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MOA REMAINS AT POUKAWA
Hawkes Bay

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INTRODUCTION:

This is a report on the recovery of moa remains from the bed and north bank of a stream, dry since 1931, situated at the north end of Poukawa Lake, some eleven miles southward by rail from Hastings.

During the six year period just prior to January 1962, extensive field work was carried out by the writer in, and adjacent to, a linear depression which contains the old Te Aute Lake bed and the present Poukawa Lake. The depression is bounded on the east and west by two ranges of soft limestone, maximum height 1370 ft. This area is very well known and is traversed for the freater part of its length by the railway and the Napier-Wellington State Highway.

OBJECTIVES:

The object of this work was to discover as much as possible relative to its natural history and its occupancy by man and the moa prior to European settlement. An extensive deposit of moa bones had been found at the bottom of a spur overlooking the outfall of the old Te Aute Lake, by Hamilton in 1888; these were contained in a spring some 15 ft below the surface and were uncovered by drainage operations. A further lake bed deposit was recovered from the foot of a spur situated about one mile west of the first site. The Te Aute outfall lies seven and a half miles south of our present site.

Extensive evidence relative to both, and to the Awamoa (moa tracks), was gradually accumulated and it was noted that surface indications of man fell into three groups; pa sites, undefended village sites, and lake or stream-side fireplaces - faint depressions which time has almost erased. It was from these latter sites that the attack on the bird life had been first launched, but after a careful search no moa remains were ever found in the fireplace sites.

INVESTIGATION:

Toward the end of 1961 extensive drainage operations were carried out at the north end of the Poukawa Lake - it had been drained back to its present level by original drainage carried out in 1931. I was at hand and on the watch during this second operation. Moa remains were recovered on a mile and a half front, and the manner in which the bones had been broken indicated large-scale moa hunting, with the bones being disposed of by simply throwingthem into the lake and streams of that area.

It was noted on profiles exposed by drainage that two pumice bands

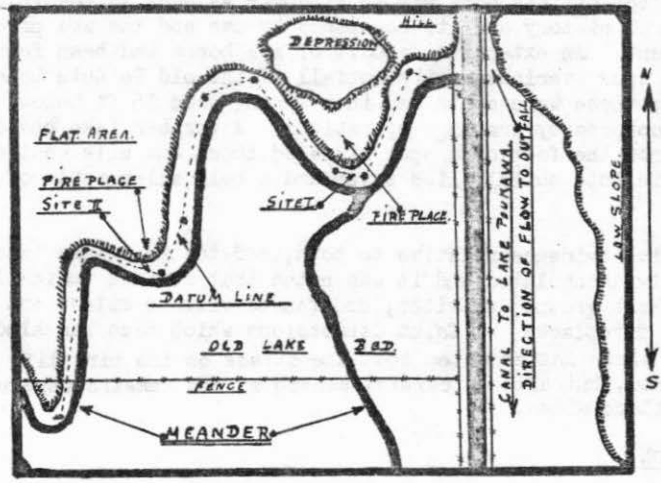
were present, the shallowest being coarse pumice and pellets, some of considerable size. The deeper band was composed of fine white pumice and, in extreme cases, was 10ins thick. This latter band, it is considered, reached the lake in a pumice flood some ten years after the Taupo eruption 1760 years ago.

By following the ancient timber line, the old lake bed was determined, and found to be composed of timber-free peat built up by the annual decay of swamp vegetation to a depth of a foot.

The investigation period lasted from January to September 1962, and resulted in building up a most impressive collection of moa remains. Digging operations started on 6 October 1962, and involved three sites.

LOCATION:

Sites 1 and 2 are situated on the former Poukawa Lake meander, and are clearly indicated on the enclosed plan. Site 3 lies three quarters of a mile west of the outfall and is located in the bed of a dry stream, which entered the Poukawa Lake near its most northerly extension. The site is situated at the foot of a spur around which the meander sweeps before entering this extension. A fireplace is located on the crest of the spur.



SITE 1:

Digging Operations:

Operations commenced on 6 October 1962 at the foot of the spur with the fireplace at its crest. A total area of 52ft x 24ft was dug, this area including the stream bed and the low bank which slopes gently up to the base of the spur.

The surface layer is composed of friable, reddish-tinted peat free from timber, followed by thin layer of coarse pumice; smaller bird remains, extinct swan and notornis were found in this layer. Below this is a further layer of friable peat. The main pumice band is then encountered, this comprising fine white pumice considerably compacted in places. The majority of moa remains were encountered just under, or near to this band. Layer 5 is a mixture of peat, hyridella and matai seeds, the hyridella shells being large but decayed owing to the fact that they had been heated. Hyridella shells found on the 1931 bed of the outfall are in good condition, and ante-date the decayed shells by a considerable period of time. The deposit is convex in shape, lies parallel to the stream bed, and is some fifty feet in length and from six to eight feet across. Proving trenches have been dug to east, west and south of the site, and illustrate quite clearly that both this deposit and the bone deposit are localised in front of the fireplace. Carbonised wood and blackened peaty soil are also found embedded in this layer.

The next layer encountered is composed of hard peat through which numerous cracks run giving one the impression of water-borne peat which has settled over a considerable period. This in turn rests on a deposit of fine fresh water shells in which are embedded numerous pieces of small wood and twigs; moa remains were also found here. Ground water prevented further digging.

A typical profile reading is:

Layer 1 Peat, 6ins, broken moa bones
Layer 2 Coarse pumice, ¼in., notornis and swan
Layer 3 Peat, 4ins, odd moa bones
Layer 4 Fine white pumice, 4ins. No findings
Layer 5 Hyridella, matai seeds, etc., 2ins, immature moa bones
Layer 6 Compacted peat, 8ins, moa bones resting on, or embedded in
Layer 7 Fine shells, 2ins, a few moa and swan bones

Results:

Twenty six major moa bones, 42 claw and toe bones, 52 various vertebrae, 3 craniums, 166 ribs or portions, fragments of pelvis and sternum, 31 immature unbraken bones, and 50 broken; 108 unbroken bones of other extinct birds, 235 broken, 6 craniums, 2 notornis beaks, greywacke gizzard stones, and a number of black stone and red quartz gizzard stones - all foreign stone to the district.

Items directly related to man found below the pumice band: one split slab of matai, cut neatly in half by a sharp instrument. The slab is 8ins across, and 2½ ins thick, and was embedded in Layer 7. Directly under the slab were found the remains of a fully grown giant swan, whose bones are in the finest condition. The discovery was made by Mr B. Cummings on 1 Dec. Two pieces of totara which had been sharpened by man were also found; one piece had been partly bored. also in Layer 7 were six sandstone and greywacke stones used by man. In Layer 4 was a Dinornis skull cleft by an oblique blow by a sharp instrument.

SITE 2:

Digging Operations:

As we turned the first sods on 23 February 1963 on this site, we were full of hope, but felt that we could scarcely do better than Site 1. By no stretch of the imagination could we envisage the vast wealth of evidence we were to find here. Work commenced at the foot of a low spur, and, as before, included the stream bed and the low slope to the foot of the rise. the total area dug to date is 52ft x 28ft south of our datum line, and 88ft x 8ft north of this line.

The layers are much the same as found on Site 1, with the exception of the hyridella layer which is slightly concave and extends well up the low slope, and is some 60ft x 40ft in extent. There are quantities of fine shells but no carbonaceous material. It is separated from the lower pumice band by hard peat, clearly defined, and is therefore older than Site 1.

Profile reading at maximum depth:

Layer 1 Peat, 1ft 2ins, with slight traces of first pumice band
Layer 2 Pumice, 2ins, some peat, matai seeds, hyridella
Layer 3 Pumice, 3ins, with traces of peat
Layer 4 Pure white pumice, 3ins
Layer 5 Hard peat, 4ins
Layer 6 Hyridella with fine shells, 1in.
Layer 7 Cracked, silty peat, 8ins
Layer 8 Fine shells and twigs, 4ins

Moa remains were found in Layers 1, 5, 6, 7 and 8. Some very fine Giant Swan bones were recovered from Layer 3. Recent work has disclosed that the hyridella layer on the stream bank is heavily carbonised, and rests on limestone grit and pug. Moa, kiwi and notornis remains have been found embedded in this layer, with matai seeds overlying it.

Results:

On 2 March, Mr B. Cumming recovered the remains of a very large bird of flight, identified by Mr R. Scarlett as the Australian pelican; this came from well below the pumice bands. On 23 March, Mr Frank Legg and myself recovered a pachyornis type moa from Layer 1. The bones were in fine order, and were only 5ins below the surface of the stream bed. Just prior to these events, the remains of an immature moa were recovered from Layer 1 on the stream bank north of our datum line, one tibia being found only 2ins below ground level. On 30 March, Mr A. Verry and myself secured a complete set of leg bones of Dinornis hercules from Layers 5 and 6, under the pachyornis type moa found on 23 March. I felt that Poukawa could not reward us further, but during the Easter holidays I recovered the partial remains of eight moas from an area only 8ft x 4ft. Mr K. Pedler was fortunately able to help on the second day. The bones were found in Layer 7 and were in fine condition.

During a recent visit by Mr R. Scarlett, the remains of a small moa were recovered by Mr Legg from Layer 1, and were identified by Mr Scarlett as Megalapteryx didimus.

Mr Scarlett has identified the following mature bones found at Poukawa.

Dinornis, the five species
Pachyornis mappini and septentrionalis
Euryapteryx curtis
Megalapteryx didinus
Anomalapteryx didiformis

He has also provisionally identified the following birds:

Australian pelican (Pelecanus conspicillatus), kiwi, weka, extinct hawk, 2 species shag, 3 species duck, extinct swan, notornis, dabchick, extinct heron, kakapo, kaka, kokako, pigeon, tui, saddleback, aptornis and extinct goose.

Among the dinornis types are D. gazella and hercules, both with complete sets of leg bones. With the exception of a left femur in the British Museum at Waingongoro [Site N129/77. Ed.], this is the first time Megal apteryx has been reported in the North Island.

Results from Site 2, south of datum line, 52ft x 28ft:

203 major, unbroken moa bones, plentiful immature; 182 broken moa bones; 82 unbroken bones of other extinct birds; 54 broken bones of other extinct birds; large gizzard stones.

Results from Site 2, north of datum line, 88ft x 8ft:

10 major moa bones; 201 broken and unbroken moa bones and fragments; 466 unbroken bones of other extinct birds; 797 broken bones of other extinct birds; 2,037 small gizzard stones (greywacke and quartz).

All these bones found on both sites lay horizontally with the exception of D. giganteus in Site 1; that is, only one bird was bogged. The articles which can be related to man are one soap stone foreign to the area, from Layer 7 at the foot of the slope, and one pumice disc worked by man, from Layer 3. Anything in the way of artifacts are likely to be found in and around the fireplace sites, and there is a lot of digging to be done before we arrive there.

SITE 3:

Digging Operations:

Some work has been carried out on this site since 26 January 1962, to establish beyond doubt that the bones found, which had been partly cut through, had come from below the lower pumice level. All material from below this band is heavily mineralised indicating great age. The giant moa skeleton from which one of the partly cut through bones came, lay on the base of the stream bed in blue pug. The area dug was 20ft x 15ft.

Profile reading. (Note, no hyridella layer):

Layer 1 Black peat, no timber, 8ins
Layer 2 Brown peat, slight traces coarse pumice, 8ins
Layer 3 Coarse pumice, matai seeds, twigs and timber, 4ins
Layer 4 Fine white pumice, compacted in places, 6ins
Layer 5 Mud, branches, twigs and large charcoal blocks, 12ins
Layer 6 Sandy blue pug

Small moa remains were found in Layer 3, not mineralised. It was down this gently sloping area occupied by the meander, whose width is out of all proportion to the catchment area, that I consider a good part of the pumice flood entered the lake.

CONCLUSIONS:

It is all very well to be wise after positive proof has been obtained. It is now quite clear that a people living on a confined spur in an area teeming with bird life, as the avalanche of material indicates, would have to do something about the disposal of bones, not to mention hyridella. A warm spell of weather would hasten decay which would very quickly make the site untenable. They could bury the refuse or burn it, both tedious operations. All they had to do was gather it up, and throw it into the fairly deep, slow-running stream at their front door.

I sincerely hope that the experiences we have had at Poukawa will be of some help to other investigators.

ACKNOWLEDGEMENTS:

I wish to express my thanks to the Guardian Trustees and Executors for permission to carry out the work, and to Mr W. Nelmes, Supervisor, and to Mr John Sutton, Farm Manager, for their interest and help. Also Mr R. Scarlett and the Canterbury Museum for their interest and help in identifying all the bird remains.

To those who assisted on Site 1, Mr K. Hubbard and Master John Land, Mr B. Cumming and his sons Stephen and Philip, Mr C. Clift and his son Hugh; and on Sites 2 and 3, Mr R. Scarlett, Mr B. Cumming, Mr F. Legg, Mr C. Clift, Mr W. Budd, Mr A. Verry, Mr K. Ramsay and Mr K. Pedler, I am most grateful. I am also very grateful to Mr R. Rawnsley for permission to use the instruments with which Mr N. Thompson and his assistant, Ian Bishop, surveyed the site. They will also produce a plan. Mr Thompson and Mr Cumming assisted me on many occasions during the Awamoa investigations which preceded the present work.