V.

NOTICE OF THE HORNS OF CATTLE (THE HORNY SHEATHS OF THE HORNS) FOUND IN BOGS IN ROXBURGHSHIRE AND ABERDEENSHIRE. (THE HORNS WERE EXHIBITED). BY JOHN ALEXANDER SMITH, M.D., *V.P.* S.A. SCOT.

Roxburghshire.—Last summer a relative of mine, John Elliot of Binks, Esq., sent me the pair of ox horns now exhibited. They were found in Liddesdale, near Newcastleton, on the sheep farm of Boghall, or Flight, as it was formerly named, from an old peel tower long since demolished. A shepherd was digging in some peaty ground on the Watch Hill there in June last, and came on the horns some 3 or 4 feet below the surface. Mr Elliot says he "presumes they must be old, as there have been no cattle kept there in the memory of any one, and the place where they were found is quite out on the top of a hill far from a house, and besides, they are not like the horns of the cattle that we have now. The horns were found near one another, as if they had been attached to a head, but no bones of any kind were noticed near them."

The horns (they are simply the horny sheaths or coverings of the horns of an ox) are black in colour, and are tolerably perfect, though they have been somewhat cut or damaged since they were found; they are rather small in size, and measure—the right 13 inches in length along the greater curvature of the horn, and 8 inches in circumference at about 11 inches distance from the pointed extremity of the horn. The left horn measures 14 inches in length, and 8 inches in circumference at about 12 inches from its point. The latter is the most perfect of the two. They seem to have belonged to the same animal,—a small-sized ox,—probably one of the rough class of cattle bred in old border reiving days, and the representative of the still older variety of the short-horned cattle of Roman times in Britain,—the *Bos longifrons* of Professor Owen,—of which there are various specimens in the Museum; the most perfect being those presented by me, which were found with Roman remains at Newstead, near Melrose. ("Ancient Cattle of Scotland," Proc. vol. ix. p. 587.)

Mr John Elliot makes me a present of the horns, and I have much pleasure in now giving them to the Society for the Museum.

Aberdeenshire.—Shortly after I got these horns from Liddesdale, I saw a notice in the newspapers of a pair of large ox horns which had been found some 20 feet deep in a peat bog in Aberdeenshire, and thinking it just possible that they might turn out to be the horns of the Great Urus, *Bos primigenius*, I wrote to the gentleman who was stated to have found them,—Mr James Gall, farmer, North Cowford, Aberdour, near Fraserburgh, and he has kindly sent them for your inspection.

These horns (for, like those already described, they are also simply the hollow horny sheaths which covered the bony horn-cores of the ox), were found last summer, on the farm of North Cowford, in the course of digging peats. Though now dry, Mr Gall says they were wet and spongy when found, and were somewhat damaged by the spade before their real character was observed. Mr Gall states that their dimensions are 27 inches long (following the course of the curve), and 10 inches in circumference at a distance of 8 inches from the open extremity of the horn. The points are finely tapered, and the colour a uniform blackish. For several inches at the larger end the substance of the horns is split or raised up in scales or layers one above another. No hard "flints" or bone-cores could be discovered in the horns, and a careful search has failed to discover any other animal remains in or near the place where the horns were found. The cavity of the horns, however, contained a soft pulpy substance undistinguishable from the surrounding moss, except that it seemed a little lighter in colour; which might be the last remains of the bony horn-cores.

These horns, like those first described, were stated to have been found at or about the natural distance from each other, as if they had been attached to the head of an ox. They lay on the surface of the hard subsoil, under about 7 feet of peat-moss then in process of removal, about 15 feet having been removed in former years, thus giving a total depth of about 22 feet of peat over the site of the horns. The right horn measures now about 23½ inches in length along its outer curvature. The left horn is 25 inches in length, and 9 inches in circumference, 17 inches from the point of the horn; it is more perfect than the right.

I may mention that the horns found at North Cowford have the points of the horn solid,—the right horn for 5½ inches, and the left for about 6½ inches. I do not know whether this solid part bears in its extent any

particular relation to the size or age of the horn; it may be useful, however, to note the fact for comparison with others.

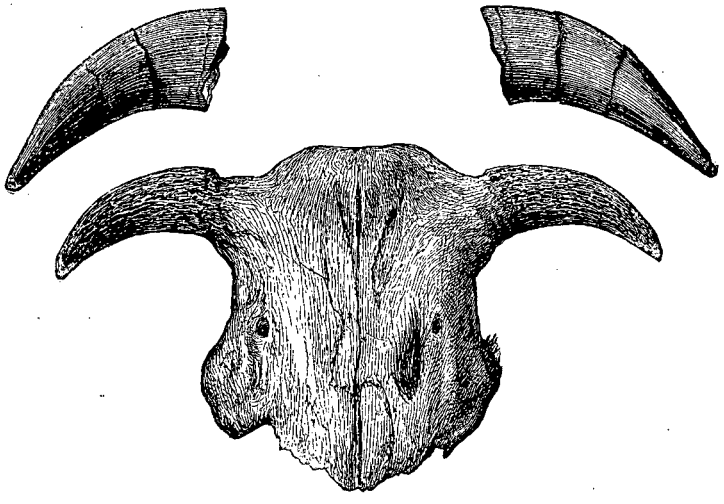
These horns are of much interest from the depth at which they were found in the peat bog, and also from their size, which is much greater than those found in Roxburghshire.

I was at first inclined to hope they might have belonged to our great extinct *Bos primigenius*, or Urus, but I fear they are scarcely large enough, —no horny sheaths of the horns of the Urus have, as far as I know, yet been found. Cæsar, in his "Commentaries," says:—"Amplitudo cornuum, et figura et species multum a nostrorum boum cornibus differt. Hæc studiose conquisita ab labris argento circumcludunt, atque in amplissimis epulis pro poculis utuntur." Some of the skulls I have described in my papers "On the Ancient Cattle"[1] have horn-cores measuring as much as 2 feet 6 inches in length, and 15 inches or more in circumference at their base; if we add to this measurement of the length of the bone-core, the additional length of the solid point or tip of the horny sheath, which always extends beyond the bone (but the exact relation of which to the length of the bony horn-core itself I do not know), we shall have some idea of the prodigious size to which these formidable horns had grown, and of the huge drinking vessels they would form.

Both of these discoveries of horns are, however, of interest, as found under closely corresponding circumstances; the horny sheaths alone remaining, placed about the natural distance from each other, and yet in neither case was any bony-like matter noticed beside them. They remind me of a portion of a skull of the *Bos longifrons*, with the horn-cores attached, and also the horns, found in a bog in Ireland, now preserved in the Museum of the New College here, and which I have already figured and described in my paper "On the Ancient Cattle of Scotland."[1] (I repeat the figures here for reference, see p. 496). In that case, however, the mineral or bony matter of the skull was almost entirely removed, and the bones remaining were soft, consisting only of the animal and organic constituents of the bones. It is at least suggestive of a breaking up and change which might go on to the total removal of the osseous tissue; as would appear to have probably been the case in these instances now recorded, where the horny sheaths alone are left.

[1] Proc. Soc. Antiq. Scot. vol. ix.

The only other instances that occur to me of the discovery of the horny sheaths of the horns of cattle are those found many years ago, at Blair Drummond during the clearing away of the great peat moss which formerly existed there. I have already described these horns in my paper, "Notes on the Ancient Cattle of Scotland." They appear to have been short-horned cattle, and they may perhaps be assumed as having been found alone, no bones being apparently preserved with them; but the exact details of their discovery do not appear to have been recorded.



Portions of Skull of small Short-horned Ox (fig. 1), with Horns (fig. 2), found 25 feet below the surface of a bog near Castle Connell, Limerick, Ireland.

In the paper referred to, I have, by mistake, placed Blair Drummond under the title of Stirlingshire, it being at no great distance from the town of Stirling; but the true boundary of the county, it seems, is the river Forth, and as Blair Drummond lies on the left bank of the river, it is accordingly in the county of Perth, under which title it should have been placed in my former paper.

These discoveries also remind me of two human skeletons found buried in a peat moss on the hill of Nosewick, mainland of Shetland, where the bony matter was almost entirely removed, the bones, however, still retaining their natural shape, from the animal matter remaining; but quite soft and flexible, so that they were quite easily bent, and knots could be tied on the ribs. A portion of the woollen dresses in which they had been buried, and also some of the bones, were presented by me to the Museum from Benjamin Bell, Esq., F.R.C.S.E., and a note of the circumstance was published in vol. i. of our "Proceedings," June 1852.

It was formerly, in reference to the human bones found in Shetland, suggested as a probable explanation of the removal of the earthy matter of the bone, the organic constituents being left, that an excess of acid, especially carbonic acid, present in the water of the bog or moss, had dissolved the earthy matter or lime of the bone, carrying it away in solution, and thus reduced them to this peculiar state. Probably a still longer exposure would have broken them up or removed the bones altogether, as may perhaps have been done in the present instance of these ox horns; the more indestructible horny sheath alone remaining.

In some cases, as in the bones of the Urus found in marl pits, the bones are preserved, but the horny sheaths of the horns have disappeared.

Curiously enough, it would therefore appear that in a peat bog you may have either a strongly preservative action upon animal matters deposited in it, which indeed is the more common one; or, as in these cases, a dissolving or destructive action, due perhaps, as has been suggested, to some local circumstance, such as the presence of a spring of water strongly surcharged with carbonic acid; but into this curious but perhaps rather more chemical part of the subject I shall not attempt to enter.

This whole question would, however, it seems to me, form a most interesting and instructive subject of inquiry to be taken up and discussed by a practical chemist able to enter fully into all its varied details and results.

Not having observed any exactly similar instances of this apparent solution of bone recorded, I am, therefore, glad to put these examples on record, by now bringing them under the notice of the Society.