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THE ARCHAEOLOGICAL SURVEY OF A COASTAL AREA OF EAST LOTHIAN AT TORNESS, INNERWICK

By ROGER MERCER

Torness is a limestone promontory (NGR NT 745750) jutting out into the estuary of the Firth of Forth, 7kms southeast of Dunbar. It is situated in an area of the fertile coastal plain of East Lothian between Skateraw Farm and Thorntonloch. In the past this area has shown itself to be close to a concentration of funerary monuments of Early Bronze Age date. In 1974, after a public inquiry, it was decided that 138 acres on the eastern side of Torness Point itself should be allocated to the building of a nuclear powered water cooled electricity generating plant. This parcel of land was largely formed of the Thorntonloch smallholdings — an area owned by the Department of Agriculture and Fisheries for Scotland and initially rented to demobilised soldiers at the end of the First World War. At present the land is under various arable crops including barley and peas. During 1974 the RCHM (Scotland) had pointed to the existence of what appeared to be, on the basis of inspection of 1:5000 vertical air photographs, a small enclosure delineated by a series of pits or sockets for vertical members at the southwest edge of the threatened area. In May 1975 the Department of Archaeology, Edinburgh University were asked to investigate the nature of this enclosure and record it before its destruction and also to carry out an archaeological survey of the remainder of this substantial area. Work was carried out under the direction of the writer with the assistance of Mr Malcolm Murray and graduates and undergraduates working within the Department of Archaeology between 13 June and 21 July 1975.

Early in June 1975 through the good offices of Mr Murray and the willing co-operation of the University Air Squadron a substantial air cover of the site was photographed which revealed various other parch mark and crop mark anomolies in the area. Inspection of the site on the ground also disclosed a fine stretch of extinct shoreline running roughly parallel to the modern strand about 40m inland. In front of this "raised beach" on the eastern side of the

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promontory a broad area of sand accumulation was fronted by a band of mobile sand dunes.

To the northwest of the promontory of Torness itself a ruined croft and garden stood by the present beach — presumably to be linked with a group of limekilns of 19th century date lying between Torness and Skateraw.

The archaeological survey of the area thus divided itself into five separate exercises:

1 The examination of the sand dune area to the east of the promontory. It was possible that sand blowing here concealed an earlier land surface intact with possible cultural debris lying on it. (Site D).
2 The examination by deep sectioning of the "raised beach" deposits in order to ascertain that these, likewise, did not conceal surfaces or deposits of archaeological interest. (Sites C. and B).
3 The recording of the structure of the croft and limekilns within the threatened area.
4 The brief examination of crop mark and parch mark anomalies over the inland part of the threatened area both by excavation and geophysical survey. (Site E).
5 The total examination of a small enclosure defined by pits on the south-west edge of the threatened area. (Site A).

The examination of the sand dune area and the extinct shoreline deposits required the use of a machine for cutting deep sections within the highly mobile material which formed these deposits.

1 The sand dune area (Site D) Fig. 1: The air photograph survey of this particular part of the site had revealed a very large number of sub-circular or circular grass marks within the sand dune area. Initially these were thought to be rings of differential vegetation but on the ground it became clear that while some "fairy rings" of fungal origin were present this phenomenon could not account for the very large number of rings seen on the photographs. Resistivity survey confirmed in some measure the true anomalous nature of these rings. Conversation with a local smallholder led to the suggestion that the rings had always been apparent since 1923 when a girl-guide encampment in circular bell tents had been sited there. Although the area was certainly used for guide and scout camps during the 20's of this century this did not seem adequately to explain the resistivity survey anomalies which were associated with these marks. A section was therefore dug by machines 5m wide and 30m long sectioning two of the rings as located both by air photo-

graph and geophysical survey. Once sectioned it became clear that the rings were a very superficial feature indeed and seemed to be the result of wind deposition of sand in a roughly circular 'swirling' manner with a hollow area being left in the centre of the deposit. Beneath the deeper sand in the "ring" had been formed a quite substantial hardpan which seemed to be in turn creating the vegetational distinction visible on the air photograph and the soil density distinction perceptible during geophysical survey. Beneath this superficial group of features the sand lay evenly bedded and showed all the indications of being wind-borne. At a depth of approximately 1m a sharp change occurred and a laminar series of water-borne deposits were visible which continued down to the present local water table. At this point one should make reference to the survey of documentary evidence available for the locality carried out during the excavation by undergraduates of the Department under the guidance of Mr Peter Hill. (See Appendices I and II). Agricultural rentals for the area show this flat coastal sand belt in use during the earlier 18th century as pasturage for cattle and horses. Sluices were arranged in the area in conjunction with a series of linear irrigation channels and the area flooded annually to improve the quality of the grazing. The sluices and channels were operated from springs which are still visible at the base of the extinct shoreline which lies to the west of the area. By the mid 19th century the rentals for this grazing land were falling sharply due to the rapid increase in windblown sand deposition over the area. It would appear that the record of this land deterioration may well have been preserved in the sharp division between wind and water borne deposits visible in our machine dug section.

Visible both on the University Air Squadron air survey and on the 1:10000 coastal survey held by the Scottish Office were a series of linear marks traversing this area of flat sand dune cover. It seemed reasonable to assume that these might well be the visible remains of the irrigation channels which formed this coastal "water meadow" complex. Indeed some of the linear features were clearly visible on the ground.

The archaeological testing of this association (see fig. 2) proved fairly complex as under excavation these linear gulleys dug in windblown sand and filled with windblown sand proved virtually impossible to detect in plan and could only be seen in section under favourable conditions. No artefactual evidence was recovered from the gulleys which could confirm their 19th century date but a possible track surface metalled with cobbles was located to the west of one of them. In the absence of definitive artefactual evidence it would seem reasonable to accept this group of linear gulleys dug into fairly

recent windblown sand as irrigation gulleys linked with a documentarily confirmed irrigation system of 19th century date.

2 The examination of the extinct shoreline deposit was undertaken at two points — one to the southeast of Torness Point itself and one to the southwest. The objective here was, if possible, to furnish some kind of chronology for the accumulation of these beach deposits and to ascertain that they did not cover areas of sensitive archaeological material prior to their complete destruction in the building of the power station sea wall and the driving of foundations for the reactor buildings. Two machine dug sections approximately 3m wide were driven into the face of the shoreline at points selected for their *prima facie* likelihood as areas of occupation. In both cases (See figs. 3 and 4) it soon became clear that the shoreline feature was composed of a complex and superimposed group of storm beaches varying in composition from a sandy shillet like material composed of crushed rock and shell to massive boulders. The totally derived nature of these deposits and their evident instability made any attempt at chronological fixing fruitless. Furthermore at both points the band of superimposed storm beaches was found to lie directly on the surface of the bedrock — which at various points was either a fine blue fireclay or carboniferous limestone. The question was raised on site of the possibility of a thin deposit of glacial till lying between the lowest beach deposit and the bedrock and I am indebted to Mr J. Sutherland of Soil Mechanics Ltd (also working on the site in connection with the proposed power station) for this identification. However the deposit was so minimal that no positive identification could be arrived at and due to the importance of its implications the writer would prefer to leave the matter open. Above the uppermost surface of beach deposit a block approximately 1m thick of blown and washed plough soil was located with white glazed pottery within 10cms of its base. This graphic illustration of erosion brought about by cultivation must presumably date from the agricultural improvement of the area which it is known from the documentary sources was taking place c. 1760-1770 A.D. A few isolated remnant bands of turfline lying between phases of beach accumulation gave hints of periods of stability in the formation of the shoreline but produced no evidence of human activity.

3 Plan and elevation drawings were made of the croft and garden complex on the southwest side of Torness Point. Limited excavation showed the croft to be a fairly well built structure with a double foundation course of roughly blocked out stone blocks. The croft was built upon a quite sterile surface of sand. Artefactual evidence would indicate a date in the 1840-60 bracket for the use of the croft and during this period an extension with a narrow door

(presumably ruling out its use as a stable) was built on to the west end of the house. Both this extension and the main cottage had floors of rammed lime — perhaps affirming the connection with the nearby lime burning industry (see appendix for history of lime burning on site). The extension to the west had originally been a 'lean-to' structure but this was again extended to the west to produce a full size room. No link existed between the croft and the out-house and the chimney wall separated the two. The chimney was of simple type with a slate hearth slab *in situ*.

4 Two principal crop marks were visible in the arable area behind the shoreline besides that observed by the RCHM. One was quite apparent on the Scottish Office Coastal Survey 1:10000 photograph and the other appeared on three photographs taken during our own air survey of the area. The first anomaly produced virtually no registration during geophysical survey. It looked on the photograph like a rectilinear enclosure surrounded by an interrupted ditch. A long section was stripped by machine over its width. This revealed no traces of occupation or of any subsoil features but did give some clue to the origin of the crop mark anomaly visible on the air photo-graph. A substantial deposit of natural "sea coal" derived from the local measures of carboniferous limestone lay precisely in the position of the crop mark anomaly and presumably is the origin of the vegetational difference then registered.

The other crop mark, appearing on those air photographs taken by Malcolm Murray from the UAS aircraft, appeared to be a small ring ditch set on a low rise on the lip of the extinct shoreline. Two quadrants were opened across this ring-like feature after a geophysical survey had exhibited both high magnetic and resistivity anomalies (See fig. 5). So high was the magnetic anomaly that some modern metallic intrusion was suspected and seemed likely, situated as the site was 20m behind the World War II "Dragons Teeth" that still guard this part of the coast.

Nevertheless it was felt that before this area could be cleared from the archaeological point of view excavational investigation would have to take place. The two quadrants opened showed fairly clearly the nature of the geophysical anomaly. A pit c.6m x 1.6m had been dug and lined with 15mm guage galvanised iron chicken wire. The pit was most probably dated by a brass cartridge case to the early years of World War II and is likely to be linked with working parties constructing the "Dragons Teeth" complex. The "ring ditch" itself was not evidenced during excavation and the irregularities of stratigraphy would appear to be linked with sand blowing against a dark

brown sandy turfline within which was incorporated flecks of charcoal below which were stony sand layers comprising the surface of the beach.

All the above exercises were completed within two weeks and on 1 July 1975 excavation commenced of the site identified by the RCHM on the Fairey coastal air photograph survey conducted for the Scottish Office (1:10000 Photo No. 20.987). The site (see Figs. 6 & 7) appeared to be a small sub-rectangular enclosure approximately 15m across defined by a series of enriched dots in a barley crop (1973). Within the enclosure were indications that other features might also exist. By 1975 the area of the cropmark was under a crop of peas — an insensitive crop from the point of view of relative enrichment or impoverishment through subsoil changes. The site, therefore, was not visible upon the project's own 1975 air survey and due to its small size and the small scale of the 1973 photograph location on the ground did present a number of problems. These having been overcome however the site was pegged and the ploughsoil removed by hand in four radial exploratory cuttings. The ploughsoil was generally a loose brownish sandy yellow soil with many small and large round pebbles incorporated within it. There was however considerable variation over the site and in some areas the texture of this ploughsoil was quite clayey. The ploughsoil was 30-35cms in thickness and lay directly upon the natural soil which at this point was a pinkish brown glacial till with many large water-worn pebbles — particularly within its upper 10cms. Below this upper concentration of pebbles a finer gravelly layer — the till matrix without the pebbles — takes over. At points this gravelly matrix would grade down to a reddish brown coarse sand. Within this sand particularly, but elsewhere as well, deposits of "sea coal" derived from local carboniferous limestones stained the surface of the natural soil.

With the ploughsoil totally removed, an incomplete ring of very hard clayey material with a slightly greasy texture when wet was encountered. This penannular deposit lay superimposed upon the natural till. The body of this clay deposit and its surface and edges produced a substantial number of worked flint flakes (see report) many of which were in quite fresh and unpatinated condition. The form and position of the "clay ring" indicated that it and any cognate features were the progenitors of any anomaly noted on the air photograph.

As the clay layer was removed it became clear that it concealed beneath itself a gulley type feature. The top of this gulley was filled with the clay of the "clay ring" which contained a good deal of flecked charcoal at this depth. The remainder of the gulley was filled with an amorphous fill of large and small

pebbles which unfortunately did not give much indication of the gulley's function. Only at a point on the south side of the ring where it was deepest (c.40cms) could a possible functional interpretation be inferred from the form and filling of this gulley. On the south side the inner edge of the gulley was quite clearly vertical (see fig. 8) and the filling, in plan, is bi-partite with a fine sand filled slot on the inner side of a stone packed fill. In the circumstances of the loose pebble and sand till into which this gulley had been cut one is left with no alternative than to postulate that the vertical inner face must have been held in position by the gulley being filled almost immediately after it was dug. The bi-partite fill which, however, was only detectable at this one point might indicate that this immediate backfilling incorporated a series of vertical members. The gulley was well defined for the whole west and south side of the enclosure but faded out as it wound round to approach the eastern side. The gap in the gulley on the east side of the site corresponded closely to an area where the clay capping had been ill defined and very patchy. To the north side of the circle the gulley took up again although at this point it was a good deal less regular in outline and depth (c.33cms). Its filling on the north side was differentiated from the filling already described on the south side. Here an organic loose stony fill is superimposed upon a lower filling of orange clay. Flint fragments were retrieved from all levels in the gulley.

On the northern side of the enclosure the clay "ring" widened to form a rectilinear area 4.5m x 2.25m. The clay here seemed to fill a shallow depression in the glacial till surface. A number of large stones were tumbled around the outer edge of this depression and some extremely damaged and shattered paving was found lining the base of the depression in its east end which was associated with substantial deposits of charcoal. Flint flake debris was encountered throughout the depth of the clay filling of the depression.

At either end of this rectilinear area were two massive pits which contained fairly loose organic fill, some fragments of bone and in the eastmost of the pits an iron socketed object. Cleaning on the floor of the rectilinear depression recovered a bronze token or coin and five fragments (two inscribed) of clay pipes (see report). Another bronze token or coin was located in the base of the enclosure gulley on the east side.

This minor enclosure site at Torness is clearly therefore recent in date and on artefactual evidence would seem to be assignable to the early 17th century. The interpretation of the nature of its structure and function is,

however, more difficult. The most economical interpretation would seem to be a rectilinear house built of turf annexed to which is a garden/enclosure also surrounded by a turf wall outside (?) which was a gulley either for drainage or possibly at some points — particularly on the south and west side for the groundfasting of vertical timber members to revet the turf wall. The turf house was of simple croft type with a paved hearth area at its east end, a door presumably on the south side and also possibly some kind of extension to the south at the east end. The two pits at either end of the house must presumably represent rubbish disposal pits or perhaps in the eastern instance a privy. So little recognisable domestic artefactual material was found on the site that it has to be assumed that occupation was short or periodic in duration. Upon desertion the turf walls of the house collapsed inwards on to the worn depression of the floor. The turf wall of the garden collapsed outwards over and partially filling the drainage (revetment?) gulley. Under the influence of later agriculture and weathering the damaged turf has leached down to its hardest base constituent — the greasy clay spread of the "clay ring" with its content of charcoal fleck. Long previously at some point in early prehistory a flint scatter had been deposited on the site and had become incorporated within the turf. The turf was cut on site to construct the house and enclosure walls and flint debris became incorporated within the walls finally to remain as a residual hard element in the final decayed clay spread of the wall's ultimate collapse.

We may perhaps interpret this structure as a small shieling/cottage type settlement probably used intermittently at a date during the 17th or 18th century AD. There is no known documentary record of the existence of this feature.

The project completed at Torness in 1975 can perhaps best be termed "prospective archaeology." It was an attempt to achieve as complete an understanding as is practicable of a large area of ground in archaeological terms and to arrive quickly and cheaply at an assessment of its archaeological potential. In fulfilling this aim the exercise was wholly successful. The resultant assessment — that little of archaeological importance was likely to be affected by the proposed development — should not be allowed to obscure the basic truth that this kind of wide ranging examination of the landscape in potentially rich areas will in the long run provide a firm basis of knowledge with which to judge such potentialities (which we can hardly be said to possess at present) and ultimately will reveal for us new kinds of site in new settings so essential for the healthy development of archaeology.

ACKNOWLEDGEMENTS

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THE FLINT ASSEMBLAGE

Fifty-three fragments of struck flint were recovered from the site none of which displayed any diagnostic working which might be held to indicate any cultural or chronological parallel. Three cores, however, were included in the assemblage, all three very small with narrow bladelets struck from them. Fairly clearly the material is all derived from beach pebble sources which are readily available in the Forth estuary. The attribution of the industry to a mesolithic group is based solely on the absence of later diagnostic forms and on the presence of the narrow bladelet cores.

APPENDIX I

HISTORICAL DOCUMENTATION OF LAND USE AT TORNESS

The following report is based largely on documents of the period 1682-1832, when the Torness area was part of the estate of the Nisbets of Dirleton; it is for this period that the most detailed information about the actual use of the land is available, mainly from Rentals, and particularly for the period up to 1773 when rent was still payable in the form of grain and other produce.

The site at Torness includes parts of the lands of the farms of Skateraw, Gateside and Thorntonloch. Skateraw falls within the barony of Innerwick, and Thorntonloch within the barony of Thornton. Gateside is described as lying between Thorntonloch on the east and "Easter Skateraw" on the west, and extending to the sea on the north; it appears initially to fall partly into

each barony, although in 1780 it seems to be reckoned to Innerwick. It is last mentioned in 1807, and seems thereafter to have been assimilated to one of the other farms. In later rentals the farms are not divided up under baronies and are all entered together under Dirleton estate.

Until the late 18th century, the farms were split up amongst a number of small tenants, some holding land on more than one farm. For example, in 1694 there are nine separate tenants in Skateraw, three in Thorntonloch and three in Gateside. As no estate map survives, it is unfortunately not possible to identify the exact boundaries of each farm. Skateraw seems to have been fairly large and important. In 1681 it was being farmed by the then owner's chamberlain. The Judicial Rental of 1734 is drawn up at Skateraw. It was divided at one stage into an easter and a wester part, e.g. in 1694 John Anderson rents half a roum in each part. This division is is attested until 1769. There seems to have been considerable continuity among the tenants of all the farms, and until the improvements of the late 18th century the same surnames recur constantly in the Rentals.

In 1769 new leases were granted to the tenants with a number of new conditions, the most important being the commuting of the crop rent to a money rent. In the documents relating to this measure the size of the farms and the assessed value of their land is given. Thorntonloch appears as "Thornton loch large farm," consisting of 110 acres, valued at 30 shillings sterling per acre, together with "Thornton loch litle farm," immediately to the east of the large farm, of 30 acres at 30 shillings per acre. Gateside comprised 71 acres at 30 shillings per acre. Skateraw is divided into three separate holdings: "East Skaitraw," 96 acres at 27 shillings per acre; "Litler Skait raw," 24 acres at a yearly rent of £30 (which works out at 25 shillings per acre); and "West Skaitraw" which is assessed at 32 shillings per acre, although the acreage cannot be deduced as it is farmed jointly with another holding. The varying assessments presumably reflect the varying quality and productivity of the land.

Thus following the trend of enclosures and agricultural improvements the land holdings were consolidated into distinct units. Some of the former multiplicity of small tenants must still have continued to live there, however, for the houses of King, Bishop, Wait, Speir and Slight (mostly names which appear in earlier Rentals) are expressly excluded from the territory of the two farms of Thorntonloch. But such dispossessed small tenants must eventually have had to seek their livelihood elsewhere; the *Old Statistical Account* for the parish of Innerwick mentions the great reduction in population of the

parish consequent upon the enclosures. The process of consolidation continued rapidly and by 1776 both Thorntonloch and Skateraw were single units.

Evidence of land use is provided by the nature and amount of farm produce payable before the change to money rent. The main crop is barley, and several tenants paid rent only in this commodity. It is called "bear" in all Rentals except that of 1734 (where it is called barley); this is the general name for Scots barley, but probably refers to an inferior type, used in brewing. Certainly oats were most commonly used at this time for consumption, and barley was probably a cash crop. From the New Leases document of 1769 it is clear that the then laird had a contract to supply grain, including barley, to a merchant in Leith. Prior to that a malt kiln, presumably for malting barley, is mentioned in the Rentals of 1700, 1705/6, 1714/5, 1732 and 1734 at Thorntonloch. From 1700 till 1714 the tenant is William Whyt, who rents the "Malt Kiln and Lime Kilns in Thorntounloch" for only a money rent (i.e. no crop rent). In 1732-4 the tenant is John Sympson of Skateraw, who pays a crop and money rent for his lands there and a purely money rent for the malt kiln at Thorntonloch.

The other commodities in which crop rent is payable are oats and peas. The number of tenants liable to pay peas is small, and the amounts involved are also small. The payment of oats is rather more common, but is still behind that of barley. It is not possible to derive accurate statistics for the farms at Torness from the Rentals, since the exact boundaries of the farms are not known, and since the crop rent payable by a tenant there frequently includes an unspecified amount for lands held elsewhere. However, it can be stated with certainty that more tenants in Thorntonloch paid a rent of oats and peas than in Skateraw, and that the amounts of oats and peas paid by the tenants in Thorntonloch are also larger than those paid by tenants in Skateraw. The amount of barley paid by tenants on the two farms seems to be about the same, although no conclusion can be drawn from this, as the size of holdings may vary. Gateside pays both barley and oats but no peas. It is not mentioned in all the rentals, and so is perhaps subsumed with either Thorntonloch or Skateraw.

Money rent is also payable on some holdings, often for the house. The Rentals for the years 1684, 1700, 1705/6, 1723/4, 1726, 1727, 1728, and 1732 mention bear, oats, peas and money rent. The Rentals of 1694, 1712, 1730, 1734, 1754 and 1759 include kain fowls in addition to the above. A document of 1680 commutes the rent of kain fowls to money rent for certain tenants, but unfortunately does not attribute them to their respective holdings. Most,

although not all, tenants seem liable to pay kain fowls, usually hens, although a few also pay the more valuable capons. This evidence for the keeping of poultry is the only direct evidence for the keeping of any kind of livestock, apart from a list of arrears of 1774, in which the tenant of Skateraw owes the laird for "Cows Grass."

Indirect evidence for the raising of livestock comes from the lease of pasture land. In 1723, 1726 and 1732 various tenants in Skateraw pay rent for parts of Skateraw links; this presumably refers to the low-lying land beside the sea, below the raised beach. The links are mentioned again in 1734, when it is noted in the Rental that rent is no longer charged for them as they are now overblown with sand. The New Leases document of 1769 also mentions "Link ground" — 10 acres attached to "Thornton loch large farm" and four to "Litler Skaitraw." In each case no rent is payable for this land, which is said to be reserved for the cutting, drying and burning of kelp, but it is stated for Thorntonloch that the tenant's cattle might still be pastured there; presumably this land still provided some rough grazing.

For some reason the farm of Gateside also seems to have been suitable only for pasture by 1780 (despite its previous crop rent), for in that year it is leased to Thomas Lee on condition that he pasture it only, although he is to have one cutting of hay off the land south of the post road. He is also to clear the land of stones. As this lease is later than the land improvements and enclosures of the 1770s, it may be that the more fertile part of Gateside, which previously produced the crop rent, is now included in either of the two adjacent farms of Thorntonloch or Skateraw.

The agricultural improvements of the late 18th century were applied to the Torness farms in the new leases drawn up in 1769, although previous to that date some tendency can be observed for a slight reduction in the number of tenants and the emergence of a few tenants with very large, albeit still fragmented holdings. The New Leases document gave the tenants longer leases (21 years), defining the farm boundaries in accordance with a new estate map (unfortunately now lost). The boundaries were to be clearly marked with pits and stones at each corner and turning. The laird reserved the right to carry out the actual enclosure of the farms by means of stone dykes or hedges and ditches, the tenants concerned being obliged to pay annually a percentage of the cost of these enclosures and being made responsible for their upkeep, as well as for that of their houses. The laird also reserved the right to enclose common pasture, compensating his tenants by a reduction in rent.

Important conditions of husbandry were set down, in accordance with the new practices of agricultural improvement. Crop rotation was enjoined: it was not permitted to "sow Wheat after Oats or Barley without interjecting a summer fallow, or a pease turnip or red-clover Crop betwixt. Nor at any time take three consecutive white Crops but interject a Summer fallow, or some black fodder Crop betwixt two of the white Crops." Tenants were also forbidden to have more than one fifth of their land under wheat in any one year. This is the first evidence of the growing of wheat in the area.

Concern for the good of the land is further shown in a clause stipulating that a quarter of the tenant's land should be laid down in a mixture of white clover, red clover and ryegrass for four years before the expiry of his lease. This grass could be cut for hay in the first two years of the four-year period, but might only be pastured during the final two years of the tenancy. This long fallow served presumably to ensure the fertility of the land for the incoming tenant. Similar concern is expressed in the clause bringing straw under the steelbow system of tenancy, i.e. it went with the holding and must be left by the outgoing for the incoming tenant.

It is not possible to trace the exact effects of the Improvements on the husbandry of the Torness farms, since at the same time the entire crop rent was commuted to money, the change to take place in 1773, on the expiry of the laird's contract with the Leith grain merchant, David Loch. For the two remaining years of the contract i.e. 1771 and 1772, the tenants are themselves responsible for bringing their crop rent, of barley, oats and peas, to this merchant at Dunbar harbour, a circumstance which suggests that the harbour at Skateraw (just off the Torness site to the west) was then no longer in use.

While the change to a money rent is the main sign of the decline of the old feudal relationship between tenants and laird, another is that the tenants were now freed from paying multure (a proportion of their grain) to the miller, although they were still "thirled" to the mills on the laird's estate, being obliged to bring all their grain there to be ground although now only for the "Outentoun multure," the price which outsiders would have to pay. They were also still liable to perform the customary services to the mill; these would probably comprise the carrying out of repairs to the mill and the cleaning out of the mill lade.

Tenants are also shown, in Rentals of 1799, 1806 and 1807, to owe the laird "carriages" as well as money rent. This might mean attendance upon the laird when travelling, or the provision of transport for goods. The mention

of this service only during this limited period is probably indicative of the reintroduction of some old feudal services during the Napoleonic Wars, when labour was scarce and wages were high.

The change to a money rent greatly reduces the amount of information available for actual crops grown, although rents may still have been decided on the basis of grain produce, converted to money at a price fixed by the laird. In the rental of 1821 there is a partial return to crop rent, with 10 per cent of the money rent being made payable in grain to the equivalent value. The reason for this was probably the poverty and inflation which followed the Napoleonic Wars, making a return to payment in kind desirable. The type of grain is not stated. It might be assumed to be barley, on the basis of the former predominance of that crop; the *Old Statistical Account* for the parish of Innerwick still says that barley is the principal crop. Nevertheless, the Rentals of 1829, 1830, 1831 and 1832 give the current fixed prices of wheat and oats, without mentioning barley.

Probably also connected with the economic situation following the Napoleonic Wars is the dramatic increase in rents at this time; the rent of Skateraw, for example, increased from £785 in 1807 to £2000 in 1820. Unfortunately no Rentals survive for the intervening period, so that it is impossible to tell how sudden or how gradual this increase, which was general for all farms on the estate, may have been. The tenant farmers must have suffered as much as the laird from inflation, and it is not surprising to see them falling heavily into arrears with their rents at this time.

Various other features of the Torness farms can be deduced from the Rentals. A dovecot is mentioned at Skateraw in 1705, rented by John Anderson, who held land there, for £40 Scots; in 1714 it was rented by James Murray. In each case the tenant also rented for £36 a house at Skateraw, referred to in 1700, 1705 and 1714 as the "Sclaithouse" or "Sclate house," presumably because it was distinguished from lesser, thatched dwellings by having a slate roof. In 1723 and 1727 the dovecot is rented by John Sympson for £84, and it appears in 1727 that a new one has been built, for a note at the end of the Rental for that year states that £40 is deducted from the previous Rental for the rent of the "ruinous old dovecot," while £84 is added, "for the rent of new dovecot at Skaitraw." In 1732 and 1734 John Sympson continued to rent Skateraw dovecot for £84, and he was still the tenant in 1754, although it is not possible to tell whether the rent was still the same, as it is now given combined with other money rents payable by Sympson. In the New Leases

document of 1769 it is referred to as the "Pigeon house" and is rented by the tenant of "West Skaitraw" for £5 sterling.

Other houses are also mentioned in the Rentals, often associated with a particular holding of land. The house is often the only item of tenancy for which a money rent is paid. No record of the building of houses occurs before 1834, when there is an offer from two builders to build a farmhouse and cot-houses at Skateraw for £116. There is then also a further offer for cot-houses at £14/10/- each. In the same year there is a record of money spent on repairing the roof of the straw barn at Skateraw and the stable at Thornton-loch. During the earlier part of the period, the Rentals mention houses rented by various workers without land, for a money rent only. In 1694, 1700 and 1705/6, James Speirs, "coalzier," pays £6/13/4d. for a cottage in Thornton-loch. In 1700 John Murray, wright, pays the same sum for a house in Thorntonloch. Some tenants of land may have combined farming with another occupation: in 1705/6, William Sympson pays three bolls of bear for an acre of land in Thorntonloch "formerly possessed by the Tennents fishers there." Later on, in a list of arrears of 1774, it is reported that the tenant of Skateraw, who owes the laird money, is himself claiming money from the estate for work done, although the nature of the work is not specified.

There is evidence also for the gathering of seaweed. In 1759 £12/10/- is due "for back rent of Kelp at Skatraw and Dirleton." In 1776 the tenant of Gateside pays rent also for "Kelp rocks." The New Leases document of 1769 states that "the Tenants are to have liberty to lift and carry off the seaware which comes in upon the Shores of this estate for manuring their Farms conform to the use and wont of the Tenants of these Baronys." As mentioned above, the New Leases document also describes the "Link ground" as reserved for the cutting, drying and burning of kelp. In 1777, however, the tenants lost part of this right, for the laird entered upon a contract with Messrs Henry and William Knox and Co. of Dunbar, leasing to them for six years his kelp rocks at Dirleton, Innerwick, Skateraw and Thornton, "with the privilege of cutting, burning and carrying away the kelp as has been formerly practised by the tenants." The tenant of Skateraw was even obliged either to provide Messrs Knox with a house rent-free "for the use of lodging the kelp," or else to pay them £6 to have such a house built. The firm was, however, restricted to cutting the seaweed on the rocks, while the "driven ware," seaweed drifting in loose on the tide, was still reserved for the laird's tenants.

There was a rabbit warren at Thorntonloch, for in 1714/5 David Speirs pays one boll bear for "the Cunningair at Thorntoun Loch." The same rent is being paid for it by a different tenant from 1727 till 1732.

There are separate documents relating to industrial activities such as coal-mining and lime-burning (see report by N. Neil), but some references to the lime-kilns are made in the Rentals. In 1700 and 1706 John Whyt pays a money rent for lime kilns in Thorntonloch. There is then no further mention of lime until the New Leases document of 1769, in which the laird reserves for himself all mineral rights to his lands, and excludes the tenants from "raising, burning or selling of Limestone or Lime from the said lands." The tenants are, however, to have the first option of buying, at the market price, "burnt or shell lime from the proprietors Drawkilns now erecting or to be erected upon these Lands." An increased awareness of the usefulness of lime as a fertilizer was, of course, a feature of the Improvement period. In 1773 limestone quarries on the farm of Gateside are leased by the laird to Robert Dick. In 1776 John Heigh, the tenant of Gateside, pays rent for "limekilns and quarry."

By 1820, when the farm of Gateside appears to have been assimilated to Skateraw or Thorntonloch, the lime-kiln at Skateraw is leased jointly to Henry Lee, tenant of Skateraw, and John Brodie, tenant of Thorntonloch, for £210. These two continue to lease it jointly until 1830, but Lee is seen meanwhile to be getting further and further into arrears with his own rent for Skateraw, and in 1831 and 1832 Brodie alone has the lease of the lime-kiln, still for the same rent. It seems to have remainded in his family for a considerable time, for in 1883 a Mr and Mrs Brodie are granted a new lease of Thorntonloch and of the lime-kiln at Skateraw.

MARJORIE KENWORTHY.

REFERENCES

The documents consulted are all from the collection of Biel Muniments, now in the Scottish Record Office. They are as follows:

Rentals: GD6/1698, 1703, 1706, 1709, 1712, 1717. 1729, 1742, 1743, 1755, 1758, 1762, 1763, 1767, 1769.
Lists of Arrears: GD6/1735, 1754, 1767, 1769.
Articles and conditions of the new leases.... (1769); GD6/1619.
Tack of limestone quarries (1773): GD6/1280b.
Tack of kelp rocks (1777): GD6/1629b.
Notes about Farms on Innerwick: GD6/1671.

APPENDIX II

HISTORICAL DOCUMENTATION OF INDUSTRY AT TORNESS

The intention of this report is to summarise the documentary evidence for industrial activity in the Torness area. The industries concerned are lime-quarrying and burning, coal-mining, salt-panning and fishing. By comparison with the assessment of agriculture in the area, the picture is sketchy, but it would appear that lime-, coal-, and salt-working were closely inter-related until the end of the 17th century.

The earliest document [1] is a tack, dated November 30th 1678, between Sir Peter Wedderburn of Gosefuird, proprietor of the "Coall heughs" and "salt pans," and Sir William Murray of Newtoune and William Nicolsoune for various coal-workings and two salt pans within the lands and baronies of Innerwick and Thornton. This document is the first in a series of eleven, spanning the years 1678-1698, which chart the dereliction of the coal and salt industries in the Torness area. The tack relates that "Sr. Peter Wedderburn his house [leases] coalls, coal heughs, and coal works [. . . .] together with the said Peter his two salt pans lying near to Thornton-Loch with the haill ingynes and instruments of the said coal and two salt pans [. . . .] coall heughers with there bearers, [or bearows?] salters [?] with there dwelling houses." Also leased are "Salt gravells in Thorntoune Loch tounhead" together with water works belonging to the coall work" and all machinery belonging to the coal and salt workings. The rent for Innerwick was 22 bolls 3 firlots 2 pecks of bear (barley) and 30 bolls of oats. For Thorntonloch, the rent was £200 Scots. Presumably, the lease-holders also rented farmland.

At the same time as the tack was drawn up, Murray and Nicolson had an inventory compiled [2], dated December 7th 1678, giving detailed particulars of the machinery of the coal and salt works. The 53-line list, signed by Murray, Nicolson and three witnesses — Gilbert Murray, George Spiers and Alex. Chaplain — gives no indication of the condition of the coal workings but it cannot be assumed that they were in working order or in use, since the remaining documentation, beginning fifteen months later in February 1681, is entirely concerned with their poor condition. A short letter of February 1681 from Sir John Nisbet to Gilbert Murray, his chamberlain, asks that every effort be made to have the coal-working machinery repaired.[3]

A group of three documents from late in the year 1681 elaborates on the condition of the workings and the associated waterworks. Two of these,

dated October 17th and 21st, refer to "Gosefuird's inventory," presumably the third document [4], rather than the earlier inventory. No reason is given for there being two accounts of the condition of the works. The earlier of the two accounts [5], comments that "the works are so ruinous and decayed that, if not repaired in a very short time, they will either totally ruin and decay or fall into such a condition that they cannot easily be recovered without great labour and expense." The writer cites several parts of the workings which are in particularly poor condition. An aquaduct is "fussed together throughout its length;" the short and long "trows," which carry the water from the aquaduct to the water wheel itself, particularly the driving chains, are very decayed. Of the "bukers" on the water wheel, "20 or 30 are in poor condition, 8 or 10 are of no use at all. The equipments belonging to the works, which are in Gosefuird's inventory are embezzeled and wanting." The writer also cites the old "boosing sink," which he considers of importance to the mine's existence, and "the ironwork of the apeltree such as gudges." He advocates that "the broken timber and the trows and other parts belonging to the works be gathered together and swiftly preserved and what is standing of the long trows be repaired" as a first step to re-opening the workings. It is noted that the salt pans near the farm of Thorntonloch are still in use but that "if for any time they are unemployed they will decay in respect of their timber and iron work and in the bucket pits." The writer says that "The colliers — . . . . have left the works deserted but for two watchmen."

The other account [6], is largely confined to the waterworks and itemises 11 pieces of machinery, for example:— "Of 30 watter buckitts Thomas Brown sayed there is 27 of them remaining but in what condition cannot be known for watter, but as Thomas Brown informed, most of them are broken and in ane badd condition."

Between them, the two accounts comment on the condition of most of the workings listed in the less orderly inventory (see note 4).

It is known that in 1682 Sir Peter Wedderburn and his elder son, John, went into debt and signed a contract of wadset with Sir John Nisbet of Dirleton, who thus aquired both the baronies of Innerwick and Thornton. The contract included the disused coal-workings and the salt pans, which were still functioning.

An undated document [7] in the form of a memorandum for Sir John Nisbet, informs him of the tack of 1678 and of its contents, namely that the yearly

lease was "twelve hundereth merks" and that Sir William Murray and Sir William Nicolson "have libertie to give over and renounce the tack at the end of every three years and are obliged [on expiry of the tack] to deliver these works, aquaducts, saltpans and ingeins in the same caire they gott them." But Murray and Nicolson had deserted the coal and salt pans and there was "a plea betwixt Gosford and them concerning the same." The reason for Murray and Nicolson abandoning the workings is not given but is easily seen from later documents — the industry ceased to be profitable.

In 1698 William Nisbet of Dirleton opened a civil action against Peter Wedderburn (deceased) of Gosford [8], claiming £38,104:10:04, £36,800 of which was due on the grounds that Wedderburn had failed to repair the coal and salt works as stipulated in the tack of 1682 (i.e. the contract of wadset) and had failed to pay rent for the workings. Of the rest of the sum claimed, £1000 was demanded as the cost of repair of a tenant's house.

On behalf of his late father, John Wedderburn answered the claims and submitted a claim amounting to £18,372:11:06 from Nisbet.[9] The reasons for refuting Nisbet's claims were that it was the late John Nisbet's own fault that the workings were not left in "as good condition at the end of the tack in Anno 1685 as at his entry in Anno 1682" and that, if Sir John had had complaints about the original condition of the workings, it was his duty to have discussed the matter with the tacksmen, which he had not done. Wedderburn pointed out that "the utmost Dirleton can pretend [is] only Damnage and Interest seeing it is utterly impossible to restore the coall. It can be made appear and clearly proven that altho the tack was sett some years before Dirletoun's bargain with Gosfoord yet the time of Gosfoord's entry the coall was a burden and charge upon the estate being altogether worn out." It was claimed that the late Lord Dirleton had never intended to continue attempts to use the coal-workings after he had seen that Gosford had gone to fruitless expense to repair them.

Wedderburn's claims from Nisbet relate to misappropriation of rents for farm land, the limekilns and anchorages of the herring drese (?), but not to the coal and salt works. The result of the litigation is not documented.

No further mention is made of the coal and salt workings, with the exception of a note of their existence in a derelict condition, in 1713.[10] The *Old Statistical Account* of 1791 notes the presence of coal seams, but not workings, and no mention is made there of salt panning.[11]

Fishing is mentioned only in the *Old Statistical Account* which notes 8 fishermen as compared with 20 farmers in the whole parish and two fishing-boats in use. Lobsters are the principal catch, with some cod, Ling, turbot and haddock. These are sold at Duns and Haddington.

By far the most important industry in the area was limestone quarrying and burning. It is known that in 1688, Thomas Murray, a tenant in Skateraw, bought the two limekilns standing there and also a stock of slates. There is no further mention of lime-working, other than from rentals, until 1770. Considerable details about costs, production and manpower occur around this time. Coal was brought 4 miles from Dunbar at an outlay of £182:07:09½ for 633¼ bolls (364 tons) in 1771.[12] William Hogg, the quarrier of the limestone "had tools and gunpowder furnished to him free by the proprietors." He was paid at the rate of "a penny for each boll of burnt shell lym and a half-penny for each boll of smale lym. Only for about 600 bolls of stones quarried out of the eyes of the kilns, he was paid two pence the boll, having the bar'w [barrow] to wheel away." He received £25.

The three men (Mr Anderson, Christopher Sked and John Gray), who transported the limestone loaded in 3 double-horse carts, were paid 2/- Sterling per cart load (£8 or £8:10/- for a Summers' work). One man (Archibald Lawson) filled the carts and was paid 1/- per day; he received £2:07/- for the work — in other words 47 days' labour.

"The breaker and burner of the lyme [John Kid] had a penny Sterling for each boll of shell lyme burnt and a half penny a boll for the small lyme and had all necessary tools furnished free."

The sale of the lime realized:—

"By 5740 Bolls of Shelle at 10d per Boll	£214:03:04
"By 500 Bolls of Slack'd lime & Ashes at 5d per Boll	£ 10:08:04
	£244:11:08

The outlay was, however £273:15:10.[13]

A tack for the two limestone quarries and the farm of Gateside was drawn up between March 5th and 12th 1773, between William Nisbet, esq. and Robert Dick.[14] The farm is described as follows:— " . . . the farm of Gateside with the houses and pertinents thereof as the same was lately meithed and marched off and as last possessed by Thomas Lee, tenant in Thorntonloch. Bounded upon the north by the seashore, upon the east by the great farm of

Thorntonloch, upon the south, partly by the farm of Thornton Mill and partly by the farm of Crawhill and upon the west by the farm of East Skateraw, all lying in the parish of Innerwick . . . ." The farm lies on both sides of the Postroad. The tack is for a four year period and strict regulations as to use of the land are layed down, namely:—

(1) No wheat, only barley and oats, alternately, to be sown.

(2) The whole farm to be manured with seaweed and dung during currency of the tack.

(3) The whole farm to be ploughed with grass seed with last crop sowing at the rate of 8 lbs. red clover, 8 lbs. white clover, 2 bushels rye-grass per acre.

The rent of the farm is £100 per annum, half to be paid at Candlemas, half at Whitsunday. No measure of acreage is given, but in 1769 this is known to have been "71 acres or thereby." [15] We are told that "the 2 lime-quarries and the drawkiln and coalhouse lately built by . . . William Nisbet at the quarry . . . rent at £200 per annum to be paid at Martinmas and Candlemas," beginning at Martinmas 1773. If less than £200 profit were made, the rent was to be set at £100 instead. The only stipulation made about quarrying is "He shall not win limestone nearer than twenty feet from the foundation of the kiln." Nisbet was liable for any repairs to the kiln.

After the tack expired, James Monilaw and John Sleigh, tenants of Nisbet of Thorntonloch, made an " . . . . offer for the lime rocks at Skateraw and grass grounds of Gateside" and for access to the kilns.

The offer was

"£100 Sterling for the grounds,
"£100 Sterling for the subjects going together." [16]

It is dated January 13th 1777. Sleigh seems to have formed a company for the working of the limekilns for, in a Rental of 1785, "Sligh & Co." pay £290 rent for "Gateside & limeworks." [17] Barely a mention is made of the quarrying and burning of lime in the *Old Statistical Account.*

It is possible that the stone quarries on the seashore are the same ones referred to as William Nisbet of Dirleton's "rocks on the sea shore" in a letter from the trustees of the Turnpike Road in the Eastern district of East Lothian, in which Nisbet is asked for liberty to quarry stones. The trustees also ask for "free stone" from Nisbet's quarry called Toadielaw or Todilaw. The stone is needed for use in building bridges "over the water on the road at

Thorntonloch, Dryburnford, Broxburn and Westbarns," to be begun by the end of September 1779.[18]

This is the total extent of the evidence for industry at Torness. Coal-mining and salt-panning appear to have begun before the middle of the 17th century, in the area, but an exact date cannot be given. Coal working ended in or before 1678 and salt-panning soon afterwards. Lime quarrying and burning began before 1688 and grew into an important local industry. Whether local coal was ever used in the kilns is a matter for speculation. The kilns and quarries appear to have had a long history and to have been of considerable importance in the late 18th century.

Fishing seems to have been continually of minor importance while the collection of seaweed is mentioned as a seasonal occupation in the *Old Statistical Account.* of 1791.

NIGEL R. JARDINE NEIL.

REFERENCES

(all the following are in THE SCOTTISH RECORD OFFICE, GENERAL REGISTER HOUSE, EDINBURGH)

1.	GD6/1251/1	Nov. 30th 1678	Tack of the coals and coalheughs within the baronies of Innerwick and Thornton and 2 salt pans near to Thorntonloch.
2.	GD6/1252	Dec. 7th 1678	Inventory of equipment at the coal and salt works of Innerwick and Thornton.
3.	GD6/1253	Feb. 1681	Letter concerning repair of coalworks.
4.	GD6/1256	1681	Inventory of equipment at saltpans and coal-works of Thornton and of machinery driven by water power there.
5.	GD6/1254	Oct. 17th 1681	Short account of present condition of coal and salt works at Thornton.
6.	GD6/1255	Oct. 21st 1681	An account of the waterwork in the inventory anent to the coalwork in Thornton.
7.	GD6/1251/6		Information for Sir John Nisbet.
8.	GD6/1261/1-2	1698	Claims Nisbet v. Wedderburn re. coal and salt works (2 copies).
9.	GD6/1261/3-4	1698	Answers to above (2 copies).
10.	GD6/1266	Jly 2nd-Dec 24th 1713	Submission and Decreet, Halket v. Nisbet, relating inter alia to coal works.
11.	Harvie, Rev. Mr John	1791	'Parish of Innerwick' in *Statistical Account of Scotland, Edinburgh* 1791 I p121-5.
12.	GD6/1280/c	1771	Note of wages paid to workers at lime quarries and kilns.
13.	GD6/1280/a	1771	Account of burning lime at Skaitraw.
14.	GD6/1280/b	Dec. 27th 1773	Tack of lime quarries and rocks.
15.	GD6/1619/1	1769	Rental for the year 1769.
16.	GD6/1280/d	Jan. 13th 1777	Offer for lime rocks at Skaitraw.
17.	GD6/1758	1785	Rental for the year 1785.
18.	GD6/1281	May 26th 1779	Letter from trustees of Turnpike Road.

APPENDIX III

The following identifications have been furnished by Mr David Caldwell of the National Museum of Antiquities of Scotland, Queen Street, Edinburgh.

1. T5 137 Bronze turner (Scottish twopence) of Charles I, 3rd issue, 1642, 44 and 50
2. T2 120 Turner of Charles I or Charles II
3. 132 Clay pipe stem fragment 'P. WILSON,' 'WAYSIDE CUTTY' Peter Wilson is recorded as a pipe-maker in Leith in the Directories. 1847-1886 at 43 Yardheads, 1887-1902 at 118 Kirkgate
4. 227 Clay pipe with cross-hatching and PW — Peter Wilson as above?
5. 134 3 clay pipe fragments
6. 156 Clay pipe stem marked 'PIPE' (19th-20th century)
7. 116 Blue glass bead (18th-20th century)
8. 117 2 clay pipe fragments
9. 192 Part of the base of a glass wine bottle (L. 18th-E 19th century).

All the above material emanates from the Site A complex.

A GROUP OF POST-MEDIEVAL NOBLE BURIALS AT HADDINGTON

By DAVID H. CALDWELL

As part of the scheme of renovation of St. Mary's Parish Church, Haddington, the Earl of Lauderdale has undertaken the restoration of his family's burial aisle and vault with the intention of turning the former into a small chapel. As a preliminary step in this work it was necessary to have the coffins raised from the vault, and the National Museum of Antiquities being advised of this by Lord Lauderdale, a study and photographic record of these was made.

The burial aisle was adapted in the seventeenth century from the original revestry of the church which opened off the north choir aisle. It contains a fine Renaissance monument of marble with recumbent effigies in alabaster of John Maitland, Lord Thirlestane, Chancellor of Scotland (d. 1595), his wife, their son John, first Earl of Lauderdale and his wife. It was erected by John the first Earl in the early seventeenth century and is currently being restored. It is described more fully in the *Royal Commission of the Ancient and Historical Monuments of Scotland, Inventory of East Lothian.*

Underneath the aisle is the burial vault, entered down a flight of steps from the aisle. Against one side were a series of stone boxes into which coffins were slid lengthwise. Owing to the proximity of the vault to the river Tyne which flows past the church it has been liable to severe flooding for many years past, to such an extent that many of the coffins were floated from their layers and smashed together in the vault, resulting in much damage to them and the burials.

The coffins were raised from the vault by the local undertakers, Mr Wood and Mr Hay, and were laid out on the floor and on trestles in the aisle. This rather cramped arrangement was necessary to keep the coffins away from the gaze of the public and thus meet the requirements of the law. Both the Inspectorate of Ancient Monuments and Lord Lauderdale had general photographs of the coffins in position in their layers which they kindly made available

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to me, and Mr Wood the undertaker, gave me a drawing made by him of the positions of the coffins before removal by him. They were each numbered in chalk so that it was possible to see where each coffin had been in relation to the others before removal. The early lead coffins were grouped at the far end of the layers away from the entrance.

Altogether there were remains of at least seventeen coffins of lead and wood dating from the 17th to the late 19th century, plus a lead box containing a vase for viscera. Most of the fitments and the name plates had come loose, as well as much of the woodwork, and could not always be readily associated with any particular coffin.

The following is a summary account of the coffins and fitments as they were laid out in the aisle in June 1974. The identification of the deceased, where necessary, is based on the account of the Maitland family in *The Scots Peerage*. The dated coffins are described in chronological order followed by the rest and an account of the fitments. All the coffins are "coffin shaped" unless otherwise stated — that is they have flat tops and bottoms, are in outline like an irregular hexagon and have sides which taper gently inwards to the base. Only one of each different type of handle or coronet is described, and measurements are given where possible. The fittings and nameplates described have been retained to be remounted in the renovated burial aisle, but the woodwork and the early lead coffins have now been disposed of.

1. A lead coffin of trapezoidal outline with ridged lid badly damaged; a trapezoidal lead plate, 0.595 and 0.54 by 0.51 m, was fixed over the ridged lid and bears the inscription in relief:

"ISABEL. SEATON.
COVNTESSE.
OF
LAVDER-DAILL.
OB. 2. NOVEMB.
VIX. AN 44. M. 3
D. I."

Isabel Seaton was the wife of John the second Lord Thirlestane, first Earl of Lauderdale. According to the *Scots Peerage* she died on the 2nd March, and her effigy is in the sinister niche of the burial monument beside that of her husband.

2. A large outer coffin of lead, 2.13 m long, 0.55 m high, the lead folded over and braised along the top edges and down the sides, the soldering bolt leaving a neat rippled effect. (pl. III) Braised into the flat lid is a rectangular

brass plate, 0.33 m x 0.217 m, bearing the following inscription in a fine italic script: [1]

"In spe beatæ resurectionis hic conditur
Illustmus et Nobmus Princeps ac Dominus D. Johannes Dux
de Lauderdale Marchio de March Comes de Lauderdale
et Guilford Vicecomes Maitland Dominus de Thirles-
-tane Mussleburgh, Boltoune et Petersham, sæpius ad
Parliamenta et ordinum hujus Regni conventus te-
-nenda Prorex a restauratione Regiæ Majestatis per
viginti annos solus pro Regno Scotiæ, Regum optimo
Carolo secundo a secretis, Præses secreti Consilij prædicto
potentissimo Regi in Regno Angliæ a secretioribus Con-
-silijs et ex Cubicularijs primarijs unus. In Scotia ex quatuor
Senatoribus Collegij Juridici extraordinarijs unus, Castelli
Regij Edinburgeni Constabularius et Gubernator,
Nobilissimi ordinis Garterij Eques.

Natus 21. May MDCXVI Lidingtoni
obijt 24 die Augusti prope fontes de Tunbridge
Anno humanæ salutis MDCLXXXII
Anno Ætatis LXVII."

The coffin was found to have split open along one of its edges and the decision was made to have it opened and the remains it contained re-interred in a more suitable manner. Inside was a plain wooden coffin nailed together, the top surface of which was about 5 cms below the top of the lead coffin. The wooden lid had rotted away and split open, and the whole coffin was full of thick black mud in which still rested considerable remains of an embalmed and shrouded body. The interior of the inner coffin had been sealed with a layer of hard yellowish material, about 0.5 cm thick, which was identified as a mixture of lanolin and (probably) gum ammoniacal by C. McCawley of the National Museum's Research Laboratory. Resting on the floor underneath the mud was a compressed layer of wood shavings, about 2.5 cm thick, which had originally served as padding for the body to stop it moving about in transit.

The mud which had accumulated in the coffin was cleared out, the bones of the body recovered and washed down for re-interment. The body had had all its viscera removed and had been padded out with saw-dust before being wrapped in a fine linen shroud. The only other piece of clothing, as far as could be ascertained, was a small black silk ribbon which tied the hair in place at the back of the skull. The enshrouded figure was then wrapped up in several

layers of coarse linen, probably in strips, heavily impregnated with lanolin, and trussed up cross and lengthwise with linen tapes.

Fragments of these fabrics have been studied by Mrs H. Bennett of the National Museum and she has kindly supplied the following technical details:

inner shroud: fine plain, very even weave linen, 42 threads/cm2

outer layers : coarse, plain weave linen, warp 20 threads/cm, weft 15-16 threads/cm.

tape : linen in 2 widths, 15 mm, 22 mm.

ribbon : black ribbed silk, about 53 mm wide.

Samples of all these have been retained at the Museum.

Associated with this burial was a lead box containing a canopic jar. (pl. I) The box measured 0.55 x 0.55 m and was 0.63 m high. It had the same neat ripple soldered borders as the main coffin and a rectangular brass plate, 0.14 x 0.102 m inscribed:

"In hoc vase conduntur
interanea præter cor . . .
omnia Johannis Duci
Lauderiæ qui obijt 24
die Augusti A. D. 1682"

The box had been badly damaged. It was lined with plaster and still contained its jar in a complete state — a globular wheel-turned red earthenware vase with out-turned rim, 0.41 m high and 0.31 m in diameter at the rim. It was three quarters full of re-deposited material.

According to Dr George Hickes, the Duke's domestic chaplain, the Duke ordered a letter of Charles II, to be encased in lead and hung round his neck when dead and buried. This letter was written after Lauderdale's use of the Highland Host in 1678 to try and bring the Covenanters to accept episcopacy, and it countermanded the use of any further military force and other such drastic steps in the pursuance of his policy. No trace of any such letter was found in the coffin.[2]

3. A wooden outer coffin, 2.02 m long by 0.36 m high, with an inner one of lead. The outer coffin was covered in velvet and divided up into panels, three to a long side, three to the top and one to each end. One row of brass studs surrounded each panel while two rows were fixed round the main outer edges. A sample of the wood of this coffin was identified as oak by Dr A. J. Hayes of the Department of Forestry and Natural Resources in the University of Edinburgh. A brass handle of rectangular outline (type f) was attached to the centre of each side panel. In the head panel was an embossed copper panel of an urn on

a sarcophagus, and in the central top panel was a trapezoid plaque of brass, 0.31 m and 0.25 m wide and 0.397 m in length, with remains of yellow paint inscribed:

"General
The Honble
William Mordaunt Maitland
DIED
16th June 1841
AGED
76 Years"

William Mordaunt Maitland was a son of the seventh Earl of Lauderdale and father of the eleventh.

4. A wooden outer coffin, 2.01 m long by 0.41 m high, the sides being curved in outline rather than angled, and containing an inner lead coffin. The outer coffin was covered in velvet, and the entire lid surrounded by two rows of brass studs. A sample of wood was identified by Dr Hayes as conifer timber, probably Scots pine. The brass trapezoid name plate, 0.355 m and 0.277 m by 0.44 m, is engraved with the Maitland arms [3] and below:

"The Countess of Lauderdale
DIED
September 1856
AGED
94 Years"

Eleanor, daughter and heiress of Anthony Todd, Secretary of the General Post Office, wife of James, the eighth Earl of Lauderdale, died 16th September 1856.

5. A wooden outer coffin, 1.83 m by 0.32 m high with gently curved outline, containing an inner coffin of lead. The top of the wooden coffin was surrounded by two rows of studs and there was a trapezoidal name plate, 0.364 m and 0.290 m wide by 0.438 m lengthwise, engraved with the Maitland arms and:

"THE RIGHT HONOURABLE
JAMES MAITLAND
Ninth Earl
of Lauderdale
BORN
12th February 1781
DIED
22nd August 1860" (pl. III)

6. A wooden outer coffin, 2.11 m long by 0.45 m high, with an inner lead coffin. The outer coffin was divided into three panels on the lid, three on each of the long sides, and one on each of the ends, each surrounded by two rows of studs. The outer edges of the coffin were surrounded by two further rows. In the centre of each side panel was a gilt brass handle with an earl's coronet above (types g and h) and in the two end panels on the lid were two gilt brass coronets (type i). The centrally placed trapezoid name plate, 0.365 m and 0.275 m by 0.44 m, bears the Maitland arms, as matriculated in 1790,[4] and:

"THE RIGHT HONORABLE
ANTHONY
TENTH EARL OF LAUDERDALE
ADMIRAL OF THE RED
G.C.B.
BORN 10TH JUNE 1785
DIED 22ND MARCH 1863" (pl. III)

7. A wooden outer coffin, 2.33 m long by 0.46 m high containing a lead inner coffin. The outer coffin was covered in velvet and the lid was divided into three panels, each surrounded by three rows of studs. The sides were divided into similar panels, three to a long side and one at each end. In the centre of each side panel was a gilt brass handle (type g) and above each handle a gilt coronet (type h). On the head panel was another coronet (type i) and placed centrally a trapezoidal name plate, 0.36 m and 0.285 m wide by 0.435 m in length, painted yellow with black lettering:

"THE RIGHT HONORABLE
Thomas
Earl of Lauderdale
G.C.B.
ADMIRAL OF THE FLEET
Born
3 FEBRUARY 1803
DIED
1 SEPTEMBER 1878" (pl. III)

Thomas was the eleventh Earl of Lauderdale, and according to the *Scots Peerage* died on the first September, 1879.

8. A wooden outer coffin (length not measurable but about 2 m) with an inner coffin of lead. The long sides were divided into three panels and the ends

into one panel each surrounded by three rows of studs (lid missing). Each side panel had a brass handle (type k), and probably coronets of (type j). The associated trapezoid name plate is inscribed:

"THE RIGHT HONORABLE
Charles
12TH EARL OF LAUDERDALE
BORN
29TH SEPTEMBER 1822
DIED
12TH AUGUST 1884"

9. A child's lead coffin with tapering body and head and shoulders, 1.24 m long. The face section is convex and there is a shield panel on the breast for taking a name plate, now missing. It is made in two halves, an upper and a lower, braised all round the sides in a neat rippled style. (pl. I).

10. A lead coffin, badly damaged, of trapezoidal outline and with a ridged lid.

11. Another similar, also badly damaged.

12-16. Five lead coffins, completely flattened and mangled.

17. A wooden outer coffin with a curved outline, 1.90 m long by 1.34 m high, with an inner coffin of lead. The lid has been divided into three panels surrounded by one of studs, with a further two rows round the entire lid. There were remains of a cloth covering. (See also d and l).

(a) A lead cast plate, trapezoidal in shape, 0.66 m and 0.63 m by 0.28 m, inscribed:

"IOANNES METELLANUS LAUDE
RIÆ COMES OBIIT 18 IANUARII
1645 SUB HORAM QUARTAM
MATUTINAM
VIXIT ANNOS 51 MENSES 8.
DIES 10 HORAS FERE 4"

This is John, second Lord Thirlestane, First Earl of Lauderdale, whose effigy in alabaster is incorporated in the monument in the revestry.

(b) A lead cast oblong plate with heart shaped terminals, 0.81 m by 0.103 m, inscribed:

"NATUS.6.AUG : 1633
OBIIT.9.IUNE . 1691" (pl. I)

Possibly for Charles, third Earl of Lauderdale, who according to the *Scots Peerage*

was born c. 1620 and died 9th June 1691. There are two of these plates, one broken, presumably for attaching to either side of a coffin.

(c) A lead cast coat-of-arms of the Maitland family with an earl's coronet, originally with crescent shaped terminals on either side of the shield. It measures (excluding the terminals, now lacking) 0.254 m by 0.445 m. (pl. I).

(d) A rectangular brass plaque with hollowed corners, measuring 0.242 m by 0.312 m engraved:

"LADY CHARLOTTE MAITLAND
DIED
MARCH 13TH 1813
AGED 20"

Lady Charlotte was the daughter of James, the eighth Earl of Lauderdale. This name plate probably belongs to coffin (17).

(e) An embossed brass plaque of a classical sacrophagus surmounted by a flaming urn, with a wreath above. This was applied to the lid of coffin 3 dated 1841. (pl. I).

(f) A rectangular outlined cast brass handle of flattened lozenge section, swelling into four roll mouldings at the centre of its grip, 0.136 m x 0.059 m. Handles of this type were used on coffin 3 dated 1841. (See o). (pl. I).

(g) A heavy gilt brass handle, measuring 0.16 m x 0.091 m. It is three quarters oval in shape with an uninscribed panel held between two leafy scrolls. Two tangs, circular in section, face inwards from both ends to swivel freely in bolt attachments in the coffin side. Handles like this were used on coffins 6 and 7, dated 1863 and 1878. (pl. I).

(h) A deeply moulded earl's coronet of gilt brass, size 0.102 m by 0.122 m. These were placed above the handles on coffins 6 and 7, dated 1863 and 1878.

(i) A similar earl's coronet of gilt brass, larger in size 0.169 m by 0.197 m, attached to the head panel of coffin 7, dated 1878, and probably coffin 6 dated 1863. (pl. II).

(j) A deeply moulded gilt brass earl's coronet, with thistle shaped knop above the central ball, measuring 0.106 m by 0.139 m, associated with coffin 8, dated 1884. (pl. II).

(k) A brass handle with ribbed grip and central ribbed knop. It is held between two "S"-shaped sides which fit into two trefoil-headed quatrefoil attachments screwed on to the coffin, 0.175 m x 0.093 m. These were used on coffin 8, dated 1884 (pl. I).

(l) A semi-circular cast brass handle with an uninscribed shield between two fronds, measuring 0.14 m by 0.061 m. The handle was held in place over an embossed brass plaque of a shield within a wreath, 0.18 m by 0.217 m. Handles of this type possibly belonged to coffin 17. (pl. II).

(m) An embossed brass plaque of two mourners in classical attire seated back to back on either side of an altar with a wreath and "RESURGAM" above. 0.243 m by 0.26 m. (pl. II).

(n) An embossed brass plaque of a flaming torch passed through a wreath, 0.133 m by 0.212 m. (pl. II).

(o) An embossed brass plaque of a classical sarcophagus enclosed in a wreath, 0.218 m by 0.18 m. Plaques of this type seem to be the mountings for handles of type f, used on coffin 3, dated 1841. (pl. II).

This group of burials is interesting in shedding some light on the burial customs of the upper classes in post-medieval Scotland — a much neglected subject. Many burial aisles exist throughout the country, many still in use, but it is to be feared that several may have suffered rather worse than the one at Haddington at the hands of time and the elements. The following brief discussion is intended merely to encourage interest in the subject. Attention is focused on the actual burials and their fittings rather than the sociological background — the funeral ceremonies and customs. Much is to be found in the contemporary literature on the latter subject and it is to be hoped that some of this information may be gathered together soon in a convenient form.

It is not clear from our study if any other bodies apart from that of the Duke of Lauderdale, were embalmed, but it would not be unlikely if this were the case as embalming is known to have been practised up to recent times. In Scotland we have a 14th century reference to embalming in the account of the death of Robert I contained in Barbour's *Bruce*,[5] and other references occur sporadically in later medieval documents. The accounts of the royal treasurer (1566) preserve details of the drugs and "uthiris necessaris preparit for bowaling of the King grace," supplied by Martene Pitcavit, "ypothegar" at the time of the death of Darnley.[6] Various accounts concerning the embalming of the Marquis of Montrose when he was in-intered in 1662 have been published in vol. 1 of *The Book of the Old Edinburgh Club*. This, however, was a rather different matter from usual as the body had already largely decomposed and much of the preparation was concerned with washing down the bones. The heart which had been cut out soon after death, was "Imbalmed with oderiferous pouders and oylls."

POST-MEDIEVAL NOBLE BURIALS

In the *First Statistical Account* there is an account of the opening of the coffin of Lady Kilsyth who is said to have died in Holland about 1717 and to have been sent home to Kilsyth for burial in the family vault. The body "was enclosed first in a lead coffin nicely cemented; that again within a very strong wooden coffin. The space between the two coffins was filled up with a white matter somewhat of the colour and consistency of putty, but of a rich and delicious aromatic flavour." Within the lead coffin was a wood (fir) lining, and the perfectly preserved body of Lady Kilsyth along with her child of a few months of age. The inner coffin had apparently been filled with some sort of liquid preservative.[7]

In Scotland embalming may largely have dropped out of favour towards the end of the 17th century, along with the habit of large expensive funerals amongst the upper classes.[8] On the other hand, it was noted in the recent examination of a cemetery spanning the period of the Industrial Revolution at Ashton-under-Lyne in Lancashire, that a few bodies had been embalmed by injecting formalin into seven key points. It was considered that this was possibly done as a status symbol or because of family tradition.[9] Embalming may have been an advantage in the case of the Duke of Lauderdale and Lady Kilsyth since there was a considerable lapse of time between death and burial and both bodies had to be transported long distances. Embalming would also have been an advantage where the body was to be left lying for a time, as was the case with Charles I.[10]

The use of lead for coffins is very old and widespread. The earliest known use of it in Scotland is in the burial of Robert the Bruce, 1329 at Dunfermline Abbey.[11] Two sheets of lead were wrapped tightly round the body like a shroud, and it was then covered with a cloth of gold and enclosed in a stone lined chamber. Other burials are known from England where lead has been wrapped round a body in a similar way, for example, at Wymondham Abbey,[12] and it is possible that this was a more expensive alternative to the leather shrouds found on other medieval corpses, in Scotland at Dunfermline Abbey [13] and Coldingham Priory.[14]

The child's coffin in the Lauderdale vault, although dating to the 17th century, may bear some relationship to this earlier tradition of coffins or shrouds, tightly hugging the outline of the body. A similar child's coffin in lead, dated 1638, with the addition of handles at head and foot, is in the Chichester vault in the church of St. Nicholas at Carrickfergus, Northern Ireland.[14a]

From the early 17th century lead coffins of the nobility survive which are in the form of long tapering rectangular boxes with ridged lids, usually with coats-of-arms and inscriptions moulded in relief on the lead. Two fine examples

survive in a complete state in the Skelmorlie burial aisle at Largs in Ayrshire. This is the form of many later medieval stone sarcophagi, and also the *common coffins* of Linlithgow and Abercorn are of similar form,[15] suggesting that this shape of coffin was for all classes of people. Prior to the Reformation people of social pretentions were normally buried in stone made or lined tombs in the churches, but the practice of interments within churches was specifically forbidden by the reformed church,[16] and although such burials never completely ceased to take place, many families turned to erecting burial aisles or vaults next to the church, sometimes adapting one of the transepts — or the revestry as at Haddington — for the purpose, the important point being that these were closed off from the church. Typically there was a large monument at ground level with effigies of the founder, his wife and children, and heraldic displays of their relationships with other families. Below was the vault for burials, the coffins being stacked on shelves or on the floor. Because the coffins were left in the open like this it was essential that they should be, and remain, completely air-tight, and it was largely for this reason that lead was used as it is pliable, easily jointed by soldering and is long lasting. The use of lead or tin-plate for coffins continues up to the present day in cases where the corpse is to be lodged in a vault.

The wood of good quality coffins was generally of oak, or sometimes of ash or elm. Although samples of wood were studied from only two of the Lauderdale coffins it seems likely that most of the outer casings were of oak. The coffin of Elizabeth, Dowager Duchess of Hamilton and Brandon and Duchess of Argyll, died, 1790, consisted of the following elements: An inner coffin of elm, "strong, and lined with rich white satten, with a rich white satten sheet and a rich white muslin dress — price £22." The second coffin was of lead and cost £9. The outer coffin was "a strong elm case, with rich crimson Genoa velvet, with brass cherub handles and ducal coronets, and a brass plate with two coats of arms, titles and mottoes burnished gilt etc., price £36." [17] The Lauderdale lead lined coffins no doubt also contain inner boxes of wood like this. Not all of them were covered with velvet on the outside, only coffins 17, 3, 4 and 7.

Fir boards were used for cheaper coffins and it is interesting to read of the minimum requirements for coffins to be deposited in a burial valut in 1833: "In every case the coffins to be made of good fir boards, well seasoned, $\frac{7}{8}$ of an inch thick, the joints to be ploughed, the head and foot to be checked into the sides, the whole ploughing, jointing, and saw carves to be properly filled with white lead, ground in oil, and a piece of tow cloth to be plastered on the saw carves with hot pitch — the whole of the inside to be pitched and covered with strong paper — the lid and bottom to be double checked, the

checks to be filled with putty or lead as above, and properly nailed, so as to make the coffin perfectly air-tight. And in cases that might be deemed infectious or otherwise dangerous, the body to be embalmed in lead or tin plate besides the wooden coffin." [18]

This is regulation no. II, for management of the vault at Udny, Aberdeenshire, the purpose of which was to protect burials from the resurrectionists.

The handles and other applied metal fittings on the 18th and 19th century Lauderdale coffins are all of brass and of good quality if rather uninspired in style. There is a general tendency to conservatism, as noted recently for English examples by other writers.[19] Many other coffin fittings of the period are of various tin alloys or pewter, and some well preserved examples of such similar in design to those at Haddington, can be seen in the Boswell Mausoleum at Auchinleck in Ayrshire. Coffins of poorer quality were supplied with fittings of iron, often made by the local blacksmith.[20] The handles which probably belong to coffin 17, dated 1813, seem a distant reflection in style of the fittings supplied by Chippendale & Rannie in 1772 for Lady Bridget Heathcote's funeral.[21] The outer coffin is described in Chippendale's invoice as "covered with black velvett & finish'd with 2 rows best brass nails & 4 pair of large strong chas'd brass handles gilt." [22] The brass nails or studs were an essential element in the design of 18th and 19th century coffins, and the differing elaboration of their patterns, along with the differing forms of handles and plaques, on the Lauderdale coffins may not just reflect the work of different undertakers but the changing fashions through time.

REFERENCES

1. An inaccurate version of this inscription has been published in *Archaeologia Scotica*, I, 1792, 106.
2. I am grateful to the Rev. G. M. Yould for this information. Hickes' account is recorded among his papers in the Bodleian Library, Oxford (MS Eng. Misc. e. 4 ff 11, 12, and MS Eng. Hist. b. 2, fol. 72). A fuller account of this will be found in an article by Mr Yould. 'Opening the Coffin of the Duke of Lauderdale', in the *Clan Maitland Yearbook*, 5, 1974-5, 1-4.
3. Or, a lion rampant gules couped in all points of the first within a double tressure, flory counterflory azure. Crest: a lion sejant full faced gules crowned or, holding in his dexter paw a sword proper hilted and pommelled or, and in the sinister a fleur-de-lys azure. Supporters: two eagles proper. Motto: Consilio et animis.
4. As in note (3) except that behind the supporters were placed the Royal Standards of Scotland.
5. Buke XX, lines 293-4 "And he debowaillyt wes clenily
   And bamyt syne rychly."
6. *Accounts of the Lord High Treasurer of Scotland*, (Edinburgh, 1972) 12 p. 41.
7. *The Statistical Account of Scotland*, edit. by J. Sinclair, (Edinburgh, 1796) 18 p. 299 ff.
8. See R. Marshall, *The Days of Duchess Anne*, (London, 1973) p. 123. But the total expense for the funeral of Elizabeth, Dowager Duchess of Hamilton & Brandon, Duchess of Argyll, 1790, was £1,284. (National Library of Scotland MS 2208/44). I am grateful to Mr C. J. Burnett for this reference.
9. E. J. Duff & J. S. Johnson in *British Medical Journal*, 1974, pp. 563-7.

10. H. Halford, *An Account of what appeared on Opening the Coffin of King Charles the First*, (London, 1813) p. 13.
11. *Archaeologia Scotica*, 2, 1822, p. 437 ff. pl. XIV.
12. *Archaeologia*, 26, 1836, pp. 293-5.
13. Now in the National Museum of Antiquities of Scotland.
14. *History of the Berwickshire Naturalists' Club*, 39, 1972, p. 101, and information supplied by Mrs H. Bennett of the National Museum.

14a. *Journal of the Irish Memorials Association*, 11, 1921-5, illus. opposite p. 119.

15. *Proceedings of Society of Antiquaries of Scotland*, 24, 1889-90, p. 389, fig. 1-3. Of course, many poorer people were buried without coffins at all, and these are biers, rather than actual coffins: For a further account of poorer burials, see especially A. Edgar, *Old Church Life in Scotland*, second series, 1886, p. 244 ff.
16. In John Knox's *Book of Discipline* (W. C. Dickinson, ed., *John Knox's History of The Reformation in Scotland*), second ed., (Edinburgh, 1949), 2, p. 320
17. National Library of Scotland, MS 2208/44.
18. *Proceedings of Society of Antiquaries of Scotland*, 46, 1911-12, p. 324.
19. C. Gilbert, in *Furniture History*, 9, 1973, p. 115; N. P. Thompson & H. Ross, *Wiltshire Archaeological & Natural History Magazine*, 68, 1973, p. 76.
20. e.g. A receipt for iron work on a coffin by Thomas Caddel, smith, Doune. Argaty Estate Papers, Scottish Record Office, GD 275, bundle 101.
21. *Furniture History*, 9, 1973, pl. 38 B.
22. *Ibid.*, p. 114.

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GRAIN PRODUCTION IN EAST LOTHIAN IN THE SEVENTEENTH CENTURY

By IAN D. WHYTE

INTRODUCTION

The lowlands of East Lothian have long been recognised as one of the most fertile regions of Scotland. Due to their rich soils and equable climate, grain production has been important here for many centuries. During the Agricultural Revolution in the eighteenth and nineteenth centuries, East Lothian was a major centre of innovation where progressive landowners improved their estates by introducing new techniques and more efficient organisation. By the nineteenth century the agricultural practices of the county were regarded as the most advanced in Europe.[1]

However, this was far from being the whole story. It has generally been assumed that the seventeenth century was a period of stagnation or even decline in agriculture throughout Scotland. This view has only recently been challenged.[2] There is now a good deal of evidence available, from private estate papers and other sources, to indicate that considerable development took place in the agrarian economy of Lowland Scotland at this time. Recent work has shown that many of the foundations of the Agricultural Revolution were laid in this period.[3] The purpose of this paper is to examine the changes which took place during the seventeenth century in the agriculture of one of the best-favoured areas of Scotland, with particular reference to the production of grain, its main commercial product.

During the seventeenth century, in East Lothian as in the rest of Scotland, almost all the arable land was organised within an infield-outfield system. Traditionally this has been considered as a means of low-yield subsistence cropping.[4] The infields were situated on the most fertile lands and were thought to have been cultivated with a continuous rotation of bere (four-row barley)/oats/oats,

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without any fallowing and with animal manure as the chief fertilizer. Areas of the more extensive outfields were manured by the folding of livestock for one summer and were then sown with oats for a succession of years until the land was exhausted, and yields had fallen to a point beyond which it was not worthwhile to continue cultivation. The land was then left to recover naturally. The yields produced by this system were generally thought to have been low and to have only provided a bare subsistence for the cultivators in most years.

Such primitive practices still survived in many parts of Scotland in the seventeenth century [5] and they probably occurred in East Lothian on the higher ground fringing the Lammermuirs. However, it should not be assumed that an infield-outfield system was necessarily uniformly inefficient or inflexible. Throughout the lowlands of the county the system described above had given way to more advanced methods of cultivation by the end of the century.

Where environmental conditions were favourable, seventeenth-century farmers had two principal means available for increasing crop yields within an infield-outfield system. They could use new fertilizers to supplement animal manure, or they could devise improved rotations which took less out of the soil. Ideally, they would combine both of these methods for greatest effect.

NEW FERTILIZERS

One of the most important innovations in arable farming during the seventeenth century was the use of new fertilizers. Prior to this, with animal manure, the success of the system had depended largely upon the maintenance of a precarious balance between the number of livestock kept and the amount of fodder which could be produced to support them over the winter. This imposed severe constraints upon the flexibility of arable farming, and it was not until the adoption of other fertilizers that it was possible to break this vicious circle.

One such fertilizer was seaweed. Lord Belhaven, in his celebrated treatise upon agricultural improvement, implied that seaweed was in general use in the coastal districts of the county by the later seventeenth century.[6] As elsewhere in Scotland, there appears to have been a close association between the use of seaweed as a fertilizer, a concentration upon the production of bere, and the cultivation of sandy soils.[7] Modern research has shown that one of the main nutrients provided by seaweed is potassium. Sandy soils, to which bere is particularly suited, are especially deficient in this mineral and it has been shown that barley sown in such situations benefits greatly from its addition.[8] This connexion appears to have been appreciated, though not understood, by seventeenth-century farmers in East Lothian. It gave rise to distinctive rotations

concentrating on bere in coastal areas where seaweed was available. At Gullane, rentals imply a rotation of bere/bere/oats/oats [9] and there is evidence to suggest that one of bere/bere/oats was in operation at North Berwick.[10]

Another fertilizer which became increasingly appreciated during the seventeenth century was town refuse. Belhaven again implied that it was a common practice to carry nightsoil, ashes, stable litter and other waste products out to lands within about three miles of a burgh.[11] Town refuse was probably used in this way around the larger East Lothian burghs such as Haddington, North Berwick and Dunbar.

However, the fertilizer which made the greatest impact upon the agriculture of the county in the seventeenth century was lime. The origins of liming in Scotland are obscure, but it does not appear to have been widespread before the opening years of the century.[12] However, there is a considerable body of evidence pointing to a great expansion of liming in parts of Lowland Scotland in the 1610s and 1620s.[13] This expansion took place in those areas which had ready access to Carboniferous limestones. In East Lothian these strata outcrops occurred in the west of the county from Aberlady to Humbie and in the east between Dunbar and Thornton. There were also small but important outcrops at North Berwick, Tyninghame, and at Kidlaw, south west of Gifford.

There is ample evidence that many farms which had immediate access to limestone were burning it and using lime for agricultural purposes in the earlier part of the century. The difficulty of transporting by land the large quantities of lime which were required, restricted the area which could benefit from its use. However, the value of lime was such that it was transported up to four or five miles from its source.[14] When the area which could have been supplied in this way is examined, it is clear that the greater part of the more fertile districts of East Lothian were sufficiently close to outcrops of limestone to have benefited. The only part of the county which was probably too distant was a narrow belt of country stretching from Athelstaneford to Garvald. This is not to say, however, that every farm within these areas actually had the use of lime. This would have depended upon the relations between their proprietors and the owners of the lands on which the limestone occurred.

The effects of liming were twofold. Firstly, it allowed the intensification of cropping on the existing arable area, as well as improving crop yields generally.[15] Secondly, it allowed the extension of cultivation on to soils whose acidity probably presented too great an obstacle to traditional techniques. Liming appears to have increased crop production on both infields and outfields, depending upon the practice of particular estates. Belhaven did not recommend the liming of infields,[16] but this was done elsewhere, particularly in preparation for

peas.[17] This was highly significant; peas were an uncertain crop in a short, wet summer,[18] but they benfited greatly from a lime-enriched soil.[19] Their improvement by liming would have caused an increase in soil fertility through the nitrogen-fixing properties of the symbiotic bacteria in the root nodules of the legumes. This would have improved the yields of succeeding crops, particularly the one immediately following, which was generally wheat or bere. On outfields, liming increased the number of crops of oats which could be taken before yields began to fall off. The effect of this was to increase the area of the outfield which was under crop in any year by up to 25%.[20]

The role of liming in expanding the arable area was also important. It appears to have made a great impact in Midlothian, allowing the extension of cultivation on to the high rolling plateaus which lie below the escarpment of the Moorfoot Hills.[21] This type of country does not occur as widely in East Lothian, but it is likely that there was some expansion of the arable area by means of liming in a belt of country along the edge of the Lammermuirs, particularly in Humbie parish. Parry has shown that there was a widespread retreat of the margin of cultivation in the higher parts of the Lammermuirs at this time due to deteriorating long-term climatic conditions.[22] However, this may have been balanced by an expansion of agriculture on poorly-drained acid soils at lower levels by the techniques described above.

The effects of liming on the rents of the farms involved varied from the substantial to the spectacular. A series of parish reports produced in 1627, a few years after the introduction of liming in the western part of the county, provides some striking details. Rents of coastal farms such as Longniddry and Seton had risen by about 50%.[23] In Ormiston parish, the increases were between 100% and 150%[24]. Along the foot of the Lammermuirs, the changes were most spectacular of all with rises of up to 420%[25]. The differences between coastal and upland farms may be attributed to the ways in which liming was used. In fertile lowland areas, its main effect would have been to raise yields, for most of the land would already have been under cultivation. Increases in rents in such areas would have been relatively modest. In high-lying districts however, liming would have allowed the more frequent cropping of extensive outfields and the intake of new land on farms which previously would have been mainly pastoral. The proportional rise of rent in such areas would therefore have been much greater.

CROP ROTATIONS

The old infield rotation of bere/oats/oats received much criticism from later writers. The taking of two successive crops of oats was seen as a particu-

larly pernicious practice which exhausted the soil and kept yields at a low level.[26] There were two means by which the East Lothian farmer of this period could avoid this. One was to introduce a fallow course into the rotation, preferably between crops of oats or in place of one of them. The other was to sow a legume course instead of fallowing. The former solution does not appear to have been popular; bare fallowing on the infield was probably considered a waste of potentially productive ground. While rotations of bere/oats/fallow are known to have been used in Fife,[27] no example has come to light from East Lothian. The alternative of replacing a crop of oats by a legume course was more popular. The moderate rainfall and high sunshine hours of the East Lothian climate suited the cultivation of beans and peas, and a rotation of bere/oats/legumes (beans, peas or a mixture of the two) was standard throughout those parts of the county where wheat was not grown.[28]

Wheat was primarily a commercial crop which had no place in the diet of the ordinary tenant farmer.[29] As a result, it could not replace oats or bere in the rotation but had to be added to them. This gave rise to a four-course rotation of legumes/wheat/bere/oats. This rotation was standard in the wheat-growing areas of the county.[30] It appears to have been well balanced. Where lime was available, it was usual to apply it in preparation for the legume course.[31] This would have improved the fertility of the succeeding crop as discussed above. It is probably no coincidence that wheat, the most valuable commercial crop, followed legumes in every example of this rotation known from East Lothian. Thus, every effort was made to maximise the yield of wheat, the crop on which the greatest profit could be made. This rotation has all the characteristics of one geared towards commercial production and not subsistence.

CROP YIELDS

The effects of these new fertilisers and rotations on crop yields, the end-product of all arable farming activities, must now be considered. It has frequently been suggested that under the pre-Improvement system of agriculture in Scotland, break-even yields of three to one, or little more, were standard. With rents being commonly fixed at about a third of the average product of a holding, such a yield left a third for rent, a third to maintain the tenant's family, and a third for seed. However, such low yields have generally been associated with traditional infield rotations of bere/oats/oats with animal manure as the main fertilizer, or with outfields which were only manured by occasional folding. One would expect something better from the systems of farming which have been described above.

GRAIN PRODUCTION IN SEVENTEENTH CENTURY

Very little information is available regarding yields in East Lothian at this time. Seaweed is elsewhere claimed to have produced yields of up to 16 to 1 when regularly applied for bere on light soils.[32] There are indications that town refuse may have given yields of around 12 to 1.[33] The evidence which is available for East Lothian suggests that yields of 9 to 1 or more were quite common on infields in many parts of the county under the improved systems described above.[34] The most detailed example of the yields which could be obtained from a combination of a four-course rotation, including wheat and legumes, with liming, comes from outside the county. However, the details are probably comparable with East Lothian. On the Dundas estates at South Queensferry, between 1655 and 1662, the average yield for infield oats was 8.7 to 1, for outfield oats 8.4 to 1, and for bere 12 to 1.[35] The lower yield of 5.3 to 1 for wheat may have been due to the fact that, in this instance, the legume course was followed by bere, not wheat. Caution is necessary when applying such evidence in a wider context, but the examples quoted above suggest that under the new systems of farming which developed in East Lothian during the seventeenth century, average yields were far from being at a bare subsistence level.

This tends to undermine the traditional concept of the infield-outfield system as an inefficient means of low-yield cropping. When the sowing of legumes, liming, and the cultivation of a valuable commercial crop like wheat were combined, a balanced and effective rotation was produced. Such a rotation was not as developed as the later Norfolk system. However, it lay closer to it than to a rotation of bere/oats/oats with animal manure as the main fertilizer.

MARKETING

The increasingly large quantities of grain which would have been produced in East Lothian from the early 1620s onwards by the techniques described above required outlets for their sale. East Lothian was well served by licensed market centres at the opening of the seventeenth century compared with other areas of Scotland. There were ten burghs in the county where commodities like grain could be bought and sold.[36] However, the increasing commercialisation of the rural economy which is implied by the development in grain production appears to have created a demand for a more closely spaced network of market centres. Between 1600 and 1650, three new burghs of barony were created, at Dirleton, Drem and Innerwick.[37] However, the expansion accelerated after the Restoration with the authorisation by Parliament of nine new centres for markets and fairs which were not accorded burghal status. New markets like Painstoun and Saltpans,[38] in the western part of the county, probably reflected developments in the coal and salt industries rather than in agriculture. The others, however,

were scattered fairly evenly throughout the lowland areas of East Lothian. Places like Stenton, Athelstaneford and Oldhamstocks,[39] which had probably been nucleated settlements for centuries, were at last granted the official status of market centres.

The growth of these centres may have been a product of the demand for more marketing outlets, but it also influenced the rural economy itself. The increase in the number of market centres encouraged proprietors to begin commuting some of their rents in kind into money as, with the denser network of rural trading centres, it was now easier for tenants to market their produce themselves and pay the proprietor a money rent in place of grain.[40]

However, the burghs of East Lothian provided in themselves only a limited market for grain. The nearest and most easily accessible large consumer was Edinburgh. It is notoriously difficult to estimate trends in the population of Scottish towns at this period, but there are some indications that the population of Edinburgh was increasing in the later seventeenth century.[41] It is also clear that manufacturing and commercial activity were expanding. The city's brewing industry, for instance, was described as the greatest consumer of bere in the country in 1682.[42]

All this resulted in an increasing flow of grain into the city from East Lothian. Estates in the western parts of the county sent their grain to Edinburgh overland, using the carriage services of their tenants.[43] Most of this traffic occurred between Christmas and Candlemas (February 2nd), and due to the poor state of the roads at this season, pack horses rather than carts were used.[44] Areas which were further than about twelve or fourteen miles from the city — the greater part of the county — shipped their grain to Leith. This coastal traffic was in existence in the earlier part of the century, for the Baillie of Lochend estates at Dunbar were shipping consignments of grain to Edinburgh in the 1640s.[45] However, there is not enough known about this period to allow an assessment of the effects of the great increases in production which must have resulted from the widespread adoption of liming earlier in the century.

The growing demand of the Edinburgh market in the years following the Restoration is suggested by the pattern of trade on the Dirleton estates. A series of contracts between the proprietor, Sir John Nisbet, and various merchants, for the sale of the estate's grain is available from the 1660s onwards.[46] During the 1660s and 1670s, most of the grain was sold in fairly small consignments of up to about 300 bolls (about 15 tons) to local merchants in places such as Tranent, Haddington and Prestonpans. After about 1680, however, the pattern changed towards the sale of larger consignments of grain of up to about 2,000

bolls (about 100 tons) to merchants in Leith and Edinburgh. This change coincided with the increasing involvement of other east-coast estates in Angus and the North-East with Edinburgh merchants.[47] It indicates a considerably increased flow of grain into the city, not merely for local consumption, but also for export abroad.

East Lothian exported some of her grain direct. The principal foreign markets were Scandinavia, the Low Countries, France, and, to some extent, England.[48] The port books indicate that relatively small quantities of grain were exported in the late seventeenth century compared with other customs precincts. In 1685, a bumper year for grain exports, the East Lothian precinct came only sixth in the list of exporters.[49] The East Lothian precinct was not as large as some, but considering the fertility of the area and its concentration on commercial production, this position is a surprisingly low one. It suggests that a large proportion of the county's grain was sent abroad via Leith, the leading exporter.

CONCLUSION

To summarise, it can be seen that grain production in East Lothian developed significantly during the seventeenth century. The use of new fertilizers, particularly lime, allowed both an intensification and an expansion of arable farming over large areas of the county. This was combined with the widespread use of a balanced and effective commercial four-course rotation. These systems led to a general improvement in crop yields. The increased production of grain and the growing commercialisation of agriculture raised rents and led to a demand for a denser network of market centres. Rents in turn began to be commuted due to the improved access to rural trading centres. The growing Edinburgh market was a major outlet for the county's surplus grain, particularly after the Restoration. The time lag between the development of liming in the 1620s and the surge forward in commercial farming which appears to have taken place after 1600 may well have been due in part to the disruptive effects of the Civil Wars and the Cromwellian Occupation, which are known to have delayed other developments in the Scottish economy.[50]

From this, it is clear that the lead in agricultural innovation which East Lothian possessed during the eighteenth and nineteenth centuries had not arisen overnight. Developments in the agrarian economy were comparatively modest in the seventeenth century but were no less significant. This period saw the gradual rise of the first real commercial agriculture in Scotland, and East Lothian, due to its physical advantages, the nearness of the Edinburgh market, and the enterprise of the proprietors of its many small estates, was even then setting the pace of agrarian change.

REFERENCES

1. J. D. Chambers & G. E. Mingay *The Agricultural Revolution* (London, 1966) p. 184.
2. I. D. Whyte *Agrarian Change in Lowland Scotland in the Seventeenth Century.* Unpublished Ph.D. thesis, University of Edinburgh (1974).
3. Whyte, *Agrarian Change* passim.
4. The traditional view of the ways in which infield-outfield systems operated is well described in J. E. Handley's *Scottish Farming in the Eighteenth Century* (1953) p. 37 ff.
5. Whyte, *Agrarian Change* p. 151.
6. John Hamilton, 2nd Baron Belhaven. *The Countrey Man's Rudiments, or an Advice to the Farmers of East Lothian How to Improve Their Ground.* (Edinburgh 1699) p. 34.
7. Whyte, *Agrarian Change* p. 120.
8. A. H. Smith, *Manures and Fertilizers.* (London 1952) pp. 77-78, 177-178.
9. Scottish Record Office (henceforth S.R.O.) Biel Muniments GD 6 1689 (1676).
10. S.R.O. Dalrymple Muniments GD 110 674 (1652).
11. Belhaven, *Rudiments* p. 5.
12. Whyte, *Agrarian Change* p. 130.
13. Whyte, *Agrarian Change* p. 131.
14. *Report on the State of Certain Parishes in Scotland.* (1627). Maitland Club (1835) p. 125.
15. Whyte, *Agrarian Change* pp. 134-5.
16. Belhaven, *Rudiments* p. 17.
17. Eg. S.R.O. Shairp Muniments GD 30 612 (1655).
    S.R.O. Leven Muniments GD 26 5 6 (1626).
18. G. Robertson, *A General View of Kincardineshire* (Edinburgh 1810) p. 272.
19. Smith, *Manures* p. 94.
20. Whyte, *Agrarian Change* p. 137.
21. Whyte, *Agrarian Change* pp. 187-8.
22. M. L. Parry, *Changes in the Upper Limit of Cultivation in South East Scotland* 1600-1900. Unpublished Ph.D. thesis, University of Edinburgh (1973) pp. 207-211.
23. 1627 *Reports* p. 135.
24. 1627 *Reports* p. 125.
25. 1627 *Reports* p. 107.
26. Eg. D. Souter, *General View of the Agriculture of the County of Banff* (Edinburgh 1812) p. 167.
27. Eg. S.R.O. Leven Muniments GD 26 2 1 (1626).
    National Library of Scotland Manuscripts, Minto Charters CB 144 (1658).
28. Belhaven, *Rudiments* p. 5.
29. Whyte, *Agrarian Change* p. 146.
30. Belhaven, *Rudiments* p. 5.
31. A. Fenton, Skene of Hallyards Manuscript of Husbandrie. *Agricultural History Review* XI p. 67.
32. Sir George Mackenzie. *Some Observations Made in Scotland* (1675) in *Macfarlane's Geographical Collections* Ed. A. Mitchell 3 vols. (Edinburgh 1908) 3, p. 21.
33. Whyte, *Agrarian Change* p. 125.
34. Whyte, *Agrarian Change* p. 149.
35. Whyte, *Agrarian Change* pp. 165-6.
36. G. S. Pryde, *The Burghs of Scotland; A Critical List.* (Glasgow 1965) passim.
37. Pryde, *Burghs* pp. 298, 321, 323.
38. *The Acts of the Parliaments of Scotland* (A.P.S.) Ed. T. Thomson & C. Innes. 12 vols., (Edinburgh 1814-75), V p. 107; Pryde, *Burghs* p. 66.
39. A.P.S. IX p. 217, VII p. 664.
40. Whyte, *Agrarian Change* pp. 368-9.
41. T. C. Smout, *Scottish Trade on the Eve of the Union* 1660-1707 (Edinburgh 1963) p. 147.
42. *Register of the Privy Council of Scotland* third series VII (1682) p. 484.
43. Eg. S.R.O. Biel Muniments GD 6 1681 (1662).
44. Whyte, *Agrarian Change* pp. 343-4.
45. S.R.O. Stair Muniments GD 135 105 1-7 (1640-47).
46. S.R.O. Biel Muniments GD 6 1504, 1542.
47. Whyte, *Agrarian Change* p. 398.
48. S.R.O. Exchequer Records, second series E 72 21.
49. Whyte, *Agrarian Change* p. 402.
50. Whyte, *Agrarian Change* pp. 391, 398.

SALTOUN BLEACHFIELD 1746-1773

By ALASTAIR J. DURIE

"Till the Company got their field at Saltoun fitted up, there was no field in Scotland fit for their purpose, and, without it they never could have carried on their Trade to any valuable extent. Neither will the expence of it be complained of, with justice, when it is considered, That by its being brought to very great perfection, the Company are now enabled without Loss to reduce the price of whitening their Linens there at an average from 4d which it formerly cost them to 2d per yard, and at the same time to bring their cloths to a much better colour than any such fields in the kingdom do".

Memorial offered for the Consideration of the Directors of the British Linen Company by George Drummond and Patrick Lindsay. (Court of Directors' Minute Book, 5th July, 1762).

For twenty-five years, between 1748 and 1772, a linen bleachfield owned by the British Linen Company was in commercial operation at Saltoun in East Lothian. Some of the Journals and Ledgers of 'Salton (sic) Bleachfield' [1] have been preserved in the archives of the Bank of Scotland, which absorbed the British Linen Bank in 1971, and these present a unique opportunity to look in detail at the running of this bleachfield which played an important part in the growth of the linen-bleaching industry in Scotland. This article will outline the work of the field, the bleaching processes used there, how the labour force was organised and paid, what materials were used and costs incurred, and conclude with some suggestions as to why the field failed to survive the early 1770's.

But firstly, why did the Directors of the British Linen Company chartered in 1746 find it a "sheer necessity" [2] to add so soon the ownership of a bleachfield to their already extensive activities in the Scottish linen industry, and further to burden their hard-worked Managers, William Tod and Ebenezer McCulloch? The answer seems to have been that the Company quickly found that the backward state of bleaching in Scotland prevented it from fulfilling a basic objective, viz. to expand the sale of Scottish bleached linens in the key markets at Glasgow and London against competition from Irish and German linens. Linen

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sent to bleachfields in Scotland was often bleached poorly and at high price and returned late.

Prior to the establishment of Saltoun bleachfield, between 1745 and 1747 the Company either sent its linens to several Scottish bleachers, Andrew Wight of Ormiston, William Neilson of Roslin, Andrew Dickson at Haddington, or, when the linens were intended for the London market, they were sent *brown* (unbleached) to the Company's factor at London, to be bleached there. The latter policy was rare after 1746, and at all times if the linens were intended for the home market, transport costs precluded their being sent out of Scotland for bleaching. Only in one year, 1752, when, ironically, the Company's own Scottish field was in full operation, did the Company have recourse to the practice once common to Scottish manufacturers of finer linen in the 1730's,[3] that of sending some linen to Haarlem for bleaching. The reason for the Company's action was that because of the general increase in the manufacture of fine linen in Scotland, the Managers were unable to get all the Company's fine linens ('Hollands') bleached in Scotland. They were not pleased with the cost, — "the bleacher charged too much".[4]

It was not easy to secure the services of a competent field as the better, like Gray's Green or Roslin, generally had more than enough work. In February 1748 Andrew Gray of Gray's Green did not even bother to reply to an enquiry from the Managers as to what price he would bleach some fine linens for the Company because, presumably, he already had enough linen for his first 'field'.[5] Delays in securing a field meant that the linens were slow to the markets, to their disadvantage, "the first cargo of Irish linen arrives in London the first week of June — ours don't get there till late in the year when linen is at the cheap and buyers are nice from being stocked with Irish and Dutch linens".[6] Another disadvantage was that if there should be a sudden demand during the bleaching season for a particular kind of bleached cloth, the bleachers could not be ordered to give it priority through the bleach.

Cloth bleached for the Company between 1745 and 1747 suffered from both bad colour and actual damage. The Bleacher at Kelso, who had been sent some 'lawns' (a very fine linen of the Cambric fabric) to do, was told sharply that "the colours are so extremely bad, they are returned to bring them to a right colour and if otherwise, you'll excuse us if we redress ourselves as we ought".[7] Andrew Wight at Ormiston damaged some coarse linens so badly that the dispute went to arbitration and the linens for shirts to America.

The prime motivation, however, behind the Company setting up its own field was the failure to secure bleaching in Scotland at prices which would

allow their linens to challenge the foreign. An attempt in 1747 by the Company to get their coarse linens bleached cheaply miscarried badly when the bleacher, Alexander Christie at Perth, who had contracted to do 13,000 yds. at 1-2d per yard, went bankrupt, and the cloth was only recovered with some difficulty from his creditors. At most fields, in line with standard commercial practice, because of the quantities it sent the Company was entitled to a 10% discount from the bleaching prices normally charged, but the costs were still too high given the competition particularly in the London market. The factor there insisted that the price must be reduced and the quality of the finish improved.

The decision to build their own bleachfield in order to reduce bleaching costs seems to have been taken by the Directors in the autumn of 1746: this decision was approved by the Proprietors in 1747.[8]

"Soon after the Company commenced they found it impossible to carry on their trade in competition with foreigners, or with the Irish, on account of the high price paid for bleaching . . . they therefore found it necessary to have a field laid out and proper buildings erected on it . . . at Salton".[9] The question was apparently never raised of buying an existing field rather than building a new one.

The construction of the bleachfield was the particular concern of Lord Milton, Deputy-Governor of the Company. Milton, as a member of the Board of Trustees, had long been interested in raising the standard of bleaching in Scotland and had given considerable assistance to Salton Barley-Mill bleachfield which lay on his estate at Salton (or Saltoun) in East Lothian. The Company had had some linens done satisfactorily at that field [10] which many have assisted the Managers — not that there appears to have been any debate — to accept Milton's invitation to site their field also on his estate. Moreover, he lent the Company the capital necessary to set up the field and purchase the necessary machinery, waiving the interest on the money advanced, and also the rent which had been fixed at 20s per acre until such time as the field became profitable. Repayment of the loan and payment of the rent (fixed at £200 p.a.) started only in 1750.

Work actually began on the field in late 1746, levelling and making of a dam head. Local men were used for the slate and masonry work to the dwelling house, milns and bucking house (Buke house). The layout of the field [11] seems to have owed much to John Aitken and the famed brothers Meikle [12] who were paid to make a trip to Perth in July 1747 to view the field there. Robert Meikle did most of the work on the machinery constructed (e.g. the rubbing boards), and by 1748 over £1500 had been expended on the construction and materials.

The field came into operation that season but additions and alterations continued: by December 1750 Milton had spent over £2120 (to be repaid to him by the Company without interest) and the Board of Trustees eventually contributed a grant of £200 towards the setting-up costs. The Trustees also met the cost (£509) of constructing at Saltoun in 1751 what was to become standard equipment for every major field in Scotland — a drying house, a roofed shed with louvred sides to keep the rain out but allow air to circulate round the cloth to dry it.[13] This was invented by a near neighbour, John Christy of Ormiston, a skilled and respected Irish Quaker bleacher, who received as a reward £200 from the Trustees in 1751. Saltoun, because of its proximity to Ormiston, and contact with the Trustees, was one of the first fields to copy his design.

The field cost about £30 p.a. to keep in repair till 1762. It was reshaped and slightly enlarged during this period; the old low and first drying fields, 3.8 and 1.76 acres in size respectively, were abandoned in 1758 in favour of a new drying field (5.76 acres) connecting the drying house and the windmill field (2.9 acres) with the main bleaching field (13.93 acres) containing the pond, upper and lower mills, and overseer's house. This made the field a total of 22.6 acres in size, which, while not as big as Luncarty, was probably well above the average size.

Receipts from bleaching done at the field — almost all for the Company — for the period are set out in Table 1.

TABLE 1: BLEACHING AT SALTOUN 1748 - 1772

Bleaching Season	Pfs. done Pieces	Yards Bleached	Value of Bleaching	Bleaching Season	Pfs. done	Yards Bleached	Value
			£				£
1748	2,909	*	940	1760	11,108	298,665	1,615
1749	*	*	*	1761	8,402	215,080	1,352
1750	4,791	118,493½	1,514	1762	7,201	179,164	1,896
1751	4,108	*	1,865	1763	*	*	1,200
1752	*	*	1,681	1764	*	*	*
1753	4,379	*	2,008	1765	*	1,058	1,540
1754	6,347	*	1,343	1766	*	*	*
1755	3,189	*	800	1767	*	*	*
1756	4,071	*	940	1768	*	*	1,044
1757	5,690	90,022	1,136	1769	*	*	867
1758	7,661	114,338	1,167	1770	*	*	1,037
1759	8,208	183,052	1,274	1771	*	*	847
				1772	*	*	484

* Not known.

As the 'piece' of linen had no fixed length, although bleachers usually insisted on it being under 40 yards in length for convenience, it is impossible to calculate the yardage of cloth bleached each season at the field, and in the

surviving records it is specifically noted for only a few years. It is clear that the volume of bleaching increased steadily in the 1750's, especially when allowance is also made for the numbers of diaper table-cloths finished at the field, over 26,000 in 1757 and 1758, thereafter rather less. In 1764 the master of the bleachfield estimated that he could finish from 10 to 12,000 pieces of cloth in the season, which meant that as the Company had provided about 7,000 pieces already, he would need at least "60 to 80,000 yards" [14] more. This would seem to imply a desired annual capacity of about 200-240,000 yards. The rise in volume of bleaching reflected the increasing orientation of the field to the bleaching of coarse linen, whereas in the early years the field had bleached both coarse and fine linens in the Irish and Dutch styles at prices ranging from 1-5d per yd. This change was in response to the shift in the Company's trade, and the east of Scotland generally, away from the fine linens such as Hollands to the coarse, e.g. Osnaburg. In this respect the watershed year was 1754, after which the bleaching of fine linen cloth at Saltoun ceased to be of much significance.

Saltoun was a commercial bleachfield, run by neither 'gentlemen adventurers' nor 'common bleachers' but by a highly informed and skilled professional staff, with a view to profit, although while the Company was bleaching its own linens, it may have preferred to restrict bleaching charges at the field and to take the profits on the sale of bleached linens rather than on the bleaching. With that motive, the profits may have been kept artifically low during the 1750's, but as the Company's manufacturing decreased this practice, if it existed, must have died out. Experiments were carried out at the field, e.g. by Dr. Cullen in 1752 and by Samuel Hart in the same season. The latter experimented with oil of vitriol in place of buttermilk in the bleaching process, at the request of Doctor Roebuck of Birmingham [15] upon report that some Irish bleachers were using it successfully. Saltoun concluded that the bleaching process was appreciably speeded up, "coarse linens were finished in 8-10 buckings instead of 10-15 and at ¾ the usual charge. The principal objection to vitriol is that the objective part being committed to ignorant people, they might be apt to mar the whole thing".[16] In the quest for home-made substitutes for the expensive imported foreign ashes, Scottish kelp and fern ashes were tried. This experimentation was not peculiar to Saltoun, and was common to all active and curious bleachers in the drive to cut down on costs. But Saltoun was in the van of technical progress during the 1750's, and Dr. Francis Home, for one, drew heavily on experience gained at that field for his *Experiments in Bleaching,* published in 1754.

The major significance of the field in relation to the bleaching industry as a whole may not have lain in either the innovations in technique or in

machinery that it pioneered, although it was quick to harness the mechanical genius of the Meikles. They were awarded in 1754 a premium by the Trustees for the invention of "a machine for drawing the cloth instead of persons being obliged to pull it by hand through the rubbing mills, the cloth being thereby not by far so liable to be holed or rent, but whitened sooner, cheaper and more safely than formerly".[17] This invention was soon copied elsewhere and adopted generally. It is suggested, however, that the prime contribution of Saltoun bleachfield to the Scottish bleaching industry was the training of apprentice bleachfield managers there.

The Trustees had been trying for some time to spread the knowledge of the "mystery and art of bleaching and lower the price thereof".[18] From 1738 the Trustees had employed the renowned Grays to train 'apprentices'[19] at their field in Glasgow. Grave disadvantages had become apparent: firstly, instruction only in the Dutch technique (for fine linen) was given, and secondly, the continual obstructiveness of the Grays which had greatly retarded the flow of apprentices to and from the field. By 1750 the Trustees were utterly fed up and sacked the Grays, after which they turned to Saltoun to offer it the job of training the apprentices for the three seasons each required. The Company agreed to the Trustees' proposal in November 1750, but indicated that it thought the salary to be given for the instruction — £100 p.a. — might not be sufficient if the Board chose to exercise its rights to the full, i.e. to present 4 apprentices each year, each of whom had to be paid a daily wage of 6d by the Company. Moreover, if the field were to be considered as a "Nursery of Qualified bleachers",[20] certain improvements were needed. The Managers pointedly observed that the field, unlike many others, had received no public money, e.g. in the form of a setting-up grant. The Board responded along the indicated lines by making a grant of £200 towards the costs of erection, and made a most handsome present of £509 by meeting in full the cost of erecting a drying house at the field.

That Lord Milton was both a Trustee of the Linen Board and Deputy-Governor of the British Linen Company must undoubtedly have assisted agreement between the bodies, but Saltoun was not just selected because of his patronage. It held a decided advantage over Grays' in that both the Dutch and the Irish methods (of bleaching fine and coarse linen respectively) were in use at the field, so a good general education in dealing with all kinds of cloth could be offered. The quality of the training was reflected in the ease with which the apprentices from Saltoun found employment. Of the 16 trained at Saltoun between 1752-59, virtually all on their departure became masters of bleachfields. Some went to the new fields being set up, and others who had

been seconded for further training returned to their former fields to take charge. This can be illustrated from the histories of the eight apprentices who had the courage to petition the Trustees and the Company in 1752 that their daily allowance of 6d per day was inadequate because of the dearth of provisions and high cost of living in East Lothian. (This petition resulted in the Trustees granting an additional penny per day). Hector Turnbull went to Luncarty, James Watson to Deskford, John Park to Arthurly, Robert Nisbet and William Henderson to Inverness, Robert Munro to Culcairn, Charles Baxter to Melrose, and Archibald Horn to Salton Barley-Mill, to a mixture of old and new bleachfields in all parts of the country.

Most fields possessing a Saltoun-trained master did not hesitate to advertise the fact, e.g. in the Edinburgh Evening Courant, "Colin Smith, *late of Salton,* is now at Brechin bleachfield".[21] Although the apprentices were trained in both the Dutch and the Irish methods, few had the opportunity to practice both, as nearly all of the new fields built in the 1750's were catering for the coarse linen bleaching.

During the first year at Saltoun, which might be waived if the apprentice were sufficiently experienced, general instruction was given: in the second more detailed education in the techniques, and in the third particular attention was paid to the intricacies of management, including the art of keeping books. That the training was thorough is corroborated in letter by one of the apprentices, David Hart: "I owe whatever knowledge I have acquired in bleaching to the opportunity I have had of being there",[22] and by the speed with which the apprentices found employment. The Trustees were sufficiently satisfied to continue the appointment to 1764 when it was terminated solely on the grounds that they felt that the bleaching industry was well able by then to train its own managers.

It was ironic that the chief instructor at Saltoun, the master-bleacher James Armstrong, was himself trained by the very Grays whom he superseded. Son of a Dumfries minister, he was engaged by the British Linen Company in late 1746. They petitioned the Trustees on his behalf that he be admitted for instruction in the Dutch method of bleaching by Grays. He duly received instruction from them, for one season only, as he returned to Saltoun to take charge there in the autumn of 1747. Andrew Gray was impressed by him; "he appears an overmodest and a careful young man".[23] This assessment was echoed 14 years later; "Armstrong has natural candor, probity and skill, but is indeed subject to low spirits which draws its origins from an anxiety and vexation produced (by) natural timidity".[24] He was the master-bleacher till 1765 [25] when Samuel Sinclair, an Irishman, took over for three years. He was

rather too fond of the bottle and was 'persuaded to leave'. On his return to Ireland, an ex-apprentice, Archibald Horn, was placed in charge until the field was closed down at the end of 1772.

Armstrong had been trained only in the Dutch method, which led the Company to engage Terence Dugan from Ireland to take charge of the bleaching of coarse linen in the Irish style. He was joint-master of the field until his departure in 1756 to the nearby Ford bleachfield. The arrangement at Saltoun did not work well — no servant could serve two masters — with the result that the field had to be divided into two divisions. McCulloch had to write sharply to them both, pointing out the bad consequences, "as you have not been able to act in concert with each other",[26] and also to the field's cashier, "For God's sake advise them to consult together like men and let not their character and the Company's credit suffer any more".[27]

The contraction of the manufacture of fine linen by the Company had repercussions on the field; McCulloch told Armstrong of a shortage of fine linens to be done in the Dutch method. Those available were to get the best of the season; "for the rest of the time your part of the field and your hands should be employed in bleaching (coarser cloths); for that purpose I favour your keeping the wash and rub Mill in your part of the field solely to yourself, and the Mr. D. do the like at his end".[28] The tensions were accentuated by this, and it may not have been coincidence that Hart left the field that year: it was certainly a relief to all that Dugan departed early in 1756 to leave Armstrong in sole control. By this time the latter was presumably capable in both the Dutch and Irish methods of bleaching, not that in practice the two were so divorced from each other at Saltoun, e.g. coarse cloth was often taken up in the Dutch method to improve its finish.

The agreement with the Trustees in 1750 had prompted the Company to draw up contracts, which surprisingly had not been done before, with the master-bleachers, signed in April 1751 to run for three years initially. They were allowed £25 each p.a. in salary, plus £25 of the Trustees' premium divided between them, and one-quarter of the free profits. This guaranteed both £37 10/- p.a., augmented by free coal, candles and lodgings. After Dugan left, the foreman, Davie Mackie, was put on a salary of £20 p.a., which was renewed in 1761 for three years. The Company's policy was to have a permanent nucleus of skilled men on salary. A Clerk or accountant was also appointed to relieve the Master of the duties of book-keeping, etc. At many of the smaller fields, for better or worse,[29] the Master-bleacher had to keep his accounts himself.

Samuel Hart was appointed to be Cashier and Accountant at Saltoun in 1750 with a salary of £35 p.a.[30] He was more than a mere book man; in 1752

he wrote an explanation of the process of bleaching at Saltoun for the Trustees [31] and in 1754 he took his own field — the neighbouring Saltoun Barley-Mill bleachfield — on the death of Joseph Christie. He had more than a superficial acquaintance with Dr. Home who guided him in the location of his field. His successor as Accountant at Saltoun, Archibald Horn, was to become the last master-bleacher at the field. He settled with the Company to take 6% of the value of bleaching done at the field in lieu of salary while master-bleacher, which brought him as much as £60 and as little as £28. This arrangement was exceptional as the general practice was for the bleacher, foreman and clerk to be on fixed salary, while the servants or labourers were paid only for days actually worked during the bleaching season.

What took the edge off the apparently large salary paid to the bleacher was his personal liability for any damage done at the field to cloth during bleaching. By a section in the 1751 act regulating the linen manufacture,[32] the Trustees took security from any field annually bleaching cloth to the value of £500 or more before issuing a licence to bleach, and an obligation was imposed that any client whose cloth was damaged during bleaching had to be compensated. This threw a heavy onus on the bleacher and equally on the Clerk whose job it also was to check the cloth when it came to the field, for flaws, short measure, etc., to make sure that the cloth was not damaged before it was bleached. The Company had litigation with Hart after he had left the field, alleging that he had failed to check the cloth closely enough before it was bleached. The Company, incidentally, took the precaution of insuring their cloth against fire while it was at the bleachfield; in 1756, for instance, their agent at London was instructed to get insured against fire "£6500 in linen cloth lodged in a warehouse made of stone and slated in Saltoun Bleachfield (Haddingtonshire)".[33]

THE BLEACHING PROCESSES

Both the Dutch and the Irish methods of bleaching were practised at the field. The main difference between the two processes was that in the Irish, during the washing of the cloth, a waterdriven mechanical mill with rubbing boards was used instead of two women washing the linen on the edge of a tub. This "answers very well for Coarse Cloth as two men attending a rubbing mill can rubb as many Cloths as 20 women will wash in a day".[34] It was rougher but cheaper, providing sufficient water was available. Saltoun suffered as did many other fields from the vagaries of water supply, which ponds could only partly alleviate; e.g. drought in 1754, floods in 1749 and 1762 which did considerable damage and left the field sanded.

Other differences lay in the Bucking stage (boiling and soaking in alkali), in the choice of *sour* (or acid), and in the finishing. In general, the Irish method was cheaper, quicker and lower in quality while the Dutch was careful and slower, using hand labour rather than machinery, which made it much more expensive. Coarse linen had to be bleached cheaply, fine had to be coloured well.

After the cloth had been received at the field, the first stage was for two women to sew latchets of yarn at two-yard intervals along each piece of cloth (commonly 30-40 yards long), to enable the cloth to be hung up to dry on the wooden pins in the drying-field. Both this latching and pin-making were essentially auxiliary activities. The unbleached linen was usually dirty and full of dressing so that it had to be cleaned by *steeping* in warm water and a little bran, or old lye and soap. The cloth was taken out of the close folds in which it had arrived and then done up loosely to be laid in rows in a large vat, being squeezed down by a servant wearing wooden shoes. The vat was then covered and left for 2-3 days, when the cloth was lifted out, rinsed and dried. This was supposed to render the cloth fit for the final operation proper, *Bucking,* which "may be justly termed the primary Operation: it is continued from first to last and by it the great and principal change in the linens is affected".[35]

For bucking, a *Lye* or lee was made by mixing ashes with some soft soap in a solution. This lye was then thrown on the cloths placed in a large boiler — over 2000 yards of linen could be treated at one time in the coarse linen boiler at Salton which was 480 gallons in volume. After running down through the cloth, the lye was drained off at the foot of the boiler, to be heated in a copper vat and re-applied somewhat hotter until the lye was finally boiling hot; thereafter the temperature was lessened and the lee weakened. The Irish method was simpler; just to boil the cloth for 1-1½ hours "before they substitute in the room of salts the Labour of Machinery".[36]

The critical component in this operation and for the whole process was the preparation of the lye, the alkali solution. The bleacher had several problems; there were 4-5 kinds of ashes each differing from the other in strength and even within the same kind there was wide variation. At Saltoun the main ashes used were Cassub (Cassube or Cashub) and Pearl (so called for its appearance) from Holland and the Baltic, Konigsberg weedash, Marcroft and Muscovy blanc, Hungarian Pearl and in the 1760's American Potash which could be imported much more cheaply at 31/- to 38/- per cwt. Local substitutes were tried, such as fern and kelp ash; the former were too dirty unless twice burnt (which made them too dear) and the latter left a yellowish tinge in the cloth, which was viewed with grave displeasure by the bleacher and manufac-

turer alike. Kelp was, however, used in small quantities in the latter 1760's and till the end of the field. The steady rise in the costs of imported Continental ashes caused the Company concern; the factors in the Baltic were constantly asked to provide alternative and cheaper substitutes. Cassub ash, the most popular in Scotland and Ireland, cost the Company 41/- per cask in 1751, 48/- in 1758 and 66/- in 1762. It dropped thereafter to 42/- when war ended but had risen to between 50/- and 60/- in 1771.

The lee was prepared by pounding and sifting the ashes and then boiling them up over a furnace with a due mixture of soft soap added "to blunt the sharpness of the lees".[37] The difficulty lay in determining the strength of the solution or the ashes; the bleachers at Saltoun used their tongue as the most reliable instrument, or a proof ball and hydrometer imported from London, or weighed a certain quantity of water and ashes. Mistakes were almost inevitable, but as the bleacher above all feared corrosion of the cloth, it was safer to make the lee weaker than necessary, which is why soap was added. Mixture of ashes was another safeguard; one local bleacher used Marcroft ashes alone one season, "finding them the strongest and cheapest but to his sad misfortune a vast deal of his cloth was cut into holes . . . which he had art enough to make the country people believe was owing to a particular kind of worm produced in his field by the wet season".[38] The Company's bleachers used several different recipes, involving varied mixtures of Marcroft, Muscovy, cassub and pearl ashes. In 1754, for bucking 10,000 yards of fine linen 530lb [39] of various ashes were used in the lee; for boiling a similar quantity of coarse linen only 330lb.

Bucking and boiling were generally performed during the night at Saltoun so that in the morning the linen could be put out in the field to bleach in the sun and wind for 2-3 days, a schedule liable to frequent interruption by rain or high winds. The cloth was watered (hence the canals on every field) to ensure that the lees were washed out to prevent corrosion, "better to err in often watering".[40] Finally the cloth was allowed to dry and after 36 hours lifted and returned to the bucking boiler or *cave* where the course was repeated, i.e. lees applied, etc. This happened about 3 times a week with the exception of Sundays (bleachers had to be very careful about Sunday Observance) until the cloth was judged ready for *souring*. The signs looked for were that the 'sprat' or dead shell was cleaned out and the cloth had begun to change colour. There was a high premium here on the good judgement of the bleacher as to the arrival of this point which might be 5-6 weeks after the cloth was first bucked. It was a crucial decision for the cloth and also because it determined whether the second field might be started. At Saltoun, "as some cloth will come on faster than others",[41] the field was sorted into three divisions at this stage, the quickest to the laggard.

Souring was performed with either churned milk, 'buttermilk', in the Dutch method or 'bran' in the Irish. The cloth was laid not upright as in bucking but flat in the boiler and the milk or bran added. The whole was then covered and allowed to lie as long as the bleacher thought the fermentation continued. Buttermilk was inconvenient to use and difficult to obtain, which encouraged the use of bran. About 4-6 pecks of bran were adjudged sufficient to sour 1000 yards of cloth when laid into a sour of warm bran for 2 nights and a day or longer, depending on the weather and the strength of the sour.[42] If buttermilk was used, the cloth was left for 4-5 days in the sour; during warm weather the process was accelerated and equally the risk of curdling increased. The consumption of buttermilk declined drastically during the 1750's as the field bleached less fine linen.[43] Attempts were made to substitute oil of vitriol or sulphuric acid for bran or buttermilk in the sour and its use while not exclusive certainly increased in the 1760's: while its speed and action were appreciated, its strength was feared.

TABLE 2: MATERIALS USED FOR SOUR AT SALTOUN BLEACHFIELD

	Bran			Milk			Vitriol		
	Bolls	Value	p. per boll	Galls	Value	p. per gall	Lb. weight	Value	p. per lb.
1756	46½	136/5	35.2	1226	408/9	4.0	—	—	—
1757	38¼	180/10	56.7	775	258/4	4.0	—	6¼	—
1758	40½	157/-	46.5	496	156/4	3.8	10½	2/2¾	2.5
1759	35¼	97/6	33.2	96	32/-	4.0	—	—	—
1760	33½	100/6	36.0	38	19/4	6.1	—	—	—
1761	40	120/-	36.0	None	bought	hereafter	—	—	—
1762	46	163/4	42.6				—	—	—
1763	43½	149/2	41.4				—	—	—
1768	NK	NK	NK				3 bottles	156/4	NK
1769	NK	NK	NK				2 bottles	95/-	NK
1770	38¼*	153/-	48.0				NK	NK	NK
1771	16½	66/-	48.0				1643 lb	616/1½	4.5
1772	NK	NK	NK				402 lb	150/9	4.5

(* June 5, 1770 to Jan. 12, 1771 only.)

1. Although the source of data for the period 1756 to 1763 enables one to assert with confidence that these are the annual consumptions and costs of the various materials, no such reliance can be placed on the data for the years 1768 to 1772 save with respect to their average costs.
2. All average prices are in old pence.

After souring the cloth was rinsed and then rubbed either by mechanical

boards in the mill in the Irish way or by women with soap in the Dutch. In the latter process, the cloth was carried to tubs, 3 feet in diameter where two women seated opposite each other soaped and worked the cloth on the broad edges of the tub. The cloth was then bucked for 3 hours and put out to bleach, and it was thereafter soured, wasted and bucked until quite white. The golden rule of souring was never to put more cloth into the sour "than your women can wash in one day, if you follow the Dutch method, and if Irish . . . only as much in sour as your mill is able to rub in a day, for there is no way that cloth will sooner tender than out of the sour if they are allowed to be long by".[44]

The cloth was finally run through a mixture of starch, blue and water in the bleaching vats to give it firmness and cleanness. Some bleachers preferred to boil the cloth just prior to starching it. It was then taken out of the vat and wrung out with a mangle and spread on the drying field. While it dried, two women carefully and evenly stretched the cloth. Fine cloth was taken up dry and sent to the Edinburgh Lapping House in the 'waterfold' to be pressed and papered there until 1762, when a lapping press was installed at the field, said to have halved the normal public cost and saved the Company £250 per annum. Coarser cloths were usually lifted damp and *beetled,* i.e. beaten with wooden mallets ('beetles'). This part of the finishing process was mechanised as was also the rolling and pressing of the linens. A new beetling machine, driven by water, was installed at Saltoun in 1760, to be worked by 4 men. This finishing process was most important and the Managers were always alert to new ideas and styles. McCulloch heard in August 1759 of a soldier "who understands putting up linen in the Irish way by clips and by beetling" [45] and secured his release on furlough for 3 weeks to go to Saltoun by pulling some strings through the Trustees.

The crux of the difference between the Dutch and the Irish methods lay in the use of machinery instead of women at the rubbing stage. John Christy's estimate that a rubbing mill with two men, being paid at 8d per day, could do as much as 20 women, each at 5½-6d per day, shows how much of a saving the mill offered on running costs. Although the cost of erection was about £500, as labour costs rose so the scales were tipped against the Dutch method except in those linens where the need for quality was paramount. But with the more extensive use of the Irish method, an additional onus was placed on *finishing* the cloth well.

In 1760, therefore, under pressure from London, McCulloch ordered that the beetling machines be moved to a place in the field where they would not

be a hindrance as they presently were to the other works at the field, and the machinery altered. What he wanted was "two sets of beetles and beams proportioned to move if necessary at the same time and with the same outer wheel and these beetles made to strike perpendicular or straitways on the cloth and not aslant as at present", and a Dutch 'Calendar' or cylinder, consisting of 5 wooden rollers "like those Meikle made for me at Edinburgh",[46] capable of dressing cloth 45" wide, also to be moved by the same outer wheel. Meikle was sent to Perth to look at a beetling machine there, and he succeeded in designing a new machine to McCulloch's satisfaction, which was erected with great haste that summer, perhaps too much haste as teething troubles delayed it becoming fully operational till the summer was over.

During its first full summer of use in 1761, it more than met its running costs. Between 1st March 1761-1762 it double-beetled 288,458 yards of cloth and 486 table cloths, which the Company calculated would have cost £329 in charges at the Edinburgh Lapping House. All the expenses of working the machinery, making up the linens, etc. came to £91, so £238 was gained on the year, which would allow the cost of erection to be paid off in three seasons. A new press was built at the field by James Gray of Dalkeith Iron Mill, who was experienced in this kind of work,[47] and an experienced lapper from Glasgow, Alexander Gray, engaged to head up this department.

The machinery was becoming increasingly complex and one of the Directors' recommendations after their enquiry into the field in 1762 was that Robert Meikle be engaged on contract to maintain the machinery and utensils at the field. 'Utensils' at the field were valued at £362 in 1756 and £410 in 1763, when 10% was deducted for wear, and a thorough revaluation brought this down to £213 in 1764. The fixed works and field (including most of the machinery) were valued at £3,700 until 1766, when £1,729 was written off "to reduce it to its real value".[48] What criteria were applied are not clear: reassessment was not the result of regular review but of periodic stress within the Company over the place of the bleachfield in its activities. In 1768 the field and fixed works were valued at £2,090 and an inventory of utensils made which came to £286.[49] At the lower mill there were soaping tables and women's tubs, two yettling boilers, five round caves and two blueing vats; in the sour house 2 caves or boilers; at the upper mill 3 yettling boilers valued at £10 each and 2 large bucking caves with lead pipes to lead the water from the cave to the boilers. The Upper green where the cloth was laid out boasted a dog and sentry box; the lapping house contained hand clips and beetles and a press for linens with 11 planks, 4 logs and a tree for setting the press, a windlass and two 'new' crisping machines. Neither the windmill or drying house provided much of

interest for the inventory. Amongst the sundries were 8,000 pins, some scoops and wooden shoes.

In 1773 when Andrew Fletcher, who had bought the field, advertised the sale of the bleaching machinery, included in the list were 3 water-wheels, 3 washing stocks, 2 sets of rubbing boards, 3 beetling machines, and 2 cylinders or rollers of lignum vites. Unfortunately how much he obtained for these articles is not known.

LABOUR AND ITS ORGANISATION AT THE FIELD

Mention has already been made of several skilled men employed at the bleachfield, engaged on contract to retain a skilled nucleus at the field. The Company had had bitter experience of other fields trying to lure key men away. Dugan had to go to Leven bleachfield to recover one Peter Gibb engaged by Armstrong in January 1748, who had gone off there just after the start of the bleaching season proper. "By consequence of his engagement we can by law oblige him to return to his service".[50] Another servant was decoyed away by a Mr McDowell, "busy trying to carry off our hands to the service of one Cook at Carlisle",[51] but he was recovered. Key men mattered and the Company itself was not above a little allurement when it recruited, as it did as far as Ireland.[52] Alex Gray was working at the Glasgow Lapping house when McCulloch through an intermediary 'persuaded' him to leave for Saltoun, to take charge of the finishing there. "You await my call for coming to Salton bleachfield in order to your taking up, dressing or lapping linens there (and) instructing. James Drummond and you agreed on £20 p.a. wages and 2 guineas for each person instructed . . . If you shall so act as to deserve the Company's thanks I agree to make you a present for the first year either of a free lodging or 5 guineas in money, as you like best".[53]

In addition to the permanent workers, a number of servants — male and female — were engaged for the duration of the bleaching season, i.e. from the beginning of April to the end of October when they were paid off, as can be seen from a breakdown of the wages (*not* including salaries) bill at Saltoun. There was usually some clearing up work after the end of the season proper, and for maintenance and in 1760 and 1761 the wages bill for the winter months was swelled by the payments to the builders of the new machinery and the enlargement of the field. Some of the women were employed to make up torn linens into shirts, and some yarn was cleaned for the weavers. Wages were paid monthly and regularly, and the number of days that the women worked can be inferred from the 1/- per day paid to Mrs Armstrong to supervise the women at washing.

TABLE 3: BLEACHING SEASONS 1756 - 63
WAGES PAID AT SALTON

£ stg.

MONTH 1*	1756	1757	1758	1759	1760	1761	1762	1763
March	—	—	—	—	—	—	—	—
April	—	5	13	16	19	15	11	23
May	9	20	20	21	31	33	24	30
June	27	30	25	27	33	34	30	35
July	30	32	30	35	37	45	45	42
August	29	32	30	32	38	51	57	45
September	41	31	33	35	40	44	46	45
October	52	28	23	36	40	42	45	41
November	16	49	25	35	41	44	50	44
December	—	—	10	31	36	36	40	4
January	—	—	—	—	30	23	8	6
February	—	—	—	—	15	22	14	4
TOTAL (£)	194	227	210	268	359	387	367	316
Mrs. A. 2† Days	162	189½	213	176	216	237	175	?

1* The wages were paid on the last working day in each month.

2† Days worked by Mrs. Armstrong supervising the women.

Until 1768 nothing is known for certain of the numbers of servants employed at the field except that while the Dutch method was in use, more women were employed than was the case later. In a letter in 1752, an overseer at Saltoun who was applying for a job at another field, Alexander Barclay, promised that "he could finish with 30 women two-thirds of the work done by 60 here".[54] 60 is at least a plausible figure. In the 1765 season from 50-60 servants were employed, i.e. were paid monthly but this was an exceptional season in terms of the amount of bleaching done. Between 1768-1772 the following numbers were employed, (in 1772 the field was being run down).

TABLE 4: SERVANTS EMPLOYED AT SALTON: Wages paid (pence per day)

NUMBERS EMPLOYED			WAGES PAID (pence per day)							
			Men					Women		
	Men	Women	1/-	9d	8½d	7½d	and less	6d	5½d	4½-5d
1768	21	16	1	5	1	11	3	11	1	4
1769	15	13	1	4	3	5	2	10	2	1
1770	18	15	2	4	4	4	4	9	1	5
1771	14	12	2	2	6	2	2	7	3	2
1772	8	8	1	3	2	1	1	5	3	—

In 1768 the foreman, Andrew Rutherford, and his successor, William Thompson, were paid the top rate of 1/- (the practice of a fixed salary seems to have been abandoned). The watchmen and the buckers were paid 9d per day, and the rest of the men — beetlers and boardsmen — at 8-8½d, although when they started at the field for the first month daily rate was 7-7½d.

One obvious fact to emerge from the wages sheets presented in the Journal of the bleachfield is that the lowest paid worked the fewest days and were first to be laid off. In 1768 the bucker James Raeburn worked 250 days at 9d whereas the 7½-8d men were laid off after 138 days. The senior field hands worked 299 days. There are some puzzling aspects; how did some men manage to work 330-350 days in a season, given that there was no Sunday working, unless there was some kind of overtime system? [55] The longest periods were apparently worked by the millers and boardsmen, not the buckers — perhaps 2 shifts were credited as a day each.

The women were taken on at 4-5d per day, eventually to reach a maximum of 6d per day after as much as three seasons. Employed for the bleaching season of April to late October, they were used to wash and soap, lay out and pin out the linens and possibly in watering them. The men did the bucking, steeping and beetling. Their day wages were supplemented by odd jobs, such as repairs to the field, and tidying up damaged cloth. Once a year, a servants' dinner was held; the menu invariably included beef and mutton with spirits and strong ale to wash it down. Bread and ale was occasionally given to the lappers and a woman was excused from her work at 8 and 12 a.m. to prepare meals and hot water for the servants' breaks an hour later under Mrs Armstrong's supervision.

Her income from supervision, 1/- per day for between 160-237 days, must have made a sizeable contribution to her household's income, further augmented by perks like free coal and candles. The Company made a determined attempt to get these converted to cash in 1762; a compromise was reached which allowed the master-bleacher 12 cart loads of coal free (value estimated at 1/6 per load), and the foreman and lapper 6 each, which they had to get carted at their own expense. Housing was provided for them at the field; in 1762 the foreman and lapper were provided with new houses and a free garden in addition to their wages. This was another incentive for them to remain at Saltoun.

No such provision was made for servants. How their wages and conditions compared with those at other fields is not known, but it is likely that with so

many other bleachfields near by, their rates must have been typical for the area and occupation. George Robertson reported that an ordinary labourer in agriculture was paid 6⅔d a day in 1750, which rose slowly so that in 1765 a labourer received 7d a day in winter and 8d in summer.[56] This would explain why the bleachfield in the late 1760's had to pay between 8½-9d per day to retain its hands. Wages had apparently risen sharply in the early 1760's, e.g. Samuel Hart at Ford bleachfield advertised in 1761 "that notwithstanding the recent great advance in the price of ashes and of servants' wages, he would continue to hold his prices steady".[57] Despite rising costs, Saltoun bleachfield's prices for bleaching did not rise in the 1760's, in reflection of both increased efficiency and competition.

There was a hard core of families who worked season after season at the field but a great deal of mobility amongst the rest. In the years 1768-71 (excluding 1772 because of the run-down state of the field) only 6 men out of the 36 male servants employed worked all four seasons; the watchmen, two of the boardsmen, the first bucker and an assistant, and the eventual foreman. This was a higher-paid and more stable group than the less skilled labourers. Of the salaried men, the bleacher, lappers and accountant similarly stayed the entire period.

Of the 26 women in the same period, only six worked the four years, five of whom were experienced hands who earned the top female rate of 6d per day. Of the day servants taken on each season, the permanent core was constituted by families, e.g. the bucker Raeburn and two women of the same name, John and Jean Harper, the Hendersons, the Whinton family, the three Wilkieson women, Pollock the stampmaster's wife, and William and Marion Woods (on one occasion paid jointly). Children, apart from Andrew Winton who was paid only 3½-4d a day, did not figure at all in the accounts. It is curious that so few of the force were regular. The Company feared competition for the skilled men, e.g. Archibald Howden went to the New Bleachfield at Dunbar, and therefore exerted itself to retain them, but with plenty of labour available locally, the pressure to hold the semi- and unskilled may not have existed, given that training for most of the bleaching jobs was short. Alternatively, the high turnover may be accounted for by the agricultural recruit finding the routine unbearable.

The bleacher was responsible for the management of the work force and also for the carriage of cloth and materials to and from the field. Until 1752 the Company hired carts from Lord Milton as the need arose, but it was

decided then to buy two carts and 4 horses and employ two full-time carters at the wage of 8d per day or 4/- per week. One was dismissed after only a year but the other, William Wood, continued to work for the field until 1762 for certain and probably till 1773. The means of conveyance was on open cart which carried 2-3 bales of cloth at a time; the cloth was wrapped in straw and covered with a packsheet en route. A covered waggon was tried and discarded because "the waggon does not commonly carry one-third of the load of the open cart (which) retards the supply of the bleachfield and heightens the charge of carriage".[58] In 1762 the Company sold all its carts, etc. and agreed with Armstrong the following rates, "for performing all carriages to and from the field . . . 6d for each completed mile out and 3d per mile home for a loading which is to be reckoned 12 cwt for a cart or waggon".[59] This transference of responsibility resulted in the annual charge for carting, which had risen from £46 in 1757 to £107 in 1763, being pegged back at around £75 thereafter.

The main article carried was cloth, e.g. in 1770 3,351 pieces of cloth were carried from Dunfermline to Saltoun at 16/- per 100 pieces, which was either returned to Dunfermline at the same charge or Edinburgh at 12/-. The onus normally lay on the bleacher to pay the cost of transport to and from his field and the distance from which the field was drawing its cloth for bleaching in the 1760's must have been a factor of significance in depressing the profits. The other article carted was coal, e.g. in 1770 1,221 loads at 8d each from Sir Andrew Lauder's pit at Winton. Ashes, soap and other materials were also carted, from Edinburgh. The carriage costs out to Saltoun must have been the motivating factor in the Company's attempt to find an alternative site in Edinburgh. Negotiations were opened with Lord Belhaven for a lease of Grangehaughs in 1750 which were renewed in 1752 when McCulloch was quite optimistic; "we flatter ourselves that the experience of another season will enable us to spare a colony of skilled hands to be transplanted from Salton to Grangehaughs where it is to be hoped we shall go with both Profit and Pleasure in our bleaching".[60] Bad water at the site caused the deal to fall through, fortunately before the Company had invested much capital in its development.

The main debit items in the field's balance sheet were wages and materials The bleacher was under equal pressure to organise the use of his labour efficiently and materials such as ashes economically. The cost of the materials used in bleaching usually greatly exceeded the wages paid to the servants.

TABLE 5: EXPENDITURE ON WAGES AND MATERIALS AND RECEIPTS FROM BLEACHING AT SALTOUN (£)

Season	Wages 1*	Materials 2†	Bleaching 3‡
1756	194	355	954
1757	226	456	1170
1758	210	479	1167
1759	267	480	1274
1760	359	700	1506
1761	387	655	1265
1762	367	486	1126
1768	200	381	1044
1769	184	299	867
1770	?	374	1037
1771	179	392	847
1772	?	210	484

1* Wages paid to servants (i.e. not including salaries).
2† Cost of materials used in bleaching.
3‡ Receipts for bleaching.

MATERIALS USED AND THEIR COSTS

The major part of the cost of the materials came from the ashes imported from the Baltic. Scottish bleachers emphasised how much this dependence on imported ashes handicapped them and in time of war Saltoun experienced a sharp rise in the cost of these materials. After the conclusion of war, prices returned to 'normal' levels.

TABLE 6: PRICES OF CERTAIN MATERIALS USED AT SALTOUN

Season	Pearlash 1†	Cassub 2‡	White Soap		Smalts		Starch	Coals
	Shg.	Shg.	Lb	d/lb	Lb	d/lb	d/lb	d/load
1756	37.4	44.6	1695	5.8	402	17.0	4.5	3.5
1757	35.6	50.0	3251	5.5	468	20.1	5.1	3.5
1758	31.6	50.0	3620	5.0	1090	16.2	5.2	3.5
1759	36.7	48.9	3668	5.2	1178	15.5	4.5	3.5
1760	45.6	51.2	4944	5.3	1527	19.1	3.6	3.5
1761	40.4	57.8	4748	5.5	934	16.0	3.3	3.7
1762	(71.0)*	66.3	5513	5.4	311	18.4	4.6	3.7
1763	58.0	65.6	5618	5.2	2501	16.6	4.7	3.7
1764	52.0	NK	NK	NK	NK	NK	NK	NK
1768	32-39	31-42	NK	5.0	NK	14.0	6.2	4.0
1769	31.0	41-45	NK	4.0	NK	22.0	5.5	NK
1770 — no figures available								
1771	42-50	55-60	NK	5.5	NK	22.0	4.5	4.0
1772	42.0	NK	NK	2.5	NK	22.0	NK	NK

1† Shg per cwt.
2‡ Shg per cask
* Very small quantity involved

Note: For the years 1756-1763, figures for the total quantities of materials used and the price paid in aggregate have survived. In the latter period, 1768-1772, such statistical material as exists relates only to individual transactions in the various commodities.

The prices during the war led to a renewal of the demand that the duties on the import of ashes be lifted and an attempt to use home-made ashes as substitutes. The price of Baltic ashes was affected by the rise in shipping and insurance rates, and the duties on ashes which varied according to kind added between 3½-7% to the cost price.[61] Soap was also subject to a duty, part of which was drawn back to the bleacher, but this repayment lagged years in arrears and was generally paid in large amounts covering 3-4 years at a time. But the Government was immovable on the question of repeal and attention was devoted to finding alternative sources. In 1762 and 1763 as a temporary measure large quantities (19½ and 23 tons respectively) of kelp were used at Saltoun, and fern ashes were also tried again. American Pearl ashes made a successful entry to be used in subsequent years.

Scottish bleachfields did have one advantage over their Dutch competitors, cheap coal. Cockburn of Ormiston had pointed out that while he would have been glad to have seen the duties on soap and ashes lifted, "We do have cheaper coals so duties alone don't account for differences in bleaching prices".[62] Saltoun used both great coal and panwood, to heat the furnace under the bucking boilers and the lee boiler ('the great fire'), which was carted from nearby Winton. The 'load' of coal, which may have weighed between 2-2½ cwt. of coal,[63] cost 3½d at the pithead until 1761, when it began to rise in price and by 1770 cost 4d. The cost of transport in that year was 8d per cartload, and as the Company's carts had a capacity of about 12 cwt. of coal, each cart may have contained about 6 'loads' of coal, in which case transport added 25% to the cost of the coal at Saltoun. But this was still relatively cheap at 4/2 per ton, in relation to the cost of ashes, and coals were quite often entered in the accounts under 'Sundries'. The master was instructed to be economical in his use of coal; "labourers are to be allowed only coals for the great fire for boiling and making ready their food".[64]

TABLE 7: COAL USED AT SALTOUN BLEACHFIELD

Season	Loads	Tons [1]	Average Price per load (d)
1756	1356	136	3.5
1757	1481	148	3.5
1758	1132	113	3.5
1759	1390	139	3.5
1760	1800	180	3.5
1761	2180	218	3.7
1762	2179	218	3.7
1763	1925	193	3.7
1768	978	98	?
1769	945	95	?
1770	1221	122	4.0
1771	1159	116	4.0
1772	552	55	?

The load is assumed to be 2 to 2½ cwt by B. Duckham, *History of the Scottish Coal Industry*, Vol. 1, p. 370 and the lower figure has been used to convert 'loads' to tons. This may mean that the true tonnage of coal used was higher than suggested here.

CONCLUSION

The bleachfield at Saltoun enjoyed certain privileges as the British Linen Company's field over other commercial fields. It was generally guaranteed sufficient cloth for both the first and the second fields without the same dependence on advertising and a network of agents to take in the cloth. In contrast, Ormiston, its near neighbour, had 'takers-in' at Edinburgh, Leith and Dalkeith who each had to be paid 5% commission for their trouble. This favourable situation altered somewhat in the period after 1763, but even after the Company had foresaken manufacturing for banking, it was still in a position to persuade several of its manufacturer clients to send their cloth to Saltoun. In an effort to assist the field, the Company enabled it in 1770 to offer manufacturers who sent their cloth there to be bleached an advance for 6 months of two-thirds the value of the cloth sent. The field was not starved of capital for improvement, nor suffered for want of attention, and the pressure of McCulloch left it in the van of Scottish bleaching, "a field remarkable for the goodness of colour and neat finishing for the foreign market".[65]

Costs were kept under constant surveillance. In 1762 it was demonstrated to the satisfaction of the Directors that the costs of bleaching and finishing had been almost halved for certain kinds of cloth during the life of the field. Nor did the field fail to attempt to substitute home-made ashes for the foreign, nor to obtain supplies of foreign ashes as cheaply as possible. While the Dutch may have got their ashes more cheaply, the Company were persevering in their efforts to reduce the price during the 1750's by trying all the sources of Baltic ashes through Scottish and local factors resident in the region, and using all possible methods of buying ashes. They imported Baltic ashes as cheaply as anyone in Scotland and the failure to reduce prices further was because of the hostility of the established traders and the lack of skill in the factors. That their prices were highly competitive in Scotland is shown by the speed at which other bleachers bought ashes surplus to the Company's requirements.

The field did not lack management — indeed it may have suffered from too much with McCulloch — nor skilled bleachers. It survived the transitional period after 1754 as the manufacture of fine linen in the East of Scotland declined, which left that division of the field underutilised. From the Company came a steady supply of linens of which the weaving was improving. The

Scottish bleacher had often been able to complain with justification that bad bleaching so-called was no more than an inability to transform bad cloth into good. By the late 1750's no such excuse was possible for Saltoun and the bleachfield responded to the pressure, as it unashamedly advertised in 1771, "It is needless to say anything in recommendation of this field; universally known to be one of the oldest and the best in the country".[66]

During the first years of its operation considerable damage was caused by the unskilfulness of the bleachers and their servants, and high winds tore the linens put out to dry, on several occasions. By 1754 there were over £1500 worth of torn and damaged linens on hand for which the bleacher had to pay compensation.[67] Floods in 1749 and 1762 severely damaged the field and the vagaries of the Scottish climate did on occasion seriously disrupt the bleaching programme. But none of these problems was particular to Saltoun nor were they exceptionally onerous after 1765. In some respects, e.g. the supply of water, the field was better off than many others.

The question is, therefore, why the field, having survived all the difficulties of the 1750's, should have demised in 1773. The Company had moved out of manufacturing into banking after 1763, which made the bleachfield, like the Highland spinning, an embarrassment. The resignation of McCulloch as Manager in 1763 and the subsequent breakup of his co-partnership with the Company, and the death of Lord Milton in 1764 deprived the field of two of its keenest supporters. The crucial factor thereafter was the decline in profits on its operation during the 1760's.

TABLE 8: PROFITS AT SALTOUN BLEACHFIELD (£)

Season	£	Season	£
1756	461	1764	249
1757	386	1767	nil
1758	389	1768	nil
1759	241	1769	8 (loss)
1760	71	1770	37
1761	73		
1762	353		

Note: In 1756 the bleachfield, including fixed works, was valued at £3,700; in 1768 it was revalued at £2,090.

The rise in the cost of raw materials was one factor, and another may have been the underutilisation of the field after the Company ceased to manufacture. The field's capacity was between 10-12,000 pieces a season and without the Company's supplies of linens, the field was unable to secure enough cloth, operating as it was in a highly competitive area while the production of linen in the Edinburgh region stagnated and fell during the 1760's.[68] Some others

of the East Lothian fields went out of use and those that survived were smaller scale, e.g. Saltoun Barleymill field, to which the Saltoun bleacher went, was operating until well after the turn of the century. The irony is that during the expansion of the 1750's, the Company deliberately limited the price charged for bleaching at the field in the interest of the sale of the linens, i.e. it refrained from charging as high prices as some of the other fields in order to take the profit on the sale of the bleached linens. During the later 1760's, when the field no longer had any of the Company's linens to bleach and this limitation on prices no longer existed, because of the shrinkage of the industry in the region and the numbers of other fields competing, the opportunity to raise prices no longer existed.

The dissolution of his co-partnership and his subsequent financial troubles left McCulloch in no position to buy the field, and the Directors failed despite periodic attempts to sell the field during the 1760's. The onset of the depression in the linen industry of 1772-73 was the final straw for the Directors, and they accepted an offer from Andrew Fletcher, the son of the late Lord Milton, for the field in 1772, and the field was run down that season. "After trying what the field would produce, the expense on it and loss on the bleaching was considerable and therefore many attempts were made to sell it till it was bought by Mr Fletcher of Salton at Candlemass for £1700".[69] Fletcher sold off the machinery and twenty years later, the Old Statistical Account recorded that the field which had once employed 100 people was converted into a 'delightful' pleasure ground. The Trustees of the Linen Board received in December 1772 a letter from the stampmaster at Saltoun, Thomas Pollock "representing that as business was given up at Salton bleachfield, his employment was at an end" [70] and asking to be placed elsewhere. Fortunately, none of the redundant skilled men had any difficulty in finding other jobs; James Hill, for instance, went to Cupar bleachfield, and others found posts nearer at hand.

The history of Saltoun bleachfield throws some light on the difficulties imposed by climate and the lack of chemical knowledge, and the series of changes in layout, buildings and machinery by which the Scottish bleaching industry overhauled its close rival, the Irish, and which led to a reversal of the traditional flow of ideas from Ireland to a net outflow from Scotland. In this development, Saltoun bleachfield played a not insignificant part.

REFERENCES

1. Particular use has been made of the two Journals of Salton Bleachfield (in the eighteenth century the accepted spelling of Saltoun was 'Salton') for the years 1756-64 and 1768-73. I am indebted to the Bank of Scotland for permission to consult these and other records of the British Linen Bank.
2. C. A. Malcolm, *The History of the British Linen Bank*, (Edinburgh 1950), p. 237. A. & N. Clow, *The Chemical Revolution*, (London 1952), p. 174.

3. As can be seen from the table below, by the 1740's very little Scottish linen was being sent to Holland for bleaching: 1752 stands out as an exceptional year.

Exports of linen (yards) from Scotland to be bleached (from Leith to either Campirere or Rotterdam)

1743	1354	1750	231	None thereafter, and never from any
1744	313	1751	661	other port.
1745	1032	1752	20,644	(Scource: S(cottish) R(ecords)
1746-48	none	1753	8,698	O(ffice); E504, *Customs Port Books*
1749	2696	1754	2,162	*Collectors Quarterly Accounts.*

The Company sent to Holland for bleaching in 1752 206 pieces, (7476½ yards).

4. B(ritish L(inen) C(ompany); letter book, 16 December 1752, McCulloch to James Craufurd (Rotterdam). Unless otherwise acknowledged, quotations are drawn from the outgoing letter books of the B.L.C.
5. Field is both an abbreviation for bleachfield and derivatively of the cloth in the process of being bleached. Normally there were two such 'fields' in the year; the first laid down in April and after it was finished the second followed (usually about June).
6. S.R.O. Clerk of Penecuik MSS; GD 18/5904, 9 December 1738, letter of John Cockburn.
7. 12 July 1748; McCulloch & Tod to Peter Robertson.
8. Minutes of the Meeting of Proprietors of the B.L.C.; 7 September 1747.
9. Minutes of the Directors of the B.L.C.; 5 July 1762.
10. Joseph Christie, the bleacher there, asked the Company for a declaration as to the quality of his bleaching: "As you seemed to think our opinion of your colour this season might be of some service we think it reasonable to give you this declaration that we are very well pleased with the colour of the linens you have bleached and returned to this Company and think the price you charge for bleaching very reasonable". (Managers to Christie, 5 Jan. 1749). He advertised this in the newspapers to attract custom.
11. S.R.O. RHP 2295, Plan of Salton Bleachfield in 1762.
12. Robert and Andrew; vide E. E. Gauldie, "Mechanical Aids to Linen Bleaching in Scotland", *Textile History*, Vol. 1, 1970, p. 134.
13. Gauldie, *op.cit.*, p. 135.
14. E. McCulloch & Co. letter book, 20 June 1764 letter to G. Goldie, Manager of the B.L.C.
15. N.L.S. Saltoun MSS, box 329, "Copy letter for Dr. Roebuck of Birmingham to Samuel Hart concerning bleaching with Oil of Vitriol", 14 March 1752. Roebuck and Garbet had established a vitriol works at Prestonpans in 1749, and were looking to sell their acid ('oil of vitriol') to Scottish bleachers. A. & N. Clow, "Vitriol in the Industrial Revolution"; *Economic History Review*, Vol. XV, 1945, pp. 45-6.
16. N.L.S. Saltoun MSS, box 329, "Letter from Salton bleachfield in answer to Mr Garbet's desire to be informed how far vitriol might be a saving in bleaching".
17. S.R.O. B(oard) of T(rustees) M(inutes), 13 December 1754. F. Home, *Experiments in Bleaching*, (Edinburgh 1756), pp. 94-6 describes the use of rubbing boards and the improvements made at Saltoun.
18. S.R.O. B.T.M. 4 January 1748.
19. The term 'apprentice' is perhaps misleading in that some were experienced bleachers seconded from their bleachfield for further instruction rather than raw youths.
20. B.L.C., 23 November 1750, 23 November 1750, McCulloch to Flint (Secretary of the Board of Trustees).
21. Edinburgh Evening Courant, March 1756.
22. N.L.S. Saltoun MSS, box 329, 15 November 1753, Hart to Flint.
23. N.L.S. Saltoun MSS, box 350, 1748, Andrew Gray to Flint.
24. N.L.S. Saltoun MSS, box 350, 1762, "Memorandum re Salton Bleachfield".
25. Neither why he left nor what happened to him is known. As he did not become master-bleacher at another field, illness or death is suggested.
26. B.L.C., 11 July 1751, McCulloch to Armstrong & Dugan.
27. B.L.C., 18 August 1751, McCulloch to Sam Hart.
28. B.L.C., 16 April 1754, McCulloch to Armstrong.
29. For an example of the latter, see Terence Dugan's account book for Ford Bleachfield, (S.R.O.; Unextracted Process RH 15/48).
30. He complained, however, that this was quite insufficient to support his family of eight.
31. N.L.S. Saltoun MSS, box 329. "An Explanatory Introduction to the Journal of the Process of Bleaching as carried on at the British Linen Company's field" presented to the Board of Trustees in 1752. (Hereafter cited as *Introduction*).
32. 24 Geo II, sec. 16.
33. B.L.C., 27 November 1756.
34. N.L.S. Saltoun MSS, box 329, "Observations on Dr. Cullen's Remarks on the art of

Bleaching or Whitening Linen" by John Christy. This manuscript has Cullen's text set out with Christy's comments in parallel.

35. *Introduction.*
36. *Ibid.*
37. N.L.S. Saltoun MSS, box 329, "Directions for Bleaching anno 1754" (at Salton Bleachfield).
38. *Observation* by Christy on Cullen's *Remarks.*
39. "Directions for Bleaching anno 1754", copied by Home, *op.cit.*, p. 31. John Christy himself used a similar lye, over 500 lb of ashes for 10,000 yards.
40. Christy, *Observations.*
41. *Introduction.*
42. *Directions*, op.cit. "From a firlot to 6 pecks of bran is computed sufficient for souring 1000 yards of cloth, especially if laid into Sour about milk warm, which I must say is both a more speedy and cheap way than cold sours although a little more dangerous if allowed to lie too long". (Home, *op.cit.*, p. 34).
43. This may have been a relief to McCulloch who had had trouble with the supply of this article to the field. "Mrs Maxwell of Jock's Lodge has been here this morning and complains that you have not taken her milk this year . . . and that waiting to serve the Company she has lost her chance to serve Roslin field . . . that you made some difficulty as to sending carts as formerly to meet the milk on account you imagined it would prevent the country people about you from bringing their milk to the field free . . . and had lately taken some from her neighbour Mrs Baird and met their carts at the Lord Advocate's as formerly with hers. She still offers on sending her in some hogs-heads to provide you with 3 h.hds milk in the week. I wish you would clear up this matter . . . she ought to have the preference as she served the Company last year with large quantities when nobody else could or would serve them". (McCulloch to Sam Hart, 1 June, 1753).
44. *Directions*, op.cit.
45. B.L.C.; August 1759, McCulloch to Flint.
46. B.L.C.; 23 April 1760, McCulloch to Armstrong.
47. B.L.C.; 7 June 1760, McCulloch to Gray. "You are used to making iron work for Presses used by lappers and as I am just now about setting one up at this Company's field at Salton . . . "
48. Minutes of the Meetings of Proprietors of the B.L.C., 1 September 1766.
49. Journal of Salton Bleachfield 1768.
50. B.L.C.; 25 June 1748, McCulloch to William Hunter, the bleacher at Leven.
51. N.L.S.; Saltoun MSS, Letters, 17 May 1749, McCulloch to Milton.
52. In 1749 Peter McKenzie was sent across to Ireland to recruit some skilled hands for work at Saltoun.
53. B.L.C.; 7 June 1760, McCulloch to Gray.
54. N.L.S.; Saltoun MSS, box 329, letter of Alexander Barclay, 10 November 1752.
55. It may be, as Mrs R. M. Mitchison has suggested, that they were paid for bringing a boy or girl to assist.
56. George Robertson, *Rural Recollections*, (Irvine 1829), p. 122.
57. Edinburgh Evening Courant, March 1761.
58. B.L.C.; 19 May 1764, McCulloch to Armstrong.
59. B.L.C.; Directors' Minute, 28 June 1762.
60. B.L.C.; 18 April 1752, McCulloch to Armstrong.
61. For example, on a cargo of ashes imported in 1760 from Danzig the Company had to pay £45 14/8 of duty.
62. S.R.O. Clerk of Penecuik MSS. GD 18/5904.
63. B. F. Duckham, *A History of the Scottish Coal Industry*, Vol. 1, (Newton Abbot 1970), p. 370.
64. B.L.C.; Directors' Minute, 28 July 1762; "Regulations for Salton Bleachfield".
65. op. cit.
66. Edinburgh Evening Courant, March 1761.
67. Not all of this had to be written off; some of the fine linens, for instance, were made into shirts, viz. an entry in the British Linen Company waste book October 1751; "1202 shirts, were made out of 157 pieces fine linen value £345, they being so damnified at the Bleachfield that they could not be sold in whole pieces" Some of the rags may have gone as raw material to the paper mill at Saltoun, from which the Company bought the paper for 'upmaking' its linens. A. G. Thompson, *The Paper Industry in Scotland*, 1590-1861, Edinburgh 1974, pp. 93-4.
68. The amount of linen stamped for sale in Midlothian ('000 yards) fell from 821 in 1760 to 224 in 1770 to 176 in 1780. (Edinburgh University Library, Laing MSS, Stamp-masters' Returns).
69. B.L.C. Meetings of the Meeting of Proprietors, 2 March 1772.
70. S.R.O.: B.T.M., 2 December 1772.

THE DIVISION OF DUNBAR COMMON

By I. H. ADAMS

East Lothian possessed many commons until their division between various landowners in the 18th and 19th centuries.[1] The most important of these occupied the edges and plateau of the Lammermuirs extending into Berwickshire: Innerwick (c. 4000 acres), Oldhamstocks (1128 acres), Chirnside (2462 acres), Coldingham (6199 acres) and Duns (1566 acres) (fig. 1). Dunbar Common consisted of 4397 acres spreading over parts of three parishes — Spott, Stenton and Whittingehame—on the northern limit of the Lammermuir Hills, including part of the main scarp slope of the Southern Upland boundary fault at Deuchrie and Lothian Edges.

History of the common

Dunbar Common formed part of an extensive common of the earldom of March and lordship of Dunbar on which the vassals of the proprietor had rights of pasturage and other servitudes.[2] The whole common was called the Earl of March's Muir, and sometimes went under the name of the East and West Muirs of Lammermuir. With time, subdivisions took place of baronies and lordships and thus were formed the commonties of Innerwick, Thornton and Dunbar. On the forfeiture of George, Earl of March on 10 January 1436, all his possessions were annexed to the Crown. Part of the lordship of Dunbar, including Dunbar Common, was granted in feu-farm, fee and heritage to Sir Robert Douglas of Spott by charter of Charles I. To make this effectual an Act of Parliament was passed on 28 June 1633 annulling the annexation and confirming the grant. In time these lands were broken down into smaller estates.

On 8 February 1368 David II had granted liberty to the Earl of March to have a free burgh at Dunbar, its privileges to extend over the whole earldom of March. On the forfeiture the burgh came to hold of the king, and, probably in consequence of this, it was created a royal burgh by a charter of James II of 16 August 1445. By a decreet of the Court of Session on 21 June 1567 the boundaries of the royalty of the burgh were fixed, remaining unchanged thereafter until the 19th century. Commons at the east and west ends of the town were mentioned in this decreet, but not Dunbar Common. Not until a charter of confirmation granted by James VI on 23 October 1618 were Dunbar's *rights*

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of servitude spelled out, and at no time could a charter be produced showing any *rights of property* by the burgh to the commonty. A common was land owned and grazed in common by several proprietors (i.e. rights of property and servitude), whereas the rights of servitude merely allowed another party grazing rights and other uses of the surface.

Perambulation of the marches

A notarial instrument, dated 26 October 1677, records the placing and setting of march stones between Dunbar Common and the cornland of Newton-lees.[3] However, the oldest surviving record of a perambulation of Dunbar Common, dated 14 July 1680, makes it clear that the citizens had long been in the practice of perambulating the marches of the common. The practice, in fact, preserved the boundaries down to its division.

> Whereas the said burghe, by ample and valied chartores and confirmationes, granted by his Majestie's predecessores in favoures of the burghe, of the propertie and privileges thereof, and having thereby good and undoubted right to pasturage upon the said common moore, casting of fewall, faill, and divots, pulling of hether, and uther privileges in maner at length mentioned in the chartores, seasings, and uthers granted in favoures of the said ancient burghe thereupon, and by vertew whereof the said burghe, haill burgesses, incorporation, and communitie thereof, for many preceding ages, has been in the peacable possession of the saids privileges and commontie forsaid; and for preserving the right and possession thereof, and clearing the meithes and marches of the samyn, they and their predicessores have been alwayes in use frequentlie to ryde, perambulat and tak inspectione of the ancient trew and first meinthes and marches of the said common.

From this time onwards, various notices of Perambulations occur and the notarial instruments taken on these occasions were recorded in the register of sasines of the burgh (table 1).

TABLE 1

The perambulation of Dunbar Common by the burgesses of the burgh

1680, 14 July	1788, —
1720, 8 June	1795, —
1733, 8 June	1802, 8 Sept.
1740, 16 Sept.	1809, —
1745, 15 July	1816, 3 Sept.
1753, 13 July	1823, —
1761, —	1827, —
1768, 6 July	1829, 4 Aug.
1776, —	

The uses of the commons

In Scotland a common, or, as it was usually known, a commonty, was land beyond the head-dyke used primarily for grazing but with other uses over the surface such as digging peat for fuel, and feals and divots (turves) for manure and building purposes, and cutting whins and heather for thatching. It is clear from place-name evidence that in early times a form of transhumance was practised and shieling grounds established high in the Lammermuirs within the boundaries of the common with such names as Wintershiel, Panshiel, Winshiel, Mayshiel and Gamelshiel.

With the lack of fodder in the farming system before the introduction of artificial grasses it was necessary for tenants to send their yeld cattle (that is, those not in milk) up to the common in the summer months in charge of a herd. The hinds (farm hands) were allowed to send their followers (year old beasts) as well. Oxen too were pastured in the months after seed time when they were no longer needed for the plough and harrow. On occasions Highland nolt (black cattle) were grazed before continuing their way southwards to the English markets. Even before division, the introduction of grasses into the rotations led to the decline in the use of the common for grazing. Formerly, any surplus hay was gathered from the common to eke out the scarce winter fodder.

Lambs and sheep in large numbers were purchased at Lanark or St. Boswell's Fair and kept on the common for the summer before most were sold off. The remainder were driven home to winter on the 'several ground' (the individual's own fields). The burgesses of Dunbar had a flock of sheep on the common marked by the letters BD. All the sheep were under the watchful eye of the herds who took their hirsel (flocks) on regular routes known as rakes which they delineated between themselves to avoid confusion. Occasionally they laired (or folded) their sheep upon the common overnight.

Scarcity of fodder led to horses being grazed on the common in summer when they were not needed. One witness recalled that her father sent his horses to the common on Sundays and she used to go there along with other children and ride them home in the evening. Another recalled pasturing horses in wet weather when 'they were idle'. Indeed so important was this pasturage that attempts were made to improve it by drainage.

Fuel was another valuable product of the common. Where peat was available it was eagerly cut, but most people cast turf for fuel. Some augmented the manure heap with turf, while others used it to make dykes or roof their houses. As one witness remembered, 'when he entered his possession in 1806 at Traprain most of the houses were thatched with turf, but a number of them being made new, are now covered with tiles'. Each hind could take four carts of turf as part of his gains (wages), some being used as litter.

Evidence of cultivation within the bounds of Dunbar Common is rather fragmentary. Until 1782 part of the Rammer-dod was repeatedly under crops of corn planted by the tenant of Deuchrie, and he even went so far as to lime the land; the rigs were still plainly discernible at the time of division. The tenants of Stoneypath cropped a few patches for three or four years in succession and then left them to regain their fertility in fallow for six to ten years. These temporary fields were known as intakes, and as late as 1828 a crop of barley was taken off an intake.

What little wood there was at Rammerside was sold by public roup to people in Dunbar for smoking red herrings. Juniper bushes were uprooted and used for smoking hams. Several witnesses at the time of division remembered shooting parties practising their sport upon the common.

The common and the burgesses of Dunbar

Although the common was named after the burgh of Dunbar, most of the rights were held by nearby proprietors, the burgh having right of servitude only (fig. 2). Indeed, apart from the regular perambulations, the burgesses of Dunbar seemed to exercise their right of servitude infrequently until about 1790 when they began to keep some cattle there. Even then, during at least 31 out of the next 40 years, no stock of any kind was sent to the common from the burgh. The distance between burgh and common probably accounted for its lack of use. Matters might have rested without any discord had not some of the burgesses decided to put the operation on a more aggressive footing. In 1828 they formed a joint stock company to exercise the burgh's right of servitude. Although this was of dubious legal validity, they reinforced their claim. When the burgesses' cattle first made their appearance, reported one of the witnesses, and 'he received orders from his master to drive the Dunbar cattle off, he was stopped and violently prevented from executing these orders by a number of Dunbar people, who were then assembled. They seized his horse, held him by the legs, and threatened to run him through the body with halberts'. The Dunbar people then tried to put the proprietors' cattle off the common, but their attack was repulsed by shearers armed with hooks. On another occasion the townspeople threatened to shoot a herd's dog. The burgesses' herd told the simple country people that he was a constable of Dunbar and on one occasion carried an official looking baton to reinforce his claim, though it appears he was only bluffing. Be that as it may, two witnesses admitted to being terrified and as the Dunbar cattle grazed with impunity henceforth one can only conclude that the burgesses overawed the other legal occupants. To reinforce the point they built a substantial house for the burgh herd on the north edge of the common.

The legal action commences

On 17 July 1695 the Act 'concerning the Dividing of Commonties' was passed by the Estates of Scotland.[4] Its aim was simple and clearly stated: any commonty in which neither the crown nor royal burgh had rights could be divided at the instance of any proprietor. For this purpose a summons could be raised in the Court of Session which was empowered to discuss the relevancy, determine upon the claims of all parties concerned, and value and divide the commonty. The Act empowered the Court to grant commission to 'Shirriffs, Stuarts, Baillies of Regality and their Deputs, Justices of Peace or others' to supervise the division at the locality concerned.[5]

Division of Dunbar Common was first mooted when counsel's opinion was sought in 1795. The magistrates of Dunbar went so far as raising a process, but this was abandoned after a considerable amount of discord which continued in a series of processes of declarator and suspension between the burgh and heritors. However, a fresh approach was initiated in October 1830 when a search was made of former legal skirmishes. A meeting of the heritors on 12 January 1831 agreed that Mrs Hamilton Nisbet Ferguson should pursue the case against the magistrates and town council of Dunbar and her fellow heritors. Thus in an atmosphere of collusive controversy a summons was raised on 30 June 1831 by Mrs Hamilton Nisbet Ferguson in the Outer House of the Court of Session. Her right to the commonty was set forth in the title of her barony of Beil *Cum communitate in communi mora de Lammermuir, vulgo nuncupat lie the Earl of March's Muir* (with commonty in the common muir of Lammermuir, commonly called the Earl of March's Muir). On 22 December 1831 the action negotiated another legal hurdle and Lord Fullerton, the Lord Ordinary, granted an act and commission to Robert Riddell, advocate. This is the form of judicial proceedings by which a commission is given by the Court of Session to a person for taking a proof in a depending action. The power delegated to the commissioner is a very important one, as the accuracy of the report given in evidence must depend in a great measure on his skill, knowledge and integrity. Up to 1800 the commissioner had been suggested by the parties, but thereafter the commissioner was appointed by the court. The commission is specific as to the proof to be led, and the period in which it is active. Warrant is given for citing the witnesses and the commissioner is directed to have a clerk to record the evidence, which must be subscribed by the witnesses. Walter Ferrier, WS, was employed as the common agent for the pursuer and defenders.

The proof

On 8 March 1832 Nicholas Weatherly, land surveyor, was appointed by the

commissioner to make a preliminary survey of the common in order to establish the boundaries.[6] Nicholas Weatherly had the rare distinction of being one of the few English land surveyors who practised in Scotland. He lived at Belford Villa in Northumberland and his practice extended over Durham, Cumberland, Northumberland, Berwick and East Lothian. In 1828 he had collaborated with Thomas Grainger and John Miller, land surveyors in Edinburgh, under the direction of John L. Macadam, surveying a route from Newcastle to Edinburgh via Jerburgh (the modern A68).[7] William Crawford, a well known surveyor in Edinburgh, had been approached as a possible surveyor for Dunbar Common, and at the same time a separate estimate was sought from Nicholas Weatherly. As it turned out, although Crawford had had experience in surveying the commonty of Abernethy (Perthshire) in 1816 and the scattald of Fitful Head (Shetland) in 1818, Weatherly was engaged. It is difficult to see any justification for his appointment, for there was an abundant choice of surveyors in East Lothian and Edinburgh who were experienced in the field of division of commonty, which embraced unique qualities of Scots law.

The preliminary survey made by Weatherly, a large manuscript affair, was exhibited at a meeting in Haddington on 7 June 1832 and several amendments were incorporated[8]. A reduction of this plan was made and lithographed by Forrester and Nichol in Edinburgh for general distribution[9]. On 13 and 14 July the commissioner and land surveyor walked over the common, making sure all the details on the map were correct before going on to take the preliminary proof from witnesses who confirmed the correct boundary. The first meeting for taking proof took place at Dunbar on 23 July (table 2). Nicholas Weatherly, who was called first, swore to the details shown on the plan and that it had been done according to the 'best local information he could procure.' The second witness, Thomas Broadwood of Fulfordlees, tenant of Thurston Mains, was cited by the defenders to prove the line of boundary generally:

> Depones, That he has no interest whatever in the commonty of Dunbar; and being examined *in causa,* depones, That he is about fifty-four years of age. Depones, That he is very well acquainted with Dunbar Common, having known it particularly since the year 1788, in which year he accompanied his father in a perambulation by the Magistrates and Council of Dunbar, or some of their number; and distinctly recollects that Bailies Walter Simpson and John Lorimer were present. Depones, That it consists with the deponent's knowledge, that the same body have been in the practice of perambulating the marches of Dunbar Common every seven years regularly, and of late more frequently. That the deponent attended the whole of these perambulations, except

one. Depones, That at the period above spoken to, when the deponent accompanied his father round the marches, his father was tenant of the farm of Johnscleugh, adjoining the common, which he quitted about 1797, having previously taken also the farm of Hildon and Easter Hartside, also adjoining the common. Depones, That his father entered upon a nineteen years' lease of Hildon and Easter Hartside in 1793 or 1794; and eight years before the expiry of the said lease the deponent and his father took an eight years' lease of the farms of Halls, Wester Hartside and Spotmiln . . . Being interrogated as to the marches of the common in general, depones and exhibits a printed document, entitled, Instrument on the Perambulation of the Outer or Great Common of Dunbar, dated 1st August 1788, and signed by Joseph Forrest, N.P. Depones, That the said instrument contains a correct statement of what the deponent understands, and has always understood, to be the marches of the common; and which printed document is subscribed by the deponent and Commissioner as relative hereto. Depones, That he was on the common on Saturday last the 21st instant, and went round all the marches with Mr Weatherly; and being shown the reduced plan of the common, as authenticated in reference to the surveyor's deposition, and the said deposition having been read over to the deponent, depones, That the said marches are what he considers to be the true marches of the common, and that the same are correctly delineated on the said plan, with the following slight exceptions . . .

A further 96 individuals were called as witnesses, giving 156 depositions, the difference arising from some giving evidence on behalf of two or more proprietors. Their average age was 57, ranging from 24 to 92 years. From Dunbar came the town clerk, surgeon and grocer. Elsewhere they were hinds, shepherds and tenant farmers. Their story reveals a pattern of herding sheep and cattle on the common from about eight years of age. They then spent their lives in agricultural employment, rarely moving more than a few miles from their place of birth, but regularly changing their employment or tenancy. It is clear that they perceived the great changes that agriculture had undergone in their lifetime, remarking that 'there was no grass for them in those days' [i.e. 1780] and 'they had an undisputed right to send their cattle to the common, but that they had given over doing so in consequence of the change in the system of farming, particularly by their raising more grass.'

The valuators

The commissioner appointed on 11 September 1832 David Low, professor

of agriculture in the University of Edinburgh, son of the eminent land surveyor Alexander Low, and Nicholas Weatherly, land surveyor, to be joint valuators of the division. Appointing such an eminent man and using the land surveyor in a joint capacity was a somewhat unusual procedure, for valuators were usually well-known local farmers, able to assess the worth of the different parcels of ground. However, Low and Weatherly performed their task to the satisfaction of the commissioner and the parties, identifying 24 parcels ranging in value from 1s 10d to 6s 10d per acre. (table 3). When the allotments were made, cognisance was taken of the different values of the soil.

TABLE 2

The commissioner's timetable for taking proof of division of Dunbar Common

1832	Place	Proof taken for
23 July	at Dunbar	Preliminary proof of boundaries
24 ,,	,,	Town of Dunbar
25 ,,	,,	Sydserff of Ruchlaw
26 ,,	,,	Mrs Hamilton Nisbet Ferguson
27 ,,	,,	Mrs Hamilton Nisbet Ferguson
28 ,,	,,	Duke of Roxburghe
30 ,,	,,	James Home Rigg
31 ,,	,,	James Home Rigg, James Hay of Bolton
1 Aug.	,,	James Hay of Bolton, Marquis of Tweeddale
2 ,,	,,	Marquis of Tweddale, Robert Hay, Sir James Grant Suttie
3 ,,	,,	James Sprot of Spott
4 ,,	,,	James Balfour of Whittingehame
8 ,,	at Garvald	Sydeserff of Ruchlaw, James Balfour of Whittingehame
8 ,,	at Newmains	Sir James Grant Suttie
9 ,,	at Haddington	Sir James Grant Suttie, Miss Dalrymple of Hailes
10 ,,	,,	Miss Dalrymple of Hailes
11 ,,	,,	Mrs Hamilton Nisbet Ferguson
4 Sept.	,,	Nicholas Weatherly, land surveyor
10 ,,	,,	Proof for general interest
11 ,,	,,	Proof for general interest
26 ,,	,,	Re-arguing proof
3 Oct.	,,	Re-arguing proof
19 ,,	,,	John Mason, land surveyor
20 ,,	,,	Earl of Haddington

TABLE 3

Valuation of parcels of Dunbar Common

Parcel	Value/acre		Parcel	Value/acre	
	s	d		s	d
1	4	8	13	3	0
2	4	1	14	4	4
3	1	10	15	3	0
4	2	3	16	2	11
5	3	2	17	3	5
6	3	2	18	3	2
7	3	0	19	3	1
8	3	5	20	2	6
9	2	9	21	2	8
10	6	10	22	2	6
11	3	6	23	3	1
12	3	4	24	1	10

The division

Having taken all the proofs needed, the commissioner retired to Edinburgh to compose and publish his notes.

> Haddington 27th March 1833. The Commissioner, before giving instructions to the valuators to proceed with the allotment of the ground composing Dunbar Commonty, among the claimants who have established their rights thereto, thinks it advisable to issue these Notes, explaining the grounds of the conclusions he has come to, on consideration of the productions made, and proof led. He has directed them to be printed and circulated, and, in order that parties and their respective Edinburgh as well as local agents may have an opportunity of stating, *viva voce,* any suggestions they may have to offer, with the view of making the ultimate division satisfactory to all concerned.

In order to make an equitable division the commissioner took cognisance of what prescriptive possession had been enjoyed by the claimants, in order to ascertain, in conjunction with the titles produced, who were proprietors of the common and who were holders of servitudes. He then assigned to each of the holders of pasturage rights a number of cattle or sheep as established by evidence (although the total was so high that the surface would have been exhausted if the commonty had indeed been grazed at that level); these figures were then translated into a cash valuation of the grazing. The commissioner reserved the mineral rights to the common proprietors, to be divided among them according to the valued rents of their lands.

TABLE 4

The final division of Dunbar Common

		Pasturage		Valuation			Allotment			Payment of legal costs		
		cattle	sheep	£	s	d	acres	roods	perches	£	s	d
Magistrates and community of Dunbar		50		33	10	3	204	0	27	62	15	6
Duchess-Dowager and Duke of Roxburghe	— Boonslie		500	56	19	10	342	2	36	106	15	0
	Oxwell Mains		10									
Mr Buchan Sydeserff	— Friardykes	20	430				*192	3	7	226	6	0
	Deuchrie		170									
	Rammerside		350	120	16	9	*488	1	19			
Mrs Ferguson	— Wester Hartside & Halls	30	300	117	3	10	697	0	2	219	10	0
	Easter Hartside & Hilldon		400									
Capt. Hay, R.N.	Belton & Belton-dod	6	150	25	14	10	139	2	3	48	4	4
Mr Home Rigg	— Wester Gamelshiel	20	500	91	19	8	645	0	35	172	5	6
	Easter Gamelshiel		200									
Marquis of Tweeddale	— Penshiel		100	22	6	10	125	1	31	41	17	0
	Kingside		100									
Mr Hay of East Barns	— East Barns		40	4	9	4	24	2	21	8	7	8
Sir James G. Suttie	— Bothwell	8	550	66	15	11	530	3	33	125	0	4
Earl of Haddington	— Johnscleugh		400	44	13	7	371	0	20	83	13	6
Mr Balfour	— Stonypath		350	94	18	11	622	1	17	177	16	4
	Newmains		100									
	Clints		400									
Miss Dalrymple	right of taking turf				17	10	2	1	22	1	13	6
										£1274	4	8

* split allocation

The commissioner called a meeting of the parties in Edinburgh on 15 April 1833 to announce the final division, which was attended by a large number of people. Although they agreed with his general approach, he received strong objections as to the proportions of stock and certain of the boundaries, which he brushed aside. However, there was unanimous agreement that the mineral rights should be estimated as equal to 220 sheep, to be added to the allotments of the proprietors in proportion to their valued rents (table 4). The division was now complete (fig. 3). A final lithographed plan showing the allotments was published in June 1833 to accompany the commissioner's final report to the court.[10]

One of the final duties of the commissioner was to supervise the land surveyor in setting up some 30 march stones from which the divisions could be taken in. They set out on 5 July 1833 with stones engraved with numbers to correspond with those on the plan of the division. However, at the 26th point they found the ground too soft for a stone, so a thick post of wood with the number 26 carved into it was driven into the ground.

It was decided that because the season was so advanced and the tenants required their normal grazing, the common would remain in its undivided state until Whitsunday 1834, when the proprietors would be free to set up dykes and bring their own lands into cultivation.

The cost

All that had to be settled was the cost of the three years proceedings. There must have been some shocking scenes when the accounts were unveiled, for they totalled the astronomical sum of £1274 4s 8d (table 5). The method of sharing this was exactly the same as dividing out the common, namely in proportion to the value of the grazing allotments. Thus the highest bill was that of Mr Buchan Sydserff for £226 6s, and the lowest Miss Dalrymple's £1 13s 6d (see table 4).

TABLE 5

Abstracts of costs for division of Dunbar Common

Legal costs	£363 16 6
Printer	94 4 0
Surveyor and valuator	356 16 11
Lithographer	20 1 10
Commissioner	210 0 0
Clerk	100 0 0
Dunbar innkeeper	107 7 0
Miscellaneous	21 18 5
	£1274 4 8

Conclusion

The story of the final years of the vast old common of Dunbar illustrates the profound changes that Scottish agriculture was undergoing.

Several aspects about Dunbar Common give rise to a feeling of unease. Why was the division of Dunbar Common so late in the history of Scotland's vanishing commons? How did the burgh of Dunbar exert such a strong influence upon the common, both in its long history of perambulating the marches and later trying to monopolise the grazing when in truth they possessed a trivial servitude? Was the expense of division justified in increased returns to the heritors? Why was the question of exemption of royal burghs from the Division of Commonty Act not raised?

Yet one thing is clear: Scottish law played an effective and efficient role in ending a redundant land use. In 1695 farsighted legislators in the Estates of Scotland laid down a sufficiently just system of division for East Lothian farmers in the year 1833 to be relieved of an obsolete embarrassment — Dunbar Common.

REFERENCES

1. For a comprehensive list of Scotland's commons *see* I. H. Adams, *Directory of Former Scottish Commonties*, Scottish Record Society, Edinburgh, 1971.
2. Unless otherwise stated all references relating to Dunbar Common are taken from the Court of Session process in the Scottish Record Office (SRO), Mrs Mary Hamilton Nisbet Ferguson against the magistrates and town council of Dunbar and others (CS.46/20/11/1833); additional printed proceedings are to be found in the Hay of Belton papers (SRO GD.73-4/129-34).
3. SRO Douglas Collection GD.98/88.
4. Acts of Parliament of Scotland ix, 462 (1695, c.69).
5. For an analysis of commonty legislation and a description of another division of commonty process *see* I. H. Adams, 'The division of the commonty of Hassendean 1761-1763', *The Stair Society*, Miscellany One, Edinburgh, 1971, 171-92.
6. SRO RHP 201/1.
7. SRO RHP 9649.
8. SRO RHP 201/2.
9. SRO RHP 11810; copies ex Dunbar burgh records RHP 32546, 32547; copy ex John C. Brodie & Sons, WS, in Edinburgh, papers RHP 1246.
10. SRO RHP 8743 (a copy was made of this plan in 1904 by James McEwan—RHP 30063).

TWO NOTES: THE CORDINER CRAFT AND HADDINGTON'S FIRST FIRE ENGINE

By J. NORMAN CARTWRIGHT

THE CORDINER CRAFT

Volume IX 1963 of the Society's Transactions included an article by a former Secretary of the Society — George Murray — on "Inventory of the Records of the Crafts of Haddington along with Extracts from the Minute Book (1707-1761) of the Cordiner Craft."

Among the Minutes quoted is that of 25th August 1733:

> "The which day Clerk Ainslie gave in the Touns old gift to the Cordiner Craft with a clean copy on fyne parchment and they are putt in the box but the clerk wants payment till another occasion."

Whilst sorting sundry papers in the Society's library in Haddington House this "copy on fyne parchment" was discovered by the present Secretary — alas in very poor condition but kindly deciphered by the Scottish Record Office to read as follows:—

TRANSCRIPT OF A COPY, MADE IN 1733, OF THE SEAL OF CAUSE GRANTED TO THE CORDINER CRAFT OF HADDINGTON

In this transcript, the original spelling has been retained, save that contractions have been spelt out in full. Some punctuation has been added, together with paragraph divisions. Square brackets have been placed round words of which the original is illegible or doubtful, with or without emendation. The marginal headings, which are lengthy and add nothing to the text, have been omitted.

Be it Kend till all men by thir present letters US Robert Lermont, John Cockburn and John [S1]iech Baillies, John fforest Threasurer, and Remanent persons undersubscrivand Councillors of the Burgh of Hadingtoun representing the Community thereof, for our selves and in name of the haill Community thereof, fforsameikle as at the Good pleasure of God the Inhabitants of the Burgh beginns now after a long delay to increse and it is most requisite and

Transactions of the East Lothian Antiquarian and Field Naturalists' Society, Vol. 15 1976.

Necessar and Convenient for the Glory of God Policy of this Realme and Welfair of his Majesties Liedges dwelling within the said Burgh and resorting thereto That as the Number of Inhabitants Dwelling therein dayly incresce So they should incresce in Grace vertue and Policy and the said Burgh should be decored with good honest and sufficient Craftsmen being orderly called thereto for establishing and Keeping of good order among themselves to their own Well [profit?] and comodity and for the use well and benefite of the remanent Inhabitants within the Said Burgh and of our Soverayne Lords Liedges resorting thereto for the tyme; And [Considering] that the [Cordiners] within the said Burgh had and hes [in . . . . seration] of their trade within our said Burgh and was of old erected and appointed in [ane ffree] Craft be our predecessors Provost Baillies and Councill of the said Burgh; And that their Deacons sat and had Vote in Councill as the rest of [the deacons] of other Crafts within the said burgh had [under ane . . . . .] and letters patent [thereof] under our Seall of Cause in verry ample form and that the samen wes most pitifully with an great part of the Burgh upon the eighteen day of May the year of God One thousand ffive hundred and fourscore eighteen years be the Injury and Visitation of an Sudden and unexpected fire burnt and consumed, being in the hands custody and Keeping of Adam Veich be umquhile John Douglas their Decon lately befor his giving of the samen to the said Adam with certain others his owne Writts in custody and Keeping In bruiking and Joyseing of the Libertie of the Whilk Craft for the most part they have ever since been in possession.

And wee being nowayes of mind or intention to prejudge them or their successors of the samen in any tyme heirefter, but rather most willing to ratifie whatsoever their former gifts and priviledges But also to grant new Gifts to them, therefore we have of new erected and be the tenor hereof erects the said Craft or Art of Cordiners (Comprehending therein the Barkers and Tanners of hydes with these that are usually called Cordiners or Shoemakers) in an free Craft and trade to be only Wrought used and exerced by Sick freemen as shall be admitted thereto by the Deacon of the said Craft and so many Masters as shall be chosen with him, Inhabitants within the said Burgh of Hiddingtoun in all tyme comeing; and for that effect we have Given and Granted and be the tenor hereof for us and our successors Provost Baillies Councill and Community of the said Burgh of Hadingtoun Wee give and grant full power liberty and licence to the Bretheren and ffreemen of the said Trade and Craft as afterfollows:

(1) ffirst to conveen yearly a little befor the feast of Michaelmas and by their maniest Votes to Elect nominat and appoint ane Deacon of the said Craft of the Most Civil honest and most qualified persons of the samen to serve for one year to

come in the said Office. Who shall have power and be admitted by us to conveen sitt and Vote in Councill of this Burgh as other Deacons of Crafts within the samen does and to take tryell and decide in all matters debateable betwixt any of the said Craft concerning and depending upon their said Craft; And to take Notice and tryall of all enormities of the said Craft and to Make Such Statutes and Ordinances as shall be [just] and expedient for the honour of God Policy and Commonwell of this Burgh profeit and well of the Craft and be profiteable to our Soveraigne Lords Liedges and Worthy to be approven and allowed be us to be keeped and observed by them, Under reasonable and compitent pains to the contraveeners to be set doun in the Said Ordinance; to the ready execution whereof and punishing the Contraveeners of the same We for us and our Successors Provost Baillies and Councill of the said Burgh promitt to interpone our Authority and give our concurrence thereto, And to give command to our Officers for that effect we being required by them thereto.

(2) Item to elect and appoint an Boxmaster among them and to exact weeklie frae strangers and all others free and unfreemen within and Outwith this Burgh and resorting thereto with Wares belonging to the said Craft on Mercat days an Boxpenny as other Crafts within this Burgh does; And that court shall be made to us and our successors forsaid of [. . . . .] and of all other [unlaws?] of the said Craft to be uplifted and intromett with by them if it be required yearly; and the money to be collected to be imployd upon the decayd and Misterfull ffreemen and Widows of ffreemen of the said craft at the discretion of the Deacon and Masters thereof.

(3) Item to the Deacon and So many of the Brethren freemen [. . . . . shall be] chosen Masters or assissors to him to try the freemen of the said Craft and after tryall of their sufficiency to receive and admitt them freemen thereof within this Burgh.

(4) Item to try Visit and Make search for all unsufficient Work that shall be wrought to any Inhabitant within this Burgh or outwith the samen and that shall be brought or offered to sell in the Mercat or otherwayes within the said Burgh; And being tryed and found insufficient be them (we and the Magistrats for the tyme allways concurring and being with them) to confiscat and appropriat the samen to the use of their Poor.

(5) Item we have ordaind and be thir presents ordains that they make no person freeman [of] their Trade and Craft except be first be made Burges and thereafter give in his Essay to the Deacon and Craft and Such as they shall appoint thereto and that the Samen be found sufficient be them Other ways not to be admitted freeman of the said Craft; and that all persons admitted and to

be admitted thereto shall pay Scot and lott tax and stent to be gathered and taxed by the Deacon and Masters of the Craft And that in matters pertaining to the said Craft and Well thereof allennerly.

(6) Item that no Woman shall have an Workhouse of the said Trade as an free Master therein, Unless she be a freemans wife or the Relict and Widow unmarried again of ane freeman thereof.

(7) Item that all persons already received and admitted ffreemen of the said Craft presently residing Outwith the said Burgh repair to the samen Within the space of two years, And there make their setled dwellings and abodes With their Wives bairnes and Servants during their lives tymes Under paine of Tinsell of their ffreedomes of the said Craft; And that no person or persons admitted and received or to be admitted and received ffreeman of the said Craft shall depart out of the said Burgh and Make his dwelling and residence outwith the samen in any tyme hereafter, But shall still remain therein under the like penalty of tinsell of their ffreedome. Giving hereby Power to the said Deacon and remanent Brethern and ffreemen of the said Craft to deprive the said freemen alreaddy received and not repairing to this Burgh within the space for said the samen space being expyred. And these who are alreaddy admitted and received or shall hereafter be admitted or received and thereafter [depart] out of this Burgh and make their Dwellings outwith the samen as said is, to deprive them also of their ffreedome of the said Craft And not to suffer them to exerce the said Craft Within the said Burgh in any tyme hereafter.

(8) Item that none be admitted ffreeman of the said Craft but such as has been apprentices to ffreemen within this Burgh and has their Apprenticeships Outrun.

(9) Item That no Prentice be received by any Master of the said Craft without the Deacon and four Masters thereof have Knowledge thereof and be acquainted therewith, Under the paine of ffive pounds Usuall money of this realme, to be payd by the Receiver of the sd Prentice to the said Craft.

(10) Item that all Prentices to be Received by any Master of the said Craft shall immediatly after the making of their Indentures to be booked in the said Crafts books made to that effect, Under the pain of ffive pound money foresaid to be payd by the receiver of the said Prentice to the toun And other ffive pound money forsaid to be payd be him to the Craft.

(11) Item that all Prentices in the said Craft or Burges bairns within the said Burgh shall pay to the said Crafts Box at their Entry to the said Craft fourty shilling money for said, And for Booking and Registrating of the Samen twenty

shilling money forsaid, With the soume of Ten Merks money forsaid in composition of the Banket.

(12) Item that no Masterman of the said Craft receive an New Prentice While the first three years of the last Prentice he received immediately of befor be compleatly outrun, Under the pain of Ten pound money to be payd by the Receiver of the said New Prentice to the Crafts Use.

(13) Item that no Apprentice in the said Craft be received or admitted to his freedom of the samen without he have served for the space of Two years at least after the Outrunning of his Prenticeship with some ffree Master of the said Craft, That he may be the more able to serve [his] Highness Liedges in the said Craft.

(14) Item that no Master in the said Craft receive in his service an other Masters Prentice or Servant while first the said Prentice or Servant have satisffied his last Master for his Prenticeship or Service and obtain his Discharge thereupon, At the least without he have an sufficient Cause known and tryed be the Deacon and Masters of the said Craft to leave his said Master, Under the pain of Ten pound money forsaid to be payd by the Receiver of the said Prentice or Servant in Service to the said Craft toties quoties.

(15) Item that no Master or ffreeman of the said Craft receive an Servant to work with him in the said trade that has not been Prentice Within the said Burgh with some ffreeman of the said Craft; And at his entry to the said Service the said Servant shall pay to the said Crafts use Ten shilling money forsaid.

(16) Item that no man take upon hand to receive or Work An other freemans work without his leave, Under the paid of ffive pound money forsaid toties quoties.

(17) Item that ilk persone that Works in the said Craft both free and unfreemen shall pay Weekly to the Poor twenty pennies money forsaid And ilk fied servant shall pay yearly to them four shilling money forsaid to be collected be the Deacon and four Masters of the said Craft.

(18) Item that ilk person whatsomever of the said Craft that disobeys the Deacon thereof, And shall refuse to underlye the Ordinances of the said Crafts statutes made for the good thereof, Shall pay to the said Crafts use for the said disobedience ffive pound money forsaid toties quoties to be tane up without any favour by the attour any other penalty that can justly be imposed upon him for breaking any of the saids Statuts and whereupon the said disobedience shall arrise and together therewith.

(19) Item Because the said Craft and Trade has been and may be greatly damnified and wronged be diverse persons unfreemen thereof who has bought and may buy within the Liberties of the said Burgh horse hydes Marehydes and stirk skins of a year old Or thereby, and transports them out of the said Burgh to other parts to the great hurt and prejudice of the said [Craft?] to whom they only propperly [b . . . .] to buy therefore and for remeed thereof we for us and our Successors forsaids Statuts and ordains that no person or persons whatsoever that are not freemen of the Craft shall at any tyme hereafter buy within the Liberty of the said Burgh any horse hydes Mare hydes and stirk skins but such as shall be freemen of the said Craft and Trade allennerly Under the pain of Confiscation thereof (wee and our forsaids always concurring with them) to the use of the said Craft.

In witnes whereof to thir presents subscrived by us and our Comon Clerk at our Command our Seall of Cause is affixt at Hadingtoun the Twelth day of August the year of God One Thousand Six Hundred and Thretty-five years Sic Subscribitur Johne Cockburne Baillie John Slioch Baillie John forrest thresaurer H. Cockburn Ja. Anderson William Cockburn John Strachan George Blackburn A. Bald patrick Kyle James quhyte David Kyle A. Swintoun [George?] Cockburn harie Cockburn. Ita est Magister Georgius Gray Nottarius Publicus et Communis Scriba dicti Burgi de Hadingtoun de Mandatis dictorum Balivorum et Consulium qui scribere nescierunt testan. his meis signe et Subscriptione Manualibus Solitis et consuetis.

Hadingtoun the twenty fifth day of August One thousand seven hundred and thretty three years the above Coppy Writt out by John Ainslie Clerk of Hadingtown.

J. Ainslie Clk. Nor. Pub.

The document has now been placed with the Minute Book in the Scottish Record Office. Unfortunately its condition renders it unsuitable for reproduction.

HADDINGTON'S FIRST FIRE ENGINE

A' gude men-servants where'er ye be,
Keep coal and can'le for charitie,
In bakehouse, brewhouse, barn, and byres,
It's for your sakes, keep weel your fires:
Baith in your kitchen and your ha',
Keep weel your fires, whate'er befa';
For oftentimes a little spark
Brings mony hands to meikle wark;
Ye nourices that hae bairns to keep,
Tak' care ye fa' na o'er sound asleep
For losing o' your gude renown,
And banishing o' this burrow town.
It's for your sakes that I do cry,
Tak' warning by your neighbours by.

This "Coal and Candle" proclamation had since the disastrous fire of 1598 been announced nightly, except Sundays, throughout the streets of Haddington. It is therefore surprising that it was not until 1766 that the Town Council considered the purchase of a Fire Engine, although six leather buckets had been purchased in 1765.

Their Minute of 3rd July 1766 reads:—

"It was moved That most of the Royal Burrows had provided Water Engines to be used in cases of fire and that one Mr. Anderson in Edinburgh Who makes these Engines, had one, to dispose of, which if purchased might some time or other, be of great benefite and advantage to this Burgh and the Councill being willing to do everything in their power for the safety of the inhabitants Do therefore earnestly recommend to John Martine or Robert Burton Merchants, the first time any of them goes to Edinburgh to take the assistance of some skilfull person in these affairs and to look at and survey the foresaid Water Engine and to report whether it is sufficient to answer the end proposed and the price at which it will be sold."

We are not told in further Minutes the result of the visit to Edinburgh, nor indeed if it ever took place, but John Martine was one of those nominated by Minute of 29th March 1770 when:—

"The Councill also considereing the great benefite and usefulness of a fire Engine to be ready when any accidentall fire happens within this Town They Nominate Andrew Dickson John Martine Pat McClarran Deacons Thomson and Mowatt a Committee to meet with the Magistrats at any time they find proper and concert proper methods for purchaseing a fire Engine." On 2nd May of that same year this Committee reported:—

HADDINGTON'S FIRST FIRE ENGINE

"That after considereing the usefulness of haveing a fire Engine in this Burrow in case of any fire happening They were unanimously of oppinion The same should be purchased without loss of time and accordingly had wrote to the Magistrates of Dunbar to know the expence of one that Burrow had lately purchased and had got a return That the expence of their Engine amounted to Fourty pounds Eleven shillings and Six pence Sterling & which included Twenty four leather buckets of prime costs Exclusive of freight Which report being considered by the Councill They Unanimously agree to purchase such another Engine for the use of this Town & recommend to the Provost or Mr Martine to write to Mr Robert Falls in Dunbar and to beg the favour of him to Commission another such Engine from London, but with no more that Eighteen bucketts as this Town has already severall leather bucketts."

There was little delay in delivery as on 31st October 1770 directions were decided upon for its efficient operation:—

"If the following Directions be well observed, None can be at a loss how to house and keep the fire Engine in order.

When you play a stream to its full length hold the branch steady for some time, let so many men as can stand on each side take quick strokes from the Bottom.

When you play by suction, unscrew the Cap which hangs by a Chain, then screw the sucking pipe thereon tight, to prevent the air, and extend the iron handle from letter A to B (which causes the suction) dip the Suction Pipe in water before you screw it on, especially when it has laid dry for some time let some water be in the Cistern when it plays by suction, when you would pay water out of the Cistern, turn the handle back to A: severall times a year move the handle both ways from A. to B: then the Cock will never sett.

When you would play through a length or more of leather Pipe, Unscrew the Copper branch from off the Elbows, and screw the leather pipe thereon and at the other end of the Pipe or Pipes (for the screws will fitt year others) Screw on the branch, which may be carried up and down stairs, anywhere as occasion requires, and if it has played much dirty water, play clean water to cleanze the Engine, after the inside of the Cistern is well washed then oill all the moveable parts, and the axles of the Carriage Wheells play it twice a year to see it is in order.

Whenever the Forcers move stiky in the barrells, pull up the Board with Makers name upon it, then a little Board which lyes over the Barrells and Oil the inside of them when each Forcer is half way down, Oill all the Chains and both ends or Pevetts [pivots] of the long iron Spindle with sallad oill, but grease the Elbow screws with Tallow, and do not screw them too hard on, neither screw them off, If the Chains become slack, take the Fork Key and screw the Nutt a little harder which is on the top of each Forcer untill the Chains are tight.

When you lay the Leather Pipes by for some time, drain the water well out, if then they become stiff and hard with much useing, liquor them with Train Oill when they are a little wett, and when they are dried then quoill [coil] them up as at first, and hang them in a dry place.

Let the Forcers be new leathered and new Valves made one in seven years-whether they be wanting or no, and so the Engine will be keept in good order, If the Forcers by much useing should wear loose in the Barrells or become too tight Oilling will not ease them, then take them out of the Barrells by unscrewing two pins which hold the other Chains in the single iron wheel, then the Forcers. When a nutt at top of each Forcer and one in the spindle are unscrewed, which frees both ends of the chains, If they be too tight, scrape the Gravell &c well out of the leather, till the Forcer will go easily into the Barrell, but if they be too slack, by being wore with much useing, Mould up the new leathers in the Barrells, upon the Oak Blocks again as they were, When needfull the Air Vessells and Barrells may be taken up with the assistance of long T Key, to put new valves in, after the manner of the Old Ones.

Paint the iron work and Cistern once in Seven years to preserve them."

On 7th March 1771 "The Magistrates reported to the Councill That in their oppinion there should be employed for ordinary attendance upon and taking care of the fire Engine The number of thirteen men at five shillings per annum each and that there should also be employed for Extraordinary trouble in case of fire the number of twelve men to be paid at the discretion of the magistrates in case of fire which the Council approved of and recommended to the Magistrates with the assistance of the Treasurer to make choice of these men which they apprehend to be best qualified for the above office. A list of the men to be employed for ordinary is hereto affixed."

HADDINGTON'S FIRST FIRE ENGINE

List of men for managing the Fire Engine approved by the Council 7th March 1771

Patrick Cowan
Patrick White
John Stirling
James Allan
James Robertson
Alexr Ritchie
Alexr Coats
Alexr Ferm
John Ramage
Robert Cunningham
David Reid
Andrew Richardson
William Knox

On 27th August 1772

"Thereafter the Council unanimously appoint David Reid Shoemaker to be keeper and manager of the Towns Fire Engine with a sallary of Twenty Shillings Sterling yearly during the Councils pleasure commencing at Whitsunday 1771."

It might appear strange to people of today that a Shoemaker be appointed Keeper of the Fire Engine, yet how wise, as the vulnerable parts of the Engine, valves and the like, would then be of leather as were the hoses. I like to think that this David Reid was the one who had cared so lovingly for the leather fire-buckets since 1765 that when the Fire Engine was purchased in 1770 the Town Council required only eighteen buckets instead of the quoted twenty four.

Council 1976

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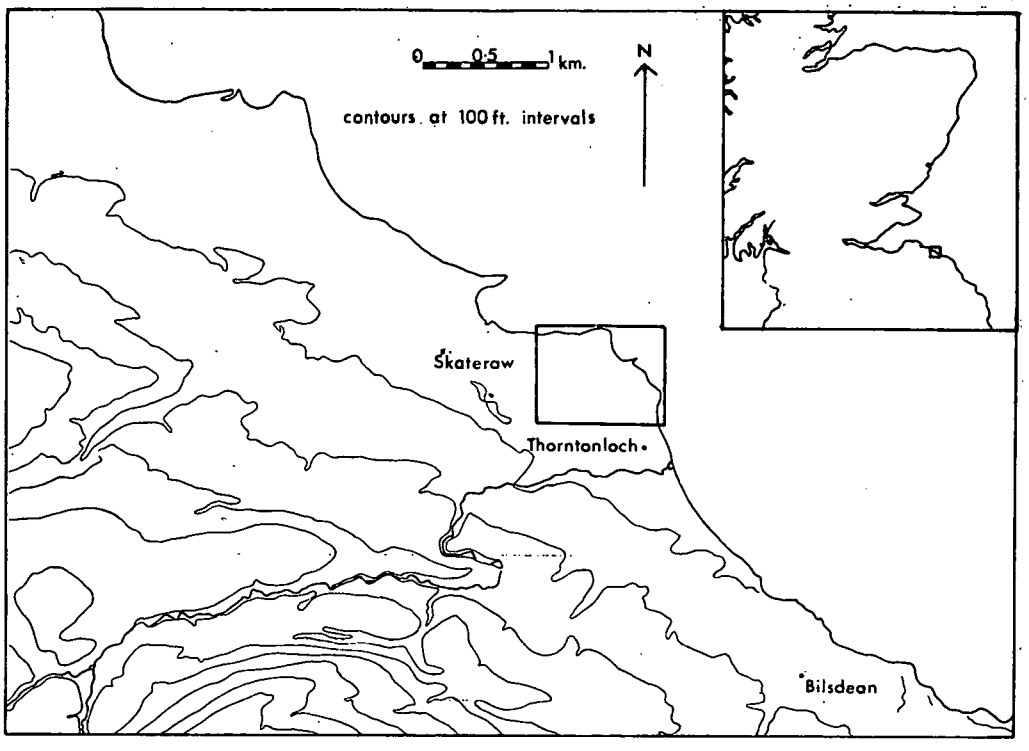
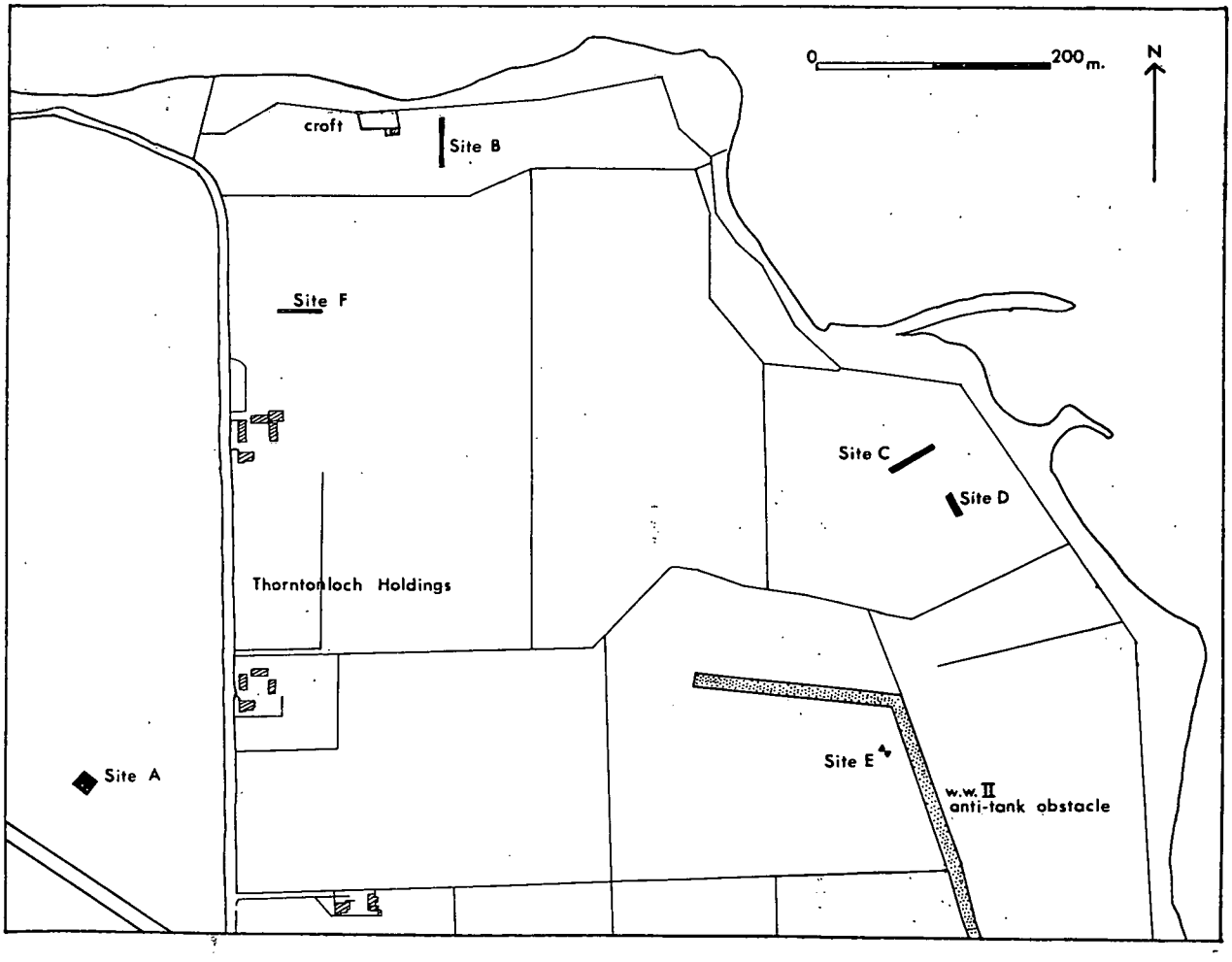
TORNESS: LOCATION





TORNESS 1975

THE ARCHAEOLOGICAL SURVEY OF A COASTAL AREA OF EAST LOTHIAN AT TORNESS, INNERWICK

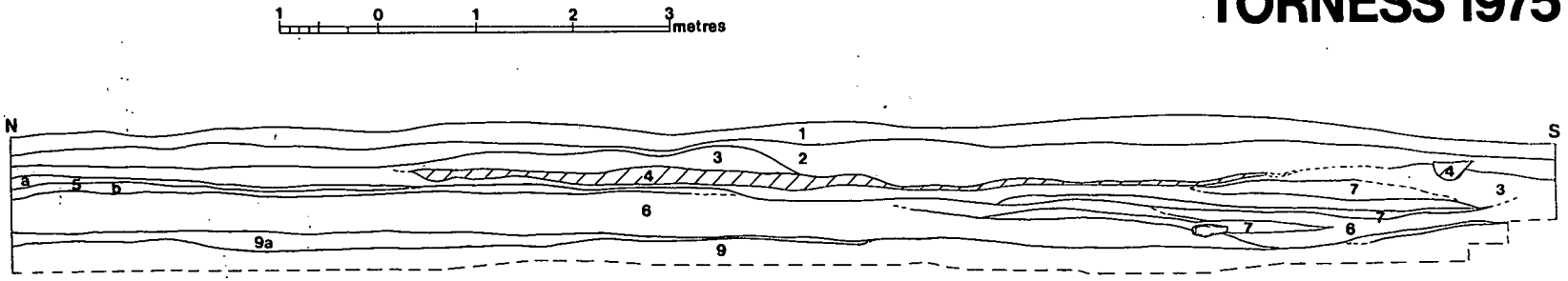
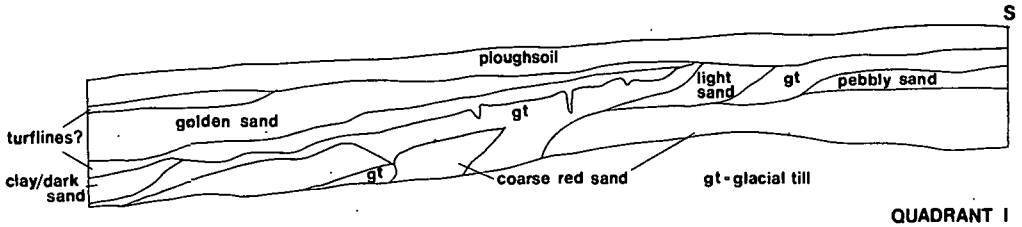


Fig.1.

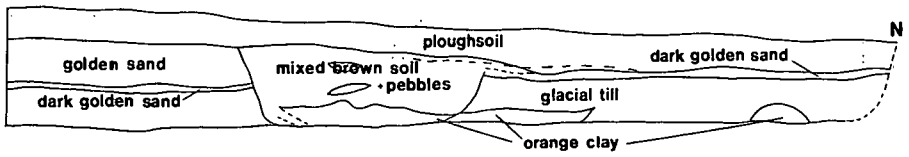
1 dark brown sand and humus
2 dark yellow sand and roots
3 fine silver sand; more gravelly to S.
4 iron pan
5 silver sand - a) large b) small pebbles
6 silvery-orange sand
7 gravel
8 orange sand
9 dark brown sand 9a) - gravel

SITE D
EAST SECTION

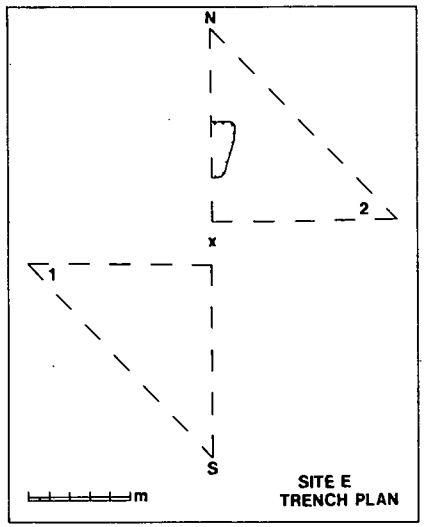


QUADRANT 1

Fig.5.



QUADRANT 2



SITE E

TORNESS
SITE C
1975

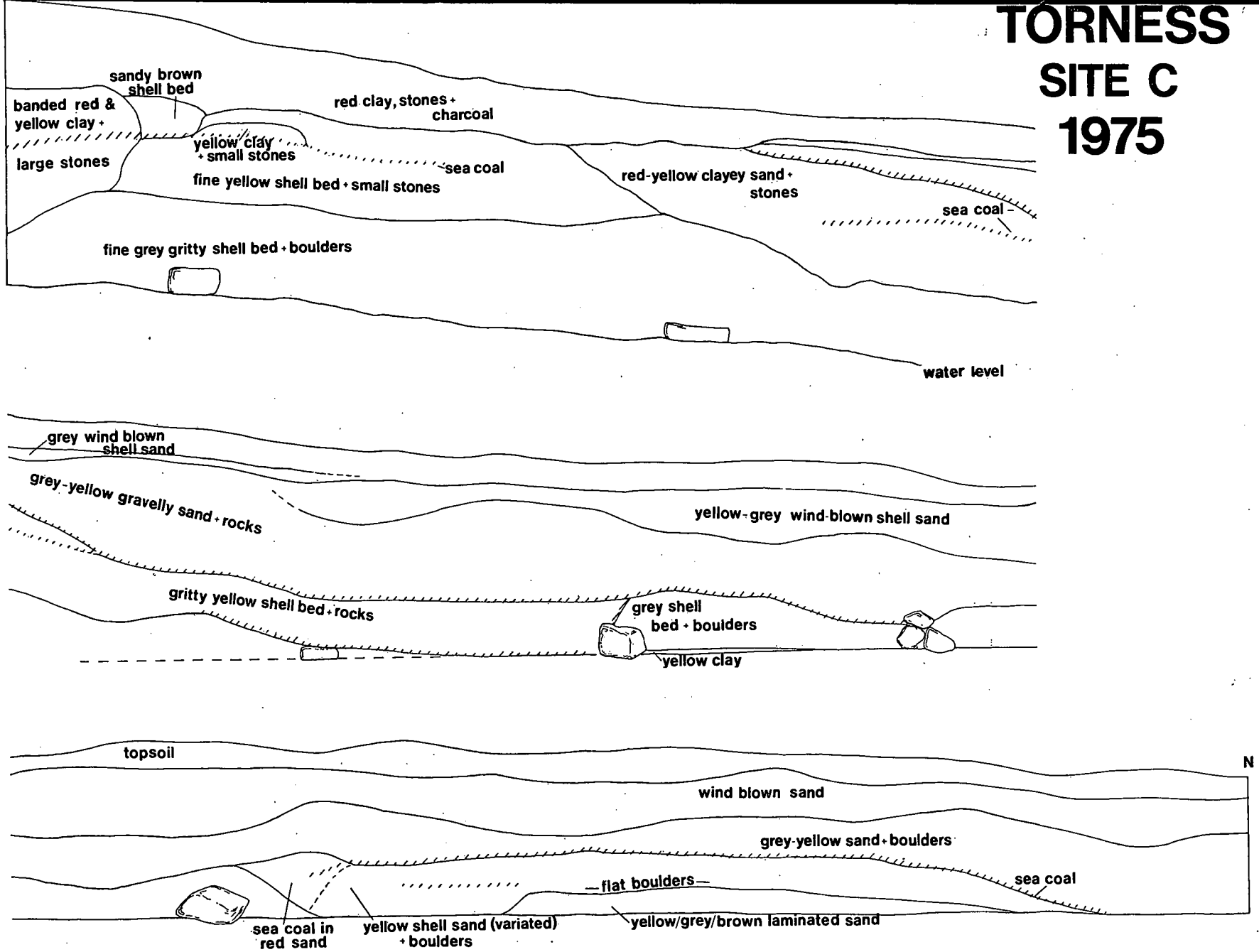


Fig.4.

TORNESS 1975
SITE A
TRENCH LOCATION PLAN

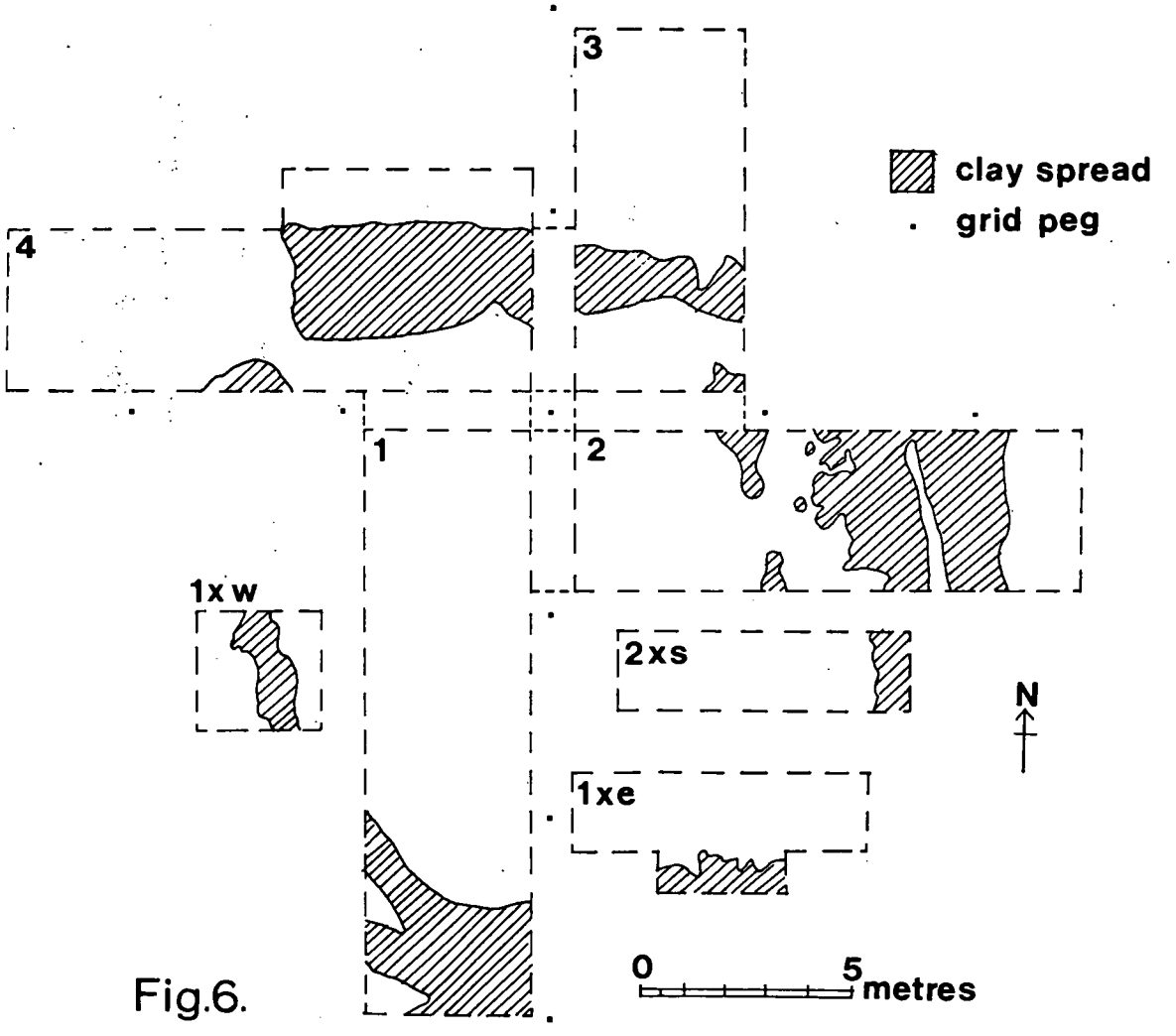


Fig.6.

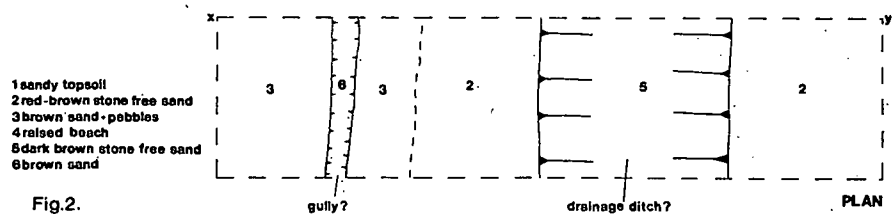


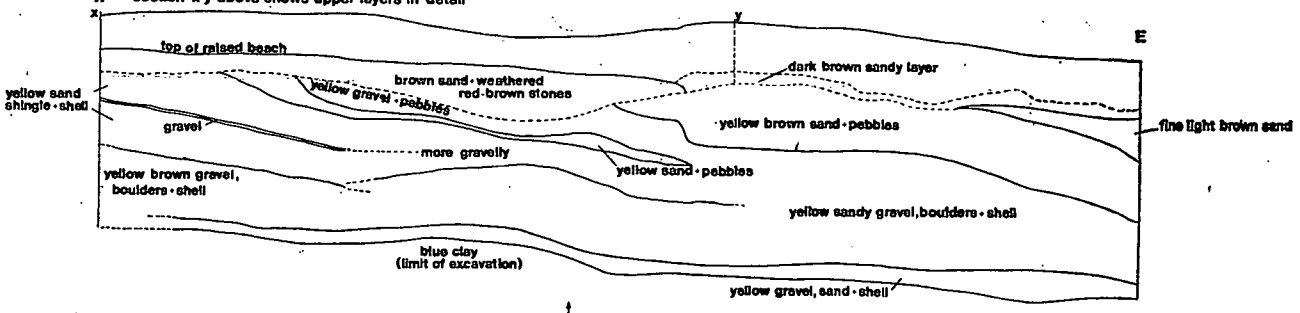
Fig.2.

TORNESS 1975
SITE B

1 0 1 2 3 metres

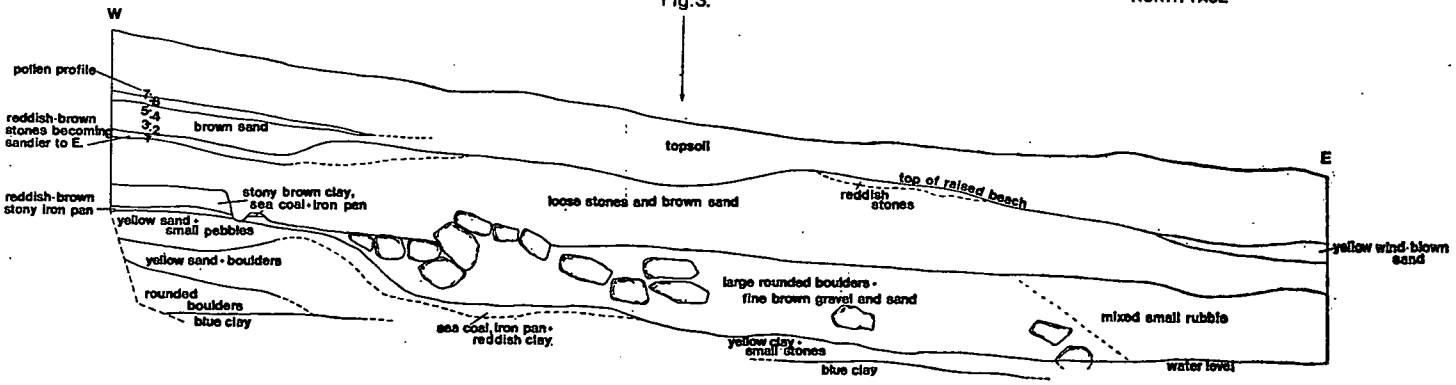
TRENCH 1
UPPER LAYERS - NORTH FACE

W section x-y above shows upper layers in detail

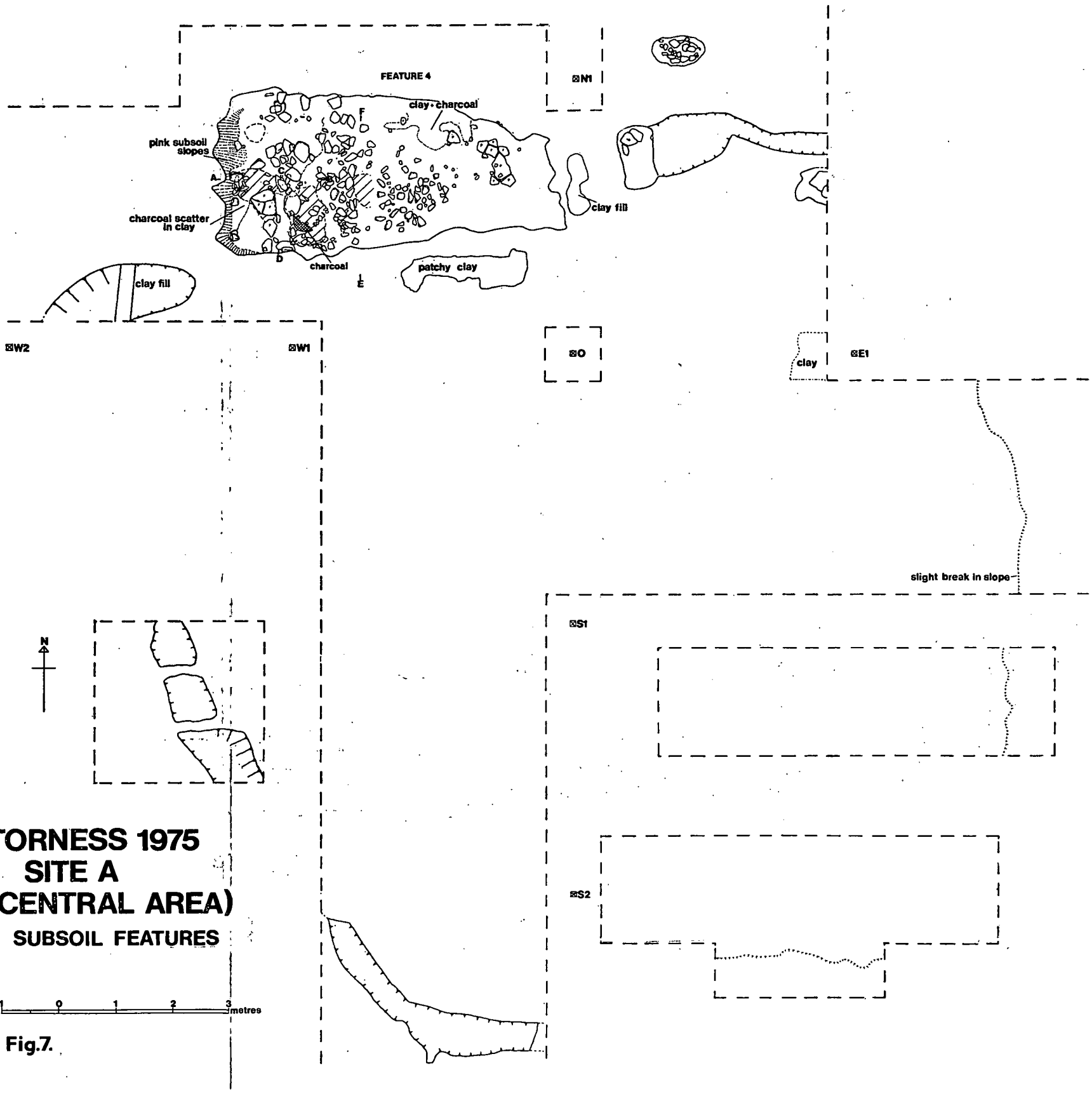


TRENCH 1
NORTH FACE

Fig.3.



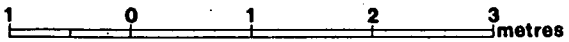
TRENCH 2
NORTH FACE



TORNESS 1975
SITE A
(CENTRAL AREA)
SUBSOIL FEATURES

Fig.7.

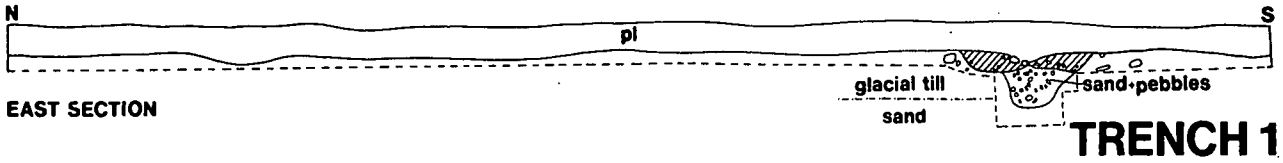
TORNESS 1975
SITE A



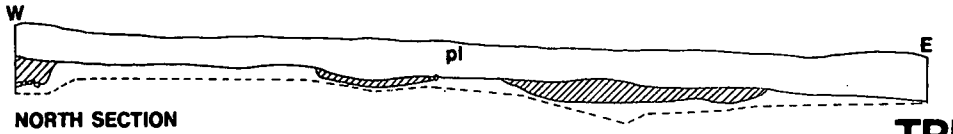
pl ploughsoil

clay

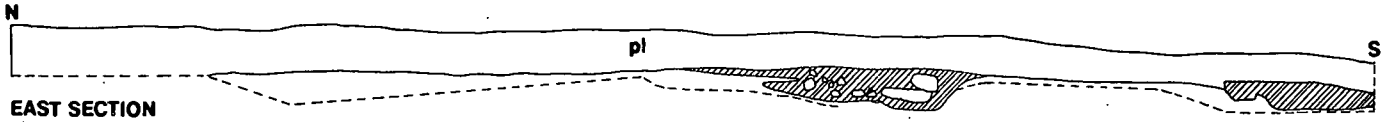
--- limit of excavation



TRENCH 1



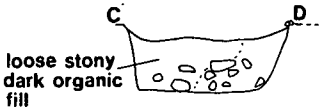
TRENCH 2



TRENCH 3

FEATURE 4 : SECTION E-F

SECTION A-B



SECTION C-D

TRENCH 4

Fig.8.

POST MEDIEVAL BURIALS AT HADDINGTON

2

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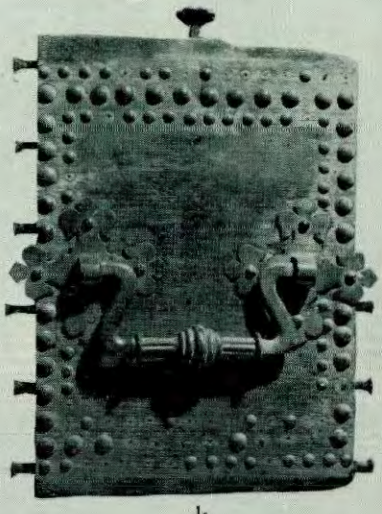

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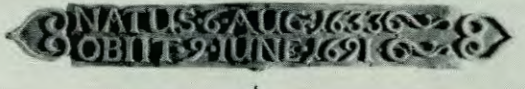

b

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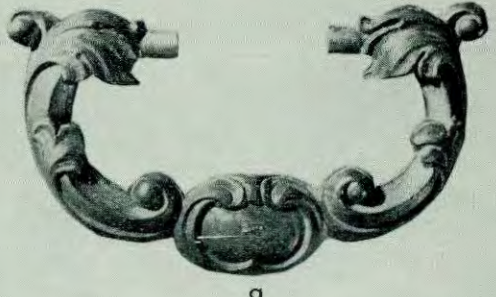

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Plate I

i

j

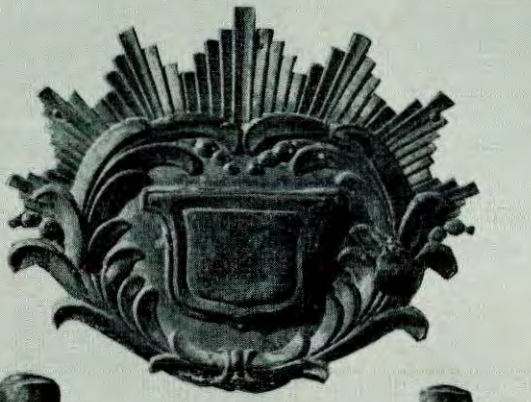

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Plate II

2

7

5

6

Plate III

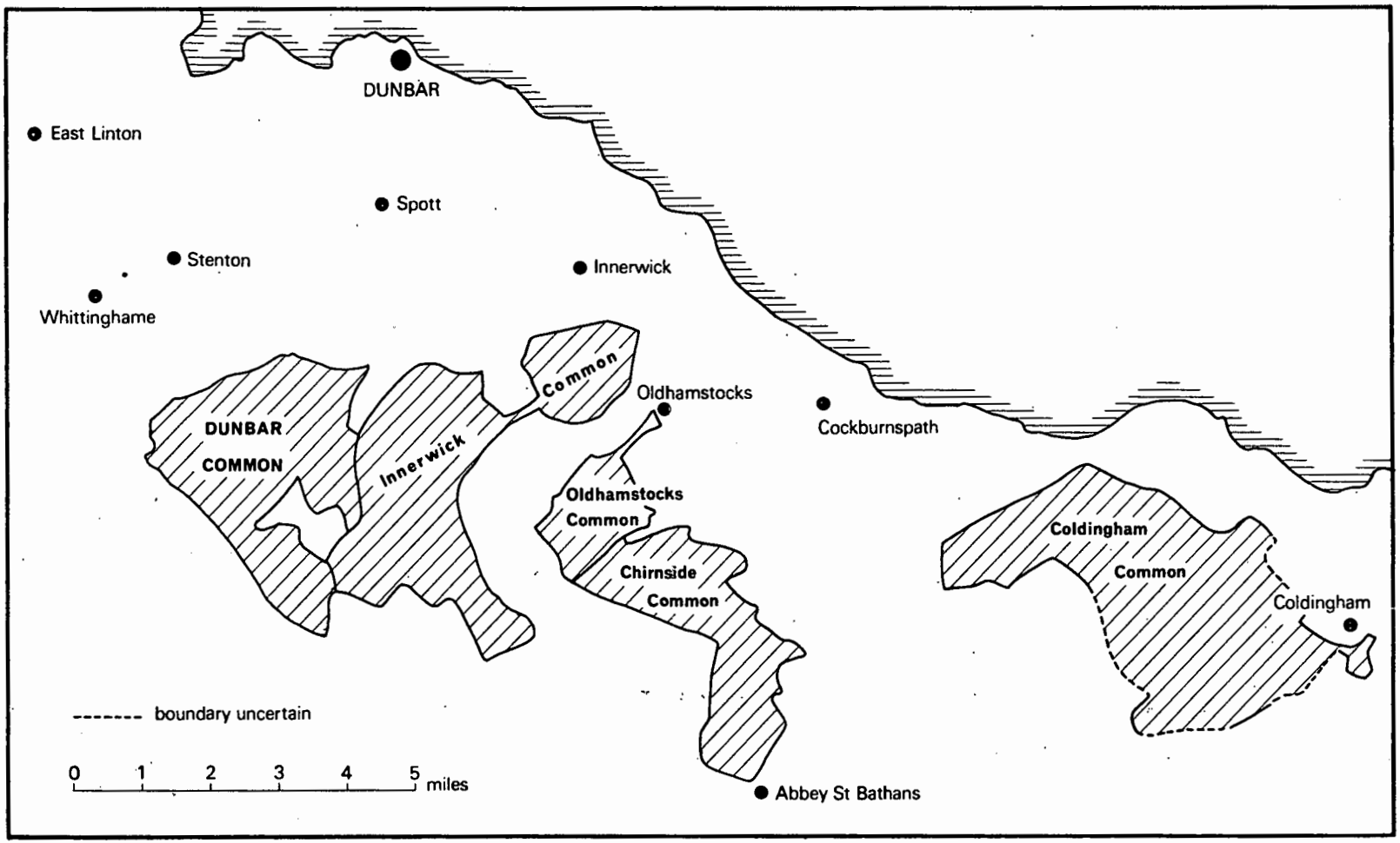

Fig.1.

The commons of the Lammermuir Edge.

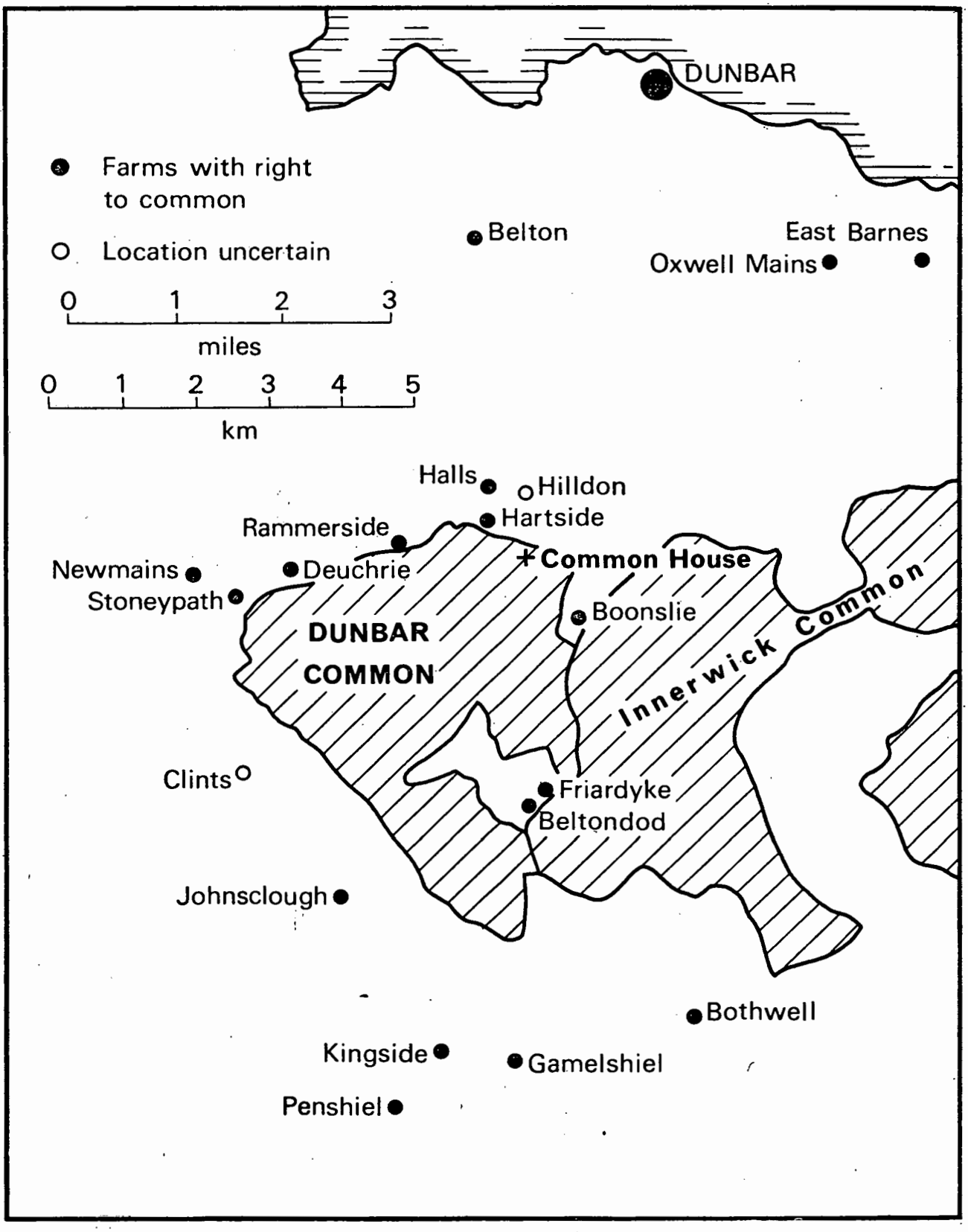

Fig.2.

Dunbar Common showing farms with rights to the common.

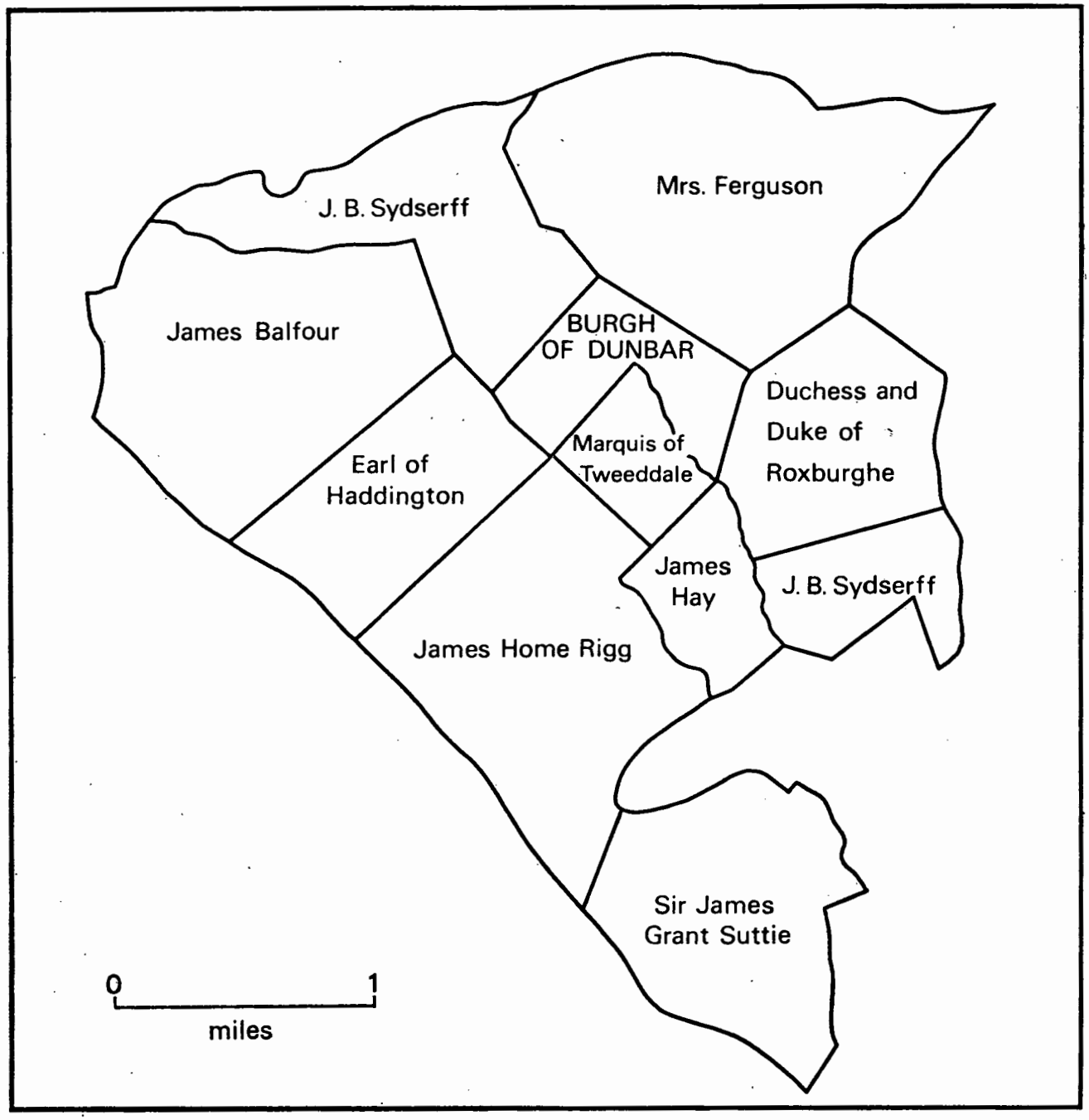

Fig.3.

The final division showing the individual allotments (based on plan in Scottish Record Office, RHP 8743).