the moa."

Haast was incensed. He had ascertained the facts of stratigraphy himself, he declared, and "... no further excavations, even if they had been made under . . . [Hutton's] . . . eyes, could alter them in the least." (Haast 1877: 670). This was a blunt reference to Hutton's absentee directorship, from which Haast drew two unfavourable conclusions: that Hutton had misunderstood Booth's findings, and that Booth, lacking direction, had drawn "... partly erroneous interpretations." (ibid.: 670). Haast now stated his earlier position more

emphatically; "... the undisturbed layers with moa bones ... never contained any shells, and the undisturbed shell beds did not contain any moa bones." (ibid.: 672). Where shells and moa bones were mixed, it was due only to the shifting of sand dunes.

The exchange thus reached, at this point, an unsatisfactory stalemate which persisted until after Haast's death in 1887. Hutton, who seems to have felt the frustration of it more than Haast, complained to Augustus Hamilton as late as about 1890 that

Dr Haast's facts ... are all moonshine ... Haast was only two or three hours at ... [the site] ... and part of the time was contained in emptying a bottle of Mr Rich's port wine ... He has never altered his opinions ... and would not even if you showed him a live moa. (Hamilton n. d.)

The value of Booth's diary in this matter is that it demonstrates quite clearly that the truth lay somewhere between the positions adopted by Haast and Hutton. There was, generally speaking, a stratigraphical division between lower layers rich in moa bone (and also seal and dog bone), and overlying shell middens. Moa bone, however, occurred in and on shell beds, and shell and fishbone occurred in the lowest layers. Since, furthermore, "the cutting" was across the highest point of the site, it could not be insisted that the introduction of moa bone into upper shell layers was the result of post-depositional mixing through sand dune slumping.

Hutton (1876: 105) did not treat Booth's vital observations on the matter quite fairly in implying that it was Booth's view that no sequence of lower layers rich in moa bone and upper layers rich in shell midden could be commonly encountered at the site. Both his re-working of the diary, and Haast's disparagement of Booth's ability, were unjust. Booth had greater experience of the site, and a surer understanding of its stratigraphy, both as it was observed and in how it might have been formed, than either of his more eminent contemporaries. Had he been able to publish a paper on his work at Shag Mouth, as he did on his excavations at Hamiltons, he might have stopped one of the least necessary arguments in the formative debate of New Zealand's archaeology almost as soon as it began.

POSTSCRIPT

I take writing about middens, and sitting on top of one, as sufficient justification to describe an early episode in my career as one of Foss's students. In 1971 I was excavating huge samples of midden at Black Rocks, in Palliser Bay and, at one point, I wrote to Foss expressing my anxiety about how long it was going to take to sort it all. Foss replied that there was no problem because he had under construction, and would soon dispatch, a portable model of the wind-sorting midden machine which could run off a landrover battery.

This was cheerful but not exactly reassuring news. The wind-machine, Mark I, which we had built earlier in the same year, consisted of a long box in which the interior was waffled with baffles (or baffled with waffles, the technical details are hazy now). It was attached to a 10 h.p. motor which sucked a powerful stream of air through the box. The idea was that midden, introduced into the air stream, would fall between the baffles according to its mass; stone immediately, then shell, then fishbone and so on. When we tried it, however, there was an instant and terrifying roar as the sample smashed itself to pieces against the first baffle. We retreated, shaken, to the Captain Cook.

The portable model never quite made it to the production stage, and its ferocious parent became the object of a rather philosophical research essay by another of Foss's students, in

which it was shown as analogous to something called “Weaver’s sey”, for which “... the indispensibility of village girls to the process” (Jenkins 1972: 4, 29), was a pre-requisite we were unable to meet. Content to know the true nature of the beast we went back to sorting midden by hand. Life as one of Foss’s students was never dull, and I value now, as I did then, his enthusiasm, intelligence and friendship.

ACKNOWLEDGEMENTS

I am very grateful to the National Museum of New Zealand, and especially to Sandy Bartle, for permission to publish Booth’s diary. I am also indebted to Brian Allingham who put the Booth diary on disk, and made many valuable observations about it, to Jacqui Pilditch who helped us get it into the VAX and to Warren Gumbley, who found the Booth obituary at short notice.

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