I.

NOTES ON EASTER ROSS. By Prof. DUNS, D.D., F.S.A. Scot.

The Notes have reference to facts of some archæological interest in the parishes of Nigg, Kilmuir Easter, and Fearn. The present paper is limited to the notice of an ancient *Refuse Heap* or "Kjökkenmödding," of which, so far as I am aware, there is no previous record.

In June 1886 I spent the greater part of an unusually warm forenoon among the rocks of the North Sutor, during a low ebb tide, tracing the physical features so graphically described by Hugh Miller in his *Old Red Sandstone*. Standing almost directly opposite Cromarty, and looking towards the lower slopes of Dunskeath hill, at a point about 120 feet above the sea-level, I was struck with the occurrence of a thin, comparatively short black line in the superficial deposits that there rest on the top of the upturned, almost vertical, variously coloured sandstones. On probing the dark-coloured layer with a well-shod strong staff, several fragments of much-wasted oyster shells were turned out. As oysters are now rarely met with on this coast, except as drifted specimens, I was interested in "the find" from this point of view, and, digging deeper, found that the shells formed part of a so-called "prehistoric kitchen-midden." The position of the heap faces S.S.W., and is not far from the bottom of the somewhat steep incline which stretches from the farm of Castle Craig (Dunskeath) to the wide area of undulating sand heaps which lie behind the Nigg and Cromarty Ferry Inn, and stretch from the back of the North Sutor to the fishing village Ballinabruach. The bank itself slopes sharply from near the shore, is covered with coarse grass about half-way up, and is capped by a deposit of bare earth varying from 2 to 5 feet in thickness. The relation of the shell-bed to the accompanying superficial layers increased the interest of the find. A section would show the deposits in the following order, beginning from below:—I. The variegated (red, grey, and yellow) Old Red Sandstone rocks set sharply on edge, exposed in some places down nearly to the sea-level. II. Sea sand 1 to 4 inches

in thickness, containing many small stones. III. Black sandy soil, darker in colour below than above, and shading gradually into IV. Fine grey-coloured, clay-like sand, about 3 feet thick, very compact and hard, and bearing many, mostly angular, fragments of quartz, gneiss, and Old Red Sandstone. V. Seven or eight inches of recent sandy soil covered with grass. The refuse heap occurs in a layer of black earth at the bottom of No. IV. in the section.

After frequent visits, and a good deal of work, sufficient material was obtained for estimating the numerical proportion in which the shells occur. Taking the shore whelks (*Littorinidæ*) as numbering 40 per cent., oysters (*Ostreadæ*) would be 30; limpets (*Patellidæ*), 10; waved buckies and dog whelks (*Buccinidæ*), 10; mussels (*Aviculidæ*) and razor shells (*Solenidæ*), 10; *but not even a fragment of cockle shells* (*Cardiadæ*) *was met with*, though at present the cockle is emphatically the shell of the district. The only other family represented was the Venus shells (*Veneridæ*), by one valve of a *Tapes* (*T. discussata*), a form which may still occur on the coast, though I did not observe it.

Only a few yards from this heap there are other beds of shells, 5 or 6 inches thick, lying near the surface, and on the top of the deposit marked IV. in the section, which consist wholly of mussel, limpet, dog and waved whelks, and cockles—the last in great abundance, *but there are no oysters*. The cockles are mixed with the sandy soil forming at present. The oysters lie nearly 3 feet below them under the compact mass represented by IV.

The facts now mentioned suggest some questions of much interest, both to the student of surface geology, the zoologist, and the antiquary. For example, whence the thick deposit marked IV.? Can we explain the presence of so many oyster shells, when this form is now so rare; and can we account for the absence of the cockle now so plentiful—a form which has ever been a favourite article of food among the people on shores where it occurs? Again, have we here any data to warrant even a guess at the age of this deposit? It would lead me outside of the scope of these notes to do more than make one or two very general remarks on these questions. As to the first, it is quite possible that the deposit No. IV. may be mainly blown sand. The stones which occur in

it are not larger than many met with in sand heaps both near and at a distance from the shore in this neighbourhood. In this case we must take into account both the comparative compactness of the mass and its exposed situation, because these have a bearing on the question of age. But, looking at the deposit in the light of accompanying surface features, I would rather trace it to a slip from the somewhat sharp incline behind it. The question of time would then be associated with the contents of the heap. As to the second, I had full opportunity to verify the statement, in the Statistical Account of the district, as to the occurrence of the oyster in the Cromarty Firth formerly. The writer says, "it is difficult to account for the rarity of oysters now, when it is considered that under the soil in some of the lower grounds of the parish there are to be found multitudes of oyster shells." This is true of much of the low ground lying between the hill of Nigg and Fearn, from the bay of Nigg to Shandwick. I state the facts without hazarding a theory as to the forces of which they are the expression, though I think there are data in the district sufficient to warrant one. The third question—that, namely, as to the age of the shell heap—depends very much on the views we take of the nature and condition of the contents. But in regard to that there is so much room for differences of opinion as to make an opinion of very little value. In addition to the shells, pieces of bones occur in as great numbers. The bones have been for the most part split to reach the marrow. Those of mammals are most numerous, those of birds come next, and then those of fishes, which are comparatively few. Most of the bones are too fragmentary for specific identification, but of those of mammalia there is no difficulty in determining the horn of a roebuck in its third year, and five whole teeth and four fragments of teeth of the same deer (*Cervus capreolus*), while many if not most of the split pieces are parts of the bones of the same animal. There are two teeth and several fragments of bone of the red deer (*C. elaphus*). The fragments consist of top of the femur, bottom of the humerus, and a (cervical) vertebra. There are also one tooth of the common seal (*Phoca vitulina*), and one incisive tooth of a rodent, most likely a rabbit.

The fragments of birds' bones are chiefly those of the legs and wings.

Fishes are represented by vertebræ and by a well-marked bone (the articular) of the head.

In addition to all these, there are fragments of the limbs of the common or edible crab (*Cancer pagurus*).

Some of the pieces of bone bear indubitable traces of attempts to fashion them into articles for use. The horn of the roebuck was comparatively soft when taken out, but quickly hardened on exposure to the sun. It is well known that the fawn of the roe has no horns. In the second year the horn appears as a single pointed process, or pricket. In the third year the first antler appears bending to the back, the point representing the pricket standing almost perpendicular to the burr or root. In this specimen the latter has been broken off, and the antler smoothed towards the point, and used, most likely, for picking the animal (*Buccinum undatum*) out of its waved shell. When found, it was lying sunk into the body whorl of the shell of one of those large whelks. One is at a loss as to the use of the bones rounded at one end, the hollow side of the bone forming a groove in the middle. Were they used for scraping the marrow out of the split bones—were they marrow spoons? A good many of the stones met with may have been used both for marrow-bone splitting and for breaking the molluscan shells. Two of these, which were lying together, may have been hammer and anvil. These and several other specimens are now on the table. I looked carefully for traces of pottery, but in vain. No doubt, several times what appeared to have been bits of a vessel of some sort were met with, but in the attempt to lift them they crumbled into fine dust.

When following the deposit from the front, I came on a bit of rugged undressed sandstone, little more than a foot in length, 8 inches in depth, and 3 inches broad, one side of which was much blackened as if by smoke. Another stone about the same length, but at right angles to the first, was taken out; and a third, a foot and a half distant from the first, was lying in a position corresponding to it. Near at hand was a long thin slab blackened all over. Little heed was given to them at the time. But, chancing to descend the bank towards the shore, I found the key to their use. Three pieces of sandstone of about the

same size had, very recently, been set up as a fire-place, a thin slab of the same rock laid across them, and, as the shells scattered round showed, used for roasting cockles. On again examining the site of the first fire-place, some black dust was found which soon hardened in the sun, and proved to be traces of charcoal. The thinness of the layer of shells, bones, &c., suggests that the part examined may be no more than the edge of a main heap lying further out of sight, or of one that had fallen seaward and disappeared. A section might, no doubt, have been made at a point distal to the face of the bank, but there were hindrances in the way of this which I did not care to encounter.