II.

CLAY CASTLE-BUILDING IN SCOTLAND. By W. MACKAY MACKENZIE, M.A., D.Litt., F.S.A.Scot.

In the year 1230 King Hacon of Norway sent a fleet of twenty ships to the "Southern Isles," that is the Hebrides, for the purpose of restoring order there and re-establishing his personal authority. Alan, Earl of Galloway, whom the saga calls "the greatest warrior in that time," was harrying round these islands, Ireland, and Man, and the Hebridean "Kings . . . were very unfaithful to King Hacon." By recruitment among the isles the fleet came to include eighty vessels, the crews of which would possibly number in all about 2000 to 2500 men. The story is told in Hakon Hakonsson's saga, which was written in 1264–5 but survives only in imperfect copies or abbreviated versions.[1] I take the text compiled by Vigfusson for the Rolls Series with a translation by Sir George Dasent, where the narrative is as follows: The ships "sailed afterwards south off the Mull of Cantire and so in to Bute. And there sat the Scots in Castles, and there was a steward at their head, one of the Scots. The Northmen ran in to the Burg and made a hard assault on it. But the Scots defended themselves well, and poured down on them boiling pitch and lead. Then fell many of the Northmen and many were wounded. They bound over them 'flakes' of wood" (obviously as a protection against the burning liquids), "and after that they hewed at the wall, for the stone was soft; and the wall crumbled before them. They hewed at it on the ground. . . . Three days they fought with the Burg-men ere they got the burg won."[2] The version in the Flatey Book expands one passage to the effect that "the Norwegians hewed the wall with axes, because it was soft."[3]

The castle in question has been identified, perhaps correctly, with that of Rothesay, and it has been debated whether the existing outer wall, in its original state over 20 feet high and 8 to 10 feet thick, is that which was hewed into by the Norse besiegers. In 1872 Mr William Burges, a London architect, was commissioned to make a report upon the castle for the Marquis of Bute.[4] He describes the wall as "constructed of a hearting of rough rubble, enclosed by outer and inner faces of cut sandstone." The upper 10 feet or so of the wall is

[1] See preface to edition in Rolls Series, pp. x, xvii–xix; *Early Sources of Scottish History*, A. O. Anderson, vol. ii. p. 473. [2] Chap. 167. [3] Anderson, as cited.

[4] *Bute in the Olden Time*, Rev. J. King Hewison, vol. ii. pp. 107–32. On the castle, see also my *The Mediæval Castle in Scotland*, pp. 40–1.

obviously a later addition. Then came the question whether the lower and older part was that which had been breached by the Norsemen. Mr Burges accordingly asked Mr Thomson of Rothesay to make a careful examination, and Mr Thomson wrote as follows: "At several places, both inside and out, where the square facings have been removed and exposed the interior of the wall—I mean the curtain-wall—between the towers and the lower part thereof, the hearting appears to be the same as I described in my last letter. It certainly is not sandstone throughout, but a mixture of a variety of stones, such as could be gathered off the beach. Many of them are round and water-worn, and the mortar does not adhere to these so well as to rough sandstone or squared rough blocks, and it would not surprise me to read that the Norwegians in their attack upon the castle found it to be of *soft stone*. What sandstone there is in the wall is certainly very soft. Their first impression in the attack upon the walls would be that it consisted of soft stones, and I do not think they would have much difficulty with heavy tools, however rude they may have been, in getting through the wall; the smoothness of many of the stones would render the task less difficult."[1] Evidently Mr Thomson wrote without consideration of the wording in the saga. It was not a matter of "heavy tools, however rude," but of hewing with what were normally weapons of war; while stone which had become "soft" by the nineteenth century need not—indeed cannot—have been so decadent seven hundred years before. Mr Burges's own comment was: "From this examination it would appear to be a doubtful point whether the present walls are those besieged by the Norwegians"; adding the further remark: "It is also by no means certain that the castle in question was the one at Rothesay."

The latter plea is, of course, quite relevant, as the place is not named or otherwise specified in the saga. Dr Joseph Anderson, indeed, was inclined to look for it elsewhere. Discussing brochs in general he wrote: "It very often happened that where we should most naturally look for a reference to this class of structure in the sagas, we find that the word is not 'borg' but 'kastala,' a castle. But in the narrative of the invasion of Bute by King Olave the Swarthy[2] the words are used interchangeably, although the description of the mode in which the 'borg' was assaulted, and the reference to the 'soft stone-work' coming tumbling down, might lead to the supposition that it was an uncemented structure."[3] He then goes on to say that it is probable

[1] *Bute in the Olden Time*, Rev. J. King Hewison, vol. ii. pp. 123–4.
[2] King of Man, who was one of the leaders of the expedition.
[3] *Archæologia Scotica*, vol. v., part i., p. 160.

there were brochs in Bute, implying that the Norse attack was upon a structure of that class.

Now, optimistic as architects may have been as to the possibility of "hewing" into a wall of stone and lime 8 feet thick and making it "crumble," it is even more startling to face the possibility of performing the same operation on a broch wall or any "uncemented structure" and causing it to "tumble down," a result which was likely to be more disconcerting to those engaged in the work than to those within.

On the whole the implication of the narrative is that we have to do with a castle proper. There was a garrison commanded by "a steward" and including knights—one of whom was captured and ransomed—and to get possession of the place cost the besiegers 300 men. The steward was shot dead "as he sprang on the burg-wall," an expression scarcely compatible with the idea of a broch. Further, if melted lead was poured over on the attackers, a very rare use of so valuable a metal—in one of the accounts only pitch is mentioned—this would imply a building within having lead on its roof, and a broch could have no accommodation for such a structure. If, then, we really have to do with a castle, Rothesay has the best claim to identification. The latest writer on the subject, Mr J. Storer Clouston, in his *History of Orkney* (1932), p. 218, dealing with this campaign, refers to "the storming of Rothesay Castle as its most dramatic episode." The Norsemen, he says, "hurled themselves against the castle walls with a reckless valour that cost them 300 slain outright ere they forced their way in by the desperate expedient of hewing at the soft stone till they had made a breach." But this vigorous and picturesque rendering of the matter-of-fact language of the saga account must not be allowed to obscure the crucial point that effecting an entrance by "hewing" at stone, however "soft," presents us with a technical problem that calls for explanation. The Norsemen were a practical and adaptable people, and the idea that they would set themselves to breach a heavy stone wall, either cemented or uncemented, with sharp-edged tools, is quite out of character; almost the most stupid of men would have thought of some more suitable expedient. We are reduced to the alternatives that either the saga writer is perpetrating a grotesque blunder, or that the wall in question, despite its description as of "stone" (*steinn*), was of something different from our strict understanding of that term.

The only comparable action which I have found is that of the treatment by an English force in 1518 of a "strong pele" belonging to William Armstrong of Kinmont, a structure, it is explained, "buylded

aftour sich maner that it couth not be brynt ne distroyed unto it was cut downe with axes."[1] Now such a procedure as that of the Scots at "Downam" tower, when they "hewed up the gates of the barmkyn with axes,"[2] is quite ordinary. A peel was in origin, and still in many cases, a palisade—never a tower—and therefore open to the same treatment, varied only by setting it on fire, as when English raiders in 1544 burned "all the peels in Myddleby and Middleby Woods."[3] But in the Armstrong case neither method was adequate; the destruction and the burning were only achieved *after* it had been cut down. The special and particular wording of the passage must be explained on the understanding that this peel was a composite erection of timber and clay, of which the wood could be burnt only after it had been disengaged from the mass, which for its part had to be disintegrated by axes. Probably, too, not timber of any size, but such as would be used in the construction of what was known as "wattle and daub" —a framework of split logs and brushwood loaded and compacted with clay. And in this usage we probably have an explanation of the repeated charge against the Scottish borderers in the sixteenth century of stealing "allers [alders] and other rammell wood [*i.e.* brushwood or underwood]" on the English East March, "whiche ys to them a greatt proffyte for the maynte'unce of their houses and buyldinge."[4] The Scots would cross the border to hunt, and "when they were a hunting, their servants would come with cartes, and cutt downe as much wood, as every one thought would serve his turne, and carry it away to their houses in Scotland."[5] But timber of this slight portable kind could be useful structurally only as a framework or reinforcement for clay.

I conclude, therefore, that the castle wall in Bute hewed at by the Norsemen was of this kind, though not necessarily of this particular composition; as will be shown presently, there was another variety. In any form, however, the essential material was clay, a compacted substance still soft enough to yield to a cutting edge, and do so in a way which could be described as "crumbling." If, then, Rothesay Castle be the *locus* of the exploit, the wall in question is not that still existing but a predecessor. Certainly the word used is *steinn*, but it is clear that the term once had a significance rather wider than our settled usage of "stone." In German "brick" is *backstein* and in Dutch *gebakkenstein*, in both cases just "baked-stone." A parallel term in

[1] *Letters and Papers, Henry VIII.*, vol. iv., part ii., p. 1828.
[2] *Calendar of Border Papers*, vol. ii. No. 431.
[3] *Letters and Papers, Henry VIII.*, vol. xix., part ii., p. 373.
[4] Sir Robert Bowes, *Book of the State of the Frontiers and Marches, etc.* (1542), in Hodgson's *History of Northumberland*, vol. ii., part iii., pp. 204–5.
[5] Sir Robert Cary's *Memoirs* (ed. 1759), p. 165.

English is "stoneware" for a coarse pottery. But a clay wall was virtually air-dried brick, and there is nothing odd, therefore, in finding it described as of *steinn* or "stone."

This conclusion can now be illustrated from the oldest description we possess of a Scottish castle, which, further, is of a date probably not more than twenty years before the siege under consideration. It occurs in the Old French romance of *Fergus*, the only portion of the Arthurian cycle of which Scotland is the stage. The writer was a Frenchman of Picardy, but he clearly had a good direct knowledge of Scotland. The name Fergus is taken from the historical Galloway personage of that name, who flourished in the middle of the twelfth century. The poet tells how the father of the hero lived in a castle overlooking a valley near to the "Irish Sea."[1] This residence was on a great grey rock and was surrounded by an enclosure of "hurdles,"[2] or something of the nature of what used to be called "stake and ryce" or "stob and ryce"; that is, posts interwoven with brushwood. "On the summit of the rock," says our author, "was a tower, which was not made of stone and lime; its high walls were of clay and had crenelated battlements."

Here, then, we have an unmistakable case of a tower of clay, and if a tower of this material was possible, so much the more easily a wall. The word used for clay is "terre," as it is in the combination *terre-cuite* or the Italian *terra-cotta*, or the German *gebrannte Erde*, all signifying pottery, but literally "burnt" or "baked earth." *Terraglia* is also the Italian word for crockery: Roman red or "Samian" ware is more specifically called *terra sigillata*. "Earth" in this connection, then, is "clay," and in that sense survives in the descriptive term "earthenware." In the accounts for the reconstruction of Edinburgh Castle by

[1] En un castiel desus un val
Manoit uns vilains de Pelande
Ases pres de la mer d'Irlande.
Desus une grante roche bise
Ot sa maison molt bien asise
Faite de cloies tote entor.
En son le pui ot une tor,
Q'n'ert de piere ne de caus.
De terre estoit li murs fais haus
Et creneles et batilles.

Fergus, Roman von Guillaume le Clerc (ed. Halle, 1872), lines 304–13.

"Pelande" is for "Pec(g)htland." The sounds represented by *ch*, *gh*, being foreign to French would disappear, and the *t* be assimilated to *l*, giving "Pe(l)lande."

[2] This word, now *claies*, was adopted into Latin and appears in the accounts for the reconstruction of Stirling Castle 1336–7: *et in xl clayis de virgis factis, necnon et ccc "knyches" virgarum pro hujusmodi clayis inde faciendis et cubandis tam super astra camerarum quam super cumulos domorum predictarum subtus cooperturam* ("and in forty hurdles made of rods, also three hundred faggots of rods for making hurdles of this kind and laying them over both the roofs of the chambers and the topmost parts of the aforesaid houses under the thatch"). Bain's *Calendar of Documents relating to Scotland*, vol. iii. p. 365.

the English in 1335–6 we have an entry relating to *terram et turbas pro daubatura et pro coopertura diversarum domorum*; that is, the houses were thatched with turf (*turbas*) and the walls "daubed" with *terra* or clay, which was regularly used for this purpose.[1] In the same century we get the lines from the English translation of *Le Roman de la Rose* attributed to Chaucer:

> "But and he couthe through his sleight
> Do maken up a tour of height,
> Nought rought I whethir of stone, or tre,
> Or erthe or turves though it be."
>
> (*The Romaunt of the Rose*, lines 7059–62.)

Here we have note of towers of stone, timber, turf, and earth, that is clay.[2]

This usage, then, gives us the key to the passage in Bishop Leslie's history, published in the late sixteenth century, in which, speaking of the Borderers, he says: *Potentiores sibi pyramidales turres, quas pailes vocant, ex sola terra, quæ nec incendi, nec nisi magna militum vi, ac sudore deijci possunt, sibi construunt.*[3] ["The more important men build for themselves square[4] towers, which they call piles, from clay alone, which cannot be burned, nor, except by a great number of soldiers and much labour, be cast down."] Observe the precision and the implications of Leslie's words. These were the towers of *potentiores*, or "head-men" as they would be called, not of any humble class. They were constructed of clay only, a fact thus stressed in order to make it clear that no stone was included, that it was not a matter of using clay as a mortar, just as we find the writer of *Fergus* also at pains to exclude any misunderstanding. Leslie does not specify even what ingredient was used to toughen the clay, though such, as will be seen presently, may be assumed. One great advantage of these structures was that they could not be burned, and

[1] *Calendar of Documents relating to Scotland*, vol. iii. p. 348.

[2] The passage in the original is:

> Mais cie se tant d'engin avoit
> Qu'une grant tor faire savoit,
> Ne li chausist jà de quei pierre
> Fust sans compas ou sans esquierre,
> Neis de motes ou de fust
> Ou d'autres riens queque ce fust.
>
> (Lines 12699–704.)

Here specific mention is made only of stone (*pierre*), turves (*motes*), timber (*fust*).

[3] *De Origine, etc., Scotorum*, Rome, 1578, p. 61.

[4] Dalrymple in 1596 translates *pyramidales* as "four nuiked" or four cornered. The word is also used by an early eighteenth-century writer to describe the brochs, which, he says, are "of a Pyramidal Form, or like a round Dovecote, broad below and drawing narrower to the top" (*Description of the Isles of Shetland*, Sir Robert Sibbald (1711), ed. 1845, pp. 20, 42). The Border piles of clay may thus have had a slight inward inclination.

burning was the usual resource of Border raiders, who had no time for a prolonged siege of strong places. They could, of course, be demolished, but to accomplish this within a reasonable time called for the hard work of many men, another handicap in the case of a mere raiding party, to whom rapid action was essential. We see, too, that edifices in this material were still being built on the Borders in the sixteenth century. Many at least of the buildings then called "piles" must have been of this character. In the list of places destroyed by the army commanded by the Earl of Hertford, which desolated south-eastern Scotland in 1544, we have categories not only of "burghs, castles, and towers," but also of "villages, piles, and steads." One case is instructive. On the night of 17th May "the army encamped at a pile called Ranton, eight miles from our borders; which pile was a very ill neighbour to the garrison of Berwick. The same we razed and threw down to the ground."[1] As the army marched to Berwick next day, and the "razing" must thus have been accomplished sometime between night and morning, it cannot have been an operation of exacting difficulty. The "pile" can scarcely have been a tower of solid stone and lime; it was "razed," not blown up, and most probably was just the sort of erection in clay which Bishop Leslie describes and specifically calls a "paile," the occasion too being one in which the requisite "great number of soldiers" was available.

On this line we can account also for the frequent discrimination between "piles" and "stone houses";[2] they were erections of different constituents. Certain Border operations too become more intelligible. In three days of the last week of September 1545 Hertford took a force "endlong" the Merse, burning and wasting "thorough out," yet found time to capture and leave "clerely overthrowen to the ground . . . sondre piles and strong towers, as the Red Brayes, Polworths, Westurbeth, Duns, Wetherburne, Blacketer, Mongus Walles, Mothers Malyson, and others."[3] This was a heavy programme if we assume that all these places were buildings of stone and lime. In that case 'overthrowing them to the ground' would in itself be no light task, apart from their capture and the other operations in wasting and burning over many miles of country.

Suggestive, too, is a private enterprise of forty men, mostly "thieves" of Redesdale and Tynedale, who came to the house of Cunzierton, about six miles south-east of Jedburgh, "with ledderis, spadis, schobs, gavelokis (=crowbars), and axis, cruellie assegit, brak, and undirmyndit the said

[1] *The Late Expedition in Scotland*, 1544, Reprint 1886, p. 16.
[2] *State Papers, Henry VIII.*, vol. v. pp. 521, 523-4, etc.
[3] *Ibid.*, p. 527.

place, to have wynnyn the samyn."[1] This assemblage of tools for a small company in a hurried undertaking certainly points to something less formidable than a stone tower, but spades, crowbars, and axes would serve to make a way into a structure of the type described by Bishop Leslie.

Another term for clay was "mud" with its Latin equivalent *lutus*. Pliny supplies the name of the inventor of the clay or mud house (*lutei ædificii inventor*), who took the idea, he says, from the nests of swallows.[2] It was a prescript of St Francis that the houses of his friars should be constructed of clay and timber (*ex luto et lignis*),[3] and at Assisi they had originally only a little building of clay and twigs (*parvam cellam . . . cujus parietes erant ex viminibus et luto*) which was thatched with straw. The English accounts for the rebuilding of Stirling Castle in 1336–7 record payments for "digging mud for daubing the said peel" (*fodiencium lutum pro dicta pela daubanda*).[4] Elsewhere the "daubing" material is "clay" (*fodiencium argillum* [sic] . . . *ac daubancium tam parietes*, etc.).[5]

We now see the nature of the walls drawn round Perth by Edward Balliol's English army after their success at Dupplin Moor in 1332, when, Wyntoun says,

"The towne syne thai closyd all
And envyrownd wyth a mude wall."[6]

Then, on the recovery of the town by the Nationalist party in 1339,

"The mude wall dykis thai kest down,"[7]

the "mud wall" being further described as a "dike" in the modern Scottish sense. Such a wall, as will be seen presently, could be quickly raised and at no great expense. Again, at Edinburgh in 1339-40 the English were "making 'modewalles' around the castle."[8] In *The Wallace* we have a description of Rannoch Hall, where there was "Bot mudwall werk withoutyn lym or stayn."[9] In none of these places is it a question of an earthen rampart, which of itself would at that time be of little service as a defence except as a basis for a palisade, in which case it is the palisade, as the effective obstacle, that would be mentioned. The largest towns in Scotland in 1333, we are informed by the Flemish chronicler Jean le Bel, were "enclosed with

[1] From unprinted MS. in British Museum cited in Armstrong's *History of Liddesdale, Eskdale, etc.*, Appendix xxxiv. p. li. "Schobs" is not to be found in any dictionary; possibly related to German *schieben*, to shove, push, etc.

[2] *Nat. Hist.*, lib. vii. cap. 56.

[3] *Speculum Perfectionis*, ii. 7, 10, 11.

[4] Bain's *Cal. of Docts.*, iii. p. 367. The reading *littum* given in the print is obviously in error for *lutum*.

[5] *Ibid.*, p. 365.

[6] Bk. viii. lines 3625–6.

[7] Bk. viii. line 5558.

[8] *Cal. of Docts.*, iii. No. 1323.

[9] Bk. xi. line 680.

good ditches and good palisades" (*palis*).[1] Had such erections been intended, neither clerk nor chronicler would have thought it necessary to distinguish them as "walls," or further define them as not constructed of stone and lime. What we have to envisage are actual walls of solid clay. And we see that walls of this kind were being drawn round Perth and Edinburgh Castle more than a hundred years after the Norse had cut their way through one at the castle in Bute.

We can get more light on the material by coming down to late historic times. The schoolmaster of the poet Robert Burns, in his account of his one-time pupil, describes how Robert's father, William Burness, erected a dwelling which, "with the exception of a little straw," was "literally a tabernacle of clay," and he varies his subsequent references, in dominie fashion, by styling the house an "argillaceous fabric" and a "mud edifice." This is the "clay biggin" still preserved at Ayr. A detailed description of the practice in such constructions may be taken from the *Statistical Account of Scotland*[2] under the parish of Dornock, Dumfriesshire, with the heading MUD-HOUSES: "The farm-houses in general, and all the cottages are built of mud or clay. . . . The manner of erecting them is singular. In the first place, they dig out the foundation of the house, and lay a row or two of stones, then they procure, from a pit contiguous, as much clay or brick-earth as is sufficient to form the walls: and having provided a quantity of straw, or other litter to mix with the clay, upon a day appointed, the whole neighbourhood, male and female, to the number of 20 or 30, assemble, each with a dung-fork, a spade, or some such instrument. Some fall to the working the clay or mud, by mixing it with straw; others carry the materials; and 4 or 6 of the most experienced hands build and take care of the walls. In this manner, the walls of the house are finished in a few hours. . . . This is called a daubing." Pennant in his *Tour in Scotland, etc.* (1772), p. 76, writes in briefer terms of the parish of Canonbie, Dumfriesshire: "Most part of the houses are built with clay: the person who has building in view, prepares the materials, then summons his neighbours on a fixed day, who come furnished with victuals at their own expence, set chearfully to work, and complete the edifice before night." The whole process reminds us how in these latter times, under the stimulus to cheap, rapid building, we have reverted to the ancient practice, substituting the stouter cement for clay.

These details have been preserved only for the humbler constructions of Scottish villages and hamlets. Necessarily, however, they would apply to the more pretentious erections of this character with which

[1] *Chronique*, chap. xxii.

[2] Vol ii. p. 22.

we are here concerned. Building of this kind was, of course, not confined to Scotland. A "mud house" which existed till recent times at Great Hatfield, Yorkshire, had "walls built of layers of mud and straw which vary from five to seven inches in thickness. . . . The way in which mud walls were built is remembered in the neighbourhood. A quantity of mud was mixed with straw, and the foundation laid with this mixture. Straw was then laid across the top, whilst the mud was wet, and the whole left to dry and harden in the sun. As soon as the first layer was dry another layer was put on, so that the process was rather a slow one. . . . Such mud walls are very hard and durable, and their composition resembles that of sun-burnt bricks."[1] Mr Leeds suggests as "more than probable" that this was the method of constructing the walls of late fifth-century Saxon houses which he excavated at Sutton Courtenay, Berkshire.[2]

More imposing structures of this composition are referred to by Du Cange (Art. *Lutum*), who cites certain twelfth-century Spanish inscriptions; one regarding a "hall of St John the Baptist, which formerly was of clay (*olim fuit luteam*), but which the late King Ferdinand and his Queen built in stone (*ædificarunt lapideam*)." The epitaph of the same Ferdinand in 1103 records: "He constructed this church of stone, which formerly had been of clay." (*Et fecit ecclesiam hanc lapideam, quæ olim fuerat lutea.*) In this connection it should be noted that Fearn Abbey in Ross-shire "is said to have first been made up of mud."[3]

For our special purpose, however, the most illuminating passage is in an account of Ireland written by Richard Stanyhurst. Stanyhurst was born in Dublin in 1547, but was a graduate of Oxford. He supplied Holinshed with material for the Irish history in that writer's *Chronicles*. In 1579 he removed to Antwerp, where he remained till his death, and where in 1584 he published his treatise *De Rebus in Hibernia Gestis*, from which I take the following passage: "These chieftains, therefore, possess castles strongly built as a fortified mass of stonework, with which are closely connected halls of considerable length and breadth fashioned of clay or mud. These are not wholly roofed either with stone slabs from a quarry or with unhewn blocks or with tiles, but for the most part are covered with straw from the fields. In these halls it is their custom to take their meals but rarely to sleep, which

[1] *The Evolution of the English House*, by Sidney Oldall Addy, revised and enlarged edition, 1933, p. 63. *Cf.* a similar description for Cumberland in *Transactions of the Cumberland and Westmorland Antiquarian and Archæological Society*, vol. ix. (1909), p. 121, where it is offered for a farmer's house in the reign of Elizabeth.

[2] *Archæologia*, vol. lxxiii. (1922–3), p. 186.

[3] *Statistical Account*, vol. iv. p. 296.

they do in their castles, for enemies can easily apply burning torches fanned by the wind to the roofs of the halls, since that material very quickly catches fire."[1]

This, then, is evidence from Ireland contemporary with that already cited from Bishop Leslie for Border "piles" in Scotland. Generally it seems to have been the case that for simple defence, where a regular siege or the use of war-engines was not to be contemplated but only a sudden raid and the possibility of fire, such clay structures, cheaply and quickly erected, could be regarded as adequate. Their existence too may clear up some other puzzling facts besides the Norse attack on the castle in Bute. We may thus account for the very late character of most of the existing Border towers in stone and lime, and for the readiness with which English raiding columns could destroy many of their predecessors. Earlier ones must often have been of the class described by Bishop Leslie. Further, there can have been few, if any, towers throughout the country without their adjoining small buildings —stables, byre, barn, and such like—which we find referred to as "necessar houses." In few cases, however, do we find traces of these, and the explanation here too is probably the clay material of which they would be composed.

With towers and walls or palisades of timber we are familiar enough, but clay defences of this character have escaped observation; they were so easy to remove without leaving a trace. Yet of their former existence there can be no doubt, and they supply a hitherto unregarded stage of transition towards the much more costly but more defensible tower of stone and lime.

[1] Richard Stanyhurst, *De Rebus in Hibernia Gestis*, Antwerp, 1584, p. 32. *Hi igitur principes . . . castella possident, munitione ac mole lapidum fortiter exstructa, cum quibus aulæ satis magnæ et amplæ, ex argilla et luto fictæ factæque, vicina adhæsione copulantur. Non sunt sartæ tectæ aut saxorum laminis e lapidicina erutis, aut caementis, aut tegulis, sed agrariis culmis ut plurimum conteguntur. In istis aulis epulari solent: raro tamen somnium, nisi in castellis capiunt: quoniam aularum integumentis hostes possunt ardentes faces, æris flabello ventilatas, facillime admovere, quandoquidem ista materies ignem perceleriter concipit.* The phrase *ex argilla et luto* simply repeats the one idea in synonymous terms for the sake of emphasis.