

ANIMAL REMAINS FROM EXCAVATIONS AT
DUNAGOIL CAVE, BUTE.

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(Read 23rd February 1915.)

A little more than a year ago I had the pleasure of visiting, under the guidance of Dr. Marshall, the cave at Dunagoil wherein so many relics of early man have been found. At the time of this visit the excavation was well advanced, and the cave was revealed approximately in the condition in which it must have existed ere the débris of ages became piled upon its floor. As a full description of the cave and of its general situation has been given by Dr. Marshall in the preceding paper, I shall confine my observations solely to the features bearing specially upon the animals which, along with man, shared Bute in the early days.

PROBABLE CONDITION OF BUTE.—As to the surface appearance of the island in those times we have little direct evidence; but a reasonable deduction from the animal remains would be that the island was well wooded and that there was sufficient undergrowth and scrub to shelter ground animals. The shore and the sea-bottom off the shore must have closely resembled in character those of to-day, for at any rate they harboured and sustained the same species of shell-fish that still abound on the coasts bordering the Firth of Clyde. Certain it is that between tide marks in the neighbourhood of the cave, the shore was rocky, while in the deeper water there was in some places more than a sprinkling of sand or mud.



CAVE, DUNAGOIL—LOOKING S.E.

From Photograph by Dr Berwick.

RELATIONSHIP OF ANIMAL REMAINS TO SURROUNDINGS.—

Ages so long have passed since the animals with which we are concerned lived that, even had they not been previously removed, natural processes of decay would have destroyed all the softer parts, leaving only hard portions such as bones and horns, or the limy shells of shell-fish. These for the most part were found scattered amongst the general débris of stones, earth, and black carbonaceous matter, underneath a superficial layer of talus material, 8 to 12 inches in thickness. The stratum containing the animal remains was thickest—4 to 5 feet—just outside what must have been the entrance to the cave, exactly where we would expect the inhabitants, untroubled by thoughts of sanitation, to have cast on the kitchen midden the remains of their repasts.

SUMMARY ACCOUNT OF ANIMAL REMAINS.—In recording the results of my examination of the animal remains sent me by Dr. Marshall, I shall adopt the plan of mentioning first the species and the general character of the material on which the identification is founded, following this by a statement, where the information is available, of the present status of the species in Bute.

The recording of these discoveries is a matter of some interest, for I know of no published records of the pre-historic animals of Bute, except the note which appeared in vol. iii. p. 67 of the Transactions of the Buteshire Natural History Society in which I described a few bones of the Short-horned Celtic Ox, *Bos taurus* var. *longifrons* of Owen.

I am indebted to Mr E. T. Newton for the identification of a few of the more problematical bones.

VERTEBRATES.

MAMMALS.

CARNIVORES—

(1) WILD CAT—*Felis sylvestris* (Scheber.)—Two unmistakable bones were found—the left half of a lower jaw almost complete, and the greater portion of one of the bones (ulna) of

the fore limb of a large specimen. An additional find of the bones of fore and hind limbs showed that the early wild cat of Bute greatly exceeded in length of limb not only the domestic cat but even the wild cat of to-day.

The wild cat is now confined to the more mountainous and wooded districts of north-western Scotland, though it probably once ranged over the greater part of the mainland. Alston (F. N. Alston: The Fauna of Scotland, 1880, p. 11), states that "there appears to be no evidence that the Wild Cat was ever found in any of the Islands. Pennant's statement that it was a native of Arran is probably erroneous." In view of the Dunagoil discovery this statement requires revision. Presumably, however, the wild cat has been long extinct in Bute.

(2) FOX—*Vulpes vulpes* (Linnaeus).—A well worn incisor of moderately large size; probably that of a fox, the incisor of which it very closely resembles.

Notwithstanding their universal distribution at the present day in Scotland, foxes were exterminated from Bute probably before the opening of the XVIII century. But the ease with which an island separated only by a narrow strait can be populated from adjoining areas is illustrated by the fact that according to Blane's "History of Bute" "a few foxes male and female had swummed from Argyllshire across the Kyle some years prior to 1731, and according to a traditionary account was carried in by evil disposed persons and set at large where they soon multiplied and became a general pest which induced the heritors and people in Bute in the year just mentioned to take measures for rooting them out Bute has ever since remained clear of this destructive vermin."

UNGULATES.

(3) WILD BOAR—*Sus scrofa* (Linnaeus).—Seven bones tell of the presence of at least three individuals of this species. The bones include the right half of a cranium or brain-box, part of an upper jaw with much worn molar teeth, a shoulder blade

(scapula), part of a pelvic girdle and of a vertebra, and a limb bone (fibula), probably of an embryonic individual. The presence of human agency is exhibited by several blow incisions on a fragment of a left lower jaw bearing molar teeth scarcely worn.

The wild boar has been long extinct from Bute, as it has been from Scotland generally, although on the mainland it certainly existed until the latter years of the XIII century.

(4) RED DEER—*Cervus elaphus* (Linnaeus).—Several bones of red deer were examined, representing at least two individuals. They consisted of joints of the backbone, ribs, portion of a skull, and limb-bones, and indicated that, as other evidence shows, the Scottish red deer of early times were considerably larger than their modern representatives. Further it is apparent that the deer were contemporaries of the neolithic human inhabitants, for the skull portion, consisting of a frontal bone with antler base, bears cuts seemingly due to heavy blows with a sharp instrument, made in an endeavour to separate the antler; the tip of an antler has been sewn off obviously for use as a pointed instrument; and an *os calcis* is marked by artificial scratches. A cannon or metacarpal bone bears horizontal incisions where the head has been broken off, but these seem to be due to the teeth of a carnivore which has gnawed the bone, and to the identity of which I shall refer later.

In former times red deer were found generally over the whole of Scotland, but they have long since disappeared from Bute and the Lowlands, although some still find refuge in Arran.

(5) ROE DEER—*Capreolus Capreolus* (Linn.).—Two well preserved antlers and a thigh bone show that this graceful creature shared with the red deer the shelter of Bute forests. It is still to be found in some of the wooded portions of South Scotland, though a couple of centuries ago it was regarded as exterminated in the lowland area.

(6) SHORT-HORNED CELTIC OX—*Bos taurus longifrons* of Owen.—The majority of the remains discovered belonged to

this species, sometimes known as the smaller fossil ox, and are far too numerous to record in detail. But the main points may be given. The bones in general were those of an ox considerably smaller than the ordinary domestic varieties of to-day, and two short stout horn cores were typically those of the short-horned Celtic ox. A strikingly large proportion of the bones were those of young animals, and of the seven portions of jaws discovered no fewer than four bore milk teeth, while in only one was the adult dentition complete. Comparatively few bones exhibited signs of man's handiwork. Two fore-limb bones (humerus) were broken across as if for the purpose of extracting marrow, and one showed marks of the blows which had fractured it. Another fragment is interesting as bearing the only semblance to an instrument amongst all examined. It is the lateral process of a lumbar vertebra which has clearly been hacked off the body of the vertebra. This could not have been done with the object of obtaining hidden food material, and the thinness of the process, its blade-like shape, the presence of scratches, and of small chips on its sharp edge suggest that it may have been used as some sort of knife.

Remains of the short-horned Celtic ox have been found all over Scotland, and though it has long been extinct, its blood may still exist in some of the domestic races of our short-horned cattle.

(7) TURBARY SHEEP—*Ovis aries palustris* (Rütmeyer).—Many relics of this early sheep were found, but here also I shall confine my remarks to general points of interest brought out by examination of the bones. The limb-bones, especially the cannon bones, are more slender than those of our modern domestic sheep, indicating that the prehistoric animals were more agile than those of to-day. Several horns were found, these being upright and slightly curved back, resembling rather those of a goat than of a modern sheep. Of the three fragments of jaws, one bore the milk dentition of a young animal. Several of the limb-bones had the ends broken off and showed scratches and incisions seemingly made by the claws and teeth of some carnivore which had made a meal off the succulent ends.

The remains of turbary sheep have been found in neolithic settlements, in lake dwellings in this country and on the Continent, and even in Roman Stations in Scotland. They may have been related to the fine-wooled, straight-horned sheep which were domesticated on the mainland and in the islands of Scotland, and have still outposts in the Hebrides, but at any rate they have long been extinct from Bute and the neighbouring areas.

GENERAL REMARKS ON MAMMALIAN REMAINS.—Of the mammalian remains it is striking that most abundant in descending order of merit are those of the celtic short-horned ox, the sheep, the pig or wild boar, and the red deer. It is likely that the first three were more or less domesticated and formed the staple meat supply of the Bute cave-men. From the condition of the bones of these food animals we are able to add another to the list of mammals, although no actual remains of it have been found. I have mentioned that, in the cases of ox, sheep, and red deer, a few limb bones with the ends chewed off were discovered. This points to the presence either of dog or wolf. But the fact that only a small proportion of the available bones were so maltreated indicates that the depredator had only occasional access to the rubbish-heap, a supposition which scarcely tallies with the idea of an ever-present domesticated dog. The chewed bones therefore seem to me to indicate the occasional venture of a prowling wolf to the kitchen midden.

I would draw attention to the absence of any remains of the horse, an animal frequently represented in settlements which date from Roman times; and to the fact that of all the seven species of mammalian animals recorded from the cave not one exists in Bute at the present day.

BIRDS.

The bird bones are only three in number and represent three distinct species, all of which are probably common in Bute to-day.

(8) GOOSE, *Anser sp.*—The breast bone (sternum) of a goose about the size of a pink-footed goose.

(9) GREEN FINCH—*Ligurinus chloris*¹.—A single shank-bone (tibiotarsus).

(10) ROOK OR CROW, *Corvus sp.*¹.—Limb-bone (right tibiotarsus).

AMPHIBIANS.

(11) COMMON FROG, *Rana temporaria*¹.—The bones (tibia and fibula) of a hind limb.

FISHES.

Bones and scales of fishes were plentiful.

(12) COD, *Gadus morrhua*.—Skull bones of several large specimens, the largest of which, judging by corresponding bones in a modern cod, was about 4 feet long.

(13) LESSER GREY MULLET, *Mugil chelo* or *cephalus*.—Very many scales of this species were discovered. The species is still common in the Firth of Clyde, where it lives in shoals which advance shorewards near the edge of the rising tide.

MOLLUSCS.

The shells of many marine "shell-fish" were scattered throughout the kitchen midden. All belong to marine species, and all, except the oyster (which is said to be "not common") are common, and some are abundant in the Firth of Clyde today. Four of the seven species—the mussel, limpet, periwinkle, and whelk—occur on shore rocks between tide-marks and could therefore have been readily obtained, but it is not so easy to see how the oyster, scallop, and *Lutraria*, inhabitants of moderately deep water, could have been gathered without apparatus.

(14) COMMON MUSSEL, *Mytilus edulis*.

(15) *Lutraria*, perhaps *elliptica*, but the shells are much thicker and have much more pronounced muscle impressions on the interior than the semi-translucent shells of modern examples of *L. elliptica*.

(16) LARGE SCALLOP, *Pecten maximus*.

¹Identified by Mr E. T. Newton.

(17) OYSTER, *Ostrea edulis*.

(18) PERIWINKLE, *Littorina litorea*.

(19) WHELK, *Buccinum undatum*.

(20) LIMPET, *Patella vulgata*.—Some are small, strongly-ridged specimens, but some are very large with the thick smooth-topped shells common in examples exposed to heavy seas.

(21) A single shell of the COMMON SNAIL, *Helix aspersa* (Muller).

WORMS.

(22) The tube of a MARINE WORM, the "Sea Pencil"—*Protula protensa* (Phil.)

GENERAL REMARKS.

WANDERING ANIMALS.—It is obvious from the above descriptions that the majority of the animal remains bear a direct relationship to the cave-men of Bute, but the remains of chance wanderers ought to be eliminated before this relationship is discussed. Thus the fox may have simply used the cave as a shelter, and may be regarded as a chance wanderer, just as the frog almost certainly was. Here also the wild cat may have made its lair, and carried thither the greenfinch as prey. All these chance wanderers probably found their way to Dunagoil after, perhaps long after, the cavemen had forsaken it.

EVIDENCE OF ANIMAL REMAINS AS TO THE LIFE OF THE DUNAGOIL CAVE DWELLERS.—From the abundance and character of the remains it is clear that the animals concerned were brought to the cave as part of the food supply, but their bones were also made use of as implements, though the evidence from Dunagoil is very meagre. The lateral process of an ox-vertebra seems to have been utilised as a knife, and the tip of a red deer antler tine as a boring instrument, but the saw marks by which the latter was severed from the antler, point to the existence of at any rate one other implement. We need not postulate the existence of a metal saw, however, for it has been found that a wooden lath, the edge of which has been charged with sand-

grains, makes a saw sufficiently effective to work its way through the hardest bone or even through stone (see Munro's *Prehistoric Scotland*, p. 147).

The abundance of the bones of the celtic shorthorn, of sheep and of pig, would indicate that these animals were already domesticated and that on their domestic animals the inhabitants of Dunagoil depended for their main meat supply. But the domestic animals were probably more than half wild, and the large proportion of calves and lambs (shown by jaws bearing milk teeth) would indicate that the less active rather than the largest animals fell most frequently to the wiles of these early hunters. That they were, however, hunters capable of capturing the largest and wildest quarry is shown by the occurrence of the remains of adult red deer. The stone implements described by Dr. Marshall in the preceding paper give the clue to the means by which the hunters wrought. The artificial splitting of some of the limb-bones of the food animals had probably two ends in view, the extraction of marrow for food, and the manufacture of bone splints as implements.

But in addition to their skill as hunters, the cave-men were also expert fishers. The lesser grey mullet was their main fish food, and the peculiar habit of this fish of advancing in shoals into shallow water with the rising tide would render it liable to be caught with the hand by wading. It is not so easy, however, to account for the presence of cod remains, since the cod inhabits deeper water, where it could scarcely be captured without some specially designed instrument such as a baited line or a net.

A similar difficulty arises in the endeavour to account for some of the shell-fish. All the molluscan shells recovered from the cave débris belong to species which are used as food at the present day or have been so used within comparatively recent times. The inhabitants of the shore rocks formed an almost inexhaustible supply ready at hand, but the oyster, the scallop (*Pecten maximus*), and *Lutraria* are found only in deep water, beyond the reach of unaided man. It may be that some simple instrument was

employed such as a long pole which could be thrust between the gaping valves of the shell-fish, and upon which the valves would immediately close, so that the dainty could be drawn up from the depths—a method not so long since used in the Firth of Clyde for the capture of crabs.

At any rate the presence of a fish and of mollusca which inhabit moderately deep water postulates the presence of some sort of boat.

BEARING OF THE ANIMAL REMAINS ON THE AGE OF THE PEOPLE.—It can scarcely be expected that the testimony of the animal remains should be so conclusive as that of the implements, but that evidence it supplements. The people of the Old Stone Age possessed no domesticated animals, nor apparently did their successors, such as the builders of the shell-mounds at Oronsay; but the later immigrants of the New Stone Age brought with them the celtic shorthorn, the turbarry sheep, the pig, the goat, and the dog. The animal remains of Dunagoil, therefore, by themselves would be sufficient to indicate that the cave-men belonged to a period not earlier than that of the predominantly round-headed neolithic peoples, whose best known characteristic was their ability to manufacture polished stone implements. The absence of horse remains would indicate that that animal so common in Romano-British deposits had not yet reached Bute, if indeed it had been introduced to Scotland at the time when Dunagoil Cave was inhabited.

REMAINS FROM DUNAGOIL FORT.—The only bones found in the Fort, which I have examined, are the incisor teeth of a young pig, and the skull of a field vole, *Arvicola agrestis*; but many seeds were found which belong to two distinct species of the family Compositae. These were submitted to Prof. J. W. H. Trail of Aberdeen University, who reports as follows:—"After careful examination of the seeds and allowing for changes in aspect due to partial decay and slight pressure, I think they may be referred to the following. I have compared them with recent types collected by myself. The larger certainly is from *Arctium lappa* [the Burdock] in the Linnean sense, coming nearest

to the form *intermedium* I think, but between it and *minus*. The smaller is from a *Cnicus*, probably *C. lanceolatus* [spear thistle]; but the fruits of species in the same genus of Compositae are not easily distinguished even when freshly collected."

We would simply add that, in spite of the hundreds of years which have elapsed since the old Fort was inhabited, the Burdock, and Spear Thistle still flourish abundantly around the site of the Fort at the present day.*

* Since these notes were written extensive collections of animal remains have been obtained in the further excavations of the Fort. Mr Mann has also shown that the plant seeds are probably modern, having been introduced into the soil by burrowing animals.

REPORT ON THE RELICS DISCOVERED DURING EXCAVATIONS IN 1913 AT CAVE AT DUNAGOIL, BUTE, AND IN 1914 AT THE FORT AT DUNAGOIL, BUTE (*with suggestions as to the Probable History and Chronology of the Sites*).

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(Read 23rd February, 1915).

NOTE.

All the humanly worked relics from cave and fort are now preserved, classified, in the Museum, Rothesay, with explanatory printed cards and diagrams. The more fragile relics and those apt to crack and corrode such as the iron blade in wooden handle, have been prepared in preservative media.

Each object had its *locus* and date of finding painted upon its under-side in neat small letters, over which varnish has been put. The smaller objects have been placed on cotton wool in glass-topped cardboard boxes.

I. REPORT ON THE RELICS DISCOVERED DURING AN EXAMINATION OF CAVE AT PORT DORNOCH, ON THE SHORE BENEATH DUNAGOIL.

I. THE CAVE.—The period of its occupation—Not Azilian—Bone relics—stone relics; pounders, spinning-whorl—bronze relic—pottery—crucible—relic of iron in wooden handle—water-rolled stones splintered by heating—the hearth.

While this cave has the appearance of having been excavated by the action of the sea assisted by diagonally set "faulting" when the land level stood some 20 to 30 feet lower than it now does, there is no evidence that the cave was occupied by man at any time near to that chronological point when the cave