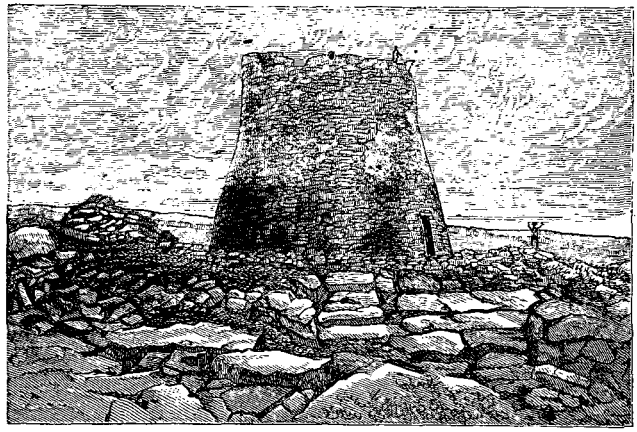
IX.

NOTES ON THE STRUCTURE, DISTRIBUTION, AND CONTENTS OF THE BROCHS, WITH SPECIAL REFERENCE TO THE QUESTION OF THEIR CELTIC OR NORWEGIAN ORIGIN. By JOSEPH ANDERSON, Keeper of the Museum. (Plates XIX., XX.)

In this paper I propose to review the evidence derived from considerations of the structural characteristics, the geographical range, and the contents of the Brochs, with special reference to the questions of their origin, and their relation to the groups of structural antiquities with which they are associated in northern Scotland.



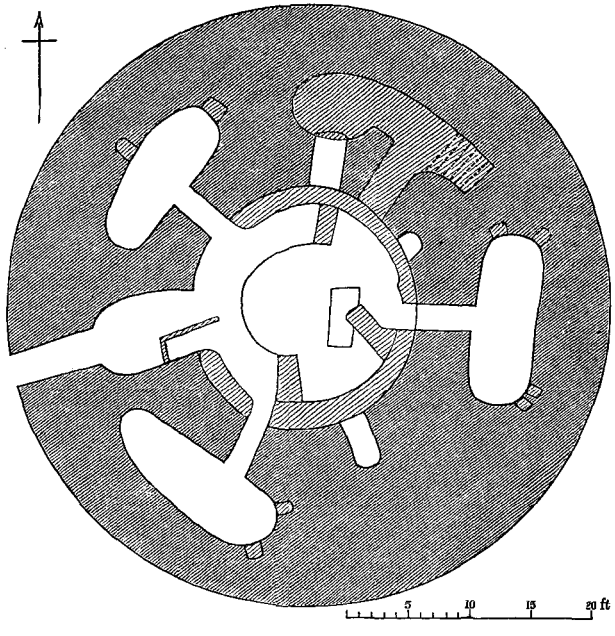
Exterior View of the Broch of Mousa, Shetland.

The typical form of the Broch[1] is that of a hollow circular tower of dry-built masonry, about 60 feet in diameter and about 50 feet high. Its wall,

[1] The measurements here given as those of the "typical form of the broch" are to be taken as approximate averages merely, and not those of any particular example. Ground-plans, sections, and elevations of many of these structures are given in the papers on the Brochs of Shetland, Orkney, Caithness, and Sutherland in the "Archæologia Scotica," vol. v. part i. 1873. I am indebted to the Messrs Chambers for the view of Mousa here given.

which is 15 feet thick, is carried up solid for about 8 feet, except where two or three oblong chambers with rudely vaulted roofs, are constructed in its thickness.[1]

Above the height of about 8 feet the wall is carried up with a hollow space of about 3 feet wide between its exterior and interior shell. This



Ground Plan of the Broch of Mousa, Shetland. (From Plan by Sir Henry Dryden.)

hollow space, at about the height of a man, is crossed horizontally by a roof of slabs, the upper surfaces of which form the floor of the space above. This is repeated at about every 5 or 6 feet of its further height. These spaces thus form horizontal galleries, separated from each other vertically by the slabs of their floors and roofs. The galleries run

[1] See the accompanying ground plans of the Brochs of Mousa and Coldoch.

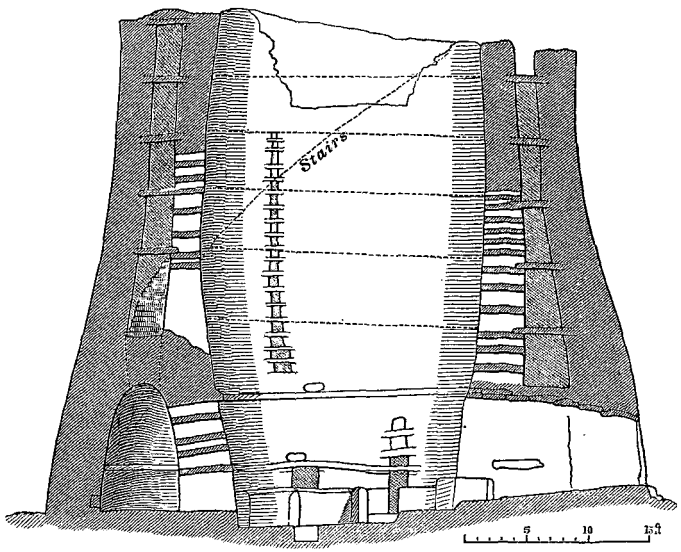
completely round the tower, except that they are crossed by the stair, so that each gallery opens in front of the steps, and its further end is closed by the back of the staircase on the same level. (See Plate XIX.)

The only opening to the outside of the tower is the main entrance, a narrow tunnel-like passage 15 feet long, 5 to 6 feet in height, and rarely more than 3 feet in width, leading straight through the wall on the ground level, and often flanked on either side by guard chambers opening into it. This gives access to the central area or court-yard of the tower, round the inner circumference of which, in different positions, are placed the entrances to the chambers on the ground-floor, and to the staircase leading to the galleries above. In its external aspect the tower is a truncated cone of solid masonry, unpierced by any opening save the narrow doorway; while the central court presents the aspect of a circular well 30 feet in diameter, bounded by a perpendicular wall[1] 50 feet high, and presenting at intervals on the ground floor several low and narrow doorways giving access to the chambers and stair, and above these ranges of small window-like openings rising perpendicularly over each other to admit light and air to the galleries.

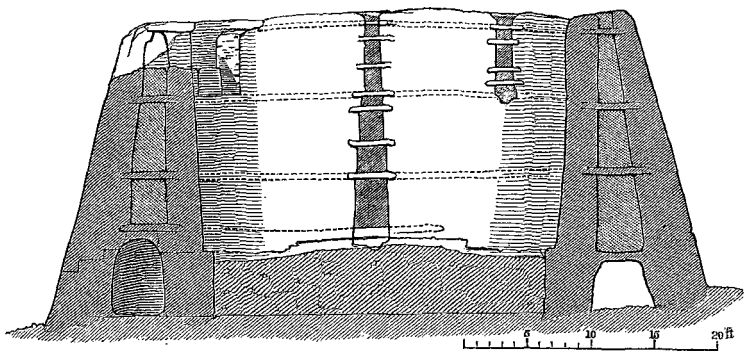
The concentration of effort towards the two main objects of space for shelter and complete security was never more strikingly exhibited than in these peculiar structures, which though rude in construction are admirably designed for size, solidity, and complete defensibility. They present other features of interest in their surprising uniformity of design and construction, in the limited range of territory they occupy, and in their extraordinary numbers within that territory. They are entirely unknown out of Scotland, and in it they are chiefly though not exclusively confined to the territory north of the great Caledonian valley; where upwards of 350 examples have been enumerated.[2] They form a very important and remarkable group of structural antiquities, unparalleled in number and magnitude, and unrivalled in interest as disclosing the existence at that early period of an amount of energy and constructive skill of which we had previously no adequate conception.

[1] While the exterior elevation shows a considerable "batter" or inclination, sometimes approaching a curved outline, like that of a lighthouse, the inner elevation is nearer the perpendicular.

[2] See my list of the Brochs in the "Archæologia Scotica," vol. v. pp. 179–198.



Section of the Elevation of the Broch of Mousa.



Section of the Elevation of Broch in Glenelg.

Sections of the Elevations of Brochs in Shetland and Glenelg.
(From plans by Sir Henry Dryden.)

As the typical broch thus possesses an individuality of structure so distinct and peculiar, there can be no difficulty in defining its geographical range, for there is no building, ancient or modern which can by any possibility be confounded with it. Yet though the general features are so constant, the dimensions vary greatly[1] as the following table will show :—

Situation of Broch.	Thickness of Wall.	Internal Diameter.	External Diameter.
	Feet.	Feet.	Feet.
Edin's Hall, Cockburn Law, Berwickshire,	17	56	90
Okstrow, Birsay, Orkney,	12	45	69
Lamb-head, Stronsay, Orkney,	12	45	69
Cairn Liath, Dunrobin, Sutherland,	19	30	69
Brindister, Mainland, Shetland,	12½	43	68
Cinn Trolla, Sutherland,	18	31	67
Clickamin, Mainland, Shetland,	20	26	66
East Broch, Burray, Orkney,	15	36½	66½
Tappock, Stirlingshire,	15	35	65
Craig Carril, Sutherland,	17	30	64
Snabroch, Unst, Shetland,	18	27½	63½
Burgar, Evie, Orkney,	17	26	60
Ingishow, Firth, Orkney,	13½	33	60
Birstane, St Ola, Orkney,	13½	33	60
Howbie, Fetlar, Shetland,	12½	33	58
How of Hoxay, S. Ronaldsay, Orkney,	14	30	58
Dingishow, St Andrews, Orkney,	12	33	57
Burraness, Yell, Shetland,	15	27	57
Manse of Harray, Mainland, Orkney,	12	33	57
West Broch, Burray, Orkney,	12½	31	56
Yarhouse, Caithness,	13	30	56
Old Stirkoke, Caithness,	13	30	56
West Burrafirth, Shetland,	13	30	56
Undahool, Unst, Shetland,	15	25¾	55¾
Burraland, Mainland, Shetland,	9	37	55
Castle Ellye, Glenbeg, Inverness,	11	33	55
Borrowston, Shapinsay, Orkney,	12	31½	55½
Dun Alisaig, Ross-shire,	12	30	54½
Levenwick, Mainland, Shetland,	13	28½	54½
Castle Troddan, Glenelg, Inverness,	11¾	29½	53
Broch, Unst, Shetland,	12	26	50
Culswick, Mainland, Shetland,	13	24¾	50¾
Mousa, Shetland,	14½	20	49
Stirlingow, Firth, Orkney,	9	27	45
Cullswick, Shetland,	17½	26½	44
West Burrafirth, Shetland,	13	30	43
Burraness, Yell, Shetland,	10	31	41
Langskaill, St Andrews, Orkney,	10	20	40
Castle Gruagach, Loch Duich, Ross-shire,	9	25	34

[1] Like the "eminent Scotch Antiquary" whom he once heard "gravely maintain-

The theory of the Norwegian origin of the Brochs—a theory first propounded at a time when systematic observations had not begun to be applied, or even to be considered necessary, for the elucidation of such questions,[1] has lately been revived and maintained with much ingenuity by Mr Fergusson,[2] who contends "that it can be proved with as much certainty as such a question is capable of attaining, that they were all erected by the Norwegians, the bulk of them in the ninth, tenth, and eleventh centuries."

The assertion that the Brochs are of Norwegian origin might be legitimately met by a simple denial, and this would be justified by the fact

ing" (the gravity of a Scotch joke is proverbial), "that they were all built at one time, and from one plan and specification," Mr Fergusson, exaggerates the uniformity of the Broch structure, when he extends it so as to include dimension as well as design.

[1] Martin adopted this theory because it was the tradition of the natives. M'Culloch went further, and affirmed that similar structures are found in Norway. Sir Walter Scott, and most of the writers of the Statistical Accounts, unhesitatingly pronounce them Scandinavian. But no Scandinavian writer has ever claimed them as the work of his countrymen. Worsaae and Munch both regard them as Celtic, and state that there are no analogous structures in Scandinavia.

[2] The work in which Mr James Fergusson, the well-known author of the "History of Architecture," "Rude Stone Monuments of all Countries," &c., has discussed this question is entitled "A Short Essay on the Age and Uses of the Brochs, and the Rude Stone Monuments of the Orkney Islands and the North of Scotland," 8vo, Lond. 1877. It is stated in the prefatory note, that it is intended to serve as an appendix to his work on Rude Stone Monuments, in which the word "Brochs" does not occur except incidentally in a note. In order to explain why I have made such special reference to Mr Fergusson's views in dealing with this subject, it is necessary to quote the opening sentences of his Essay. They are as follows :—

"The publication of a translation of the 'Orkneyinga Saga,' with an elaborate introduction by Mr Joseph Anderson, has recently had the effect of directing attention to the important group of antiquities that exist in the Orkney Islands. From his position as Curator of the Museum of the Scottish Society of Antiquaries, and having been employed personally to superintend some important investigations in the north, Mr Anderson has perhaps had better opportunities than almost any other living antiquary for making himself acquainted with the facts of the case ; while his elaborate paper on the 'Brochs' in the fifth volume of the 'Archæologia Scotica' is by far the most complete and exhaustive treatise that has appeared on that branch of the subject. His statements of facts may, therefore, be accepted without hesitation, but whether the inferences he draws from them may be as implicitly relied on, remains to be seen."

As this is a distinct challenge to the full discussion of the subject, I am under the necessity of maintaining my own inferences, by first showing that there is no foundation on the facts for Mr Fergusson's.

that neither Mr Fergusson nor any one else has ever attempted to show that there are any analogous structures in Norway, or that the relics found in the Scottish Brochs are of the same character as the remains of the Viking period in Norway. But as Mr Fergusson professes to have obtained sound and satisfactory conclusions by the philosophical application of the science of architecture to the solution of a complex problem in archæology, it is necessary to indicate his position, to examine the method by which his conclusions are reached, and to consider his principal arguments in detail.

His position is that "either the Brochs were erected by the Picts or Celtic races who inhabited these islands from the earliest times to which history and tradition ascend; or they were the work of the Norwegians who settled on the islands in or before the eighth century after Christ." Hence if the evidence fails to establish their Norwegian origin the only alternative conclusion is that they are Celtic.

His method is unscientific, inasmuch as he seeks to set aside the value of admitted facts, by accumulating probabilities in favour of a hypothesis which is in itself improbable, viz. that the Norsemen, when they settled in the north of Scotland, did what they had not learned to do at home,—what they never did anywhere but in Scotland,—and what there was not the least necessity for their doing there.

His arguments are derived from two sources:—(1) His estimate of the constructive capabilities of the Celts, and their inferiority in this respect to the conquering Norsemen; and (2) the suitability of the structures to the conditions of Viking life.

His first point is, that if we admit the Celtic theory to be the correct one, we should then have, in the districts of Scotland known to have been possessed by the Norwegians, some 400 or 500 fortified residences of the "older and inferior race;" while no one has yet been able to point out even the site of a single residence, fortified or unfortified, of their Scandinavian conquerors. But, although this were the exact truth, it would be nothing to the point at issue, because, in the same general sense it is true that no one is able to point to the site of a single residence of the Viking time in Norway itself, or in the Viking colonies in Normandy, in Man, or in Ireland, where the colonists were of the same age and kindred as the settlers in northern Scotland. The reason is plain. The Northmen

of the Viking time were still in their timber age, and it is not at all surprising that no one should now be able to point out the sites of such residences as they were in the habit of constructing, either in Scotland or in Norway. If, therefore, we adopt the theory that the Brochs were built by the Vikings, we must also admit the fact that they were the work of a people who were entirely unskilled in the use of stone as a constructive material.

I cannot adduce more authoritative testimony to the fact that the Northmen of the Viking time (8th to 11th century) were unskilled in constructing edifices of stone, than that of M. Nicolaysen and M. Lorange, who have done so much for the elucidation of the structural antiquities of Norway; and I may add, that there is no difference of opinion among the Norwegian archæologists and historians on the subject.

The following extract is taken from M. Nicolaysen's "Norske Bygninger fra Fortiden" ("Norwegian Buildings of Former Times," Christiania, 1860–66, folio, p. 6):—

"As long as Paganism reigned throughout the land, all buildings were constructed of timber. On the introduction of Christianity (that is, in the beginning of the 11th century), our forefathers first learned to employ lime and stone in building; but as the art followed in the train of the new doctrine, it was for a long time only employed in the service of the spiritual power, and used alone in the construction of churches, monastic buildings, and bishops' palaces. An exception seems to have occurred at an early period when King Magnus the Good commenced a hall of stone, at the king's dwelling-place in Nidaros, but the building remained unfinished at his death (1047), and on its completion by his successor Harald Sigurdsson, it was converted into a church. The first secular buildings of stone were therefore constructed by King Sverre when he erected Castle Sion at Stenbjergët in Nidaros, 1183, and about the same time, or shortly before 1185, a second one, called Sverre's Castle, at Bergen. No remains of these buildings now exist, and we only possess a few details of the plan of the latter. It would appear that King Sverre took an Anglo-Norman castle for model; the inner part was the real *donjon* with its hall, the whole being surrounded by an embattled wall, with a barbican over the entrances. An interval of fifty years occurs before we hear of any further stone buildings."

Again, in his "Samlingen af Norske Oldsager i Bergen's Museum" ("Catalogue of Norwegian Antiquities in the Museum at Bergen,"—Bergen, 1876, 8vo, p. 126) M. Lorange says:—

"In the remoter glens and among the islands of the west coast (of Norway)

there may still be found residences having the same form and arrangement as in ancient times. The ancient style is still kept up, of having on each great garth a considerable cluster of erections close to each other, each of which has its own special purpose. The chief of these in old days was the Skali, which was built of dressed timber, as all such buildings were, and had the form of an oblong quadrangle, with smoke-vents in the ridge, and light-openings in the lower part of the roof. The floor was of trampled clay, and flat stones were placed along the middle, on which the fire was burned. This style of dwelling and internal arrangements, which was of the highest antiquity, continued till the 11th century,[1] when Olaf Kyrre introduced built fire-places, and other improvements into his royal residence, which were soon generally imitated."

Thus, for three centuries after the time when the Vikings began to frequent the coast of Scotland, their edifices in their own country were constructed only of timber. This is at once the distinct testimony of the Sagas, and the deliberate conclusion of all the Norwegian archæologists and historians who have made it a matter of special investigation. Yet Mr Fergusson prefers to treat the subject as if there were no such testimony extant, and no investigation were necessary. "If the Norwegians required castles or strongholds of any sort," he says, "they *most probably* were square towers . . . . . and they had limestone, and knew apparently how to use it for mortar." Thus his case for the Vikings is, that if they required strongholds in their own country, they made them square, and built them with lime; but when they came to Scotland, they made them round, and gave up the use of mortar. It is to be observed, however, that he does not

[1] It was the same in Sweden. Speaking of the dwellings of the Viking times in that country, Dr Montelius says:—"At this period the houses were without doubt exclusively constructed of wood; the art of building with stone and lime did not reach the northern nations till after the introduction of Christianity. The Swedish dwellings of the Viking time were doubtless similar to those described in the Norse Sagas. In the remoter districts, houses of this identical construction are still found, known by the name of *ryggäs-stugor*, survivals of the architecture of past ages.—*Montelius*, "Om lifvet i Sverige under Hednatiden," p. 79. The Swedish town of Björko, on the isle of that name, in Lake Maclar, founded in the 8th century and destroyed in the 11th, is also a case in point. Its remains have recently been excavated by M. Stolpe, who, after describing the general results of his excavation, says:—"Mais n'existe-t-il pas de traces des edifices mêmes, ne fût-ce que quelques fondements? Je suis forcé de repondre par la negative!" He goes on to tell, however, that sufficient evidence existed to show that the houses were built of wood or wattles and lined with clay, the interstices between the timbers being filled with moss.

state this as a fact in the history of architecture established by record, or ascertained by investigation. His position is that the testimony of record and the results of investigation ought to be set aside in favour of what seems to him probable, although it contradicts both.

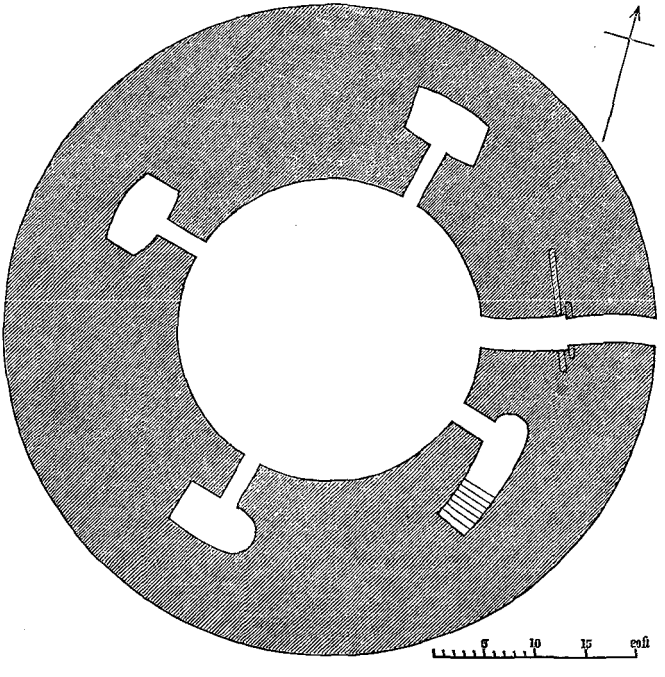
His next point is that all the known Brochs (with few exceptions)[1] are situated in those parts of Scotland which are known to have been occupied by the Norwegians. "I cannot of course judge," he says, "how this coincidence of distribution may strike other people, but to me it appears that in any other science at least than archæology it would be considered as nearly conclusive as to their Norwegian origin." But why should it? If it cannot be shown that the Norwegians ever built a Broch on any other area they ever occupied either at home or abroad, why should the fact that there are many Brochs in the area they occupied in Scotland be sufficient to assign the Brochs to them?[2] The fact that these structures are limited to the area occupied by the Norwegians in Scotland (even if it could be established) might be held as proof that they were the work of one of the two races, Celts or Norwegians, by whom that area was possessed; but, by itself, it is destitute of significance sufficient to assign them either to the one or to the other. It only acquires that significance when associated with other facts. The chief of these are,—(1) that there are no Brochs in Norway, (2) that there are Brochs in Scotland in other districts than those that were possessed by the Norwegians, and (3) that there are districts conquered and possessed by the Vikings in which there are no Brochs.

But the actual truth is that the area covered by the Brochs is greater than the Norwegian portion of Scotland in one direction and less in another; that is, they do not cover the whole of the Norwegian area in Scotland, and they are not exclusively confined to it. I give here the ground plan of the Broch at Coldoch, in Perthshire, on the north side of the valley of the Forth, where there can be no

[1] These exceptions cover a very wide range of territory, however, including the counties of Forfarshire, Perthshire, Stirlingshire, and Berwickshire.

[2] By the same process of reasoning, the round towers of Ireland would be equally assigned to the Norwegians, *e.g.*:—There are no such towers in Norway. But they are confined (with few exceptions) to the area in Ireland invaded by the Norwegians, and in any other science than archæology this would be held as conclusive evidence that they were erected by the Norwegians!

suspicion of Norwegian influence. Yet the plan of this building is identical in its main features with that of Mousa, in Shetland (given on p. 315 *ante*). The same features are seen in the Broch on the Tappock of Torwood, in Stirlingshire, situated on the south side of the valley of



Ground-plan of the Broch of Coldoch, Perthshire.
(From a plan by Mr Ballingall.)

the Forth.[1] No one who has examined these buildings can doubt for a moment that they are identical in design and construction with the Brochs of Orkney and Shetland, Caithness, Sutherland, Ross, Inverness, and the Western Isles.

[1] A ground-plan and view of the masonry of the Broch at the Tappock of Torwood is given in the Proceedings, vol. vi. p. 259. See also the plan of the Broch of Edin's Hall, in Berwickshire, in the Proceedings, vol. viii. p. 41.

If we adopt the theory that they were built by the Norwegian Vikings, the most striking fact in connection with their geographical distribution will be, that being Norwegian, they are not found in Norway itself, the home of the Vikings; nor in the Viking colonies of the Faroes, Iceland, and Greenland; nor in the Isle of Man, the seat of the Norse kingdom of the Sudreyar; nor in Ireland where two Norse dynasties held sway for centuries; nor in Normandy, colonised by the kinsmen of the conquerors of Orkney and Caithness.[1] If, therefore, as Mr Fergusson suggests, the peculiar design of these unique structures had "sprung at once with Minerva-like completeness from the brain of some Scandinavian Vauban," and was found so admirably adapted to the necessities and conditions of the Viking life that it was repeated by them a thousand times on Scottish soil, it is inconceivable that it should not have occurred in their own home, and that it should not have been repeated once, on some of the many foreign shores which equally with northern Scotland were at that time infested by the Vikings. Yet the principal fact disclosed by the examination of the question of their geographical distribution is, that while the Brochs are found in great numbers on ground occupied and fought over for centuries by contending bands of Northmen and Picts, they are not found in even a single sporadic instance on any other area ever occupied by Northmen.

Again, when constructing his argument from considerations of the local distribution of the Brochs, Mr Fergusson, confining his attention to the Isles of Orkney and Shetland, comes to the conclusion, that, as matter of fact, the Brochs are mostly all placed on the seaboard; and he deduces the inference from this, that they are nothing but the fortified nests of a race of sea-rovers. Moreover, he adds, that as the Celtic population were "an inferior race," "a wretched scattered race of fishermen, hardly ever rising to the dignity of an agricultural people, and certainly never indulging in maritime pursuits, they neither required such edifices, nor had they the energy and ability to construct them."[2]

[1] King Harald Harfagri gave the Orkneys to Rognvald, Earl of Moeri, whose second son Hrolf became the founder of the Norman dynasty. Among the first Earls of Orkney were two brothers, an uncle and a cousin of the conqueror of Normandy.

[2] It need scarcely be said that, beyond the urgent necessities of Mr Fergusson's theory, there is nothing whatever to justify this gratuitous depreciation of the condition and capabilities of the Celtic population. Their Scandinavian conquerors have never alluded to them but with he respect due to foemen worthy of their steel.

But though it is true that in Orkney and Shetland (where it is difficult to get far from the seaboard) the Brochs are commonly situated on the sea-margin, as for the most part the inhabited hamlets are at the present day; yet it is also true that in the Western Isles they are frequently on inland lochs, while in Caithness they mark the area of the best land, and in Sutherland they are thickly planted in the fertile straths, following the courses of the rivers to distances of twenty-five or thirty miles inland—as far from the sea as any residences are at the present day. Thus the principal fact disclosed by the examination of their local distribution over the whole Norwegian area in Scotland is, that they are *not* confined to the seaboard; and the true inference is, that they are the work of a people in possession of the soil from sea to sea, and not the nests of sea-rovers perched on promontories with the sea at their back. On the other hand, if they were built by the marauding Vikings, who never did anything of the kind anywhere else, there must have been some very special reason for their universal adoption of such an elaborate system of defensive fortifications here. Yet the specialty of Mr Fergusson's case for the Vikings is, that, while they did all this which they had never done anywhere before, they did it only in the very place where there was no special reason for it, their opponents here being merely a few wretched scattered fishermen.

When he comes to treat of the structural characteristics of these edifices, however, Mr Fergusson speaks with an authority which no one will dispute. "For all purposes of active or offensive warfare," he says, "the Brochs are absolutely useless." On the other hand, he states that "for passive resistance they are as admirable as anything yet invented."[1] Now the warfare that ebbed and flowed for centuries over the area chiefly occupied by the Brochs was peculiar. It was an irregular, intermittent warfare, a succession of forays by marauding bands, against which there could be no more effective system of defence provided than a multitude of *safes* which were burglar-proof and big enough (as the Brochs were) to contain the families, goods, and cattle of the joint proprietors. But the peculiarity of Mr

[1] It is pleasant to find that on some points Mr Fergusson's inferences agree so thoroughly with my own. In 1871, I had written of the Brochs that "they are eminently and peculiarly structures of defence, and not of aggression. The castle holds a threat in every loophole of its embattled walls, but the broch is the architectural embodiment of passive resistance. Its leading idea is simply that of a perfectly secure place of refuge for men and cattle."—*Arch. Scot.* vol. v. p. 151.

Fergusson's theory is that it obliges him to give the *safes* to the burglars, and not to the people whose property was continually threatened with burglary.

Thus while it is manifest that Mr Fergusson's leading arguments have failed to establish his main conclusion as to the Norwegian origin of the Brochs, it also appears on a general review of the evidence that—

(1.) No Brochs are found in Norway or in any of the Viking colonies except Northern Scotland.

But Brochs are found in the Celtic as well as in the Norwegian area of Scotland.

(2.) No dwellings or edifices of dry-built stone masonry are known in Norway either of the Viking time or of preceding ages.

But edifices of dry-built stone masonry are characteristic of the Celtic, or early Christian period of Scotland and Ireland.

(3.) There is not on record in all Norway a single specimen of a vaulted roof of dry-built masonry in any ancient structure, whether dwelling or tomb.[1]

But the vaulted roof of dry-built masonry is a characteristic feature of early Celtic structures.

Therefore, on the principle so strenuously advocated by Mr Fergusson, of "letting every monument tell its own story, without reference to any empirical system," I am compelled implicitly to believe the testimony of the Broch structure when it speaks for itself so conclusively as to the absence of Norwegian, and the presence of Celtic affinities.

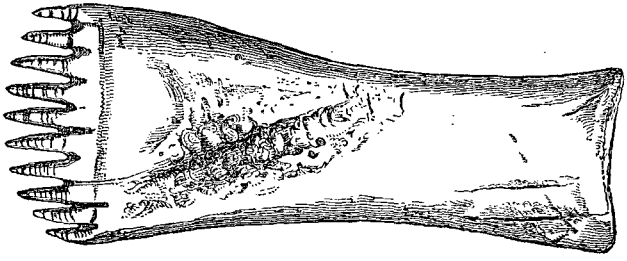
Contents of the Brochs.

It is, however, conceivable that the character of the structures might have been such as to render it impossible to say with certainty to which of the two races they were to be assigned. But even though this had been the case with the buildings there never could have been any such uncertainty in determining the nationality of their occupants from an examination of their contained relics. The character of the national pottery and cutlery, household utensils and personal ornaments, still differs to such an extent

[1] The chambered cairns of Denmark and Sweden are without exception un-vaulted. In Norway there are no cairns with chambers

as to make it possible to distinguish the general *mobilier* of a Norwegian from that of a Scottish dwelling. In the Viking time that difference was so great that it would have been impossible to mistake the one for the other. No group of antiquities is better known or more readily recognised by its distinctly national character, than that which marks the duration of the Viking time in Norway. If the Brochs, then, were built by the Norwegians, the relics found in them, being the refuse of Viking life, *ought* necessarily to correspond in character with the remains of the same period found in Norway, and in the rest of the Viking colonies. Yet nothing is more certain than that this well-marked Norwegian group is not distinguishable among the extensive collections obtained from the Brochs;[1] while, on the other hand, nothing is more obvious than that the general *facies* of these collections from the Brochs agrees completely with the remains of the late Celtic or post-Roman period from other parts of Scotland.

For instance, the most characteristic implement of the brochs is the long-handled comb,[2] which I have shown to be the weaving implement of the



Long-handled Comb, from the Broch of Burrian, Orkney.

time, used for beating together the threads of the weft to form the cloth in the upright loom.[3] I saw no specimen of this peculiar implement in the museums of Christiania and Stockholm. It does not occur in the catalogues of either of the museums at Bergen or Trondheim; and, so far as I

[1] The relics of the Viking time and of Norse origin that are found in Scotland are mostly from Norse graves.

[2] Upwards of 36 of these combs have been obtained from the Brochs.

[3] See my paper entitled "Notes on Spinning and Weaving in Pictish Towers," in the Proceedings, vol. ix. p. 550.

am aware, it has never occurred in Norway. But we have specimens in our museum from kitchen-middens, and hut circles in central Scotland, and from underground houses in the Hebrides. It has also occurred in the Borness Cave in Kirkcudbrightshire,[1] where it is associated with a group of stone and bone implements exactly similar to those from the northern Brochs, and which no one can hesitate to refer to the post-Roman period. On the other hand, the weaving implement of the Scandinavians was the *spatha*, a flat, sword-like tool, of which no specimen has ever occurred in the Brochs.

The most characteristic ornament of the Viking time in Norway is the tortoise or bowl-shaped brooch. This relic is so specially characteristic of the Viking time that it marks every settlement of the Norsemen. It occurs in Scotland, England, Ireland, Iceland, Normandy, and Russia, so that wherever the Norsemen established a colony these relics attest the fact. Yet none of these have ever been found among the relics of the occupation of the Brochs. One pair occurred in connection with a ruined Broch at Castletown in Caithness, but they were found along with a skeleton buried

One of a Pair of Tortoise Brooches, found with a Skeleton buried on the ruin of a Broch at Castletown, Caithness.

on the top of the mound which covered the ruins, and consequently were not contemporary with the occupancy of the building as a residence of the

[1] See the Proceedings, vol. x. p. 493, and plate xix.

living. On the other hand, the Celtic form of brooch, at this period pen-annular in shape, a form which is not Norwegian, is found in the Brochs.

The pottery of the Brochs differs widely in character from the pottery of the Viking time in Norway; but it agrees with that of the post-Roman period from other parts of Scotland. If there is any indication of definite date in the fact of the red ware, usually termed Samian, being found in the Orkney Brochs, it points to their occupation at a period considerably earlier than the time of the Norse invasion; and, while I am not acquainted with any instance of Samian ware having been found among Viking remains in Norway, it has occurred pretty frequently in the eirde-houses of central Scotland. Its occurrence in the Brochs is therefore quite in keeping with the character of the Celtic remains in other parts of Scotland.

A peculiar class of stone utensils which I have described as "lamps" is of frequent occurrence in the Brochs. They are so rudely made by simply

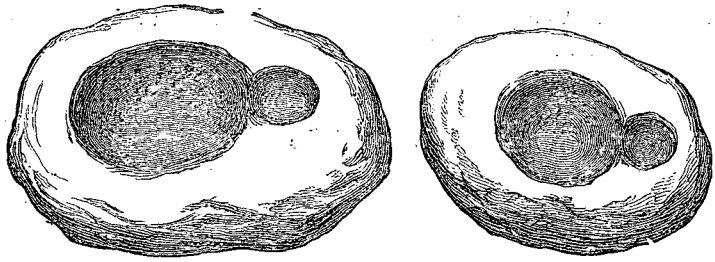


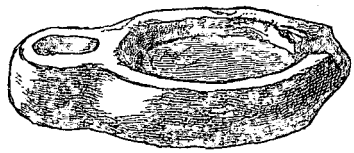
Fig. 1. Fig. 2.

Lamps of Sandstone.

Fig. 1.—From the Broch of Kettleburn, Caithness.
Fig. 2.—From the Broch of Okstrow, Orkney.

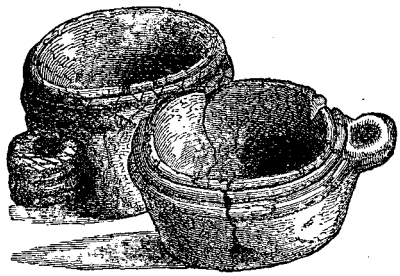
hollowing two intersecting circles, one three or four times the diameter of the other, in the surface of a water-worn boulder of convenient size, that it would have been difficult to imagine them "degradations" of the well-known classic form in bronze or terra-cotta. The specimen I have here figured from a Broch in Birsay, however, seems an unskilful imitation of the Roman lamp. Such lamps as the two first figured are also found in the eirde-houses of central Scotland; but no specimen is on record in Norway or anywhere else that I know of.

The stone cups, with short, perforated handles, so frequently found in the Brochs of the North of Scotland, are still more frequently found in districts far to the south of the Caledonian valley. This form is peculiarly



Lamp of Sandstone, from a Broch in Birsay, Orkney.

Celtic, inasmuch as it is abundant in the Celtic parts of Scotland, and far from rare in Ireland; but it is altogether different from any of the forms of stone cups or vessels of the Viking time in Norway.

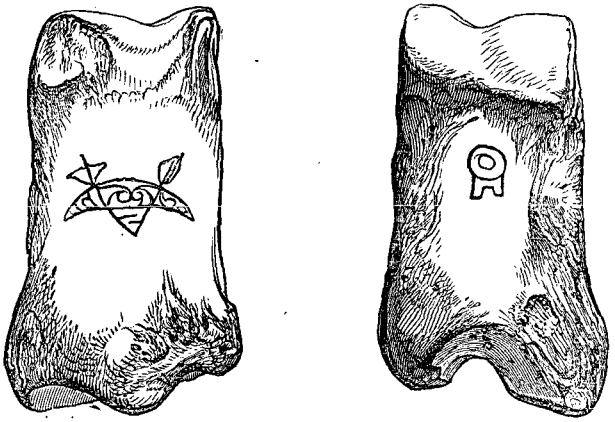
Fig. 2.  Fig. 1.

Stone Cups, with Perforated Handles.

Fig. 1.—From a Broch in Caithness.
Fig. 2.—From Tullynessle, Aberdeenshire.

The only inscribed stone ever found in connection with a Broch bears an inscription in Ogham characters, along with a cross of a peculiar form which frequently occurs on the sculptured stones of Pictland. It need hardly be said that Oghams are peculiarly Celtic, and that no Ogham has ever turned up in Norway. On the other hand, no Runic inscription has ever occurred in a Broch. Christianity was planted among the Celts of the Orkneys

by the followers of St Columba in the end of the sixth century. But the Norsemen were Pagans, from the time of their arrival in Orkney in the end of the eighth century, to the beginning of the eleventh. On the other hand, the presence of Christian Celts in this Broch at an early period is demonstrated not only by the occurrence of the cross carved on this Ogham inscribed stone, but also by the presence among animal bones in its refuse heaps, of a metatarsal bone of a small ox, on which are incised two of the



Metatarsal Bone of Ox, with Carved Symbols, from the Broch of Burrian, Orkney.

symbols of unexplained meaning which occur so constantly on the sculptured stones of the early Christian time in Scotland. These stones, Mr Fergusson admits, "were one and all the work of the Picts."[1] They

[1] In this connection Mr Fergusson has a note, which shows with what remarkable facility his conclusions are reached. Speaking of two maps, one compiled by Dr John Stuart to show the distribution of the Sculptured Stones, the other by myself to show that of the Brochs, Mr Fergusson says—"The curious part of the business is, that the nature and importance of architectural or sculptural remains, for illustrating questions of political geography or ethnology, is so little understood or appreciated in this country, that these two distinguished antiquaries were hardly aware of the service they were rendering when they compiled their maps. In his two introductions (to the two volumes of the Sculptured Stones of Scotland) Dr Stuart proves, in a

are found throughout the whole region of the Brochs, and are the only works of the Picts that Mr Fergusson admits in that region. Yet he denies to the people that carved these strikingly impressive monuments the energy and ability to build such a tower as Mousa; and in face of the fact that the Celts had been constructing vaulted roofs of dry-stone work from the earliest times, he assigns all these structures in Northern Scotland to a race of timber architects, from a country where vaulting was unknown, and the use of stone as a building material unpractised.

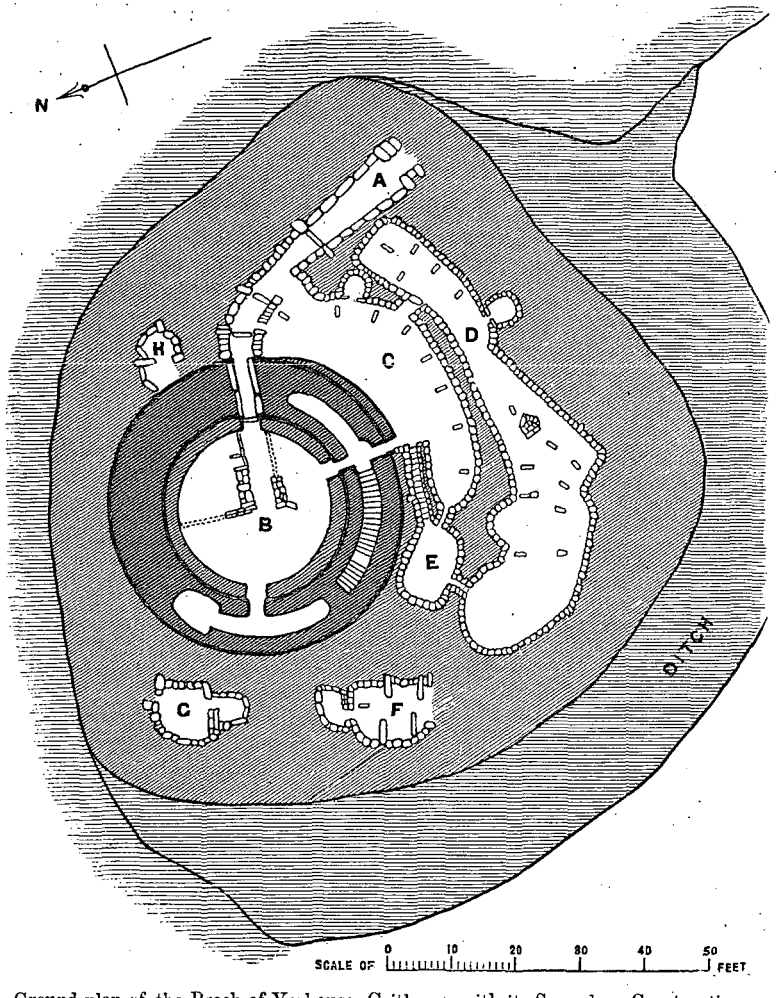
Upon the whole, the general character of the Broch relics is rude and poor—a character quite in keeping with the desperate nature of the struggle for existence which the Celts in these regions were then maintaining, but not at all in keeping with the circumstances of sea-robbers, enriching themselves with the spoils of all lands. In short, Mr Fergusson's theory obliges those who adopt it, to hold that all these things are Norwegian, for the very curious reason that they are utterly unlike anything known to have been made and used by Norwegians, either in Norway or anywhere else.

It would not be correct, however, to affirm that nothing of Norwegian origin has ever been found in connection with a Scottish Broch[1]. What I have said on this subject refers to the general character of the Broch contents considered as a group of relics, and not to every specimen obtained from them. We know from the Sagas that certain Brochs were occupied at certain times by Norwegians; and the testimony of the relics confirms the historical statement. Articles corresponding in character to those found in Viking grave-mounds in Norway and in Scotland have occurred in some Brochs, but these cases are few and exceptional. Before these

manner that will hardly be disputed, that the Sculptured Stones were one and all the work of the Picts, but it does not seem to have occurred to him as a natural consequence, that where a sculptured stone now is found a Pict must previously have existed. While so unconscious is Mr Anderson of the science of architectural ethnology, that he will probably be very much astonished to be told that he has compiled the best geographical and ethnographical maps of Scandinavian Scotland from the best and in many instances the only available materials for the purpose. For thirty years I have been trying to persuade my countrymen to take up this subject. Had they done so, many of the problems that puzzle and perplex antiquarians would never have arisen, or would long ago have been settled."—*Essay on the Brochs*, p. 13.

[1] See my paper on the "Remains of the Viking Period of the Norsemen in Scotland," in the Proceedings, vol. x. p. 536.

were known, I had expressed my conviction, founded on quite other evidence, that there had been in a great many instances a secondary



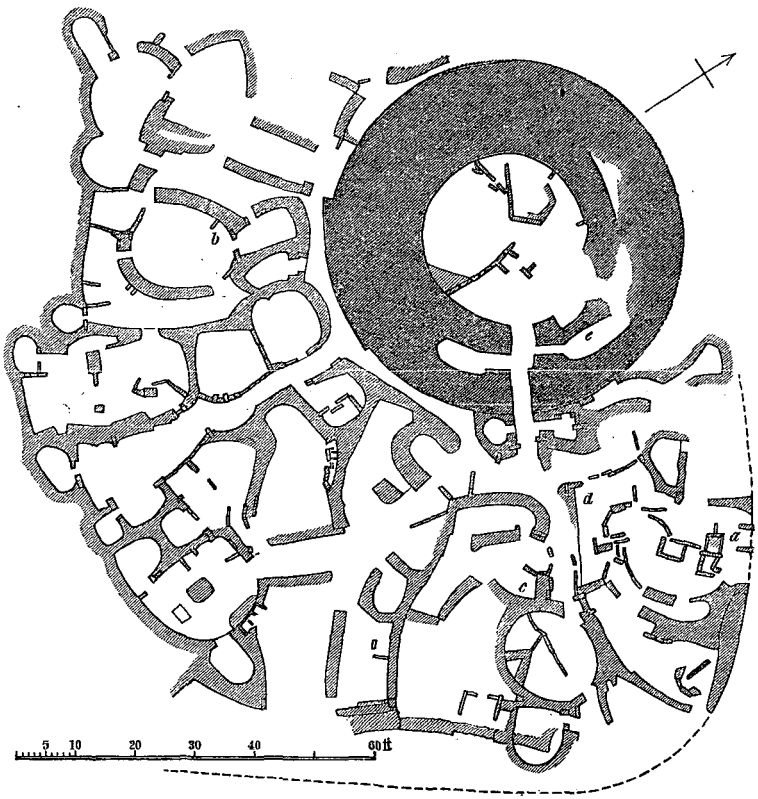
Ground-plan of the Broch of Yarhouse, Caithness, with its Secondary Constructions. (From a plan by J. Anderson.)

occupation of the Brochs.[1] This is indicated by certain constructions, internal and external, of a different character of masonry from that of the original structure, and having their foundations placed upon a layer of varying thickness, composed of ashes and food refuse mixed with the debris of the building in and around which they are situated. In one case I found these later constructions at three or four different levels in the interior of a Broch, the last having been formed at a period when eight feet of rubbish, arising from the dilapidation of the original structure, had accumulated in its interior.[2] It is part of Mr Fergusson's case to put these secondary constructions out of court. He therefore ignores the evidence afforded by the fact that the interior partitionings of the central area are found at different levels above the original floor, on which the debris of the building had accumulated to these levels before the partitions were built; and he assumes that the additional constructions, around the external walls of the Broch, do not differ in kind from the masonry of the Broch itself. But no one, I think, who has ever seen a Broch and its outbuildings, would doubt that they differed in kind. These secondary constructions are sometimes almost rectangular in the ground plan, more frequently they adapt themselves in shape to the space in which they are placed; their walls are thin, and loosely built, without that packing of small stones in the interstices between the larger ones which is so characteristic of the Brochs. They are often faced only on the inner side, and constructed with slabs set on edge in the face of the wall to save building, or placed on end at right angles to the face of the wall to give stability to the loose masonry, features never seen in the original structure of the Broch proper. Pillars are built in the area, and long slabs set on end here and there, presumably to assist in bearing up either a regular roof or a penthouse roof of flags. It is in the case of those Brochs that are most completely dilapidated that the greatest amount of secondary construction is found. Those that have still most of their height remaining, as Mousa, Dun Dornadilla, and the Glenelg Brochs, have no appearance of outbuildings around their bases.

[1] This was also the opinion of Mr Petrie, who says in reference to the Brochs of Orkney, "there is scarcely one that does not afford clear proof of subsequent additions by later inhabitants."

[2] See the description of the secondary structures in and around the Broch of Yarhouse, Caithness, in the Archæologia Scotica, vol. v. pp. 135–137.

On the other hand, the Broch at Lingrow, in Scapa Bay, had only a few feet of the original structure remaining, and here nearly the whole of the



Ground-plan of the Broch of Lingrow, Orkney, with its Secondary Constructions.
(From a plan by Mr George Petrie.)

material of the original structure was found to have been utilised in secondary constructions around its base.

It is altogether another question who these secondary builders were.

The special question at issue is whether the additional constructions were or were not "secondary" in the sense of their having been built out of the materials of the original structure after it was partially in ruin, and not having been expansions in the way of enlarging the accommodation, and altering the style and character of the residence in order to meet requirements which were not contemplated when the original structure was built. Mr Fergusson puts his view of the matter as follows:—

"The fact is that the Brochs underwent the same process of transformation that the Peel towers have been subjected to in every part of Scotland. As security of property and modern forms of civilisation advanced, wherever these towers continued to be inhabited—which has happened in some hundreds of cases—wings were thrown out to afford additional accommodation for the family, outhouses were added, and the rooms of the old tower subdivided, till it lost all its character of a fortalice, and became the picturesque and commodious dwelling of the modern laird, who, however, was in most cases the lineal descendant of the original tower-builder. Precisely the same thing happened in the Orkneys, when more peaceful times converted the Viking into a Udaller. He required not only more accommodation, but of a different class from that which satisfied his warlike ancestor. The upper part of the Broch was removed as no longer required. The court was subdivided, and in some instances at least roofed, or at least partially so, and outside drinking-halls and other necessary appliances added, but in the same style and with the same materials. It is, in fact, a case of 'continuous' and not of 'secondary' occupation, and so far as any evidence now available bears on the question, it goes to prove that those who built the Brochs built also the additions."[3]

But this hypothesis proceeds upon assumptions that are either contrary to the facts or unsupported by evidence. For instance, it is assumed that the Brochs underwent the same process of transformation to which the Peel Towers have been subjected in every part of Scotland. But the Peel Towers do not exist in every part of Scotland, and the process of transformation which they underwent (as here described by Mr Fergusson) was totally different from that which happened to the Brochs. "Wings," it is said, "were thrown out to afford additional accommodation to the family." But where shall we find a Broch with wings? Again, we are told that what happened to the Brochs was "precisely the same thing" that happened to the Peel Towers, and that "when more peaceful times converted

[3] Essay on the Brochs, p. 17.

the Viking into a Udaller, the upper part of the Broch was removed as no longer required." But where shall we find a Peel Tower so treated by its owner? Or where shall we look for a Broch with "outside drinking-halls," or any other "halls," added in the same style as the original construction? Not only is there no parallel between what is thus alleged of the Peel Towers and of the Brochs, but the statement of what did happen is not consistent with itself, and the whole strength of Mr Fergusson's previous argument, *mutatis mutandis*, would have gone to prove (if it were worth anything) that the Peel Towers were the work of the invading English, and not of the Scots.

Structural Antiquities associated with the Brochs.

The structural antiquities associated with the Brochs in the area to which the latter are chiefly confined, that is, in the region lying north of the Caledonian valley, are (1) chambered cairns, (2) stone circles, and (3) eirde-houses or weems.

Before proceeding to discuss the question of the origin of these three classes of structures, it is necessary to consider the significance of their association with the Brochs, because that association forms the basis of the next part of Mr Fergusson's argument.

Having assigned the Brochs to the Norsemen, he proceeds to say that, "the further question is not so much whether the chambered tumuli and stone circles of the Orkneys are those of the Celts or of the Norwegians, as whether the Broch builders erected also the various mounds and edifices that are found everywhere mixed up with them." In other words, he claims that the Brochs, being assigned to the Scandinavians, the other structural remains must necessarily follow them.

It seems to me that nothing weaker in the shape of an argument can well be imagined than that which assigns one age and one origin to remains which are certainly of different classes, and may thus be of different periods, simply on the ground that they are "mixed up" together. But Mr Fergusson has no hesitation in using this argument. On the contrary, such is his confidence in its validity that he declares that not only is he convinced by it himself, but he would find no difficulty in proving his proposition by it to others, "were it not that our one inf lible guide, common sense, here forsakes us."

If contiguity necessarily implied contemporaneousness, such an argument as this might be used with effect. But Mr Fergusson has not attempted to prove that in the case of the Orkneys this contiguity does mean both contemporaneity and community of origin. Instead of doing so, he simply asserts that "the sepulchral remains of the Orkneys show a style of art so similar to that of the Brochs, and both represent a state of civilisation so nearly identical, that it will be difficult to separate the one from the other." But that difficulty disappears when it is known (1) that there are differences between the styles of art of the chambered tombs and of the Brochs sufficient to prevent them being regarded as in any sense similar; and (2) that the state of civilisation represented by the one is not in the least like that represented by the other. These, viz., the "similarity of art" and "identity of civilisation," are the two things which Mr Fergusson's case required him to prove, and this proof (which he has not attempted) would have constituted the only evidence capable of carrying his conclusions.

Let us now examine the nature of the association of these classes of structural remains.

It is not an association of groups that are conterminous in area. The area of the Brochs is limited to a portion of Scotland; the areas of the chambered cairns, the stone circles, and the eirde-houses are not confined to Scotland.

Again, it is not an association of groups having their greatest development in the Orkneys. Even if we admit this for the Brochs (which is doubtful), the chambered cairns are more abundant on the mainland of Scotland than they are in the Orkneys; and the stone circles and eirde-houses are but few in number in the Northern Isles, while in other districts of Scotland they are numerous where chambered cairns are few, and Brochs are altogether unknown.

Thus, while we have in the part of Scotland lying to the north of the Caledonian valley the same classes of structural remains that are found over Scotland generally, we have these wide-spread groups there augmented by the additional group of the Brochs—a group more local in its range and more peculiar in its characteristics. Does the presence of this local group in northern Scotland imply for the other groups an origin in that particular quarter different from their origin in other parts of Scot-

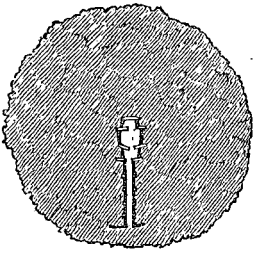
land? Or, to put it in another way, are we to assume one origin for the chambered cairns, stone circles, and eirde-houses to the north of the Caledonian valley, because there they are associated with many Brochs, and another origin for the same classes that lie to the south of that valley, because there they are associated with few Brochs? This we must do, if we adopt Mr Fergusson's opinion that "the Celts or Picts of the north of Scotland did not at any time between the departure of the Romans and their subjugation by the Norwegians, attain to such a stage of civilisation as would have enabled them to erect such a tower as Mousa, such a sepulchre as Maeshowe, or such a circle as that at Stennis;" and if we believe with him that the Norwegian Vikings erected the Brochs as places where they could leave their families and their treasures in safety when absent on their peculiar business, and constructed the chambered cairns and the stone circles as sepulchres for their dead.

The issue thus raised with respect to the group of Orcadian monuments, taken as a whole, is distinct and easily stated. If they are an extension westwards of the Norwegian group of stone monuments, they ought to exhibit such a similarity of character and contents as to demonstrate their affinity with the parent group from which they are an offshoot. If, on the other hand, they are an extension northwards of the Celtic group of stone monuments, their character and contents ought to be also those of the group of monuments lying to the south of the area occupied by the Norwegians in Scotland, and ought not to be those of the group of monuments in Norway, from which these settlers emigrated. The determination of the issue thus resolves itself into a process of simple comparison of the characters of the structure and contents of the Orcadian group of monuments, with the view of ascertaining whether their affinities are traceable eastwards into Norway, or southwards into Celtic Scotland.

For this purpose it is necessary to examine (1) What the main features of these monuments are; and (2) Whether these features are found in Norwegian or in Celtic monuments.

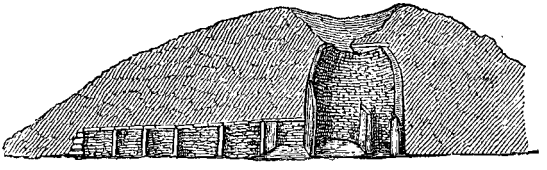
Chambered Cairns.—The chambered cairns are not generally distributed over the face of the country like the Brochs. Sometimes they occur singly here and there, at other times in clusters, widely separated from each other. They are often of enormous magnitude, and from their situation they form conspicuous features in the landscapes. Though vary-

ing in external configuration, and differing from each other in the details of their internal arrangements, they always possess certain features in common, which distinguish them as a generic group.[1] The chamber is



Ground-plan of Chambered Cairn at Camster, Caithness, 75 feet in diameter.
(From a plan by J. Anderson.)

always small in proportion to the huge size of the pile in which it is enclosed. The passage leading into the chamber is longer, lower, and narrower than the entrance to a Broch, and it differs also in being

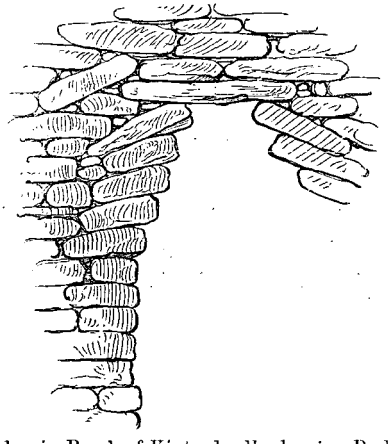


Section of the Chambered Cairn at Camster, Caithness, showing Passage 20 feet long and Chamber 10 feet high.
(From a plan by J. Anderson.)

gradually enlarged as it proceeds inwards. The characteristic feature of the chamber is the rude vaulting of the roof by overlapping stones, a

[1] For detailed accounts of the structure and contents of these chambered cairns see my papers on "The Chambered Cairns of Caithness," with the plans, in the Proceedings of the Society, vol. vi. p. 442, and vol. vii. p. 480; and Memoirs of the Anthropological Society of London, vols. ii. and iii.

feature also common to the chambers on the ground floors of the Brochs.[1] The external configuration of the "cairn" was defined by a retaining wall, single or double, which gave it a definite structural form and an external elevation in the architectural sense. Thus it results that a chambered cairn is not at all a "cairn" in the sense of an agglomerated heap of stones; but is a distinct structure, with a regular ground plan, and a well-defined exterior and interior elevation—a building designed and constructed after a pattern which varied in its details, but was constant in its leading structural features.



Section of Chamber in Broch of Kintradwell, showing Rude Vaulting of Roof.
(From a drawing by Rev. Dr Joass.)

The floors of the chambers are covered to a considerable depth with deposits of burnt bones, human and animal, intermingled with fragments of pottery, of a style and texture different from that found in the Brochs. The weapons found in them are invariably of flint or polished stone. Weapons of this description have never been found either in Brochs, or in tombs of the Viking period.

[1] Compare the section of the chamber in the cairn at Camster, with that of the Broch here given. If the Brochs were Scandinavian, this feature might be used as an argument for the Scandinavian origin of the chambered cairns. But the vaulted roof does not occur in Scandinavia, either in tombs of the Viking times or of any previous age.

Are these then the features found in Norwegian burial-mounds of the Viking time? The answer is decisive. There is not on record in all Norway a single chambered tomb of the Viking time, or the later Iron Age.[1]

It is true that Mr Fergusson adduces the evidence of "eighty chambered tumuli" explored by M. Lorange in Norway.[2] But when the evidence is examined, it is found that these tumuli are not chambered, and that they are not of the Viking period, but of the early Iron Age.

"The information regarding these tombs," says Mr Fergusson, "is contained in four reports published in Norwegian, in the Memoirs of the Archaeological Society of Norway, in 1867–70, and resumed by M. Lorange in a work entitled 'Om spor af Romersk Kultur i Norges aeldre Jernalder;' it need hardly be added that neither of those works is to be found in the British Museum Library, but they do exist in that of the Society of Antiquaries, where I have had an opportunity of consulting them."

Now these detailed reports by M. Lorange are full and precise, and leave no room for doubt as to the character of the "eighty chambered tumuli" cited by Mr Fergusson. They contain no chambers, only cists of flags. It is true that M. Lorange uses the Norwegian word *gravkammer* for cist, and uses it in this sense correctly, because the *gravkammer*, in the sense of a chamber with built walls and a passage leading into it, does not exist in Norway—a fact which Mr Fergusson, in his haste to prove the

[1] Mr Fergusson classes the so-called "Picts' Houses" of Orkney with the Gang-graben or passage-graves of Denmark, of which he says they are the counterparts. Yet the architectural features of the Picts' Houses are, that they are built with irregularly coursed stones, and have vaulted roofs formed by overlapping, while the Gang-graben are megalithic, and have lintelled roofs. Kettleburn, too, he classes with these strutures, but Kettleburn was a Broch. The Gang-graben are of the Stone Age, but Mr Fergusson does not believe in the Stone Age.

[2] Mr Fergusson has apparently been led into this misapprehension by a hasty reading of M. Lorange's condensed description of these in the "Compte Rendu du Congrès International à Stockholm en 1874" (p. 644), where he says—"Une premiere categorie (de tumulus) ne presente pas de chambre . . . . . une seconde categorie se caracterise par des petites chambres carrees, formes de dalles . . . . . une troisieme categorie de tumulus contient des grandes chambres egalement formes de dalles. Nous connaissons environ 80 tumulus Norvegiens de ce genre." But these "square chambers, formed of slabs" (whether small or large) are *cists*, and not chambers, like those of the chambered cairns of Scotland. In fact, M. Lorange expressly calls them cists in his other papers, subsequently referred to.

Orkney tombs Norwegian, has completely overlooked But the context in M. Lorange's descriptions always suffices to show the precise sense in which the term *gravkammer* is used by him, because the measurements are given, and there is never a passage leading to the *gravkammer* from the outside of the mound. For instance, in the very work "Om Spor af Romersk Kultur," &c., to which Mr Fergusson refers as containing the information on which he founds his statement, M. Lorange says of these same "eighty tumuli": "In 1868 we had information of about 90 tumuli with large *chambers or grave chests*," or in his own words:—"I 1868 havde man underretning om *ca.* 90 Haugen med store Kammere eller Gravkister;"[1] and he adds that the chambers (cists) are seldom under a man's length, and are from two to four feet in height and breadth—"Kammere ere sjeldene under mans-laengde og fra to til fire fod hoie og brede."

That there may remain no doubt whatever as to the actual character of these early iron age tumuli in Norway, I quote from another work by M. Lorange the following passage, which is sufficiently explicit for the present purpose:—[2]

"The grave finds from the Early Iron Age have been deposited in tumuli (grav-hauger), and mostly in tumuli with grave-chambers (grav-kammere). The form of the tumulus is either round or oblong. In the round form the grave-chamber is either small and squarish, or large and chest-like,—the latter being characteristic of the long tumuli. These two forms also indicate two varieties of burial-customs. The small chambers usually enclose a single urn, and are only large enough for this purpose. The urn is either of timber-staves (a wooden bucket) or of burnt clay, or occasionally a large vessel of bronze. It always contains burnt bones, and among them usually are some personal ornaments. Sometimes weapons are found, either placed on or beside the urn, and these have been invariably burnt on the pile with the body, and deposited in a bent, crumpled, and destroyed condition, although the smaller ornaments show no signs of similar treatment. This form, with small grave-chambers, burnt bodies, and partially burnt grave-goods, is common. The larger grave-chambers show greater variety in their contents. They are usually over a man's length, but seldom more than 2 feet broad, and 2 to 3 feet high.

[1] Om Spor af romersk Kultur i Norges aeldre Jernalder af A. Lorange (Christiania, 1873), p. 45.

[2] As this work "Samlingen af Norske Oldsager i Bergen's Museum, ved A. Lorange" (Bergen, 1876), is not scarce, like the one previously mentioned, I have not thought it necessary to give the passage in the original Norwegian. It will be found at pp. 46 and 47 of the work cited.

While in the small chambers, each side of the chamber is formed of a single stone, the sides of these are lined, or are constructed, with slabs set on edge or on end, and roofed over with large flat stones. They contain burnt bones, but also unburnt bodies. There is a striking difference between the accompaniments of the two forms of burial. With the unburnt body the deposit is mostly always very rich and consists of vessels, ornaments, implements and weapons, sometimes single weapons, sometimes a warrior's whole panoply, consisting of a two-edged sword, spear and lance-heads, arrows, a shield, and often an axe, which in the Iron Age was probably more an implement than a weapon. But in none of these larger grave-chambers do we find any trace of the intentional rendering of the weapons useless; they are deposited with the dead in proper order and good condition. It is in these graves also that we find the intermixture of Northern and Roman art, and to them belong the greater part of the Roman antiquities found in Norway. Similar Roman relics are found in the smaller grave-chambers, but only exceptionally; while, on the other hand, it is the exception that one or more Roman objects are not found in the larger. The first grave form is also peculiar to Norway; the second is found over the whole of the Scandinavian north."

It is needless to say that not a single one of the characteristics, either of the structural form or of the included contents of these tombs, is found in the chambered tumuli of Orkney. The comparison does not yield a single feature of similarity. M. Lorange says that his eighty grave chambers are lined with slabs, and covered with flat stones, and that they are seldom over a man's length, 3 or 4 feet broad, and 2 or 3 feet high. On the other hand, the chambered tumuli of the Broch region in Scotland have passages leading into chambers with built walls and vaulted roofs. The floor of the one in Papa Westray contains (exclusive of its side chambers) a superficies of 320 square feet, that of Maeshowe 225 square feet, and that of Quanterness 140 square feet. That the true character of the Norwegian tumuli, of the Early Iron Age, is that of cisted and not of chambered tumuli, is a fact well-known to all who have studied the subject, and only requires to be demonstrated here, in consequence of Mr Fergusson's having cited M. Lorange as an authority for the existence of "eighty chambered tumuli" in Norway, which are held by Mr Fergusson to be the counterparts of the chambered tumuli of Orkney.[1]

[1] There is one *dolmen* in Norway, discovered in 1872 by M. Lorange. It cannot however, be claimed as a counterpart of the chambered tombs of Orkney. It is constructed of five blocks of granite, which form the supports of a large covering slab,

But he further argues for the probability of the chambered tombs of the Orkneys being of Norwegian origin, that the barrows of King Gorm and his Queen Thyra at Jellinge, in Jutland, are "identical with Maeshowe," the principal difference being that the one is constructed with wood, and the other built in stone. Even if this might be used to prove that the Orkney tombs were the work of the Danes (who never were settled in Orkney), it could scarcely affect the question of whether these tombs were the work of the Norwegians. But the *grav-kammer* in Queen Thyra's barrow (that of King Gorm's has not been found), has really nothing "identical with Maeshowe." It is merely a cist, though a large one. Engelhardt says, "The grave-chamber (in Queen Thyra's mound), which had no entrance, was placed at the bottom and in the centre of the mound, so that there is a distance of about 50 ells between its walls and the exterior base of the mound." The difference is thus not merely that one construction is of wood, and the other of stone. The one is a rectangular box, cist, or whatever else it may be called, without any opening for entrance—top, bottom, and sides, all constructed of planks; the other is a chamber regularly built of stone, with an earthen floor, a vaulted roof of stone nearly 20 feet high, and a lintelled passage fully 50 feet long leading into it. If there be any "identity" between the two constructions, either in an architectural or any other sense, I confess I am unable to perceive it.

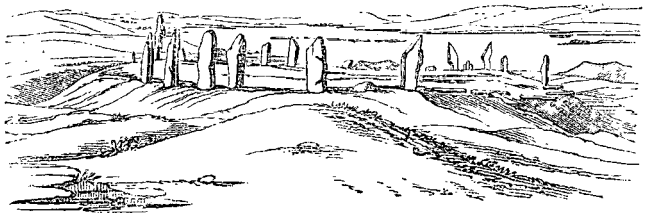
But even if the alleged identity were proved, there still remains to be considered the very important fact (not once alluded to by Mr Fergusson), that instead of being an example of the common or typical form of barrow of the Viking period, Queen Thyra's grave-mound is an entirely exceptional instance. There is not another like it either in Denmark or in Norway. The common or typical Norwegian barrow of the Viking time was destitute of cist or chamber. To make this fact as clear as possible, I quote the general statement of Professor Rygh on this subject, from a paper by him on the "Barrows of the Iron Age in Norway."[1] He says: "Of the

also of granite. Lying in the neighbourhood of Frederikshald, it is interestin as being the most northern dolmen yet known; but it seems to be rather an outlier of the group in southern Sweden, than an indication of the existence of this class of monument in Norway.

[1] Om den Aeldre Jernalder i Norge, af O. Rygh, Aarboger for Nordisk Oldkyndighed og Historie, 1869, p. 161.

extraordinarily large number of grave-finds from the younger Iron Age (*i.e.*, the Viking period) which are known, in all about 1000, there are but *two* which were undoubtedly derived from Hows (or barrows) with *grav-kammere*.[1] Burial in *grav-kammere* thus appears never to have been in use, as a custom, in the Viking time." Thus any significance which Queen Thyra's tomb might have had, disappears entirely when it is known that it is merely an exceptional case; while the fact that the Norwegian barrows of the Viking period are not only not chambered, but are destitute of cists, precludes the further use of the argument that the chambered tombs of the Orkneys must be Norwegian, because they have chambers.

Stone Circles.—The stone circles, as their name implies, are circular areas marked off from the surrounding surface by tall undressed pillar-stones, set on end at intervals round the circumference of the inclosed area, which

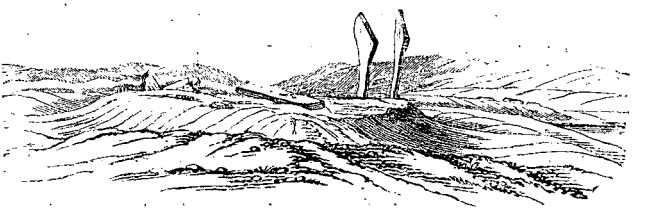


Stone Circle at Brogar, Stennis, Orkney (340 feet in diameter).
(From "Celtic Antiquities of Orkney," in Archæologia, by Captain F. W. L. Thomas).

is sometimes further defined by a trench outside the stone circle, or by a low mound raised round it. Few of the stone circles of Scotland are now entire; and though their remains are so numerous, complete measurements and accurate plans of the best examples are still wanting to enable us to

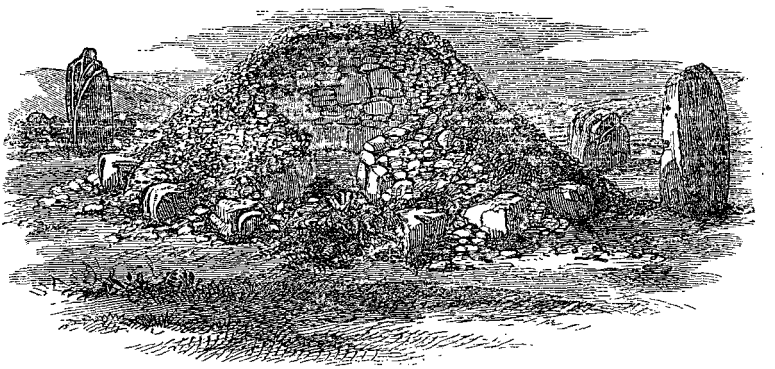
[1] M. Lorange gives similar testimony. In his description of the Raknehaug he says:—"The grave-mounds in the North which come nearest the Raknehaug in size are the mounds at Upsala, and Thyra's and Gorm's Hows at Jellinge. . . . . I had hoped, from the abundance of the material which its builders seem to have had at command, that the Raknehaug might have contained a chamber (of timber), although this was scarcely to be expected, since, as a rule, *grav-kammere* were not in use in the later Iron Age. There are but two exceptions that can be cited in all Denmark, viz., Queen Thyra's How and the Mammen How near Viborg. The case is precisely similar with respect to Norway, where there are also only two exceptions." Fra Raknehaugen, Antiquarisk Meddelelse af A. Lorange, p. 6.

understand their comparative anatomy. They vary greatly in diameter, in the size and number of the pillar stones and their distances apart, but they possess certain distinctive characteristics in common which mark them as a specific group of sepulchral monuments allied to the chambered cairns.



Stone Circle at Stennis (104 feet in diameter).
(From "Celtic Antiquities of Orkney," in Archæologia, by Captain F. W. L. Thomas.)

Occasionally, as at Clava, the cairn is surrounded by a stone circle. At Callernish a small chambered cairn was placed within the circle. Cremation is the prevailing sepulchral custom, both in the circles and the

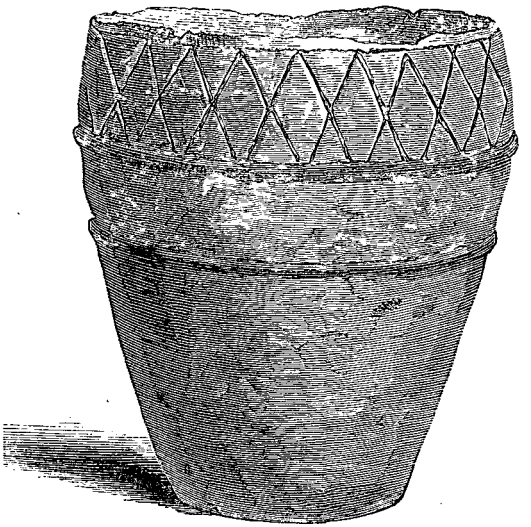


View of one of the Chambered Cairns at Clava, near Inverness, with its surrounding Stone Circle.
(From a drawing by Rev. Dr. J. Joass.)

chambered cairns. It is worthy of remark, that while these stone circles occur sparsely among the Brochs and chambered cairns of the north and

west of Scotland, they attain their principal development in Pictland proper, and are most abundantly found in the region between the Moray Firth and the Firth of Tay.

"In the absence of any direct testimony to that effect," says Mr Fergusson, "one of the most obvious reasons for believing that the circles are of the same age as the Brochs is the mode in which they are all mixed up together and apparently parts of one contemporaneous group." But, as I have before remarked, the "mixed up" argument must be put out of court as unphilosophical and unscientific. If the area to which it was applied were not Orkney, but Scotland, or Denmark, or London, or Jerusalem,



Urn found inverted over burnt bones in the Stone Circle of Tuack, near Kintore, Aberdeenshire. (12 inches in height.)

Mr Fergusson would be the first to protest against it. He overlooks the fact that the stone circles in the Norwegian area of Scotland are few,[1] while

[1] Mr Fergusson speaks of them as "the circles which are found at Stennis in the Orkneys, at Callernish in the Hebrides, and *occasionally* on the mainland," as if their occurrence in the Northern and Western Isles were the rule, and in the mainland the exception. Precisely the opposite of this, however, is the fact. Properly

beyond that area there are many. Moreover, the few in Orkney are of the same character as the many in the Celtic region of Scotland, and they differ in character and contents from the *Sten-satninger* of Norway. Those of the Scottish circles that have been examined have yielded interments of the Bronze Age, which was long over both in this country and in Norway before the Vikings came to Orkney. The pottery found in them is specially Celtic in character, and differs in form, texture, and ornamentation from all the varieties of sepulchral pottery found in Norway. No urn of the form and character here figured (p. 349 from the Stone Circle of Tuack, Aberdeenshire) was ever found in Norway.

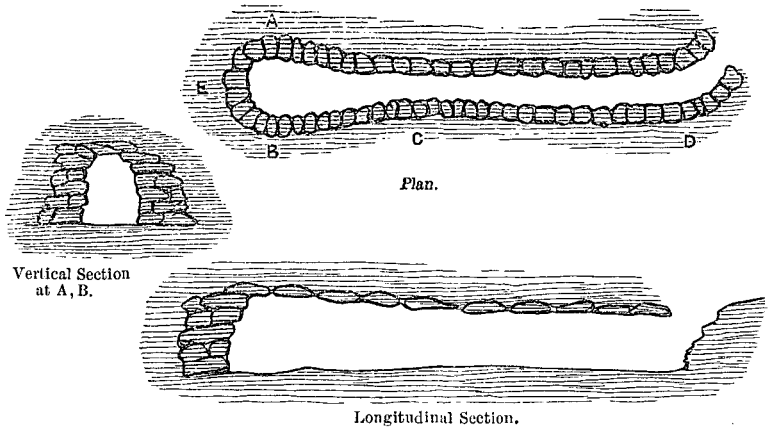
But the question of the structural and other differences beween the stone circles of this country and those of Norway is too large a subject to be entered on here. It is sufficient for the present purpose that the few in the Orkneys do not differ in character from the many in Pictland, and that these are not only under no suspicion of Norwegian origin, but are not open to the objection of being " mixed up " with Brochs.

Eirde-Houses.—The eirde-houses or *weems* range along the east coast of Scotland from Shetland to Berwickshire, although they attain their chief development in the region lying between the Tay and the Spey. They are long, narrow curved galleries, formed beneath the natural surface level. The opening is often beside or within the remains of a structure on the surface which has been of less substantial construction, and is almost entirely obliterated. They seem thus to have been subterranean adjuncts to the overground sites of habitations of slighter materials. They present (like the Brochs) a curious similarity of plan and construction.[1] A low and narrow entrance slopes downwards to the floor-level of the chamber, which

speaking, there are no Stone Circles in Orkney unless at Stennis. The others (of which there are but three or four) may or may not have been "Stone Circles," but they are now in such a condition that it is impossible to say that they were ever like that at Brogar. But allowing that there were six in Orkney, the number in Aberdeenshire must have been nearer sixty than six.

[1] The four instances of which illustrations are given—viz., at Eriboll, Sutherlandshire, Crichton Mains, Edinburghshire, Newstead, Roxburghshire, and Broomhouse, Berwickshire—are selected partly to illustrate the geographical range of the eirde-houses, and partly because they happen to be *dissimilar* in plan. The general resemblance of the eirde-houses to one another may be studied in the numerous plates given of them throughout the Society's Proceedings. No class of structural remains has been more fully illustrated.

is elongated, curved generally to the left, and gradually widening to the back, which is often rounded off instead of being terminated by a straight wall. The side walls are sometimes built, at other times they are constructed almost entirely of single stones set on edge. The roof is composed of flat slabs laid across, and sometimes the opposite walls are constructed so as to converge considerably inwards, thus lessening the space to be

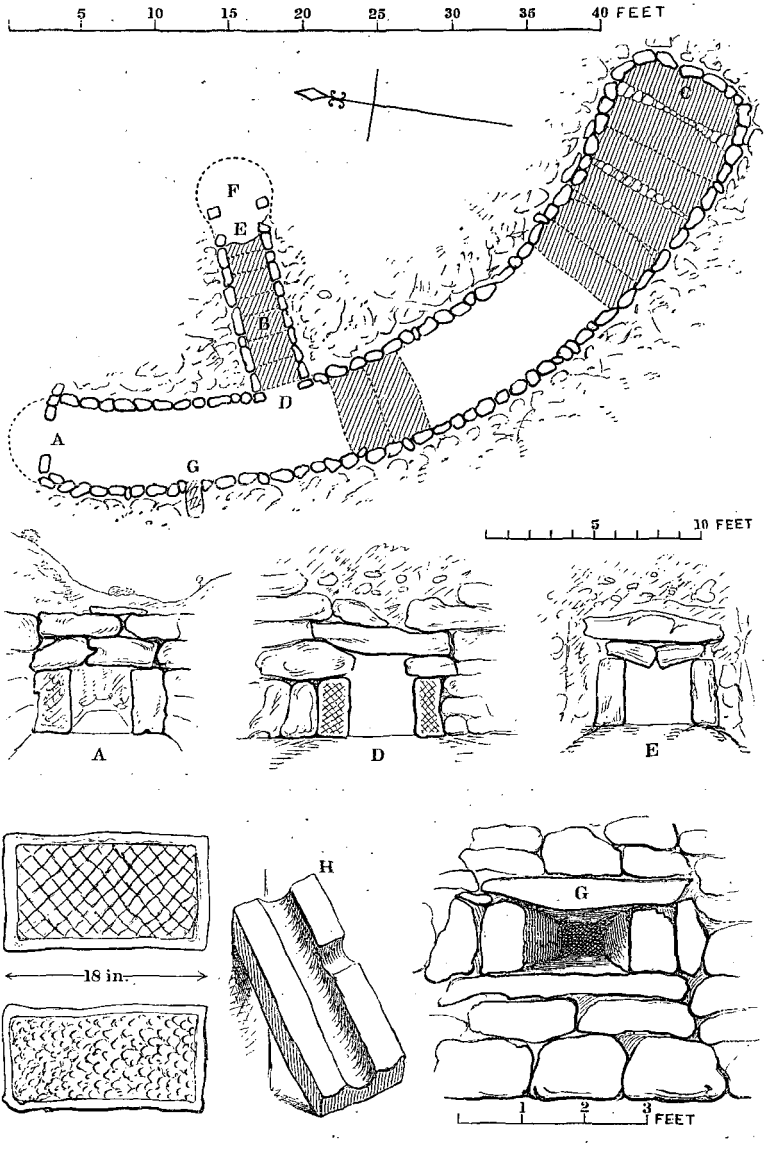


Plan and Sections of Eirde-House at Eriboll, Sutherlandshire.
(From Plan by Dr Arthur Mitchell.)

lintelled over. Occasionally a small circular or oblong bee-hive chamber branches off from one side of the main gallery. This chamber is frequently roofed in the same manner as the chambers in the Brochs and in the chambered cairns, by the gradual convergence of the side walls so as to form a rudely-constructed dome.

But although the Eirde-Houses, like the Brochs, generally present a striking similarity of plan and construction, they also vary greatly in dimension and detail, as the following table will show[1] :—

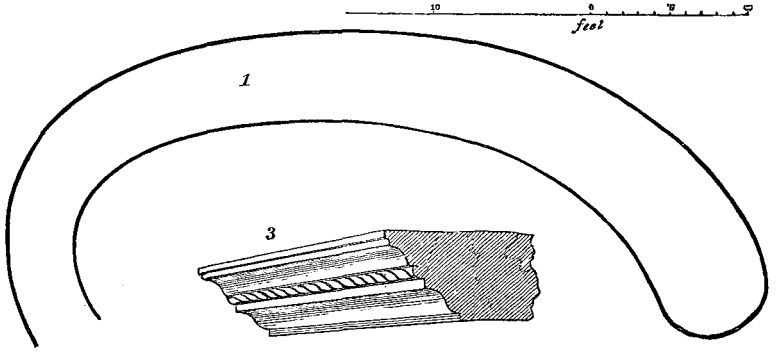
[1] This table might easily have been made to include double or treble the number of examples given; but there is no necessity for an exhaustive detail of the characteristics of these structures in this connection. It is sufficient to show their general features and their geographical range in Scotland.



Plan and Sections of Eirde House at Crichton Mains, Edinburghshire. Three chisel-dressed stones inserted in its walls are shown at H.

Eirde Houses.	Length.	Width at Entrance.		Width at End.		Greatest Height.	
	Feet.	ft.	in.	ft.	in.	ft.	in.
1. Tealing, Forfarshire,	80	2	6	8	6	5	8
2. Buchaam, Newe, Aberdeenshire,	58	3	6	9	3	7	0
3. Middleton, Edinburghshire,	57	2	6	5	8	5	6
4. Newstead, Roxburghshire,	54	4	0	7	0	6	0
5. Eriboll, Durness, Sutherland,	33	2	0	3	6	4	6
6. Crichton, Edinburghshire,	51	1	10	9	0	6	0
7. Drummahoy, Castle Fraser, Aberdeen,	51	2	0	6	0	6	0
8. Pirnie, Wemyss, Fife,	50	2	8	7	0	8	0
9. Clova, Aberdeenshire,	50	4	6	6	9	5	8
10. Culsh, Tarland, Aberdeenshire,	47	2	0	6	0	6	0
11. Conan, Forfarshire,	46	2	6	8	6	5	6
12. Safester, Shetland,	45	1	4	2	6	2	6
13. Migvie, Aberdeenshire,	41	1	10	6	0	6	0
14. Fallaws, Forfarshire,	36	1	9	6	0	5	6
15. Kinord, Aberdeenshire,	21	1	6	3	0	2	6
Average,	50	2	9	6	3	5	6

Although these structures are quite as much "mixed up" with the Brochs as the stone circles are, Mr Fergusson has not alluded to them.[1]

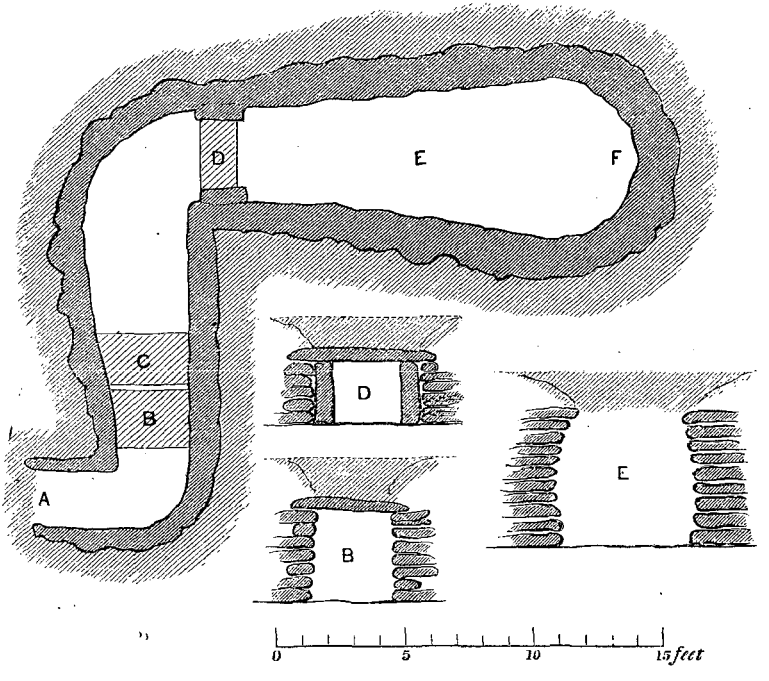


Outline of Ground-plan of Eirde-House at Newstead, Roxburghshire, and Stone with Moulding found in it.

Yet they form an element in the problem of the determination of the origin of the Brochs quite as important as any of those that he has discussed.

[1] Eight of these eirde-houses, for instance, are recorded as occurring in Sutherlandshire.

They show beyond the possibility of doubt, that, centuries before the Vikings came to the Orkneys, the Celts were habitually constructing long



Ground-plan and Sections of Eirde-House, with double curve, at Broomhouse, Berwickshire.

covered galleries and vaulted chambers of dry-stone building essentially similar to those of the Brochs. The occurrence of the red ware, commonly called Samian, in so many of these eirde-houses proves that they must have been constructed and occupied at no great distance of time from the Roman occupation of the southern part of the country, which came to a close four centuries before the Vikings made any permanent settlement in the Orkneys.

I have already shown that the earlier sepulchral structures of the Celts were also distinguished by these prominent constructive features, the long

horizontal gallery and the vaulted chamber. Thus the principal features that are characteristic of the Broch structure° were specialties peculiar to the Celts for centuries before the Vikings had begun to frequent the Scottish seas, while they are features that were unknown to the Vikings in their own land, and, so far as their own Sagas afford evidence, unpractised by them even after their settlement on Celtic territory.

Conclusions.

On a general review of the foregoing considerations, the following conclusions appear to me to have been established :—

(1). That the Brochs are allied by their structural characteristics to the Celtic and not to the Norwegian group of stone monuments, in which no instance of a vaulted chamber ever occurs.

(2.) That their geographical range, which is confined to Scotland alone, and their local distribution, imply their native origin, and are incompatible with the theory that they were built by the Norwegians.

(3). That the Norwegian remains from graves of the Viking period in Scotland are wholly similar to the remains of the Viking period in Norway, and thus form a group easily distinguishable from the group of Celtic remains with which they are locally associated.

(4.) That the general *facies* of the group of relics found in the Brochs agrees completely with that of the group of relics of the post-Roman period of Celtic Scotland, and that this is sufficient evidence that their occupants were not Norwegian.

(5.) That the Chambered Cairns are earlier than the Brochs and consequently cannot belong to the Viking time, and that they have no analogy with the tumuli of the Iron Age in Norway.

(6.) That the Stone Circles are also earlier than the Brochs, and that they differ widely in character and contents from the Circles of the Iron Age in Norway.

(7.) That Mr Fergusson's case for the Vikings as the constructors of the Brochs, Stone Circles, and Chambered Cairns of the Orkneys and the North of Scotland, is not supported by relevant evidence; that his arguments are destitute of sufficient foundation in fact; and that the *onus probandi* lies altogether with those who assert that the Viking practice in Scotland was different from the Viking practice everywhere else.