

4. DUTCH PEAT WINNING

4.1 The immigrant *turfgravers*

The lowland Humber district and The Netherlands have had trade and other connections for centuries (Neave 1988). A distinctive element of this, though overlooked by Neave (1988), was the immigration of Dutch peat workers (*turfgravers*) encouraged by the Griendtsveen Moss Litter Co., to take up employment at the company's workings on Thorne Moors. These were the first immigrant *turfgravers* to Britain. Their expertise in the Griendtsveen methodologies was essential in establishing the company's business at Thorne, and then in ensuring its viability. The *turfgravers* were also crucial for training the available indigenous labour in the more productive Dutch methods.

The Griendtsveen Moss Litter Co.'s Dutch workers began to arrive in 1894, and were employees of the British Moss Litter Companies from 1896. They initially comprised an essentially young male seasonal workforce. However, there were waves of immigrants, and with the arrival of families, plus intermarriage both within and beyond the Dutch community, the Thorne workforce and its dependants quickly diversified. There was also inevitable friction between the two nationalities. Some of the Dutch moved from the Thorne district to other peat regions in England and Scotland. Although many of the Thorne Dutch returned to The Netherlands, either seasonally or for good, some stayed, especially those with English wives. Dutch gravating ended in the 1940s, but a few of the workers could still be found on Thorne Moors beyond that time. Others transferred to alternative jobs, for example becoming involved with the sinking of Thorne Colliery.

The immigrant population attracted contemporary writers (e.g. Brierley 1900, Willis 1901, Nunn 1905), and often figured in newspapers. There was also press interest in The Netherlands, with items spanning 1895-1901 traced in the *Nieuwe Advertentieblad*, *Hoogeveensche Courant*, *Nieuwsblad van Friesland* and *Leeuwarder Courant*.

The social history of the immigration is beyond the scope of this thesis, but modern published references include Goodchild (1971-73), Huisman (1986), Limbert (1986), Tuffrey (1990), van der Sleen (1991, 2000), van de Griendt (2002), Berry (2003) and Bothamley (2009).

4.2 The canal network and the pattern of Dutch working

The pattern of the Dutch workings can be appreciated from Figure 3. This shows a relatively well-preserved section of abandoned peat workings, integrated within the plan of drains and canals initiated by the Griendtsveen Moss Litter Co. [1].



Figure 3. Dutch peat workings, drains and canals, between canals 1-6 of the southern series.

The canal network greatly augmented tramway haulage to the Moorends Works until the fire in 1922. After this, the British Moss Litter Co. had all peat from the Dutch workings conveyed by tram to the Medge Hall Works. Dutch methods were also employed elsewhere on the moorland, though with no canals to determine their layout. Information on the arrangement of these other workings is almost totally lacking, and the data that follow apply only to the former Griendtsveen sector, and unless stated otherwise, when under the control of the British Moss Litter Co. [2].

Peat was removed along the sides of each inter-canal drain, and – linked with the cuttings – from other cuttings, c.3 chains long, at right-angles. These latter were more-or-less laid out in pairs on either side of the drain, with up to 13 pairs, forming parallel series, per drain. As with all peat winning, these latter cuttings were then annually

widened on both sides, thereby diminishing the intervening uncut balks. To preserve the integrity of the canals and their flanking dykes (Figure 4), the workings did not reach them (Figure 3). The section of the workings in Figure 3 shows an area (the western

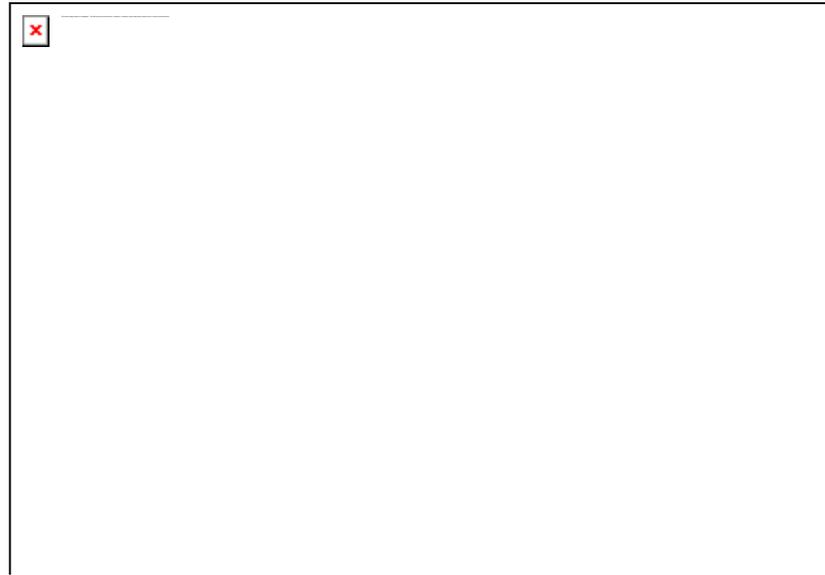


Figure 4. Schematic representation of the relationship between active cuttings, balks, canal and other watercourses (within the southern canal series).

The drainage ditches shown at 0.5 chain intervals between the flanking dykes and the inter-canal drains must have been cut after the abandonment of the workings, and therefore were not a part of the original Dutch pattern.

stretch) entirely worked out, the annual widening of the parallel cuttings having seemingly eliminated all the balks between them. Eastwards, where peat removal did not reach this stage, are series of abandoned workings and balks, many of these being c.1 chain and c.1.5 chains in width respectively [3].

Peat removal and drying were effected by two methods, dyke graving and barrow graving. Little has been written about the operation of Dutch peat winning at Thorne. However, it is clear that Dutch ways were employed to obtain not only the top, relatively unhumified 'brown' peat for litter, but – when under the control of the British Moss Litter Co. – also the underlying, more humified, 'black' fuel peat. This was documented in 1903 in the *Goole Times* (13 February) and the *Doncaster Gazette* (20 February); the latter observed:

Dutch peat workers...[will] be actively engaged in the [graving] and treating of the black-coloured peat or bog, which underlies the brown...The Trustees of the late Mr. Makin Durham...made a renewable agreement with [the British Moss Litter Co.] whereby the right has been acquired to grave the black peat which is of a much harder texture than the

brown, under which it lies, to a depth of four feet, the area at present to be operated upon being confined to 1200 acres at Medge Hall and about 400 at the Thorne Moorends. The company has found a market for the black peat as fuel, and, at present, has orders in hand for 10,000 tons...the peat is cut into handy blocks 10 inches long, 4 inches wide, and 4 inches deep, and in pieces also one half the length...The labour will be largely done by Dutchmen, whose system of graving is that in request. Native labourers will be gladly employed, if they will adopt the Dutch method.

The dimensions of the larger turves, as given, were presumably intended to be equated with Dutch moss litter turves. It is likely that the smaller turves, their size apparently attained by cutting the larger ones in half, were those for fuel, formed of the lower, black peat. In general, fuel turves were smaller than those for moss litter and other purposes. Despite the preference for Dutch labour in the early years of the 20th century, there is no evidence that fuel peat in later decades was obtained by other than local methods.

Other published information on the Dutch methods at Thorne is minimal. It was noted in the *Goole Times* of 10 January 1902, with questionable accuracy:

The Dutch workman, who is considered very expert, is provided with a sharp kind of spade, with which he cuts blocks of peat from a trench from three to six feet deep [to include fuel peat?] and six feet wide. These are then stacked in loose pyramids, and allowed to dry in the sun and wind, much of the moisture being thus evaporated

An additional allusion has been traced, from 1904 (*Goole Times* 9 December, *Doncaster Gazette* 23 December) that gives further measurements for moss litter turves:

The Dutch workman cuts blocks of peat some 9 to 12 inches long by six wide and four and a half thick, which are stacked in loose pyramids and dried by the atmosphere.

4.3 Dutch tools

The main Dutch hand-tools were an underfoot spade known as a *stikker* (cutter), an iron-shod wooden spade, the *oplegger* (graving spade), and a more conventional spade, the *bonkschop* (baring spade). These were initially imported from The Netherlands. The financial 'Day Books' of the Griendtsveen Moss Litter Co. (1894-96) and the British Moss Litter Companies (from 1896), spanning the years 1894-1900, 1904-12 [4], document inter alia the import of stores from Rotterdam to Goole. In the earliest years there are many dual entries in Dutch and English. The hand-tools and wheelbarrows, from The Netherlands, as recorded, were mostly intended for use on Thorne Moors,

though with some items being transferred to the other British Moss Litter Co. properties where Dutch workers also became employed [5]. However, all recorded items imported 1894-96 by the Griendtsveen Moss Litter Co. were for use entirely on Thorne Moors. The 1894 imports, commencing in August, included the following: 50 *kruiwagens* (wheelbarrows), 120 *stikkens*, 120 *bonkschoppen* and 120 *opleggers*. Other imports from The Netherlands during this period, some of less certain usage, included:

- Five *kipwagens*: ‘tip-carts’, presumably for operation on rails. Their exact purpose is uncertain, but the small number involved suggests that their employment may perhaps only have been linked with canal digging. In The Netherlands, small wagons, with a triangular container for ease of tipping, were employed to transport soil or clay in bulk. Small wagons for transporting turves for drying, that were capable of being tipped, were also in use in The Netherlands. However, the lack of any further record of *kipwagens* at Thorne, or any recollection of them, suggests their usage was short-lived, like canal-digging (1894-96)
- Six *houten vorken*: wooden forks
- Five *lijnijzers*: the contemporary, and perhaps merely literal, translation was “lineal irons”. A reference to a specialized iron spade with a wooden shaft and cross-bar handle known as a *lijnijzer* or *linieijzer*. These were employed in The Netherlands when both peat winning and undertaking drainage work. This included being thrust into the peat by hand to form slits which, when aggregated into a line, created boundaries or edges, to mark out intended work or limits. The overall length of a *lijnijzer* was up to c.85cm.

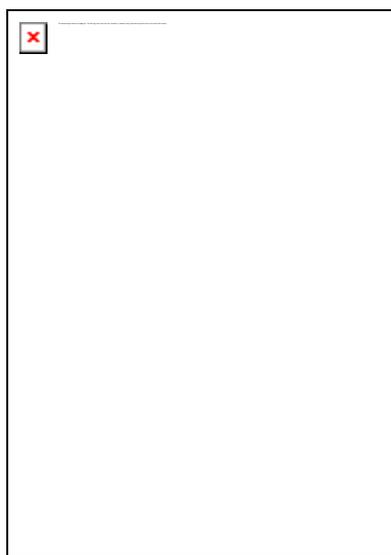


Figure 5. An example of a *lijnijzer* [6].

Although Figure 5 is unlikely to replicate the implement imported to Thorne in 1894, the generic morphology is clearly apparent. None has survived locally, and there is no further evidence for the use of *lijnijzers* at Thorne, except perhaps in a rather cryptic reference from 1906. The *Goole Times* of 29 June carries an allusion to the occurrence of three different “queer-shaped spades, such as the Dutchmen use”, and invites speculation. *Stikker* and *oplegger* are certain; but as the *bonkschop* would not have looked “queer” to Goole eyes, the third spade may conceivably have been a *lijnijzer*. Against this, unless reinforced by unrecorded imports, the original *lijnijzers* are unlikely to have survived to 1906, and be seen by chance

- 50 *planken* (planks) “17 x 8 x 1”, and a further 50 “20 x 8 x ¾”. Possibly planks 17ft and 20ft long, with the remaining measurements in inches, for reaching and traversing stacks etc.

Additionally, the Griendtsveen Moss Litter Co. ‘Day Book’ includes an 1894 bill (from J.W. Rayner, ironmonger etc., Thorne) for 10 “turf forks” made in Thorne. The equivalent Dutch entry in the book describes them as “*hooivorken*” (hay-forks).

In 1895, following an import of 100 *kruiwagens* in January, a February entry, specifically recorded as supplied by J. van Schijndel & Co., Rotterdam, comprised 60 *natte wagens* (stacking-barrows), 20 *droog wagens* (graving-barrows), 60 *stikkens*, 60 *bonkschoppen* and 60 *opleggers*. In the following month, Schijndel supplied 100 each of *natte wagens*, *stikkens*, *opleggers* and *bonkschoppen*. A further order from Rotterdam, received in April, comprised 300 *kruiplanken* (the planks on which wheelbarrows were trundled at the peat workings), although in this case the supplier was not specified.

Known orders from 1896 comprised 12 *opleggers* in February and, within a few weeks, the following:

- 50 *natte wagens* “*met wielen & beslagen*” (complete with wheels, their rims shod with iron hoops)
- 30 *droog wagens* “*met wielen & beslagen*”
- 25 “*losse wielen & beslagen*” (separate iron-shod wheels, as spares)
- 75 *stikkens* “*met stokken*” (with shafts)
- Five “*losse stikkens stokken*” (spare *stikker* shafts)

- 74 *opleggers* “*beslagen*” (iron-shod i.e. complete)
- 78 *bonkschoppen* “*met stokken*” (with shafts, and presumably handles i.e. complete)
- 50 *opleggers* “*bekken*”. Translation of the latter is ‘beaks’ i.e. the wooden part of an *oplegger*, to which the iron sheath (*opleggerbeslag*) is fixed. At Thorne, the wooden/iron components which formed a complete *oplegger* were referred to in English as the “woods” and “bits” respectively [7]

No further imports are included in the surviving documentation until 1907-09 [8]. Several orders were placed with H. van Rooij & Zonen, Gemert (Noord-Brabant). In June 1907, Moorends Works received 25 *stikkens* and 25 *bonkschoppen* from van Rooij, and in December the imports comprised 30 *stikkens*, 30 *bonkschoppen*, 50 *bonkschop* [*stokken?*] and 100 *opleggers* “*beslagen*”. In 1908, 80 *bonkschoppen* and 80 *bonkschop* “*stokken*” were involved, their equal numbers probably indicating that only when combined did they form complete tools. In 1909, M. Spikman, Hoogeveen (Drenthe) supplied 24 “Dutch stacking barrows”.

A check-book of hand-tools marked and issued by the British Moss Litter Co. at their Thorne Moors works 1912-16 [9] gives two later examples of the importation of Dutch tools. An entry from 1912 notes, “From Holland”, 40 *stikkens*, 40 “spades” (perhaps *bonkschoppen*), 96 *stikker* shafts and 50 “spade” shafts. On the opposite page is an undated reference to (a) *stikker(s)* (apparently at Moorends Works) “from Vlemmiks”.

The earliest evidence of possible English manufacture of Dutch-type hand-tools, which were generally regarded as inferior copies, comes from the Griendtsveen Co. ‘Day Book’ [10]. In 1895, the Goole engineering company Webster & Bickerton Ltd returned “1 Sticker & Oplegger”, perhaps having created patterns for their replication. However, there is no traced evidence of an order for such hand-tools from Goole. The first certain data are contained in the British Moss Litter Co. ‘Day Book’ covering 1908-12 [11]. The respective incidence of Dutch importation and English reproduction is not clear, though it is believed that eventually all hand-tools and wheelbarrows used at Thorne were made somewhat more locally. In the ‘Day Book’, a Thorne blacksmith, A. Chester, provided “4 Doz[en] Opleggers” in 1909. A later entry in that year suggests that the wooden parts of *opleggers* were being manufactured by implement makers

Skinner & Johnson at Ranskill, Notts.: “1 Doz[en] Wood Peat tools to pattern. Not Shod. ½ [inch] longer. Not quite as hollow as pattern”. In 1910, the same makers provided “1 Doz[en] Peat knives to pattern (stickers)”; “1 Doz[en] Spades” (which were probably *opleggers*); “4 Doz[en] Wood tools to pattern” (perhaps also *opleggers*); 48 *stickers* (noted as weighing 10lb each); plus “bit Spades” and spade shafts of uncertain usage. In the same year, the Thorne blacksmith A. Chester fabricated “4½ Doz[en] oplegger bits”.

In the check-book of tools marked and issued by the British Moss Litter Co. [12], there are allusions to a total of 78 “Dutch Spades Skeltons”, contained in a 1914 list of tools apparently issued to workers attached to a Thorne works. This presumably equates with *bonkschoppen* manufactured to pattern by C.J. Skelton & Co., Sheffield, who had in earlier years produced some English tools for the British Moss Litter Co. In the same check-book, a list of tools in stock in 1914 includes an entry for 38 “Dutch Spades for English Graving”. The precise meaning of this is unclear.

4.4 Dyke-graving

Like English graving, that done by Dutch methods usually extended from the autumn to the following spring, but had no rigid seasonality. From a cutting face, a 2ft 6in strip was marked out. The *bonkschop*, a pointed-ended iron spade, with a wooden shaft and cross-grip, was then brought into use to commence dyke-graving. It was employed to nick the edges of the marked area, and then to clear away surface vegetation and debris, to reach the solid, less fibrous, peat beneath. Clearing in stints of 10-15ft was remembered.

Memory of Griendtsveen-style ‘dyke-graving’ in The Netherlands recalled that upon commencement, the initial annual cut was usually taken by two men, each cutting a width of 75cm (i.e. 2ft 6in), one putting the peat to the right, the other to the left. Of the two methods, turves produced by dyke-graving were more cheaply produced than those from ‘barrow-graving’, as fewer wheelbarrows, planks, etc. had to be deployed.

Once a stint had been cleared, the *stikker* was used to divide the strip into 16in lengths. Each of these was subdivided into five smaller ones, 6in wide, their long axes parallel with the working face. By experience, the *stikker* could be thrust 6in deep, to give a turf

16in x 6in x 6in. The *stikker* had no cross-grip, but had a wooden shaft; the two-sided blade was fixed by a socket. Four examples of varying completeness have been found on Thorne Moors, the two most intact being shown in Figure 6. That thought to be a genuine Dutch import has an open socket, and a blade 16in x 8in, with total height of the metal part 17in. The other, probably an English copy, has a wooden shaft 41in long; with blade and socket total length 49in. The blade is 16in x 6in, and the total height of

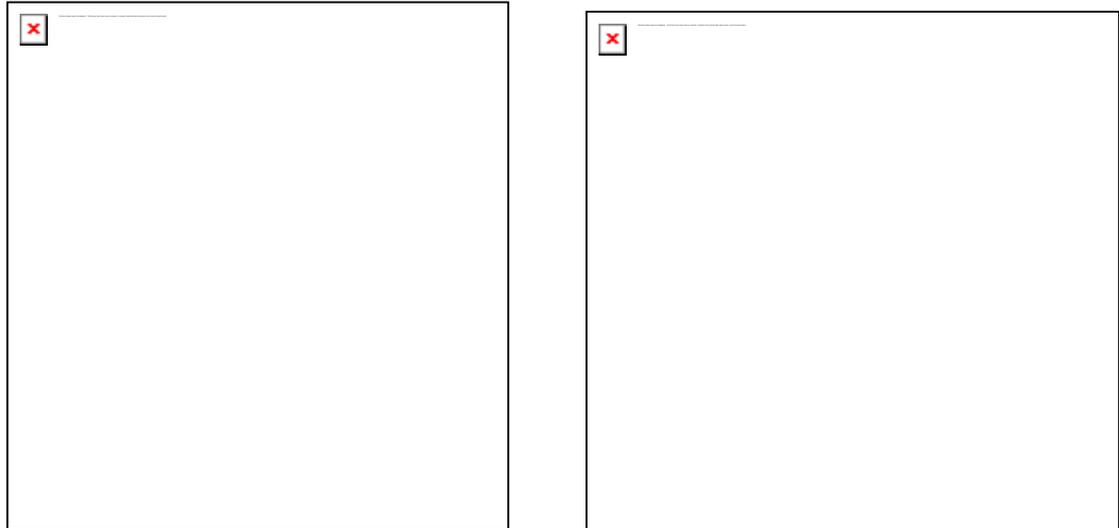


Figure 6. Two surviving *stikkors* from Thorne Moors.

These are believed to comprise a genuine Dutch imported *stikker* (left) and an English copy.

the metal component is 14in. The flanges of the socket encircle the shaft and overlap each other. The socket and shaft are secured by a nail through a hole in the former. The two other *stikker* survivors are mere corroded fragments, with a blade width of 15+in (presumably 16in when used). Again, both are probably English replicas [13].

Each worker could only grave as much in a day as he could ‘bottom-up’ i.e. reach the 4ft limit that marked the depth of the normal Dutch cuttings. This prevented the unworked peat getting too wet and avoided the effects of overnight frost or precipitation hampering unfinished work when it was resumed the next day. An average day's stint was 1.25 chains in length. The sequence of cutting each row of five turves is shown in Figure 7. By the time the last row of five had been removed, the action of cutting had caused the formation of four steps, each 12in high, before the worker. Because the cutting sequence was maintained, so too were the four steps, being only eliminated at the end of the strip. Lockspits were also dug. ‘Bottoming up’ also did not require the removal of the steps. Having thrust the *stikker* into the peat from above to sever the sides of each individual turf from its surrounding peat, the worker then stepped into the

cutting, his weight being supported by planks on the soft peat. He faced the partially loosened turves before himself, and using his *oplegger*, he severed the underside of each turf, so completely loosening it from its surrounding peat.

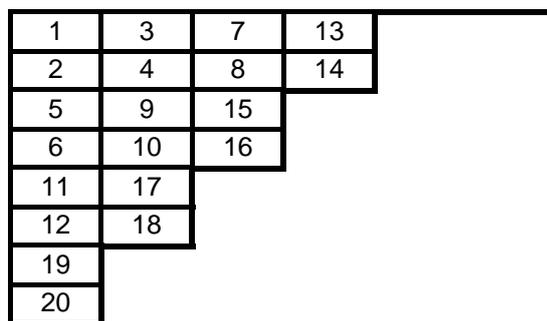


Figure 7. Cross-section of the four-stepped working face, showing the sequence of cutting the rows of five turves that initially achieved the four steps, and ensured their continuation whilst graving was in progress.

An *oplegger* comprised two wooden components, namely a handle and a shaft/blade, the latter being iron-shod. An *opleggerbeslag* or ‘bit’, from Thorne (Figure 9), has iron components of unequal length (16.5in at the front, 9.5in at the rear), forged together to



Figure 8. Order of removal (i-v, vi-x) of turves, with each vertical pair of turves as shown in Figure 7.

create a blade 5in wide and form a V-shape in cross-section. They were fixed to the wooden blade by nails. It is not known if this was a Dutch import or an English copy, but the design is typical of Dutch examples. A further tool from Thorne Moors, somewhat like an *oplegger*, is also illustrated (Figure 9). It has a steel shoe and straps nailed to its blade, and a British Moss Litter Co. brand. The height is 41.5in, and the width of the blade is 6in. Although possibly intended as an *oplegger*, even if not made as one, it is perhaps more likely to have been a drainage spade for use on the moors. However, like a true *oplegger*, it has no lift [14].

The turves were laid out for drying as they were severed. Using his *oplegger*, the worker tossed each one to the unworked peat adjacent to him, the area that would be the next to be worked on that side. The turves were laid out with their long axes at a right angle to the line of the working, to maximize the amount laid out per yard. They were

placed in a width of four rows along that working. Those removed from the surface were put in the fourth row, positioned furthest from the working. Their successors were placed in sequence until those from the deepest part were placed in the first, nearest, row. They were separated from it by only a small gap. Each of the four rows was built up to a height of five turves, with any remaining turves creating a rudimentary fifth row, furthest of all from the working. When finally at this stage, the peat was considered to be 'laid out'. The process of 'laying out' compacted the peat in situ beneath, and rotted the vegetation, thus making the subsequent cutting a little less difficult.



Figure 9. An *opleggerbeslag* (front and back) and possible *oplegger* from Thorne Moors.

The laid out turves were then 'stooled', a process that usually began in the spring, where the cutting had been finished, in order to take advantage of an inevitable lean on the turves. The peat worker began with the fourth row (fifth if available). Each stool was constructed individually, on the side of the laid out turves furthest from where they had been cut. The stools were built in rows, with c.2ft between each stool, the rows being parallel with the working face. Each stool was four or five turves high, each course of turves in it being formed manually, and comprising a pair sharing the same alignment, but at a right-angle to the alignment of those forming the courses immediately above and below, as appropriate. Each constituent pair was placed with a gap between the two turves, to aid drying on the maximum number of faces (Figure 10).



Figure 10. Plan of the alternating courses of turves forming a stool.

Depending on the prevailing weather, this stage lasted from two weeks in very dry conditions to as much as six weeks if wetter. This was followed by walling, which occurred from spring to late summer. In this, the turves in the stools were restacked to aid drying further. Three stool-rows were incorporated into one wall, which was constructed as in Figure 11.



Figure 11. A Dutch wall, eight courses high.

The height of the wall was eight courses. Each unit of three turves was aligned alternately to form the columns, each of which was contiguous with its neighbours, thereby forming the wall (Figure 12). The same courses in each of the columns were

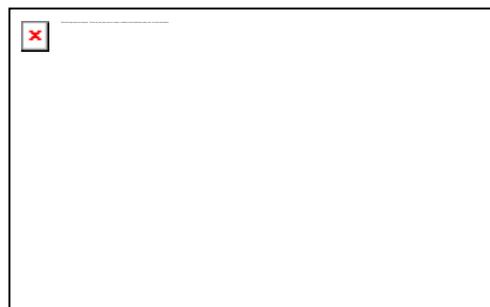


Figure 12. Plan of the alternating courses of turves forming a unit of Dutch walling.

identically aligned. If further drying of the turves was required, the walls were rewalled (Figure 13), a similar process that, however, gave a more complex type of wall. Its

height was remembered as being five to six courses, with the lower, wetter, walled turves being placed in upper, drier, positions in the rewall.

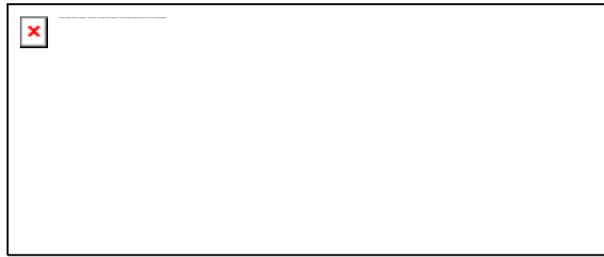


Figure 13. Plan of the alternating courses forming a unit of Dutch rewalling.

When sufficiently dry, the peat in the wall or rewall was moved to the stack site by stacking-barrow (*natte wagen*), the equivalent English wheelbarrow eventually being considered suitable. In at least the final decades, Dutch wheelbarrows were still employed for graving, but English ones were used for stacking. However, those turves drying nearest to the designated stack site were merely thrown to it. The stacks were often situated alongside, and parallel with, a nearby drain or canal. These were relatively drier sites and/or close to transportation, but could nevertheless necessitate wheeling the stacking-barrow along planks for a relatively long distance.

Each stack was eventually built up to a height of 15+ft. Both sides, to the height of the first eight to 10 courses (4-5ft) were 'double-walled', with the usual alternation of courses (Figure 14). When the double-walling was complete, planks were laid from the



Figure 14. Plan of the alternating courses of double-walling in a Dutch winter stack.

ground to the top of the partially built stack, and more were laid across it to span both sides. Using stacking-barrow, turves were carried up the planks and tipped into the gap between the existing double-walls. Then, on top of the latter, again to a height of eight to 10 courses, more turves were placed in alternating rows, arranged as 'single-walling' (Figure 15).

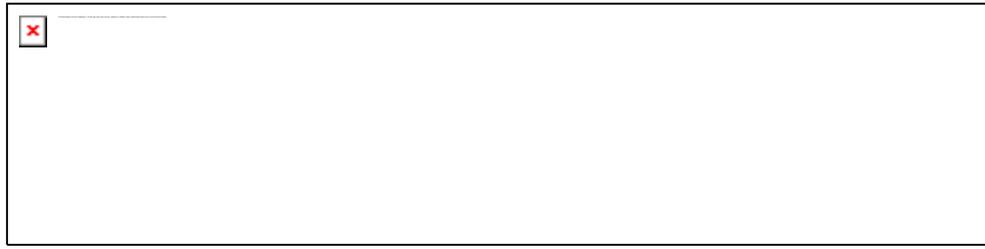


Figure 15. Plan of the alternating courses of single-walling in a Dutch winter stack.

The single-walling was also derived from barrow-delivered turves. Again, the resultant space between the sides of the stack was filled in. On top of the single-walling, and those turves tossed in between, to the height of a further 10 courses, more turves were placed to close the stack, by creating a rough roof of overlapping and gradually converging turves, thrown with their long axes facing inwards. The resultant structure, known as a 'winter stack', was often built in August-September, and was then left untouched until the peat was required at the works.

Double-walling, as an alternative means of peat storage, was also built as walls in discrete units, and therefore not always as part of a stack. The lengths of these stretches of double-walling depended on the amount of peat involved and the room available, with perhaps 10ft as an average. The whole length of one of these walls was not accomplished at once, but in stints, one course at a time.

The procedure of dyke-graving was repeated in succeeding years. The workings were laterally broadened annually by 2ft 6in on either side, as the peat was progressively removed. This gradual widening eventually led to insufficient room being left between workings on the relic balks of upstanding peat for laying out, stooling, walling and rewalling. When it became impractical to put dyke-graved turves on the remaining uncut peat surface for drying, 'barrow-graving' was brought into action. This latter eliminated the remaining uncut balks.

4.5 Barrow-graving

The actual process of cutting the residual peat balks in barrow-graving was as in dyke-graving, and c.0.75 chain was achieved per day by a typical worker when barrow-graving. When graved, the top half of the upstanding strip was placed on one side, and

the bottom half on the other, so that there was a mixture of peat between each strip, thus precluding very wet stocks by averaging out the moisture content.

To attain this, as each turf was severed by the *oplegger*, it was placed directly on to a graving-barrow, overall length 6ft 9in (Figure 16) [15]. It was loaded with 12 turves, in six vertical pairs. This was then wheeled away along planks to the unworked stretch or into the older graved cuttings, as dictated by available space. However, any turves able to be placed by hand on the remaining uncut 'top' to form a 'lay-down row' could be tossed there on the *oplegger*, directly into position.

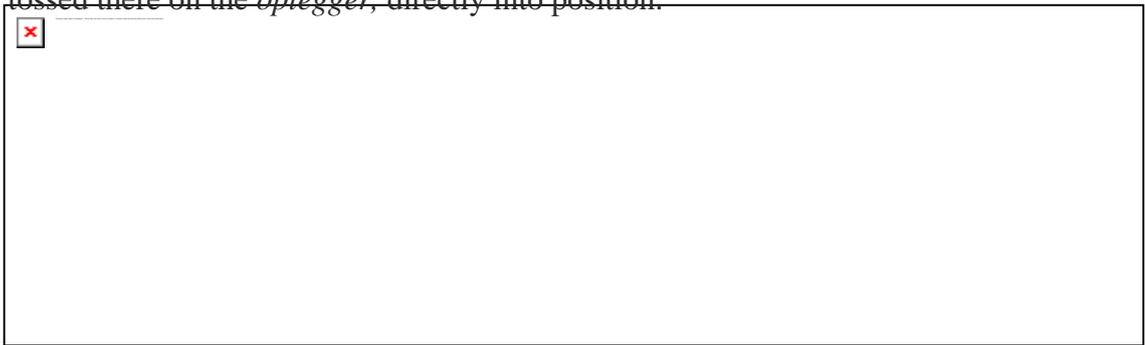


Figure 16. A graving-barrow from Thorne Moors.

However, most turves had to be moved by graving-barrow, and were unloaded manually, being placed as six pairs, their long axes parallel with each. The resultant row, two turves high, was known as the lay-down row. It was usual to deal with three barrow-loads at once (18 lay-down turves in length). The next component was the 'pack row', usually comprising 12 rows of turves on end, leaning at an angle against the lay-down rows. These turves were tipped off the graving-barrow, as six pairs, and straight into their correct position. This was repeated, and long, parallel rows were achieved, with each series of lay-down rows and pack rows separated from those in front and behind (as appropriate) by a gap wide enough to walk along (Figure 17). As peat cutting was normally undertaken from autumn to spring, the lay-down rows and pack rows survived during that period, and were then walled gradually from spring to late summer, though the precise timing was weather-dependent.

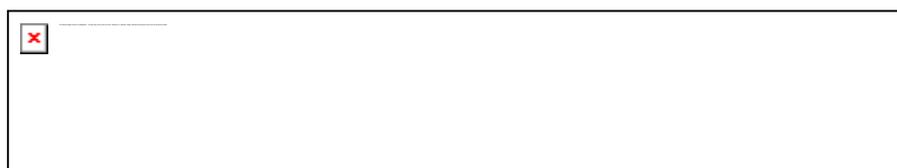


Figure 17. Cross-section through a lay-down row and pack rows.

The drying turves were then walled. From the pack rows, the two outermost rows were taken out and put on the adjacent lay-down row behind. Two more rows were taken off and placed in the gap already created, and a wall was made up, as before. When the wall was three courses high, the two drier turves laid on the lay-down row were incorporated as the fourth course, and the wall was eventually built up to a height of 10 courses. Each new course was added gradually, along the length of the wall, including both lay-down and pack rows. If there were too many turves for walling, the residue was stooled.

In good summers, rewalling was again unnecessary, and the turves in the walls then went to be stacked, to form a 'barrow stack' [16]. If rewalling was needed, the method employed was as in dyke-graving, with the stools incorporated into the rewalls. The rewalling was undertaken at the side of, and parallel with, the walls. The latter were, in effect, inverted, with the previously upper and therefore drier turves being placed at the bottom of the rewall, and the converse also true. The barrow stack was initially built up to a height of 10 courses, using single-walling, the stack being c.12ft wide at the base. The next stage consisted of filling in the gap between the single-walling, by throwing turves (*stukken*) and broken turves (*stukjes*) in from all sides. Finally, after the 10 courses of single-walling, a row of turves was placed vertically around the outside which, when once in situ, was called the 'standard' (colloquially the 'soldiers') [17]. This is shown in Figure 18, and is also visible in Plate 3. Inside and above it, turves

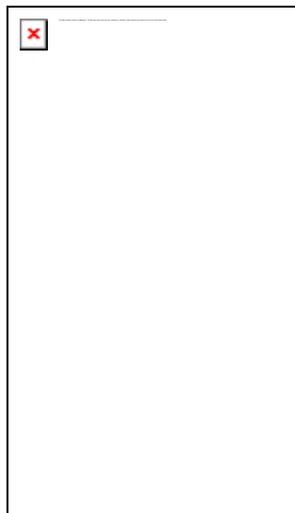


Figure 18. Cross-section through a part of the outer wall of a Dutch barrow stack, to show the position of the 'standard'.

were then thrown on, again with their long axes facing inwards, both to support and form a roof. The eventual total height was c.12ft.

Smaller stacks were the result of peat forming the base of a stack (of either preceding type) being too wet to be worth removing. They were therefore akin to English ‘pikes’, and were seemingly either built with a casing of single-walling, or with successive courses as in Figure 19. Finally, turves were placed to form a roof, c.5ft high.

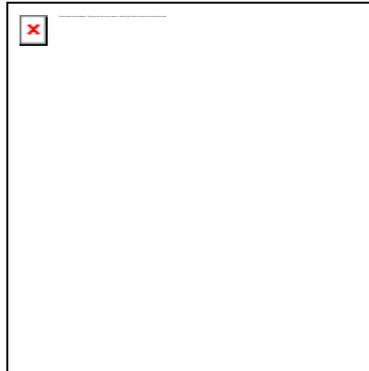


Figure 19. A pattern of casing a small Dutch stack. Other turves and broken turves were thrown into the central part to fill the stack.

There was an additional method of peat drying known as rucking [18]. This consisted of double-walling, built up to the height of the standard, surmounted by both the latter and converging roofing turves. Several double-walls were placed together to a total width of c.36ft, but with no predetermined length. The gaps between the turves in double-walling were maintained right through the structure, as this aided drying. Rucked peat allowed drying in adverse weather, and thereby provided the security on the moor of available, adequately dry peat in the early part of the year. However, rucking was not undertaken continuously as it earned a relatively high rate of payment, and was regarded as too expensive for continual operation. The work involved, averaged per turf, was such that the unit cost was relatively high.

It has also been said that rucking consisted of walling, which had the same appearance from the side as double-walling. There was no ‘standard’ course, with the walling surmounted by a roof of turves, thrown on lengthways, supported by turves on top of the walled peat. If true, this may represent a later trial, or perhaps a longer term modification of rucking.

4.6 The end of Dutch peat winning

Dutch peat winning persisted for c.60 years, though the two World Wars marked stages in the declining fortune of that aspect of the industry. In the years after World War I, the gradual eclipse of the Dutch methods was epitomized by an item in the *Doncaster*

Gazette of 15 December 1922. This appeared a few months after the final destruction of the Moorends Works by fire, and the linked abandonment of the canal network. A photograph was published depicting a Dutch peat worker with his graving-barrow, and a peat stack on the skyline, to accompany an article headed ‘The Changing Order’. It highlighted the hand-winning of peat locally – somewhat inappropriately represented by the Dutchman and his implements – as an ancient and declining local craft [19]. It was contrasted with the promise of a new and vastly prosperous future based on the coal deposits hidden deep beneath the peat.

In the 1930s, the peat market was retrenched, with the industry experiencing severe difficulties. The limited workforce on Thorne Moors still included 10 Dutchmen employed by piece-rate, and another – more elderly – then being paid a fixed daily rate (a ‘dayman’). All worked on the territories of the Medge Hall and Moorends Works, though with the closure of the latter works in the previous decade, all the peat went to Medge Hall. Two British Moss Litter Co. ‘Letter Books’, spanning September 1933–March 1935 [20], furnish rare contemporary information on the types and amount of work done by them.

The dayman, who does not figure in the mid-winter returns, was paid for a miscellany of tasks (i.e. ‘daywork’), some seasonal, some as required, on the ‘Medge Hall’ moor. They included chopping bushes, drainage work, fire precaution (controlled spring burning of vegetation), dousing fires, tram repairs, clearing up (and stooling?) residual turves at the workings, and occasionally some graving.

The work of the remaining Dutchmen, on both the ‘Medge Hall’ and ‘Moorends’ peat, as given in the two ‘Letter Books’, suggests that they were operating within the framework of dyke graving (allusions to stools, none to lay-down/pack rows). In winning the peat, all the Dutch functions were also done by English labour, and there are recorded examples of the Dutch workers being allotted work on the English workings, and thus having to follow the local ways to perform it (e.g. graving, pyramiding, stacking). Some workings in the later years apparently involved the English layout but with the resulting ‘dry work’ done by Dutch methods. The two nationalities generally worked together within the Dutch or English workings, as required. The main

Dutch jobs had the following seasonality in aggregate, during the period September 1933-March 1935:

- Graving: all months except July, but especially October-January, and still relatively substantial February-April
- Stooling: May, June
- Walling: May-September
- Rewalling: July, August
- Stacking: August, September
- Rucking: September, October

There are also (sometimes enigmatic) references to “rewalling stooling” (July) and “baring”, “levelling”, “wheeling” and “barrowing” (September-December). Several other jobs also specified are fire-precaution/watching/extinguishing (March, April, July, September), drainage work (April, May, September, October, December), [21] clearing up residual turves (September, December) and “cutting tussocks” (November). In addition, the ‘Letter Books’ demonstrate that on the Swinefleet Works ‘territory’, some Dutch walling and stacking was undertaken, but entirely by English workers. Finally, in September 1933, a group of Dutchmen was despatched to Hatfield Moors to assist with tackling a large blaze there.

Dutch graving ended in the 1940s, with Piet van Lierop regarded as the last such graver. He died on the moors in 1950 (*Doncaster Gazette* 7 December), although at that time he was employed on ‘daywork’. One or two other Dutchmen still worked on Thorne Moors in the 1950s, but seemingly doing English jobs. The last of all was Joe Kempen. A published photograph [22] shows him conveying a horse-drawn train of wooden peat wagons filled with turves c.1946. He was the only Dutchman known to have worked with horses on Thorne Moors, and was still involved with casual work in the 1970s [23].

Of minor related interest, a batch of old Dutch *bonkschoppen* – though not necessarily imported – was made available to English workers during 1957-58. They were about the same size as English spades, but heavier. Although issued for baring work, at least one English worker also used his for graving. It was so employed for two years, and was felt to be superior to the English spade for graving. These Dutch spades were characterized by a closed socket, and were undished. The blade was much like the English spade,

though the lift was thought to be less than that of the local type. The shaft and T-handle of the Dutch spades were wooden, and fitted tightly into the metal socket. Being usually wet, there was no need for rivets.

4.7 Notes

[1] The layout of the workings, drains and canals can be appreciated from vertical aerial photographs. A useful series, produced by Meridian Airmaps Ltd, at a scale of 1:10500, was flown in 1967. The prints referenced 58 67 187 and 59 67 093 cover virtually all the relevant area, and include all the best preserved parts

[2] In 1947, c.15 Irish workers travelled to Thorne to find work on the moors. Many of them left in 1951, though several settled permanently in the area. Initially, the Irish were instructed to employ elements of Dutch 'dry work' methodology (Dutch graving having by then apparently ceased). Those remaining through 1951 were then mostly transferred to English methods. Their former work had been of a hybrid character, but was not "their own modification of the Dutch methods", to create a variant type of peat winning, as claimed by Eversham (1991)

[3] A description of the patterns of workings, drains and canals, but containing errors and misinterpretations, is given in Smart (1983) and Smart et al. (1986)

[4] These are preserved at Doncaster Archives, referenced DY.BML 2/3-2/5

[5] For example, 12 *stickers* were conveyed to Macclesfield, Cheshire, in 1904 (DY.BML 2/4), and 24 "Barrows ex Holland", apparently also to Macclesfield, in 1909 (DY.BML 2/5)

[6] H.F. van de Griendt pers.comm. and in litt.

[7] DY.BML 4/3

[8] DY.BML 2/4-2/5

[9] DY.BML 4/3

[10] DY.BML 2/3

[11] DY.BML 2/5

[12] DY.BML 4/3

[13] These Thorne Moors examples of *stickers* are held at Cusworth Hall Museum, Doncaster

[14] Both are held at Cusworth Hall Museum

[15] An example is held at Cusworth Hall Museum, and a replica of it is displayed at Doncaster Museum & Art Gallery. Although it is not established whether this is a Dutch import or an English copy, the latter seems likely based on the evidence of the wheel. Photographs of examples in The Netherlands usually show them to have eight-spoked wheels. The Cusworth example has a four-spoked wheel typical of local wheelbarrows made at the Moorends Works at that time. The wheel appears to be contemporary with the rest of the structure

[16] Barrow stacks on Thorne Moors are illustrated on an undated photograph entitled 'A Peat Moor in Hatfield Chase' in Willis (1901)

[17] The variation at Thorne, as depicted in unpublished photographs, extended up to 13 courses

[18] The Dutch word *rook* (plural *roken*) is defined as a "(hay)stack", but its relevance, if any, to rucking, is not known

[19] This is typical journalism. Peat winning on Thorne Moors extended back for 800+ years, and in 1922 the Dutch workers had been present for less than 30 years. Thus the Dutchman actually represented <4% of that timespan, and only one (of two) methods of working in that period

[20] Held at Doncaster Archives, referenced DY.BML 2/10

[21] A photograph entitled 'Dutchman Draining a Moor', presumably Thorne Moors, appears in Willis (1901). The worker seems to be using a shovel. It is said that Dutch peat workers undertook varied drainage work, including that concerned with warping, possibly preparatory work digging out black peat

[22] Published in Judge (1994). The lower photograph on p.[163] shows Joe Kempen, but is labelled "M. Kempen"

[23] As horses became replaced by locomotives, Joe Kempen transferred to Hatfield Moors, where he had charge of the casual workers and was also involved in security work. He initially retired in the early 1960s, but from 1969 to 1973 or later he became a casual employee of Fisons, concerned with security and fire-watching. This was initially at Medge Hall, but then on Hatfield Moors