THE HARROW IN SCOTLAND

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It is curious that whereas there was a profusion of local types of plough in Scotland before the introduction of the improved versions which were pioneered here (Jirlow & Whitaker 1957), there seems to have been no parallel multiplicity of harrow-types, and there was similarly no strong movement towards improving such harrowing implements as were used in the eighteenth century.

The harrow has been used for three distinct agricultural processes: to break up adhesive soils under fallow, and to tear up the roots of persistent weeds such as couch-grasses—both of which activities require a strong implement—and also to cover the seeds of grass and clover, which on the contrary demands a harrow that rides lightly over the soil, that the seed may not be pushed down too deeply. This lighter harrow can also be used for destroying the weaker annual weeds in fallow which yield to less drastic treatment. The earliest references to the use of a harrow in Scotland, as, for instance, that of Don Pedro de Ayala writing in 1498 (1862: 172), only mention the use of the harrow in covering grass-seed, but since two distinct types of harrow are described by the Tudor writer Fitzherbert in 1523, one for oxen and one for horses (1882: 24-5), it may be presumed that at about the same time in Scotland there were at least two different harrows, one heavy type for reducing fallow, and a lighter one for use after grass had been sown.

The earliest form of harrow was simply a weighted thorn-bush, drawn over the earth by a horse (fig. 1), a rudimentary implement with which we are familiar through the description of the English agriculturalist Gervase Markham (1653: 61). This improvised harrow, if such it can be called, was known in Angus until the end of the eighteenth century (Headrick 1813: 259). Scarcely better was the bush-harrow (presumably

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from Clackmannan) depicted by Graham (1814: plate after 435); this comprised a rectangular wooden frame measuring 6 feet by 5 feet, formed of wooden spars 4 inches by 3 inches, with two cast-iron or wooden wheels at the foremost (horse) end. Brushwood was loosely plaited over three somewhat weaker cross-beams (3 inches by 2½ inches).

In the Outer Isles, where the provision of suitable timber was always an inhibiting factor in the manufacture of implements, two intermediate harrow-types are reported. Martin, writing of Lewis, said (1703: 3):

> "They have little Harrows with wooden teeth in the first and second rows, which breaks the Ground, and in the third row they have rough Heath, which smoothes it: This light Harrow is drawn by a Man having a strong rope of Horse-hair across his breast."

In St. Kilda a wooden harrow with wooden teeth at the front and "tangles of sea-ware" with the roots hanging behind to scatter the clods is reported in 1727 by Buchan (1727: 25).

Both these Hebridean versions, however, must be regarded as local modifications of the principal type of harrow used throughout Scotland: the rectangular or four-sided harrow. The introduction of this form cannot be dated precisely, although the rectangular harrow is clearly referred to obliquely by the poet William Dunbar in his poem "The flyting of Dunbar and Kennedy" (l. 179) written about 1504 [1]:

"Hard hurcheon, hirpland, hippit as ane harrow" (Dunbar 1873: II, 17; cf. note by W. Gregor, *ibid.*: III, 48). By the eighteenth century, however, we know definitely that there were two sizes of rectangular harrow in current use: a larger version for breaking up fallow and destroying the stronger weeds, usually called a *brake-harrow* (or *break-harrow*), and a smaller one, for which there appears to have been no special term. This would commonly consist of three or more wooden beams (variously called *bulls* [2] or *bills*), placed along the axis of draught, joined at right angles by three or more cross-beams (sometimes called *slots*, sometimes *stretchers*). The bull (and occasionally the cross-beam) would be perforated with small holes into which wooden, and latterly iron, teeth (generally called *tynes* or *tines*) were inserted.

The brake-harrow might consist of three bulls—as reported from Lanarkshire (Naismith 1798: 77)—or of four bulls, as in Angus and the Highlands of Caithness (Headrick 1813: 258-9; Henderson 1812*a*: 58); more commonly, however, the

heavier brake had five—as, for instance, in Clackmannan (Erskine 1795: 35; Graham 1814: 243)—or even six bulls, as is recorded from the lowland part of Caithness by Henderson 1812*a*: 58). The actual dimensions of the brake-harrow are not normally specified, although Lord Kames described a four-bull version with 16 tines measuring 6½ feet square (Home 1815: 46-7), and a brake 6 feet square was used about the same time in West Lothian (Trotter 1811: 39).

Two smaller brakes might be joined together side by side, a special double coupling iron offering strength but pliability having been invented by Lord Kames (Robertson, J. 1799: 96). In East Lothian a device incorporating four joints was used to couple the brakes together (Buchan-Hepburn 1794: 90). It is probable that the brakes thus used were ones with three bulls only, a point specifically commented on by Johnston writing of the Selkirk brakes (1794: 34). Another method of giving greater weight to the brake in particularly adhesive soil (used in Angus) was simply to place additional weights on the harrow as required (Headrick 1813: 258-9). Some of the brakes used, however, were already too heavy without any additional weights being added. The Caithness brake required four horses to draw it (Henderson 1812*a*: 58), and in both Angus and Banffshire from two to four horses were yoked abreast to draw the brake (Headrick 1813: 258-9; Souter 1812: 128). On the other hand the double brake-harrow used in Selkirk and East Lothian could be drawn by two horses only (Johnston 1794: 34; Buchan-Hepburn 1794: 90; Somerville 1805: 67). The custom of joining harrows together is probably oldest in southern Scotland; thus we learn from the records of the Regality Court of Melrose that a man from Appletree-leaves (parish of Hawick, Roxburgh) killed a mare in 1654 by making her draw three harrows joined together; in Newstead (parish of Melrose) the harrow at that time was drawn by two horses (Romanes 1914-15: I, 218, 282). In Clackmannan two single brakes, each of 5 bulls, were drawn by two horses each, and were followed by a third of only 4 bulls (Erskine 1795: 35; Graham 1814: 243). This practice of using a lighter harrow after the brake in order to shake out rooted weeds was also followed in East Lothian (Buchan-Hepburn 1794: 90; Somerville 1805: 67).

The brake-harrow was clearly not used in all parts of Scotland, even in the late eighteenth century, and the fact that it was but seldom employed is specifically noted in descriptions

of the agricultural practice of Dumfriesshire, Argyll and the Black Isle (Singer 1812: 131; Smith, J. 1798: 60; Sinclair, J. 1794: 24). In these areas, and perhaps elsewhere, just the ordinary rectangular harrow would be used. This implement has been well documented in the magnificent series of reports to the Board of Agriculture drawn up on the initiative of Sir John Sinclair of Ulbster. Thus in the question of the number of bulls used in the standard harrow we have the following data:

2 bulls	Shetland	(Gentleman 1814: 19)
2-3 bulls	Orkney	(Shirreff 1814: 64)
3 bulls	Arran	(Headrick 1807: 316)
	Clackmannan (by poorer farmers)	(Erskine 1795: 34)
3-4 bulls	Stirling	(Graham 1812: 109)
4 bulls	Dumfriesshire	(Singer 1812: 130)
	Selkirk	(Johnston 1794: 34)
	Lanarkshire	(Naismith 1798: 76)
	Midlothian	(Robertson, G. 1793: 44)
	Clackmannan	(Erskine 1795: 34; Graham 1814: 242)
	Fife	(Thomson 1800: 126)
	Perthshire	(Robertson, J. 1799: 96)
	Caithness	(Sinclair, J. 1794: 204; Henderson 1812*a*: 57)
5 bulls	Kincardine	(Robertson, G. 1813: 235-6, 1829: 429)
6 bulls	Wigtown & Kirkcudbright	(Smith, S. 1813: 100)

The overall measurements of these harrows might vary thus:

3-4 feet square	Nairn & Moray	(Leslie 1813: 112)
3½×3 feet	The Lothians	(Robertson, G. 1829: 135)
4×3½ feet to 5×4½ feet	Banffshire	(Souter 1812: 129)
4 feet square	Midlothian	(Robertson, G. 1793: 44)
	Fife	(Thomson 1800: 126)
	Nairn & Moray	(Leslie 1813: 113)
4′ 4″×3′ 9″	Clackmannan	(Erskine 1795: 34; Graham 1814: 242)
4½×4 feet	Black Isle	(Sinclair, J. 1794: 24)

As with brake-harrows, the ordinary harrow was often joined in couples, and several different methods were in vogue for linking the two parts together; some attachment was necessary since otherwise the harrows tended to ride up on each other, or to spring over large pieces of earth. In the Carse

of Gowrie and in Stormont (Perthshire) the harrows were fitted with riders: a horizontal bar was fixed on three timber pins, each 6 inches long, and this modification was later adopted in Kincardineshire (Robertson, J. 1799: 97; Robertson, G. 1813: 235-6). The more usual method of linking the harrows, however, was by a bar (sometimes called a *bow*) fastened to each part by long bolts and eyes. The bar was probably originally made of wood, as suggested by a report from Roxburgh (Douglas 1798: 51), but later modifications, especially that by Easton of Springkell (parish of Kirkpatrick Fleming, Dumfriesshire), were of iron (Singer 1812: 131). The bolts and eyes attachment is only reported from Southern and Central Scotland, however: from Dumfriesshire, Roxburgh, Berwick (Kerr 1809: 155), Dunbarton (Whyte & Macfarlan 1811: 71), Stirling (Belsches 1796: 40) and Clackmannan (Graham 1814: 242). In the North-east a hinge-device was used to the same end in Moray and Nairn (Leslie 1813: 112). It is probable that in other parts of the country two harrows were drawn together by two horses, but were not directly attached to each other. That they were drawn in pairs by two horses (whether or not attached to each other) is reported from Wigtown and Kirkcudbright (Smith, S. 1813: 100), Dumfriesshire (Singer 1812: 130), Berwick (Kerr 1809: 155), Lanarkshire (Naismith 1798: 77), Stirling (Graham 1812: 109), Clackmannan (Erskine 1795: 34, Graham 1814: 242), Angus (Headrick 1813: 259) and Kincardine (Robertson, G. 1813: 235-6). Alternatively as many as three horses might be yoked together, each with its own harrow, with, in Clackmannan an extra boy to drive them (Erskine 1795: 34; Graham 1814: 242); in Midlothian there was just one driver with long whip reins (Robertson, G. 1793: 44; Kerr 1809: 155). When three harrows were thus harnessed together, however, the two tines in the bulls nearest the horses were omitted in two of the harrows in order to prevent injury to the nearside horses' legs when turning. In some peripheral areas the single harrow was still preferred, being reported as late as 1812 from Dumfriesshire, where the tendency to improve such details was marked (Singer 1812: 130); it was used in the parish of Firth, Orkney, well into the nineteenth century (Firth 1920: 107).

The ordinary harrow weighed about 72 pounds, although Lord Kames recommended a rather heavier one of 6 stones 14 pounds Dutch (Thomson 1800: 126; Home 1786: 18). A specially light harrow for use solely with grass seed was widely

employed in the South and East of the country; it is reported from Wigtown and Kirkcudbright (Smith, S. 1813: 101), Dumfriesshire (Singer 1812: 131), West Lothian (Trotter 1811: 39), Fife (Thomson 1800: 127) and Angus (Headrick 1813: 259).

The number of tines in the ordinary harrow also seems to have varied rather widely; on this problem we have the following data:

15-25 tines	Stirling	(Belsches 1796: 39; Graham 1812: 109)
16-24 tines	Banffshire	(Souter 1812: 129)
20 tines	Selkirk	(Johnston 1794: 34)
	Lanarkshire	(Naismith 1798: 76)
	Midlothian	(Robertson, G. 1793: 44)
	Clackmannan	(Erskine 1795: 34; Graham 1814: 242)
	Fife	(Thomson 1800: 126)
	Nairn & Moray	(Leslie 1813: 113)
	Black Isle	(Sinclair, J. 1794: 24)
25 tines	Kincardine	(Robertson, G. 1813: 235-6)

The method of setting the tines into the bulls or cross-beams was similarly not standardised; this would to some extent depend on the material used (see below), but local variations also occur. In Angus, for example, the tines of brake-harrows were wedged into holes in the bulls (Headrick 1813: 258-9), whilst in Perthshire they were inserted from below, although the tines of ordinary harrows were pushed in from above (Robertson, J. 1799: 96). In Roxburgh the oblong-sectioned tines were "nicely mortised" into the bulls (Douglas 1798: 51). In Peebles the tines were square in section (Findlater 1802: 121), but here, as also in Selkirk (Johnston 1794: 34), Lanarkshire (Naismith 1798: 76), Perthshire (Robertson, J. 1799: 96) and Angus (Headrick 1813: 258-9) there was a forward bevel of 70°-75° so that the tine was shaped like a miniature plough-coulter, protruding some 6-8 inches below the bulls. Sinclair, however, urged that each succeeding row of tines should be ½ inch shorter than those to the fore (1814: I, 220).

One of the principal faults of the rectangular harrow was that the tines tended to follow each other in the same grooves, and this problem engaged the attention of many agriculturalists (e.g. Robertson, G. 1793: 44; Leslie 1813: 113), although others maintained that the problem was of little importance (Kerr 1809: 154). One solution was to draw the harrow from one

corner (fig. 2), so that the maximum number of ruts was made by the tines, a method that was adopted in Peebles, Berwickshire, Midlothian and Perthshire (Findlater 1802: 121; Lowe 1794: 38; Robertson, G. 1795: plate; Robertson, J.

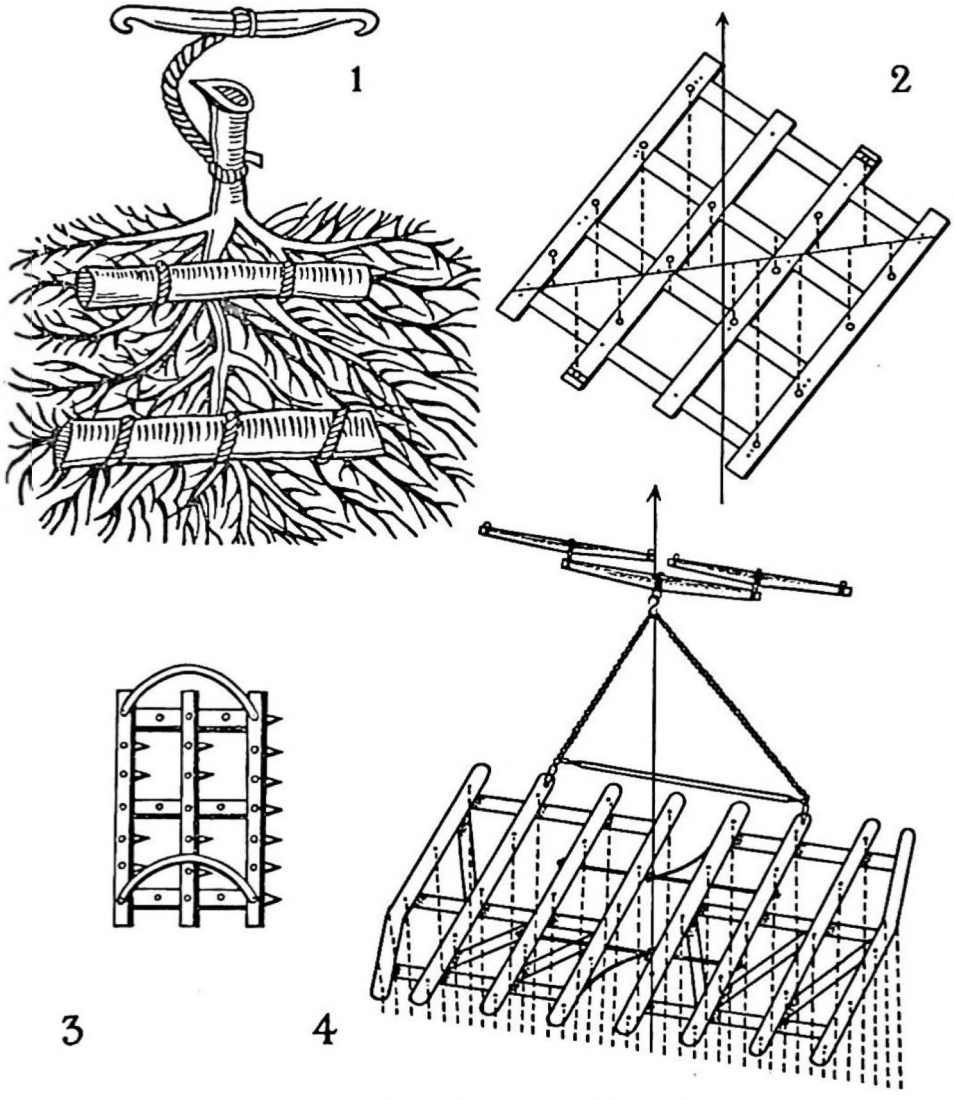

Fig. 1.—Bush-harrow (after Markham 1653).
Fig. 2.—Harrow—Midlothian (after Robertson, G. 1795).
Fig. 3.—Hand-harrow—Dunbarton (after Ure 1794).
Fig. 4.—Double harrow from Langlee, Roxburgh (after Douglas 1798).

1799: 97). An alternative answer to the problem was the harrow invented by General Robertson of Lawers (Monzievaird and Strowan parish, Perthshire); this had five bulls, each with five tines, the foremost cross-beam being 4 inches shorter than the

rearmost (Robertson, J. 1794: 51). Leslie suggested a similarly shaped harrow with bulls 2 feet apart at the fore, and 4 feet apart at the rear, with 16 tines, but there is no evidence that this was ever developed (Leslie 1813: 113). Alternatively a simple rectangular harrow with eccentrically placed teeth was used in Lanarkshire (Naismith 1798: 77).

There were, of course, a large number of local modifications to this main type of harrow, most of which have never been recorded in print, and probably not in manuscript: they are of little general interest, being mainly jetsam cast up in the turbulent sea of agricultural improvement. We might, however, mention the use of hind-handles to free the harrow of accumulated weeds, which is recorded from Stirling (Belsches 1796: 40), although it was undoubtedly also a general modification in England (see Dickson 1805: 41 and Plate XI fig. 3). Another modification which was developed at Lornshill (parish of Alloa, Clackmannan), but probably spread elsewhere, was the so-called *gingle-harrow*.[3] This consisted of four three-bull harrows, joined together two by two, each harrow having nine tines (Graham 1814: 435 and plate).

The cross-beams were originally mortised into the bulls (Robertson, G. 1793: 44), but this method materially weakened the bulls, so that later the beams were screwed or nailed to the upper side of the bulls (Smith, S. 1813: 100; Plate I, 1). It was the outermost bulls that tended to be most easily damaged, and one method of obviating, or at least lessening, this was evolved at Langlee (parish of Jedburgh, Roxburgh); the outermost bulls of the double harrow were curved inwards, thus giving more and closer ruts (Douglas 1798: 378; cf. fig. 4).

Both the brake-harrow and the smaller harrow were originally made entirely of wood. Later the tines were made of iron, although the introduction of this material, especially in the peripheral regions of the country, was rather late. Iron tines are specifically reported from Blainslie, parish of Melrose, Roxburgh, in 1664 (Romanes 1914-15: II, 102). In Galloway thorn hardened in smoke had been used, but by 1810 other wood was being utilised in the manufacture of tines (Smith, S. 1813: 40). In Midlothian a wooden-tined harrow was employed into the nineteenth century for covering spring grass-seed sown among wheat (Mackenzie, G. S. 1810: 250*n*). As for the North-east, iron tines were first adopted in Moray about 1764, although in Aberdeen some farmers had wooden-tined

harrows thirty years after that date, and in Banffshire ash tines were still reported in 1812 (Donaldson, J. 1794: 21-2; Anderson 1794: 78; Souter 1812: 129). In Argyll wooden tines were still to be seen in 1798, and they are specifically mentioned as being current in Gigha at that time, although by 1811 it is reported that iron tines had been adopted in Islay, Gigha and Colonsay (Smith, J. 1798: 60; Heron 1794: 51; Macdonald 1811: 159). An all-wooden plough was still used in Inverness-shire in 1808, and at this time farmers in Wester Ross still had a prejudice against iron tines, which, they said, "tore up the roots" (Robertson, J. 1808: 103; Mackenzie, G. S. 1810: 250). Similarly wooden tines were in use at this time among the peasantry of Sutherland and the Highlands of Caithness, where it is specifically mentioned that the tines were of birch (Henderson 1812*b*: 58, 1812*a*: 58). In the lowland part of Caithness, on the other hand, iron tines were in use by 1794 (Sinclair, J. 1794: 204). The wooden tine survived longest, perhaps, in Orkney, where it was generally noticed in 1760 and again in 1814, although in 1798 in the parish of St. Andrews and Deerness it was reported to be falling out of use[4] (Hepburn 1760: 10; Shirreff 1814: 64; Sinclair, J. 1798: 260). Firth, in his splendid account of life in the Orkney parish of Firth in the nineteenth century, alludes to the wooden-tined harrows there (Firth 1920: 106). The use of cows' horns as tines, as occurred in Ireland (Evans 1949: 91), is not reported from Scotland.

For the bulls and cross-beams birch seems to have been preferred, being recommended by Lord Kames and by Nicol the forestry expert[5] (Home 1786: 17; Nicol 1799: 53). Birch or allar (alder), or even fir, was used in Banffshire, although ash was preferred for the brake-harrow, whilst in the highlands of Caithness birch was used for the bulls, but in the lowland area of the same county ash was employed (Souter 1812: 129; Henderson 1812*a*: 57-8). In the earlier period very little bark would be removed from the bulls, the trees merely being roughly shaped with an axe (Robertson, G. 1829: 135).

Apart from the rectangular harrow, we have one other important harrow-type with a scattered distribution throughout Scotland. This is the triangular harrow. It was reported as having occurred in the past in several counties: e.g. Stirlingshire, Moray and Nairn (Graham 1812: 110; Leslie 1813: 112). In West Lothian a strong brake-harrow, drawn by three to four horses and shaped like an equilateral triangle, each side

being 6-10 feet, was used in reclaiming work. There were no tines on the side farthest from the horses (Trotter 1811: 38-9). An anonymous writer in the agricultural journal, *The Scots Farmer*, mentions a triangular harrow drawn by six to eight cattle, which may have had a similar purpose (Anon. 1773: 464). This same writer also mentions a triangular French harrow, which is curious, since a triangular harrow formerly used in the hundreds of Stevns and Bjeverskov in Denmark was always called "the Scottish harrow" (Anon. 1773: 465; Pedersen 1950: 25-6).

In Angus a triangular harrow equipped with a pair of stilts, with which the driver could press it into the earth, was reported by Headrick (1813: 258-9), and this implement certainly seems to have been similar to a Norwegian type used in Nordland (Visted & Stigum 1951-2: I, 156). I think it is probable that the triangular turnip drill (as for instance used in Dumfries: see Singer 1812: 131) was evolved from the triangular harrow, but the evolution of the drill lies outwith the scope of this article. Mention must be made, however, of the tiny triangular harrow still to be found in the Hebrides and known as *cliath-chliata*, which is an equilateral triangle with sides a mere 2½ feet long (Sinclair, C. 1953: 73).

A circular harrow with ten teeth was advocated by Leslie (1813: 112-13), but this implement does not seem to have been widely used. Other eccentric varieties include the rhomb-shaped harrow developed by Law of Woodend and Dawson of Frogden (parish of Linton, Roxburgh), the bulls of which were strengthened by diagonals (Douglas 1798: 51). A harrow with inter-crossing bulls placed diagonally was evolved in Berwickshire, but was abandoned as not strong enough (Lowe 1794: 38, plates between 38-9); this may be the same type referred to by Trotter as in use in West Lothian (1811: 38).

A barbarous custom in connection with harrowing, widely reported from the west, was the tying of the harrow to the horse's tail, which drew out the ire of agricultural writers; thus Macdonald (1811: 181):

"The common practice of harrowing in the Hebrides is, as we have hinted, so abominably inhuman, that it literally harrows up the soul of the stranger who sees it; and nothing is so unaccountable as the apathy with which a nation, far from cruel or unfeeling in other respects, could for ages have tormented the most generous and useful of domesticated animals, without being ashamed of a custom so savage and detestable. We have seen, in 1808, young

handsome colts, two or three years old, chased by dogs, boys, and men, into quagmires, bound down after their strength had been completely exhausted, their fine long tails firmly fastened by strong hair ropes, or sometimes by rough heather ropes to the harrow, and then lashed unmercifully through peat-moss and newly ploughed land, until they have actually fallen broken-hearted to the ground. Indignant at this shocking treatment of the unfortunate young creatures, we endeavoured to explain to their tormentors the simplicity and cheapness of harrow harness. . . . The persons who treated their animals so brutally laughed at our squeamish tenderheartedness, declared that *this* was the only method of taming young colts, and went on as usual."

It is specifically reported that this method was used to break-in young horses in Wester Ross (Mackenzie, G. S. 1810: 250), but the practice is also reported from Argyll and the Hebrides generally (Smith, J. 1798: 60; Buchanan, J. 1793: 154; Macdonald 1811: 159), as well as more precisely from Bracadale in Skye (Pennant 1790: I, 332). The advantage of this method was that the horse would stop immediately any large stone offered any resistance, so that the wooden tines were less frequently broken. The practice was also common on the west coast of Ireland (Evans 1949: 87, 1957: 149). Oxen seem to have been less often used for harrowing, and in Aberdeen even when a farmer had 10-12 plough-oxen, he would also keep horses for harrowing (Anderson 1794: 78; Alexander 1877: 34). Cows were used for harrowing on the island of Swona (parish of South Ronaldsay, Orkney) when it was visited by Low in 1774 (Low 1879: 29).

In the more remote parts of the country a hand-drawn harrow was used, and these survive in some places to the present day. In Dunbarton a small harrow-type evolved, some 2-2¼ feet long by 1 foot 2 inches to 1 foot 3 inches wide, having three bulls (each 2 inches by 1½ inches), with 27 tines and handles at each end bent like a hoop (fig. 3; Ure 1794: 40-1; Whyte & Macfarlan 1811: 71). A hand-harrow was also used in the parishes of Assynt, Eddrachillis, Durness and Tongue in Sutherland, where the scattered nature of the plots under tillage made the hand-plough (*cas chrom*) and hand-harrow the more convenient implements (Henderson 1812*b*: 58). In Lewis the harrow was drawn by barefoot women (Macdonald 1811: 812-13), and indeed women still drew harrows there well into the present century, to the detriment of their health (Mackenzie, W. L. 1917: 440, 448; Stevens 1925: 82). In the

Hebrides a hand-harrow was used alternately with a wooden rake, being specifically reported in this connection from Duirinish (Skye) in 1840 by Dr. Archibald Clerk in a statement to the Crofters' Commission (Clerk 1884: 30) as well as from Barra rather later (Buchanan, D. 1942: 136-7). In St. Kilda the harrow, reported first by Martin (1698: 28) was entirely superseded by the wooden rake (Sands 1877: 190).

In latter years the wooden-framed harrow has been replaced in Scotland by harrows made completely of iron, but it is not possible here to document this transformation. "Four iron harrows" are mentioned as early as 1606 in an inventory from Easter Rarichie (parish of Nigg, Ross and Cromarty), and an iron harrow is again mentioned in a diary relating to Stove on the island of Sanday (parish of Cross and Burness, Orkney) in 1766-74 (Macgill 1909: 168; Marwick, H. 1930: 69). In both these instances, however, I think that iron-tined harrows are referred to: a classic instance of the danger of using documents without reference to the material objects they describe. In the Ross-shire example this conclusion is supported by the mention of four harrows with iron nails in another and later inventory, from Braelangwell (parish of Kincardine?) in 1751 (Macgill 1909: 138), whilst we have already seen that in Orkney even wooden-tined harrows survived to an unusually late date. In fact the northern islands off the Scottish coast are so conservative in these matters that a hand-drawn harrow may still be photographed in Quarff (parish of Lerwick, Shetland), just as Thomas Kent photographed the man we depict in Plate I, 2 in the late nineteenth century (cf. Donaldson, G. 1958, Plate I).

The curious feature about the history of the harrow in Scotland remains, however, the very small degree of experimentation that occurred. As long ago as 1652 Norfolk farmers were experimenting with a combined plough and harrow (Blith 1652: 219-20); if one excepts the idiosyncratic Orkney plough (Marwick, G. 1936; Jirlow & Whitaker 1957: 78-80), there was no parallel movement here. There was no wooden chain-harrow, such as was found throughout Scandinavia (Visted & Stigum 1951-2: I, 159), and it was left to an English inventor, Woodrooffe of Rugeley, to introduce the iron chain-harrow for grass-seed (Stephens 1889: 238).

FIG. 1.—Eastern Inverness-shire harrow (twentieth century).

FIG. 2.—Hand harrowing, probably in Shetland (late nineteenth century).

(see pp. 156 and 160)

NOTES

[1] I am indebted to my wife, Margaret Whitaker, for this reference.
[2] cf. Danish *harvebul*, Swedish *harvbill*.
[3] The term *jingle-harrow* as used in the wapentakes of Manley and Corringham in Lincolnshire denotes a rather different implement: "Harrows, the bulls of which are curved to run free of each other"—Peacock 1877: 145.
[4] I am indebted for this reference to the detailed index of the *Statistical Account of Scotland* prepared for the School of Scottish Studies by Mr. Robert Kerr.
[5] I am grateful to Professor M. L. Anderson for pointing out this authority to me.

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ILLUSTRATIONS

Plate I: Fig. 1. Ash 4-bull harrow with 20 iron tines, from Lynemore, parish of Kincardine, eastern Inverness-shire (Grid Reference 38/066242), recently deposited in the Highland Folk Museum, Kingussie. Photo: Ian Whitaker, 1954, at which time it had been out of use for more than a decade.

Fig. 2. Hand-harrow with 3 bulls, probably from Shetland. Photo: Thomas Kent, *circa* 1890.