

CASTLEMARTIN RANGE

REPORT ON THE ARCHAEOLOGICAL WATCHING BRIEF ON THE RANGE ENHANCEMENT, AUTUMN 1995

DAT Project Record 32106

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CASTLEMARTIN RANGE, PEMBROKESHIRE

ARCHAEOLOGICAL WATCHING BRIEF ON THE RANGE ENHANCEMENT WORKS, AUTUMN 1995

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1.0 INTRODUCTION

1.1 Summary

A watching brief was undertaken on an intensive programme of enhancement works at Castle-martin RAC Range, the project being managed by Bucknall Austin on behalf of the Ministry of Defence. The work included the provision of four new firing ranges with associated services and buildings. In the main, however, ground disturbance was limited to the excavation of small, dispersed target pits, and very narrow service trenches - where larger areas were stripped this was shallow, extending only to the base of the ploughsoil.

The four new ranges were:-

Site A: Range West where 20 target pits were excavated

Site B: 600m ET(M)R range where a 600m x 100m area was stripped to the base of the ploughsoil, a roadway was ploughsoil stripped and a number of trenches were cut including a 1.3km length for water piping (not observed)

Site C: Team FFA where 20 target pits and 4 firing trenches were excavated, and 2 long strips were topsoil stripped for moving target tracks

Site D: TBSR where 20 target pits were excavated.

At Site A the widely dispersed target pits averaging 1.5m x 1m x 0.5m deep revealed nothing of archaeological significance.

At Site B the ploughsoil strip revealed areas of a former soil horizon. A small burnt area sealed by the ploughsoil may represent a hearth; the same horizon displayed several flint waste flakes but none in any concentrations. The truncated remains of a small drystone building, possibly a cottage not shown on any historic maps, were also exposed. In addition, several former hedgebanks of post-medieval date cross the area - one of which was seen to seal a further burnt area - as well as a 20th century military tramway.

At Site C the widely dispersed target pits averaging 1.5m x 1m x 0.5m deep revealed nothing of archaeological significance with two exceptions - one cut a bank of drystone debris from former farmstead 'Westland', and another revealed a large ?boundary stone. The firing trenches were cut through a 20th century bund. The target track topsoil strips revealed a flint flake and the top of the fill of a large feature. In addition, a system of building remains, yards and boundaries in the area of the two former farmsteads of Westland and Crickmail was subject to rapid survey.

At Site D the widely dispersed target pits averaging 1.5m x 1m x 0.5m deep revealed little of archaeological significance. However, a number of earthworks were observed and recorded, of apparent 20th century date and probably all military in origin.

The numbers used in this report are the Primary record Numbers allocated to sites in the Dyfed Sites and Monuments Record.

1.2 Development proposals and commission

Dyfed Archaeological Trust were notified of the proposal to establish four new ranges at Castlemartin RAC Range by M Mellors, Senior Land Agent (South Wales) for the MoD on 13 March 1995, further to Project Control Meeting No 1 held at Castlemartin 10 March 1995 where the details of the scheme were discussed between the Range Commandant, the Project Sponsor, the Project Manager (Bucknall Austin Project Management) and the Land Agent.

The MoD invited Dyfed Archaeological Trust to undertake accompanying archaeological work from the outset of the scheme, and a Trust representative was accordingly invited to attend the second Project Control Meeting held at Castlemartin 24 March 1995. Further to this meeting the Trust submitted an estimate to the Project Sponsor based on the proposed works as then envisaged.

Further to the pre-Contract Meeting held at Castlemartin 28 July 1995 and attended by a Trust representative, revised figures were submitted to the Project Managers based upon the revised scheme of works. These were accepted and the Trust accordingly agreed to undertake the accompanying archaeological work.

It was agreed that the archaeological work should take the form of a watching brief on all intrusive groundworks that would entail from the provision of the four new ranges. A Trust archaeologist would be in attendance as excavations were in progress, or, if this was to prove impossible, was to be contacted immediately excavations were underway. All archaeological features revealed by the excavations would be fully recorded. Surrounding features of historic landscape interest were also, where relevant, subject to rapid recording; however, military sites of 20th century date were not included within the scope of the project.

The watching brief on the groundworks commenced, with the ploughsoil strip at Site B (600m ET(M)R range), 13 September 1995 and continued until 16 November 1995.

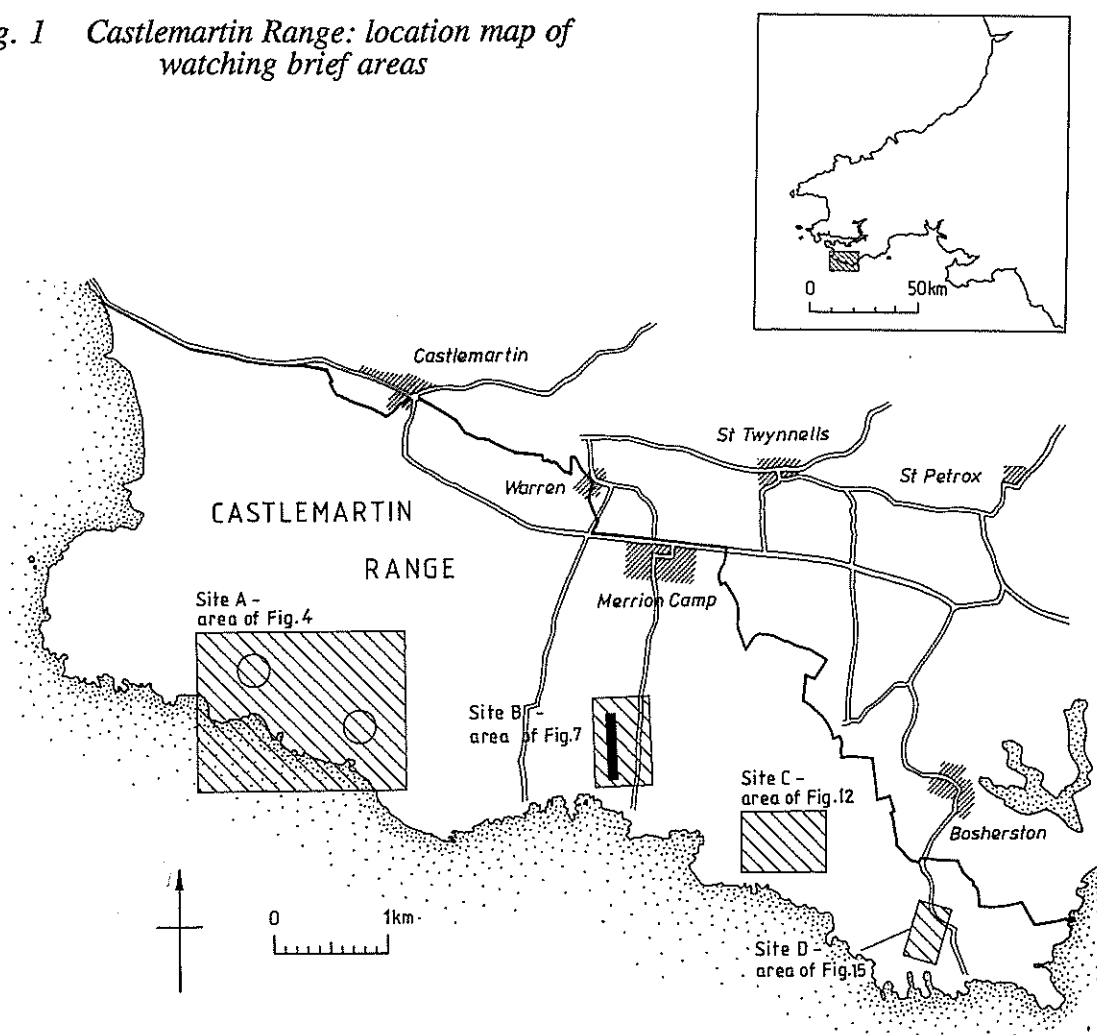
1.3 Castlemartin Range (Fig. 1)

Castlemartin RAC Range comprises 6400 acres lying within the four parishes of Castlemartin, Warren, St Twynnell and Bosherton, South Pembrokeshire. The range was first used as a military tank training area in 1939, and in 1948 was purchased by the MoD from the Cawdor Estate. In 1993 the range was subject to an overall archaeological survey by Dyfed Archaeological Trust (Murphy, 1993) parts of which are reproduced within this report as Appendix 9.0.

Geographically the range is a plateau dissected by two small streams which enter the sea along the western coastline via a system of sand dunes. Vertical sea cliffs define the southern boundary of the range. The underlying geology is Carboniferous limestone; over most of the range it lies below drift deposits characterised by a very fine loess. The soils are everywhere deep and rich. Prior to military use many farms lay within the area, all of which were held from the Cawdor Estate and were arable holdings on what was considered to be the best corn-growing land in Pembrokeshire.

The area is a noted prehistoric flint artefact production centre, scatters of waste flakes and cores having been discovered at several locations within the range. They date from the Mesolithic Period to the Bronze Age (8500 BC - 700 BC); earlier (palaeolithic) occupation of the coastal caves has been inferred. A notably high number of artefacts - flint arrowheads, stone

Fig. 1 Castlemartin Range: location map of watching brief areas



axes etc. - from the Neolithic Period (4000 BC - 2500 BC) have been recorded from the area. Bronze Age (2500 BC - 700 BC) monuments within the range include round barrows (burial mounds) and a standing stone adjacent to Site B.

Iron Age (700 BC - 1st century AD) occupation sites are predominantly defensive and include five of the coastal promontory forts for which the area is noted, as well as two inland forts/defended settlements. However, recent work suggests that the co-axial system of field boundaries that characterises the range and much of the rest of South Pembrokeshire has its origins within this period.

Occupation of the range area during the medieval period is summarised in Appendix 9.1. An early medieval (Dark Age) presence is attested by finds, the holy well at St Govans and the extensive cemetery/?chapel site at Church Ways, near Brownslade Farm. With the arrival of the Normans in 1093 the area became part of the Lordship of Pembroke, largely coterminous with the peninsula, and demesne farms/manors were established on the rich arable lands, their open 'strip' fields possibly adapted from an existing co-axial system. A number of the late- and post-medieval gentry houses whose remains survive within the area developed from such manors, while deserted village sites, and chapels, are also represented.

Post-medieval occupation of the range is also summarised within Appendix 9.1 and includes the numerous farmsteads, small and large, that characterise the area. They can be seen to be superimposed upon an existing landscape and most of the predominantly earthen field boundaries may already have been in existence. Farmhouses, outbuildings and the numerous outlying cottages/byres are all of limestone, predominantly mortared, and indeed quarries form an important component of the post-medieval landscape.

The establishment of the RAC Range 1939-1948 has had the effect of essentially preserving many archaeological features and, more importantly, the overall historic landscape almost in its entirety.

1.4 Content and scope of the watching brief

An archaeological watching brief is defined by the Institute of Field Archaeologists ('Standard and Guidance for Archaeological Watching Briefs', 1993) as a formal programme of observation and investigation conducted during an operation carried out for non-archaeological reasons - normally a development or other construction project - within a specified area where archaeological deposits may be disturbed or destroyed. The programme will result in the preparation of a report.

The watching brief will be intended to allow, subject to resources, the preservation by record of archaeological deposits in advance of their disturbance or destruction and to provide an opportunity, if necessary, for the watching archaeologist to alert all interested parties to the presence of an archaeological find for which the resources allocated to the watching brief are insufficient to support satisfactory treatment.

The watching brief is not intended as a substitute for contingent excavation.

The client will be supplied with 4 copies of an archaeological report of the results of the watching brief. The report will be fully representative of all the information recovered. Normally it will be read in conjunction with a desk-top assessment for the scheme which provides the historical framework for the watching brief. A copy of the report will also be deposited with Dyfed Sites and Monuments Record.

1.5 Purpose and methodologies of the watching brief

The purpose of the watching brief is to undertake as complete a record as possible of any archaeological features affected by the client's scheme of works. In the case of larger archaeological sites it will seldom be possible or necessary to undertake a record of the entire site; the record will be undertaken only on those areas of the site that may be affected.

The primary stage of the watching brief for any scheme is the consultation of Dyfed Sites and Monuments Record, which is maintained by Dyfed Archaeological Trust's Heritage Management Section, for those sites affected by the scheme.

The client will normally advise Dyfed Archaeological Trust's Field Operations Section of any changes in the proposed works. The client will also provide the Field Operations Section with a proposed schedule of works in order that a full field study may be performed on any affected site prior to the commencement of the works.

Work on or around those affected sites will be subject to the watching brief. The work will be closely observed by an archaeologist from the Field Operations Section who will also undertake a full drawn, written and photographic record of any archaeological features which may be disturbed by the scheme, and any artefact or find exposed during the works. Recording will be carried out where necessary and when convenient: it is the Field Operations Section's aim to minimise any disruption to the client's schedule. However, if archaeological features may be lost during the scheme, it may be necessary for the Field Operations Section to request a postponement of the works in order that the archaeology may be recorded. Larger areas affected may require fuller excavation and/or survey.

1.6 Acknowledgements

Acknowledgements to: Bucknall Austin Project Management for commissioning the watching brief; Castlemartin Range for initiating the watching brief and for their co-operation; Phil Jones and Rob Davies of Costain for their co-operation; Ken Murphy of Dyfed Archaeological Trust for the use of his material from previous work on the Range.

2.0 SITE A: RANGE WEST

RESULTS OF THE ARCHAEOLOGICAL WATCHING BRIEF

The work at Range West was represented by the excavation of two groups of target pits, numbering 13 and 7 respectively, the larger group further to the west. The pits averaged 1m by 1m by 0.5m deep, and each featured an cable trench 4m long, 0.25m wide and 0.5m deep. The numbers used in this report are the Primary Record Numbers allocated to sites in the Dyfed Sites and Monuments Record.

2.1 Site location (Fig. 1)

Range West is an area of gently rolling limestone plateau on the southern flank of the low E-W ridge that continues west to form Linney Head. It lies between 35m and 45m OD and is fringed to the south by coastal cliffs. Although the area represents a single landscape unit, it has long been referred to in three component parts, from west to east named Pen-y-holt Down, Bulliber Down and Mount Sion Down; 'Penny-holt' is mentioned in 1767, and Bulliber (as 'Pollyber') in 1522 (Charles, 1992, 678, 683). It is now all rough pasture, in areas thickly overgrown with bramble, and thorn/sycamore thickets, but traces of former cultivation remain in the wildflower flora. Some of the former field boundaries survive as upstanding earthworks but it is in this part of the range that the most former boundaries have been reduced or lost completely. The western group of 13 target pits centres on NGR SR 899 960, the eastern group of 7 on NGR SR 911 952.

Fig. 2 Site A: Warmans Hill Farm (site of western pit group) in 1787
(copy of NMR, Cawdor Map Book, 1787)

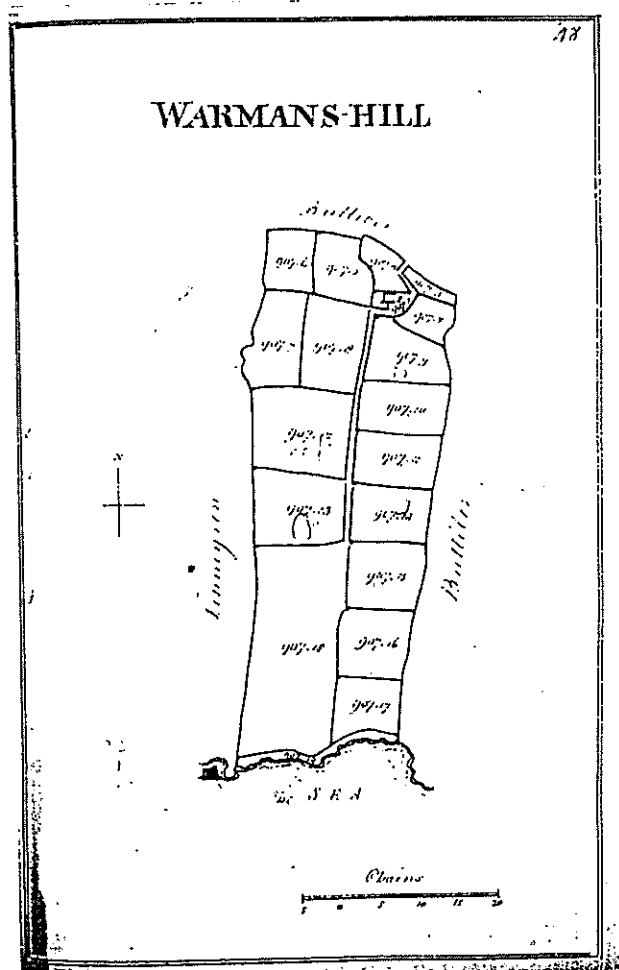
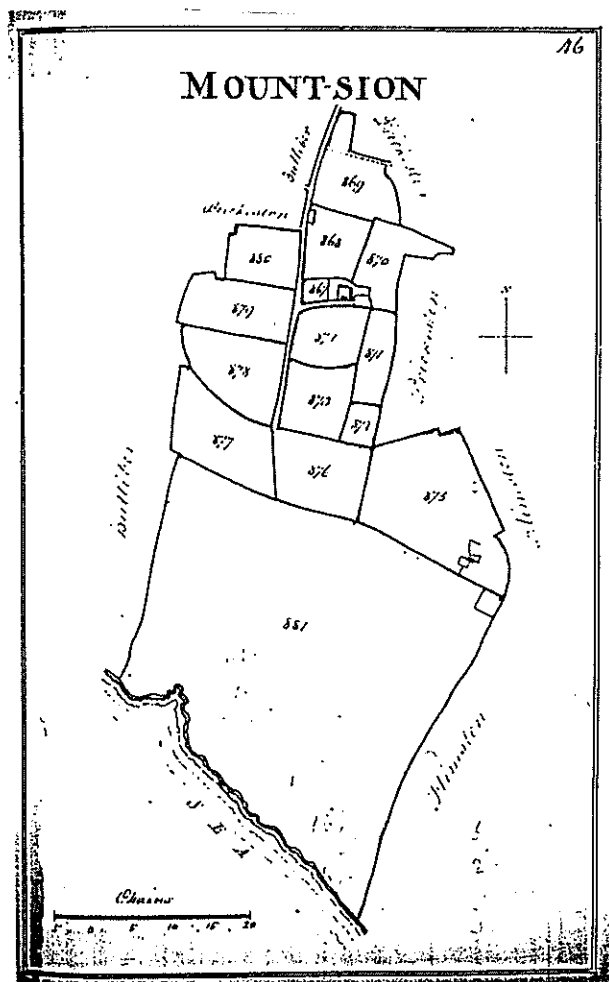


Fig. 3 Site A: Mount Sion Farm (site of eastern pit group) in 1787
(copy of NMR, Cawdor Map Book, 1787)



2.2 Site history and description (Figs. 2 & 3)

The Range West area has yielded little of prehistoric date, but the origins of the Castlemartin peninsula field system has been discussed above, 1.3. Here the field boundaries that survive perfectly demonstrate the dominant N-S trend, long continuous boundaries being adjoined by short discontinuous E-W boundaries. Some of the latter may be later in date if open field agriculture was practised here during the medieval period.

A defended enclosure(s) to the north at NGR SR 9025 9660, Bulliber Camp (PRN 549), represents a focal point which may then relate to the iron age field system. During the Middle Ages a village (or 'vill'), Linney, stood at NGR SR 895 967 (PRN 14632). Linney was deserted at some point after 1480 but is referred to in documents of the 13th - 15th centuries (Owen, 1918, 85, 93, 139, 158); it survives as a series of earthwork building platforms. Much of the land within Range West was probably appurtenant to the vill of Linney.

Linney Farm to the west (PRN 6969; NGR SR 8925 9692), itself now abandoned and demolished, contained some medieval masonry within the post-medieval fabric. However, during much of the post-medieval period the Range West area was under tenure from four farms whose divisions reflect the north to south disposition of the boundaries (see Appendices 9.2 and 9.3).

The western group of target pits lie within the former Warmans Hill Farm, the eastern within the former Mount Sion Farm. A cottage (PRN 8750) of Warmans Hill Farm lay just west of the western pit group at NGR SR 8975 9639 but is now not visible above ground. All were abandoned by 1948 at the latest. (See Figs. 2 & 3 for the disposition of the two farms in 1787.)

A number of limestone quarries were established within the area, largely probably during the 18th and 19th centuries. A large quarry north of the western pit group (PRN 32107; NGR SR 9001 9600) is from more recent extraction.

The long N-S field boundary dividing the fields of Warman's hill Farm has now gone but its line is respected by the present-day wire fence. In addition is the evidence for a small enclosure carved out of one of the fields shown on none of early maps.

The area is now dominated by a series of military bunkers and blockhouses from the years following 1948, some of which are in turn now abandoned. They are largely built against or upon former field boundaries.

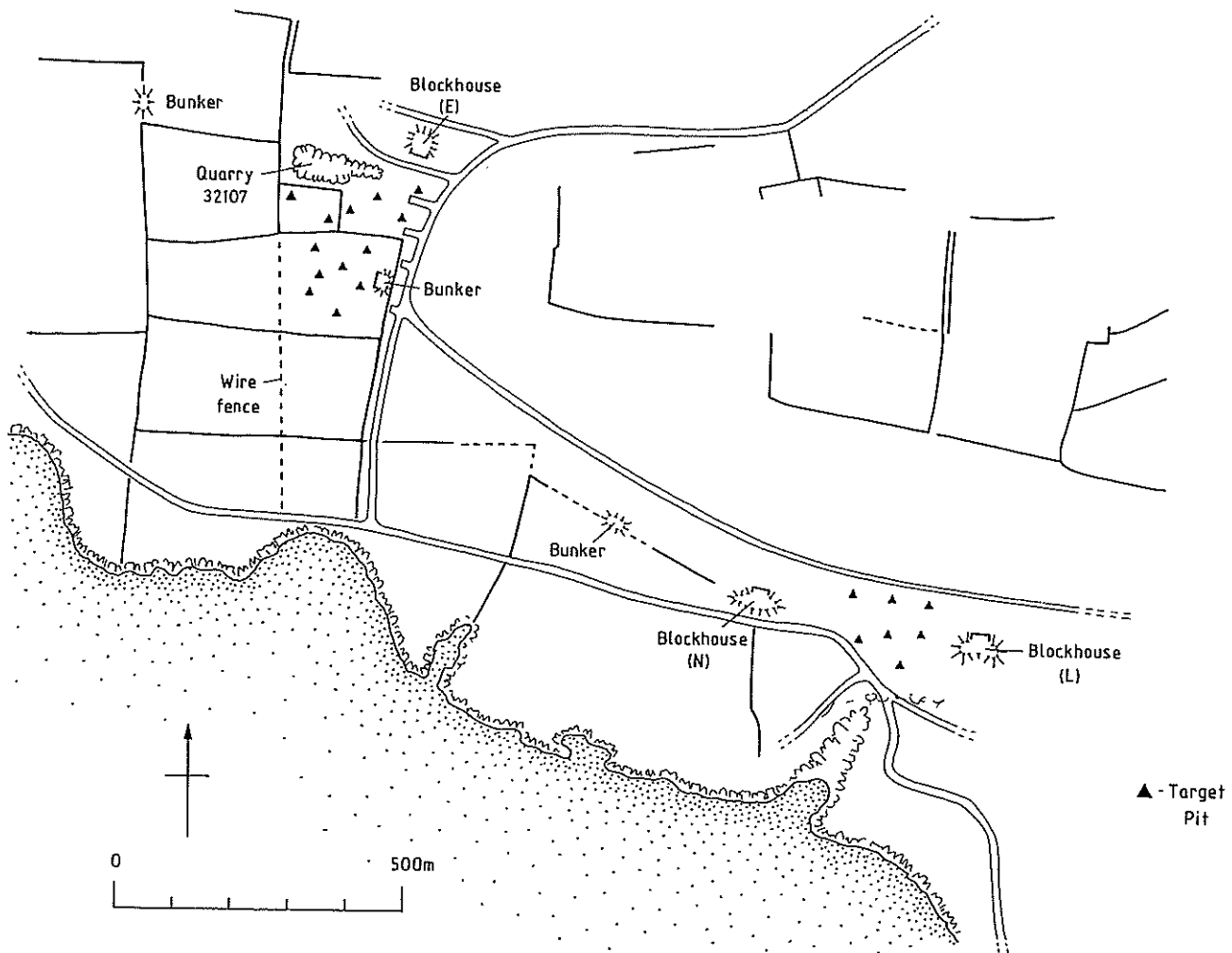
2.3 Observations during the watching brief (Fig. 4)

Both groups of target pits were cut within open pasture, away from boundaries and adjacent to no known archaeological resource. Given their locations, dimensions and their widely spaced distribution it was always unlikely that archaeology would be encountered in the pit sections. Indeed, all pits were sterile, displaying ploughsoil over the clay loam natural.

2.4 Conclusions

No archaeology was observed within the target pits. This is primarily due to the nature of the pits themselves rather than to the presence or absence of below-ground archaeological resource.

Fig. 4 Site A: approximate locations of Target Pits



3.0 SITE B: 600m ET(M)R

RESULTS OF THE ARCHAEOLOGICAL WATCHING BRIEF

The most extensive groundworks in the programme were associated with the 600m ET(M)R range, for which an area 600m by 100m was stripped to an average depth of 0.20m, with service trenches along the north and east edges 0.25m wide by 0.5m deep. Four rows of firing trenches and three rows of target pits were excavated within the stripped area at 100m intervals. A control building was constructed midway along the eastern edge of the stripped area; its foundation trenches were unfortunately not observed. The excavation of the foundation trenches for the new troop shelter at the north end of the area was likewise not observed.

The excavation of a service trench 0.25m wide and 0.5m deep, running north for 90m between the troop shelter and an existing building, was observed, as was the excavation of a 4m by 4m by 4m deep cess-pit immediately west of the troop shelter, and part of the cutting of a shallow (0.15m) excavation for a new roadway to the east of and parallel to the stripped area. In addition, the Control Building was linked to the buildings associated with Blockhouse (W) and the tramway by 450m of service trench 0.25m wide by 0.5m, the cutting of which was observed.

However, a further major piece of work was undertaken for which the Trust received no advance notification - the excavation of 1.3km of water-pipeline trenching leading north-east from the Troop Shelter.

The numbers used in this report are the Primary Record Numbers allocated to sites in the Dyfed Sites and Monuments Record.

3.1 Site location (Fig. 1)

Site B (NGR SR 933 950) occupies three former fields, all large regular rectangular enclosures, within an almost level area but with a slight uphill slope to the south, averaging 48m OD and just inland from the coastal limestone cliffs to the south. It is now rough pasture with some bramble underbrush, but relatively free of overgrowth. The field boundaries survive as upstanding earthworks and were sectioned by the excavations.

3.2 Site history and description (Figs. 5 & 6)

Until recently a bronze age standing stone lay just to the north of the 600m range at Longstone (PRN 4688; NGR SR 9346 9579). It is clearly visible in aerial photographs taken in 1946 but has since disappeared. It is particularly unfortunate that the 1.3km waterpipe trench was not observed as it passed close to the site of the stone and the presence or absence of associated archaeological features may have been confirmed.

The east-west field boundaries are described below, 3.3, but it is repeated here that at least some of the east-west boundaries throughout the range may post-date the north-south coaxial boundaries.

By 1787, at least, the area was divided between the two post-medieval farms that formerly lay immediately north of the site, Longstone (PRN 26337; NGR SR 9345 9565) and, until 1822, Quarpool (PRN 26435; NGR SR 935 955), and a third, Southrow (PRN 26443), some distance

Fig. 5 Site B: the area in 1839 (copy of NLW, Warren parish, Tithe map, 1839)

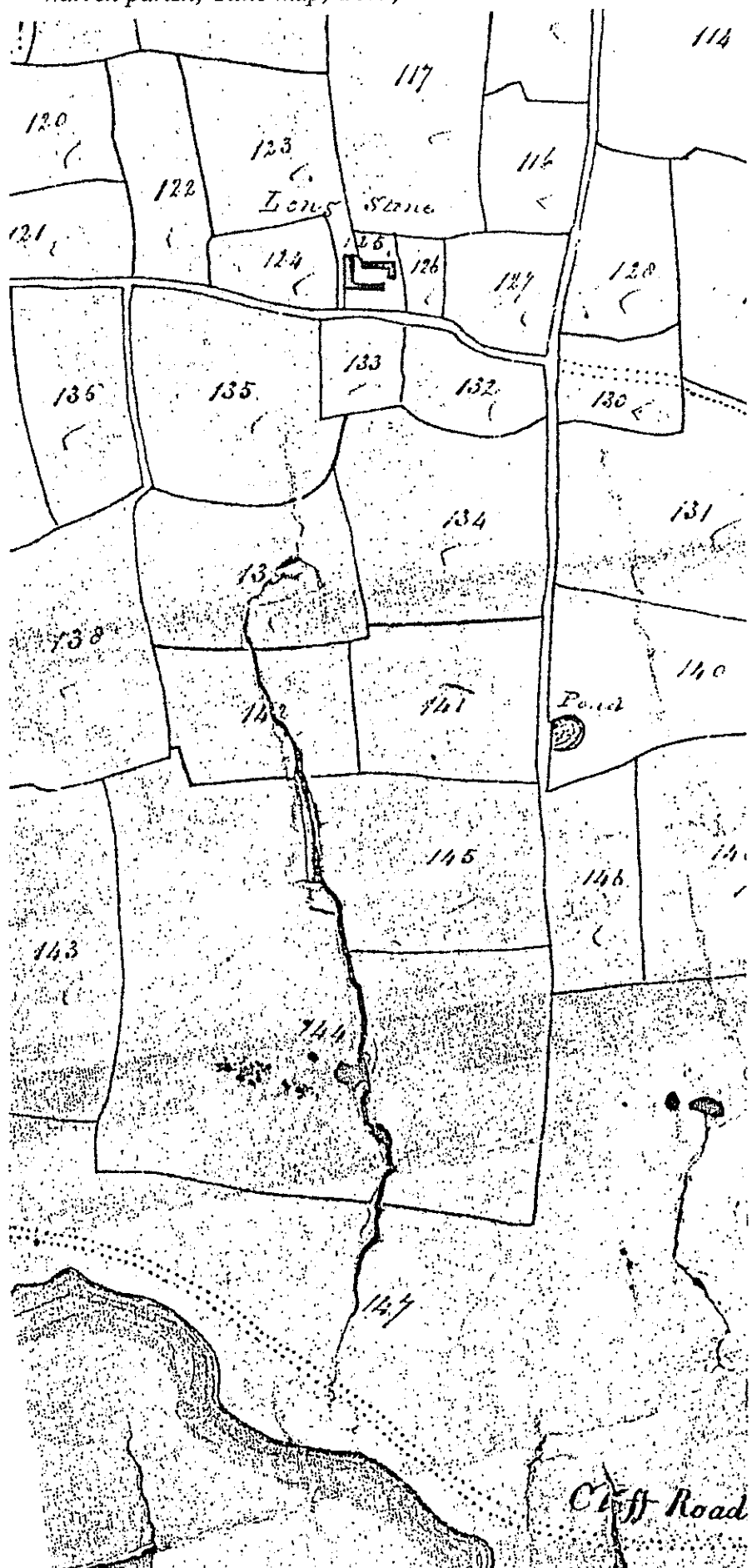
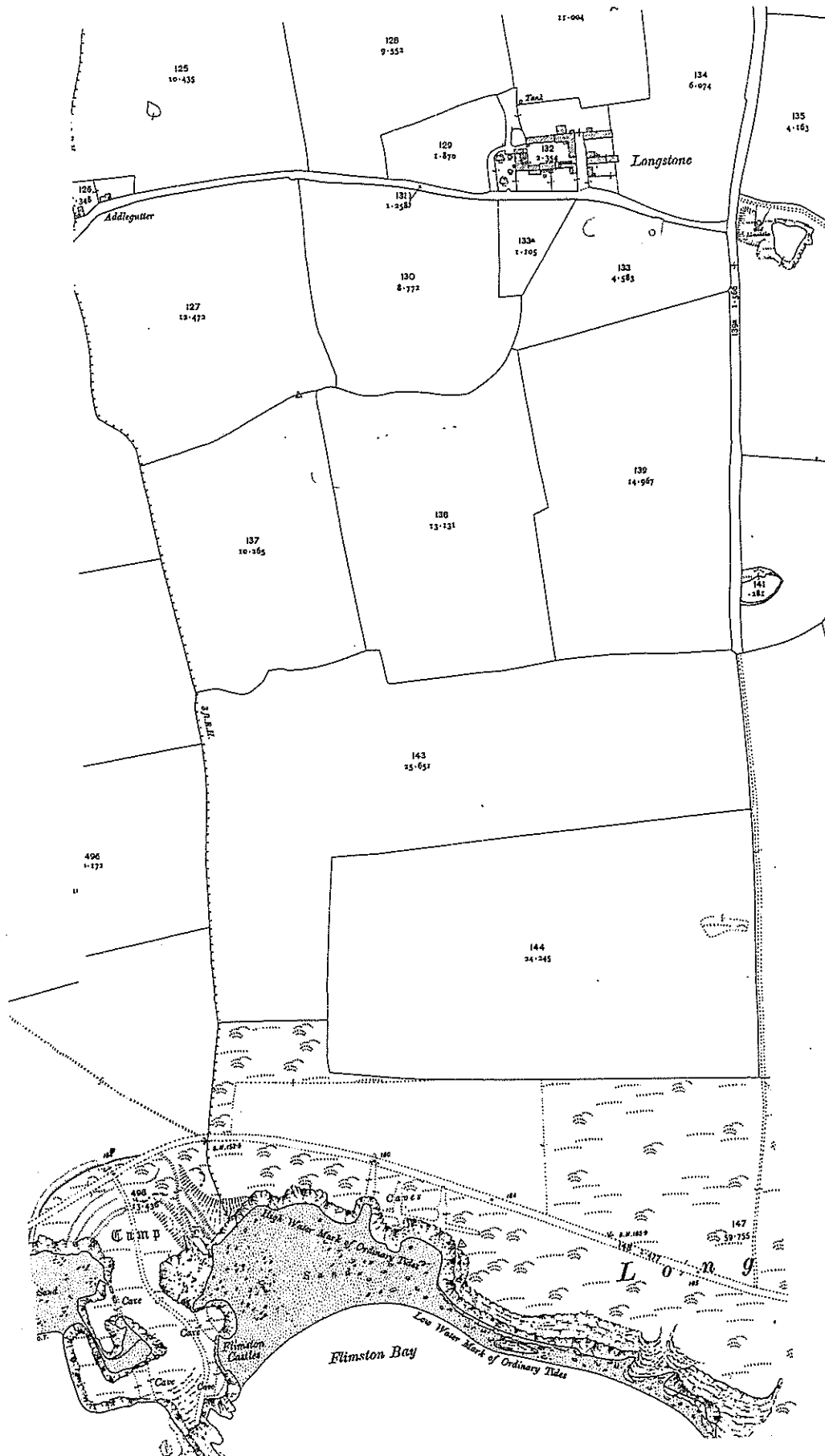


Fig. 6 Site B: the area in 1864 (copy of NLW,
Ordnance Survey 1:2500, First edition,
Pembrokeshire Sheet XLII.11)



away at NGR SR 9370 9560. The earliest documentary reference is to Southrow Farm, in 1551 (which had gone by 1838), while Longstone may have contained structural work from the 17th century. This distribution of land in small dispersed parcels is unique to St Twynnells parish and may represent the break-up (among kinfolk) of a single large medieval holding. See Figs 6 & 7 for the disposition of the landscape in 1839 and 1864.

Post-1948 military features include the former Blockhouse (W) and adjacent tramway and bund, and the former tramway sectioned by the excavation and described below, 3.3.

3.3 Observations during the watching brief (Fig. 7)

3.3.1 The 600m range

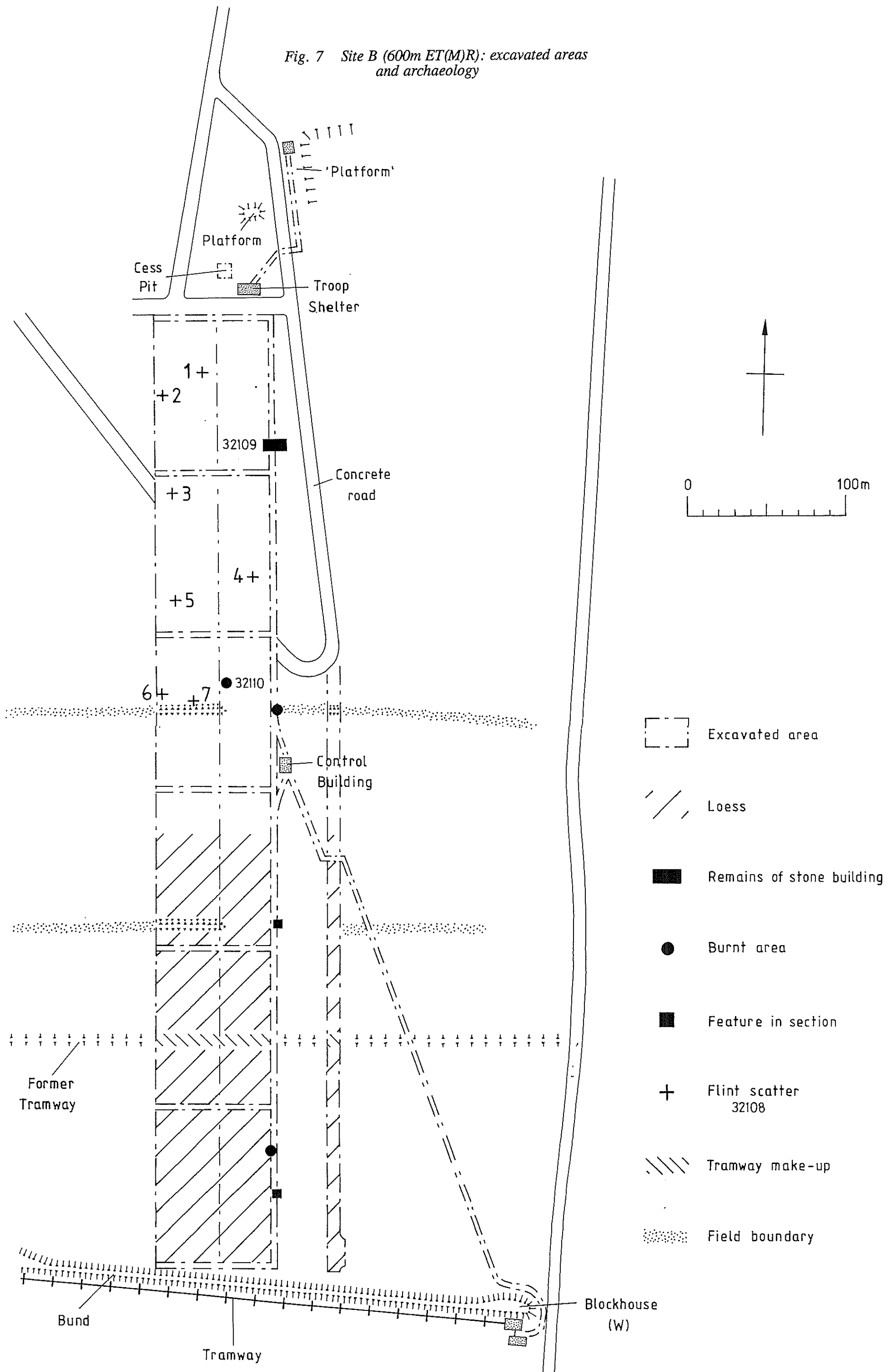
The first stage of the works was the machine stripping of an area 600m N-S by 100m E-W, in the western half to a depth of 0.25m and 0.15m deep in the eastern half. In the deeper western most of the ploughsoil was removed, but only in limited areas in the eastern half. An area measuring 350m by 8m was stripped to the same depth just east of and parallel to the main area, for a roadway.

In areas the strip descended to the base of the ploughsoil and revealed a buried soil horizon. This occupied the majority of the northern half of the site where it had formed on the underlying friable red-brown clay loam, which was largely free of coarse components but contained the odd waterworn limestone pebble and occasional scatters of slightly larger, angular, limestone and Old Red Sandstone rubble. This subsoil is glacial in origin. No such buried soil was seen in the southern half of the site, where the subsoil was represented by a very fine, brittle loess of a brighter colour. This loess is a windblown deposit laid down over the glacial clay loam but considerably earlier in age than the development of the soil horizon on the latter soil.

Flint scatters (PRN 32108; NGR SR 934 954) present on the surface of the buried soil suggest a broadly prehistoric date for its formation, but as the flints are represented only by waste flakes it is impossible to date them more precisely. Flints were found at 7 locations (1-7 in Fig. 7), all in the northern half of the excavated area, and few locations displayed more than two flints. As waste flakes they suggest *in situ* tool manufacture; see 6.0 for full descriptions of the flints. A burnt area of this buried soil (PRN 32110; NGR SR 9340 9518), represented by an area of heat-reddening (with little charcoal) measuring 0.60m by 0.20m and to a depth of 0.04m, may be of similar date and represent a hearth. The presence of more widespread burning is suggested by the presence of a shallow feature with a heat-reddened fill that was sealed (and thus preserved) by the northern of the two field boundaries that cross the site and seen in section, and by a small area of burning seen in the upcast from the southern end of the excavation.

The soil horizon then predates the establishment of the two boundaries crossing the area which here may be rather late, both being E-W banks which as a type are probably often later than the coaxial N-S boundaries. Both are shown in NMR Cawdor Maps, 1787, on which further boundaries are shown; these latter had gone by 1864 (Ordnance Survey 1:2500, First edition, Pembrokeshire Sheet XLII.11) and have left no field evidence. Both the present banks are weathered, extend east and west of the excavated area, and where cut were of simple earthen construction, now only 0.3-0.4m tall, and both displaying faint ditches to the north. Both appear to have been represented by deliberate gaps in the eastern half of the excavated area. Unfortunately the adjacent north-south boundaries were not sectioned (and have in any case been largely lost) so comparison of boundary construction was not possible.

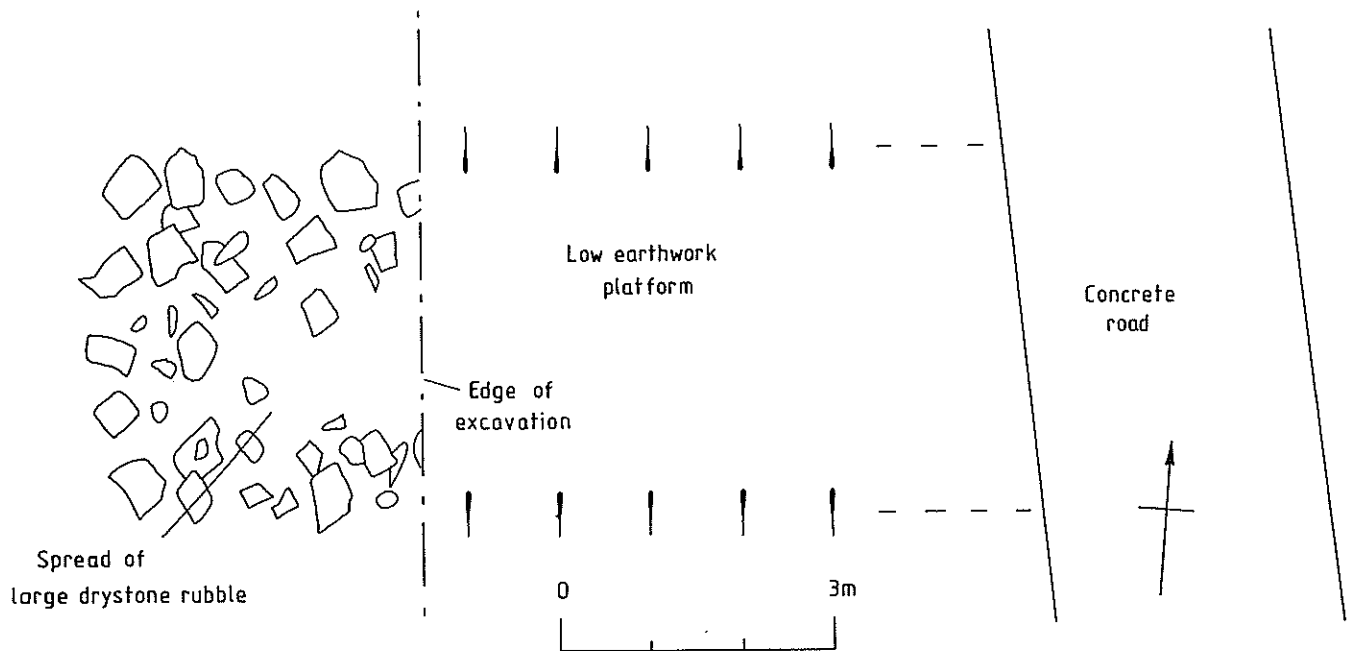
Fig. 7 Site B (600m ET(M)R): excavated areas and archaeology



Towards the northern end of the site, the eastern edge of the excavated area sectioned a low rectangular earthwork measuring 9m E-W and 3.5m N-S (PRN 32109; NGR SR 9342 9538). This was seen to contain loose large limestone rubble sitting on and within the subsoil. The base of the feature was not revealed but it appears to represent a spread of collapsed structural material from a building not shown on any historic map, a cottage and/or byre of probable post-medieval date, but possibly earlier. The only dateable material in close proximity to the structure was a small sherd of 19th century pottery 1m to the south which may or may not be associated. See Fig. 8.

In addition, the concrete ballast for a former MOD tramway was revealed. No further features were seen.

Fig. 8 Site B: sketch plan of stone building PRN 32109



3.3.2 Excavations to the north

A 0.25m wide and 0.5m deep trench was excavated for a short distance north of the range site through an area of earthwork platforms. However, the linear platform cut by the trench was seen in section to comprise dark topsoil of recent deposition and is probably associated with the establishment of the adjacent concrete road. The significance of a low subrectangular platform to the west of the trench could not be ascertained.

3.3.3 The southern trench

A 0.25m wide and 0.5m deep service trench was excavated for a distance of 450m south-east of the new control building, connecting it with the buildings adjacent to Blockhouse (W). Both sections of the trench were observed, but little of archaeological significance was present. The make-up for the disused tramway was seen, and one of the hedgebanks was sectioned and confirmed the evidence from the main area.

3.4 Conclusions

The extensive ploughsoil strip at Site B rendered it the most informative and interpretable area within the watching brief. Information from the ancillary trench sections added little further information.

It was established that a clay loam soil was laid down (at least in the northern half of the site) at the end of the glaciation of this part of the region. This appears to have sloped downhill somewhat to the coastal cliffs to the south. Subsequently a windblown loess was deposited over the southern half of the site.

At a later date, broadly prehistoric but not more closely dateable, a soil horizon developed in the northern half of the site - a soil that does not appear to have formed (or was not observed) over the loess. This soil horizon displayed seven flint scatters of broadly prehistoric date, comprising waste flakes which may demonstrate *in situ* tool manufacture, and at least two areas of burning (possible hearths), of unknown date and not necessarily contemporary.

Samples from the burnt area were taken; it is doubtful that funding will permit analysis to be undertaken.

During the historic period, probably post-medieval, two E-W hedgebanks were established across the area and a drystone built cottage/byre was built. 20th century military developments are represented by a former tramway.

4.0 SITE C: TEAM FFA

RESULTS OF THE ARCHAEOLOGICAL WATCHING BRIEF

Extensive works were undertaken at the Team FFA site but were superficial in nature. A total of 20 small target pits were excavated averaging 1m square and 0.5m deep, but they were widely dispersed and provided no continuous profiles.

The courses of two tramways for moving targets were turf stripped to a depth of 0.05-1.10m and a width of 2.5m, the southern course being 430m long and the northern 280m. Both were examined. Also a series of 4 firing trenches, 9m long (with 1m long side branches), 0.8m wide and 1m deep, were excavated within the existing 20th century bund leading north-west from the disused blockhouse at the north end of the site.

In addition, the remains of two former farmsteads, Crickmail and Westland, were subject to rapid recording. The numbers used in this report are the Primary Record Numbers allocated to sites in the Dyfed Sites and Monuments Record.

4.1 Site location (Fig. 1)

Site C (NGR SR 951 943) lies within a shallow, dry E-W depression just inland of the coastal cliffs, between 40m and 50m OD. Two large dewponds lie within the area, Crickmail Pond and Midland Pond, and are associated with the remains of a number of former fields, enclosures and buildings, and the two trackways that led to them, making it the most densely settled area within the watching brief. Most survive to a greater or lesser degree. The pattern of boundaries here has to a large extent been dictated by the ponds but may be rather later than elsewhere on the range. The area is now all rough pasture, and in areas is thickly overgrown with bramble and thorn/sycamore thickets, particularly over the former buildings. In addition a 20th century disused blockhouse and bund occur at the north of the site.

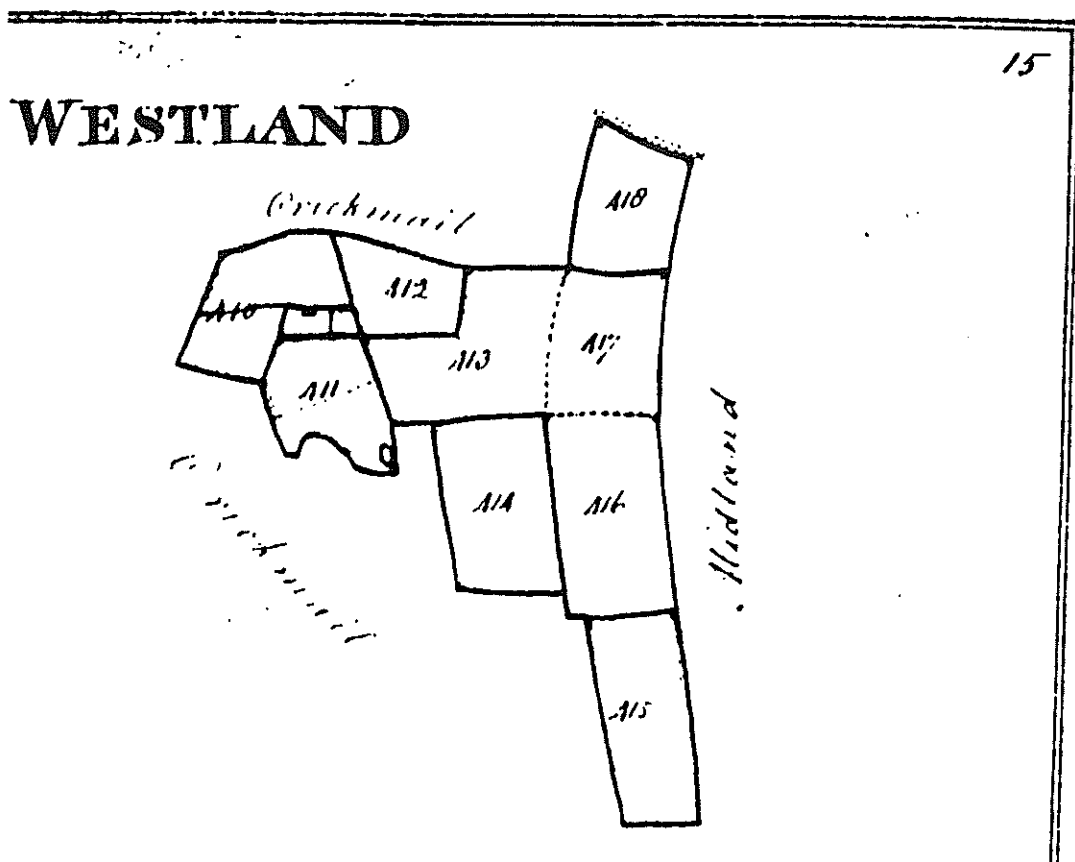
4.2 Site history and description (Figs. 9 - 11)

Very little archaeological evidence has hitherto been encountered within Site B. However, the area has a documentary history extending back to the medieval period.

Crickmail (PRN 26358; NGR SR 9528 9436), the name of the northern (and main) former farmstead within the area, is first mentioned as 'Crucmayl' in 1282 (Charles, 1992, 676). The area formed part of the sub-lordship of Stackpole Bosser (Bosherston), held of the earls of Pembroke. The dewponds and the associated non-linear boundaries may have their origins within the Middle Ages as features associated with a vill or settlement. Faint traces of earthworks in the field immediately east of Crickmail farm may represent the physical evidence for medieval 'ridge and furrow' ploughing. Indeed the two trackways - one running N-S and the other E-W - may also have their origins within this period. To the east of Site B the boundaries can again be seen to form small irregular enclosures associated with the former farmstead of Midland. Both systems may be later grafts onto the existing co-axial field system.

The site of a beacon is indicated by the field-name 'Beacon Hill' just to the south of Site B (PRN 8613; NGR SR 952 940). Nothing is known of this feature, nor its date.

Fig. 9 Site C: Westland Farm in 1787
(copy of NMR, Cawdor Map Book, 1787)



No.	Name	Quantity of R. P.	Val. at 1787	Yearly Rent
A10	Household & Park adjt—	1..2..26	—	1—
A11	Westland	1..1—	9	—11.
A12	.....	1—..16	9	—10.
A13	.....	2—..10	9	—18.
A14	.....	1..3..12	6/6	—11.
A15	.....	1..3..3	6/6	—11.
A16	.....	2—..6	6/6	—13.
A17	.....	1..2—	6/6	—9.
A18	.....	1..1..15	6	—8.
Acres =		14..2..8..L	5..14.	

Fig. 10 Site C: the area in 1837 (copy of NLW,
Stackpole Bosher parish, Tithe map, 1837)

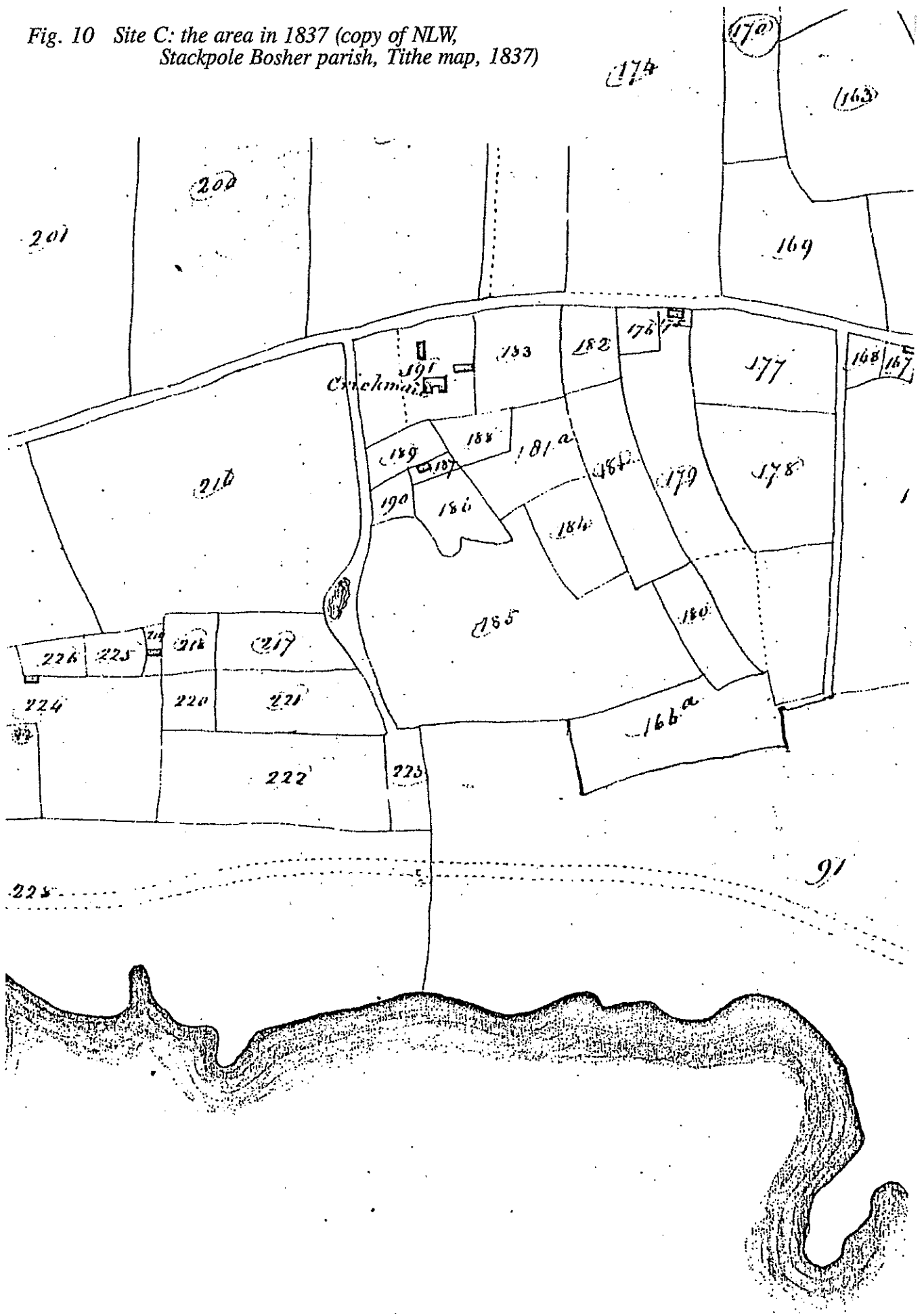
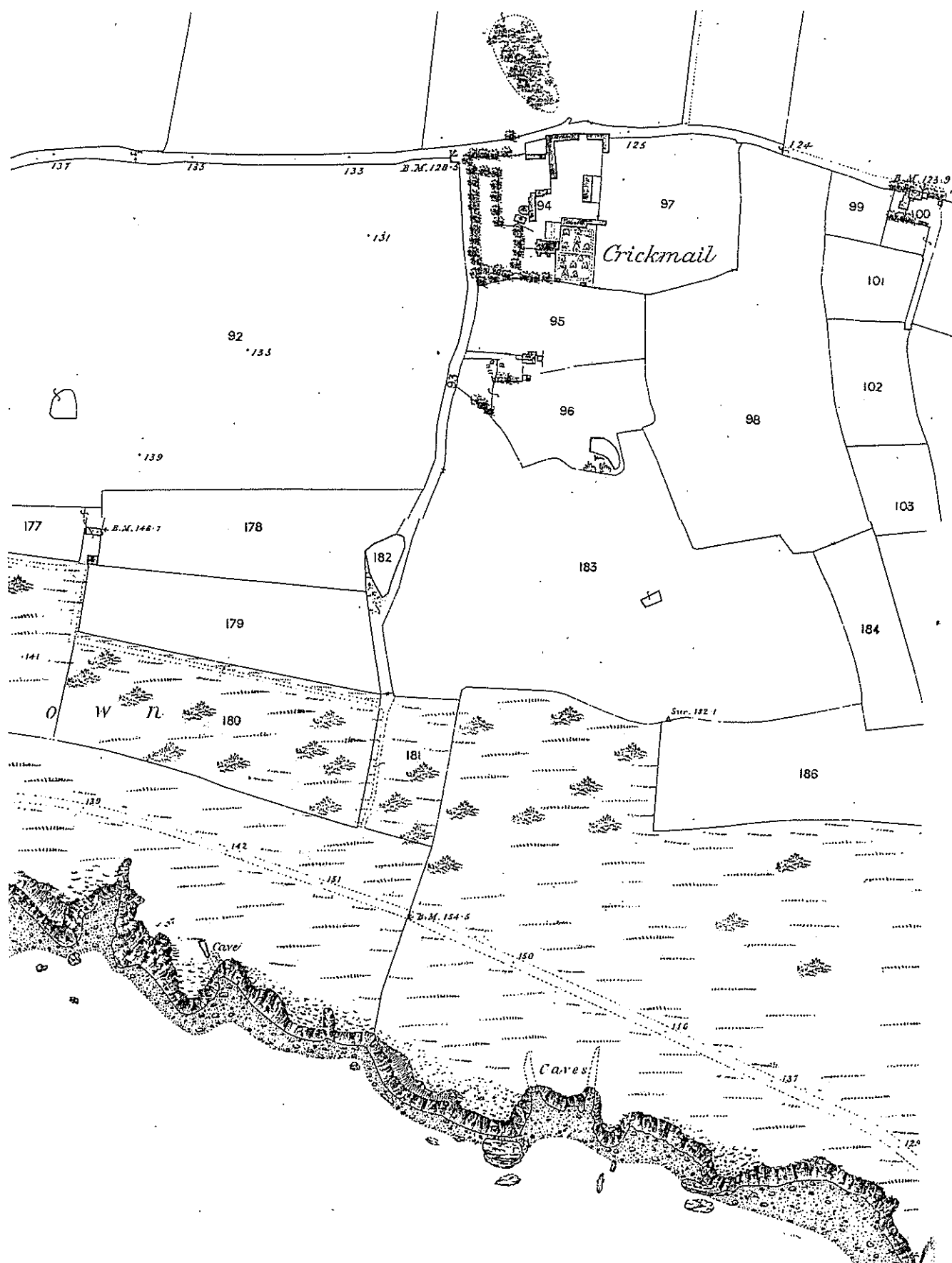


Fig. 11 Site C: the area in 1864 (copy of NLW,
Ordnance Survey 1:2500, First edition,
Pembrokeshire Sheets XLII.12 & XLII.16)



The end of the medieval period coincided with the desertion of many former villages or their contraction into farmsteads. Crickmail farm is unfortunately not included on the Cawdor Map Book of 1787 (NMR, Cawdor Maps, 1787) but the remains indicate an 18th century house and outbuildings of some quality. The property continued to be occupied into the present century.

The smaller farmstead, Westland (PRN 26381; NGR SR 9518 9323) is included in the 1787 Map Book. The name itself, and the presence of a Midland and an Eastland further east, suggest that the farm represents part of the fragmentation of a larger medieval holding; the map book, however, provides the earliest instance of the name. Westland Farm had declined by 1864 to the extent as to not be named on the Ordnance Survey 1:2500, First edition, Pembrokeshire Sheet XLII.12.

A small quarry was established during the post-medieval period immediately to the north of Crickmail; this area is now entirely overgrown.

Two former blockhouses at the north and south ends of the site represent post-1948 activity. The northern is associated with a long bund extending north-west.

4.3 Observations during the watching brief (Fig. 12)

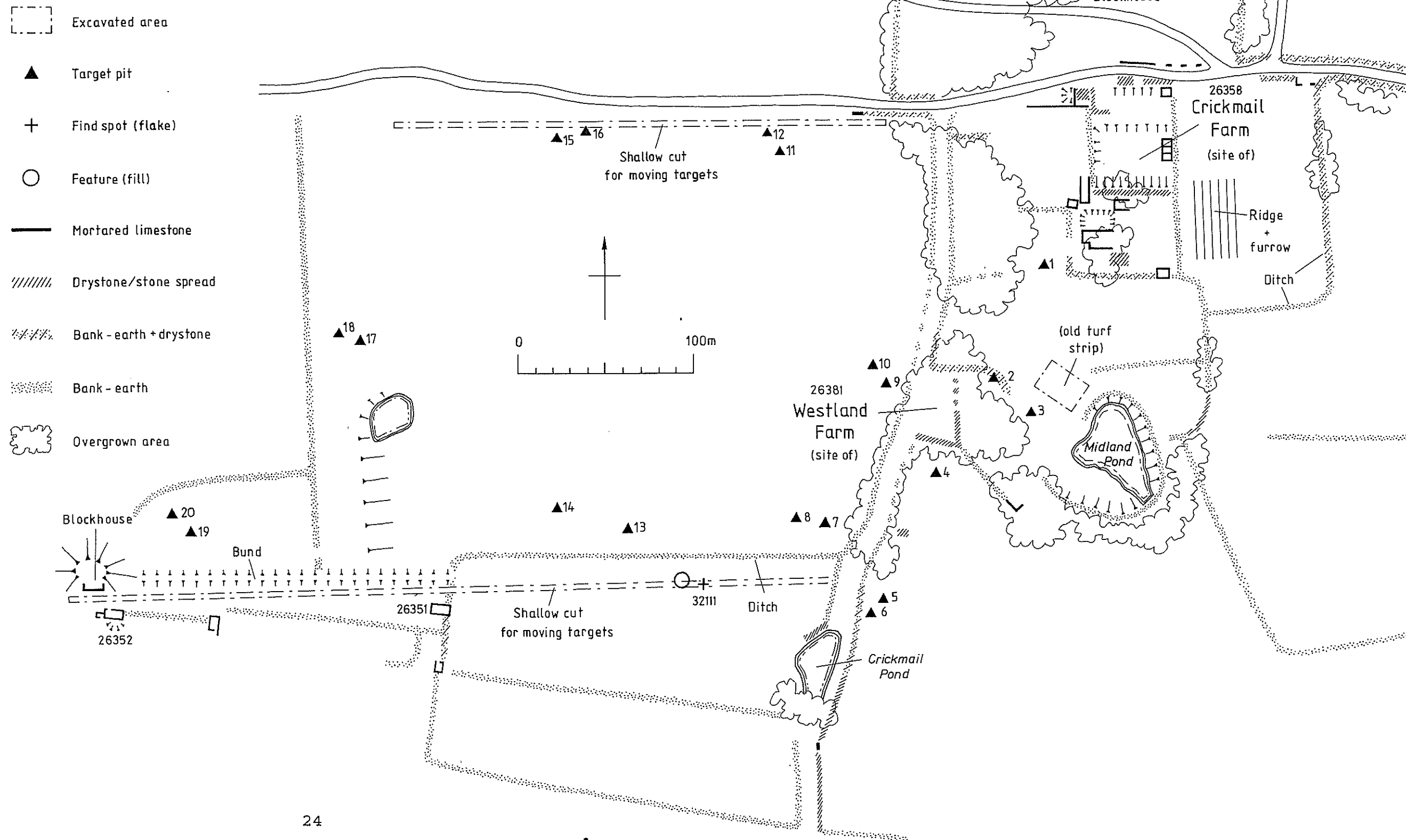
4.3.1 Crickmail and Westland Farms

The two former farms, Westland and Crickmail, are now extensively overgrown with thorn, willow and sycamore brush. Crickmail was a large farm complex of mortared limestone buildings, several of which survive in a truncated condition while the locations of others are marked by depressions, platforms and masonry spreads. Westland is now completely overgrown and the visible remains are confined to a few drystone walls. The positions of all buildings were roughly planned, and they were photographed. Associated with the buildings is a complex of enclosures and ponds, the boundaries of which were noted; they comprise variously dry-stone walling, rubble with turf capping and plain earth banks. None now supports a hedgerow. A number of solitary barns and cottages survive to varying degrees on the periphery of the site and were likewise roughly planned and photographed.

Crickmail Farm is not included in the map book of Cawdor Estate farms (NMR, Cawdor Maps, 1787) but it is shown on NLW, Stackpole Boshier parish, Tithe map, 1837 (fig. 10) and in some detail on Ordnance Survey 1:2500, First edition, Pembrokeshire Sheet XLII.12 (fig. 11). From a nucleus comprising the house and two barns, shown in 1837, the farmstead expanded into a large complex around a yard to the north of the house, adjacent to the E-W trackway. Part of the house remains in a truncated condition, and like the remains of the outbuildings is of mortared limestone of good construction. Unfortunately the remains are insufficient to ascribe functions to the individual buildings. A long E-W building north of the house (also shown in 1837) is now represented by a steep bank of stone, the ends of two smaller buildings survive to the east, stone spreads represent the buildings north of the yard, while the best preserved is a N-S building east of the yard whose three-chamber division can still be discerned. The whole area slopes downhill gently from north to south, and the yard occupies a distinct depression.

(Crickmail farmhouse was described by Sir Cyril Fox as '*Georgian, of three storeys...*' and is shown in 1948 as '*an empty field*' - National Monuments Record Card.)

Fig. 12 Site C (Team FFA): locations of Target Pits and archaeology



Westland Farm is shown in NMR, Cawdor Maps, 1787 (Fig. 9) and on NLW, Stackpole Boshier parish, Tithe map, 1837 (fig. 10) and is marked, but not named, on NLW, Ordnance Survey 1:2500, First Edition, Pembrokeshire Sheet XLII.12 (fig. 11). Never large, the farm buildings are shown on all maps as comprising just the house, the site of which is now overgrown and impenetrable. However, physical evidence remains in the field for the corner of a mortared building to the south-east.

Both the N-S and E-W trackways adjacent to the two farmsteads respect the co-axial boundaries and are, as has been noted above, possibly medieval in origin. The pattern of small irregular enclosures immediately surrounding both farms is to a large extent dictated by Midland pond (which by 1787 at least actually lies within Westland - further evidence for this being a break-up of a larger medieval holding), but have been further adapted to meet the requirements for paddock etc close in to the core of the holdings. This is a process which, like the ponds, perhaps has its origins in the Middle Ages and associated with a vill at Crickmail. To the north, west and south the fields are larger and more regular and probably represent coalescing of earlier co-axial fields. The possible ridge and furrow at Crickmail has been noted above.

The boundaries of these larger enclosures - and the two trackways - survive to varying degrees and are exclusively earthen banks now lacking ditches. This is in contrast to those boundaries closer in to the farmsteads which show a wide variety of construction - evidence of a continuous evolution over a long period of time. The angular drystone enclosure wall at Westland deserves particular note. Some of the boundaries appear to lie on somewhat differing lines to those shown on the early maps, while those boundaries shown in 1837 but gone by 1864 appear to have left no physical trace.

To the west of the farms a line of small mortared limestone buildings follow a field boundary. The larger eastern- and westernmost buildings are former cottages (PRN 26352; NGR SR 9483 9410 & PRN 26351; NGR SR 9467 9411) while the two smaller buildings were outbuildings of unknown function. The easternmost cottage is in the best condition still displaying the lower parts of window openings in its south wall; the remainder of the buildings are represented by a few courses only.

4.3.2 The target pits

The 20 pop-up target pits were cut largely within open pasture, away from boundaries and adjacent to no known archaeological resource and given their locations, dimensions and their widely spaced distribution it was unlikely that archaeology would be encountered in the pit sections (Fig. 12).

However, TP2 sectioned a bank that was seen to comprise limestone rubble over which a turf had developed; the early maps show no boundaries in this location and the rubble would appear to represent debris derived from the demolition of Westland Farm. In TP9 a buried recumbent limestone slab measuring 1m by 0.3m was revealed. The slab was worn and may represent a former boundary marker, lying close to the N-S trackway, or a cattle rubbing stone. The remainder were sterile.

4.3.3 The tramway turf strips

The turf strips for the moving target tramways were excavated to a depth which varied, according to the terrain, from 0.05 to 1.10m (Fig. 12). In both the ploughsoil was revealed, with little evidence of an underlying buried soil horizon except at the eastern end of the southern strip. Here a clay loam horizon, very similar to the ploughsoil, displayed a circular soilmark 2m in diameter which ran beneath the northern section; the ?fill was a slightly darker soil, but was not excavated and the nature of the feature is unknown. 3m to the west of the soilmark a flint waste flake lay upon the surface of the soil (PRN 32111, NGR SR 9510 9415); see 6.0 for description).

4.3.4 The firing trenches

The sections of the four firing trenches cut into the summit of the bund leading north-west from the former blockhouse at the northern end of the site displayed the homogenous clay loam make-up forming the bund in their entirety (Fig. 12).

4.4 Conclusions

Site B represents an important area in terms of landscape history research within the range, displaying the evolution of a series of farmsteads from possibly two medieval holdings, possible evidence for the relative dating of the co-axial N-S boundaries, the linear E-W boundaries and the non-linear boundaries at the core of the holdings, and a range of landscape features - including the ponds - which have remained unaltered for most of the present century. The functional and chronological framework for development given within this report is putative only; deserted farmsteads displaying a long documentary history and this range of features are uncommon and the site would make an ideal location for a series of research excavations into farmstead/settlement origins and development.

Little archaeology was observed within the target pits. This is primarily due to the nature of the pits themselves rather than to the presence or absence of below-ground archaeological resource. The turf strips were in the main too shallow to reveal much of the underlying archaeology but the presence of features within a buried soil was demonstrated. The location of the firing trenches prohibited their displaying any archaeology.

5.0 SITE D: TBSR

RESULTS OF THE ARCHAEOLOGICAL WATCHING BRIEF

The work at TBSR was represented by the excavation of 20 pop-up target pits. The pits averaged 1m by 1m by 0.5m deep, and each featured an cable trench 4m long, 0.25m wide and 0.5m deep. The numbers used in this report are the Primary Record Numbers allocated to sites in the Dyfed Sites and Monuments Record.

5.1 Site location (Fig. 1)

Site C forms a limestone plateau that is nearly level but displaying a slight uphill slope to the north. It lies at NGR SR 963 934, between 35m and 45m OD and just inland of the coastal cliffs. It is now all rough pasture with some bramble, but in the main clear; thorn, sycamore and bracken thickets occur on some of the former field boundaries which survive as upstanding earthworks. A natural hollow, 3m deep, occurs in the west side resulting from nature of the limestone bedrock.

5.2 Site history and description (Figs. 13 & 14)

At NGR SR 9650 9339, near the pond, has been found a surface find - a polished dolerite axe from the Neolithic Period (PRN 611). This may demonstrate neolithic occupation of the site but may alternatively be a stray find.

The field boundaries respect the N-S co-axial arrangement seen elsewhere in the range and a trackway runs N-S between two boundaries through the middle of the site. Both may be early, see above, 4.2 - 4.3. The boundaries are, towards their southern ends, all rather weathered but still survive to varying degrees. A former farmstead, Castle Tank, lies within the area; it was established by 1787 and is shown in the map book of Cawdor Estate farms of that year (NMR, Cawdor Maps, 1787) and is now represented by a dwelling.

5.3 Observations during the watching brief (Fig. 15)

The 20 pop-up target pits were cut largely within open pasture, away from boundaries and adjacent to no known archaeological resource and given their locations, dimensions and their widely spaced distribution it was likely that archaeology would not be well represented in the pit sections.

However, a number of earthwork features occur in the southern part of the site. They do not respect the arrangement of former field boundaries and appear to post-date the layout of the fields. A linear hollow, 120m long, 18m wide and 0.5m deep runs E-W across the southern end of the site. It is flanked to the south by a 2m high bank and a 1m deep ditch separated by a narrow berm. All terminate at the N-S track, east of which the earthworks are represented by a wide, low double bank, rather faint.

Four target pits provide sections through these earthworks. TP14 was cut through a partially infilled area at the eastern end of the linear hollow, an infill which comprised redeposited clay loam displaying, at the base, some cupric ordnance waste material. The section of TP15 displayed similar material in the topsoil. TP16 to the west was cut through the bottom of the hollow and in its upper levels displayed burnt clay and blackened stone, resembling ballast

Fig. 13 Site D: Castle Tank Farm in 1787
(copy of NMR, Cawdor Map Book, 1787)

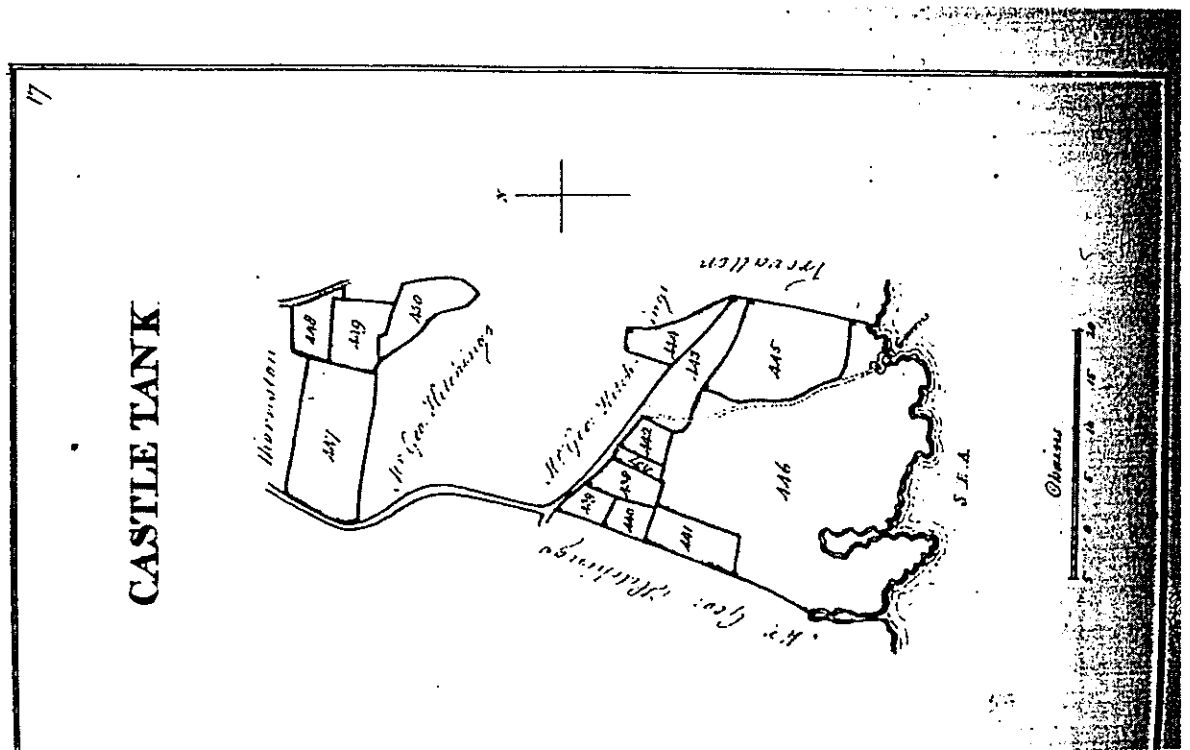


Fig. 14 Site D: the area in 1864 (copy of NLW, Ordnance Survey 1:2500, First edition, Pembrokehire Sheet XLII.16)

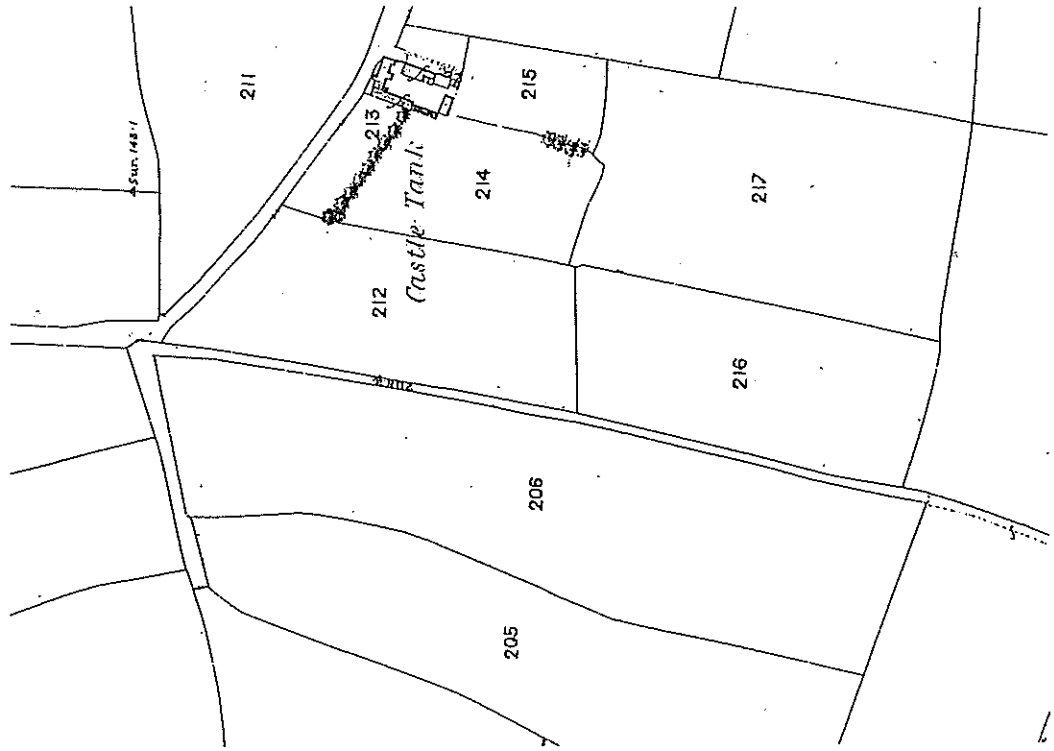
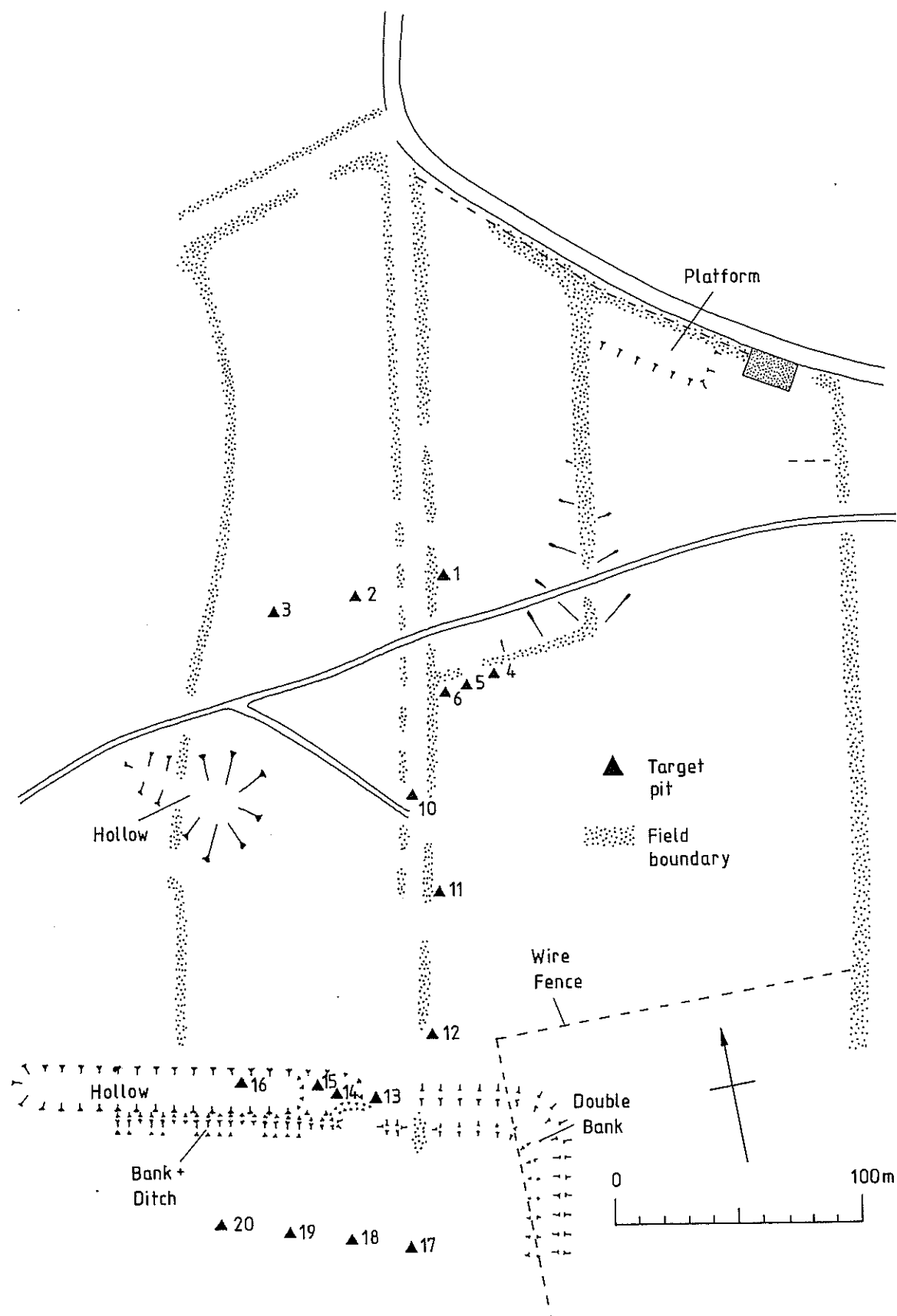


Fig. 15 Site D (TBSR): locations of
Target Pits and earthworks



material. Ordnance waste was also seen in TP19 and TP20 to the south, which displayed clay loam below the topsoil, and one sherd of post-medieval pot in the latter pit.

The earthworks therefore may represent 20th century military features, the ballast-like material suggesting that eg a target tramway was situated in the hollow, with a bund to the south, accounting for the high percentage of ordnance waste.

A platform by the roadside at the far north-east of the area appears to represent slopewash against a former field boundary, now gone (Fig. 15).

(Target pits TP7 - TP9 were not observed.)

5.4 Conclusions

Apart from that which relates to 20th century military use of the site, little archaeology was observed within the target pits. This is primarily due to the nature of the pits themselves rather than to the presence or absence of below-ground archaeological resource. Nowhere were boundaries sectioned and the pits were located well away from the suite of the former Castle Tank Farm.

6.0 THE FINDS

All finds recovered during the watching brief are the property of the landowner, in this case the Ministry of Defence. Arrangements for their storage and curation shall be made between Dyfed Archaeological Trust and Castlemartin Range.

Few finds were encountered during the watching brief. Site B stripping yielded several sherds of 19th century pottery within the ploughsoil, and a similar sherd was present at Site D, TP20. All were discarded.

The most important finds were the flint waste flakes and cores from Site B and Site D. All were retained.

Site B flint scatters (PRN 32108; NGR SR 934 954, 1 - 7 on Fig. 7):-

1 - 2 x flakes. One displays much cortex and is a trimming - it shows dubious signs of re-touching and may have been used as an implement.

2 - 1 x flake.

3 - 1 x flake.

4 - 1 x flake.

5 - 1 x flake.

6 - 1 x flake.

7 - 1 x flake.

All are broadly prehistoric but not more closely dateable.

Site D flint flake (PRN 32111, NGR SR 9510 9415; see Fig. 13 for location):- trimming showing much cortex. Broadly prehistoric but not more closely dateable.

The burnt area of buried soil at Site B (PRN 32110; NGR SR 9340 9518) was sampled for possible analysis but it is doubtful that funding will permit analysis to be undertaken.

7.0 THE ARCHIVE

The archive, indexed according to the National Monuments Record (NMR) material categories, is held by the Dyfed Archaeological Trust, Llandeilo, and contains the following:-

- A.** Copy of the final report and disc
- B.** Field notes
- C.** Copies of architects drawings and planning specs.
- D.** Monochrome photographs
- E.** Catalogue of boxed finds and index to storage location
- F.** List of preserved samples and location of specimens
- G.** List of references
- J.** Final drawings
- L.** General admin. notes
- M.** Project correspondence

There is no material for classes **H**, **I**, **K** and **N**.

8.0 REFERENCES

DATABASES

Dyfed Sites and Monuments Record (maintained by Dyfed Archaeological Trust, Shire Hall, Carmarthen Street, Llandeilo)

National Monuments Record (maintained by Royal Commission on Ancient and Historical Monuments in Wales, Crown Buildings, Plas Crug, Aberystwyth)

MANUSCRIPT MAPS AND PLANS

National Monuments Record, Cawdor Map Book, 1787

National Library of Wales, Ordnance Survey, Original Survey Drawings, Sheet 81, 1809-10, revised 1840, 2" to a mile.

National Library of Wales, 'The Parish of Castlemartin', Tithe Map and Apportionment, 1838.

National Library of Wales, 'The Parish of St Twynells', Tithe Map and Apportionment, 1838.

National Library of Wales, 'The Parish of Stackpole Boshier', Tithe Map and Apportionment, 1837.

National Library of Wales, 'The Parish of Warren', Tithe Map and Apportionment, 1839.

PRINTED MAPS

National Library of Wales, Ordnance Survey 1:2500, First Edition, Pembrokeshire Sheets XLII.6, XLII.10, XLII.11, XLII.12, XLII.16)

National Library of Wales, Ordnance Survey, c.1860, *Index to Tithe Survey*, Old Series, Sheet 38, 1" to a mile.

Rees, W., 1932, *South Wales and the Border in the XIV century*, SW Sheet.

UNPUBLISHED WORKS

Kissock, J., 1993, *Historic Settlements Project; South Pembrokeshire* (copy held in Dyfed Sites and Monuments Record)

Murphy, K., 1993, *Castlemartin RAC Range Electrification Scheme, 1993: Report on Archaeological Monitoring* (copy held in Dyfed Sites and Monuments Record)

Parkinson, A. J., 1980, *Fields and Farms: a study of Castlemartin, Pembs* (copy held in National Monuments Record)

PUBLISHED WORKS

Charles, B.G., 1993, *The Place-Names of Pembrokeshire*

Fenton, R., 1903, *A Historical Tour through Pembrokeshire*

Owen, H.(ed.), 1918, *A Calendar of Pembrokeshire Records*, Vol. III, Cymmrodorion Record Series VII

D. LANDSCAPE HISTORY AND DEVELOPMENT

It is not possible to understand the ways in which the landscape of the Castlemartin RAC Range changed and developed without reference to wider developments within the four parishes of Castlemartin, Warren, St. Twynnell's and Bosherton, and to the political and economic situation in Wales and further afield. The first part of this section deals with historical background, the second with the topographical and archaeological evidence.

1. HISTORICAL BACKGROUND

Most of the historical evidence is in an unpublished form and resides in the Lort and Cawdor collections in Carmarthen Record Office, the Angle collection in Pembrokeshire Record Office and various collections in the National Library of Wales. The Francis Green collection in Haverfordwest Library contains transcriptions of many documents relevant to the Castlemartin area and the Calendar of Pembrokeshire Records edited by H. Owen and published in 1918 contains much useful material of medieval date. In general, the manor and parish of Castlemartin is referred to in a range of medieval documents; there is virtually no equivalent coverage for Warren, St. Twynnell's and Bosherton parishes. From the late 16th century onward there is an almost embarrassing wealth of documentary evidence in Carmarthen Record Office relating to Castlemartin parish. The other parishes are less well served and it is only from the 18th century onwards that extensive documentary evidence survives.

In this study little use has been made of original documents, though schedules of manuscript collections have been consulted. Published sources of documents are referred to. A study and analysis of the documentary evidence of Castlemartin Parish has been carried out by A. J. Parkinson of the Royal Commission on Ancient and Historical Monuments (Wales). Some of the information included in the following survey of the historical evidence is taken from that study.

Following the Norman conquest of south-west Wales in 1093 land was parcelled into lordships. Some land was retained by the lord for his own use - demesne land - the remainder was further divided into smaller units called knights' fees - one knight was to be provided for each fee. Society was bonded together and individuals tied to the land by a complex system of obligation and service. For instance, knights in possession of a fee were required to provide military service for forty days a year at no expense to the king. In the century following the Norman conquest, the knight's fee is often the smallest land unit recorded in documents. Fees varied considerably in size, but the usual acreages recorded were between 480 and 640 customary acres, although they could be as large as 1680 acres. By the early-14th century the holding of a knight's fee in return for military service had been commuted to a simple monetary payment. At Castlemartin half a knight's fee was recorded at Flimston in the early-14th century; this was almost certainly a redundant term as Flimston then formed part of the demesne of the Earldom of Pembroke. The early-14th century documentary evidence for Linney may be an indication that this settlement was formerly a knight's fee, or sub-division thereof, prior to its incorporation into the demesne of Pembroke.

The Manor of Castlemartin, which is broadly coterminous with the modern parish, formed, by at least the early 14th century, part of the demesne of the Earldom of Pembroke. Because of this, Inquisitions Post Mortem were compiled on the death of the Earls of Pembroke: these inquisitions often survive. One of the most useful is that of Aymer de Valence who died in 1324. From this document we learn that in Castlemartin Aymer de Valence held 2 carucates of land (a carucate was later formalised as a statutory measurement of 120 customary acres of arable land - the amount that a ox team could plough in a year, the customary acre in south Pembrokeshire being 5760 square yards, c.20% larger than the statute acre of 4840 square yards), 15 acres of meadow, 300 acres of pasture, 100 acres of marsh, a water-mill, a wind-mill, the rent of Flimston and the rent of the vill of Linney. A 14th century grant of a carucate of land at Warmans Hill in the tenement of Linney further testifies to extensive arable land in Castlemartin. A document that assigns part of Aymer's estate to his widow contains some extra detail. In particular, individuals named from whom rents and services were due indicate that certain settlements may have been in existence by the early-14th century. For instance: Rose Ermegard (Ermigate), Matilda Prikker (Pricaston) and Ade de Slade (Slade).

The feudal system by which different classes of people were tied to the land by obligation, of which the knight's fee was one part, was by the early-14th century in an advanced state of decay. Demesne land, which would have been farmed by bond tenants on behalf of the lord, was rented out - a 14th century document records the granting of one carucate of land at Warmans Hill, and non-demesne land would have been held by customary tenants. A customary tenant held the land for life and his heirs had the right of inheritance. A tenant could also grant his land to a third party. The advantageous position of customary tenants was exploited by certain individuals who collected grants from these tenants to form large holdings which they then sub-let. In this manner the feudal tenurial system established after the Norman conquest slowly changed to a system of private land ownership. This culminated in the rise of 'the gentry' in the 16th and 17th centuries - during this period holdings were amassed into estates, some of which were of considerable size.

In Warren Parish the Bishop of St. David's possessed a large estate reckoned at two carucates of land in 1326. This would have been held by customary tenants and subjected to the same processes in the 14th - 16th century as are described above.

By the late-17th century almost all the land in the parishes of Castlemartin, Warren, St. Twynnels and Bosherton was owned by two families, the Lorts and the Whites. The Lorts eventually gained possession of the White holdings by marriage. These holdings became part of the Campbell (later Cawdor) Estate in 1757. The extent of the Cawdor holdings is shown on Map 15 - the areas left blank were not part of the estate. The appointment, in 1778, of John Mirehouse as agent for the estate initiated a new period of farm management - much of the physical results of which are still apparent today and are described below.

The Cawdor Estate retained most of the land in four parishes until the establishment of the RAC range in 1939.

2. TOPOGRAPHICAL AND ARCHAEOLOGICAL EVIDENCE

a. Settlement

The earliest recognisable settlement pattern in the Castlemartin area is of the Iron Age with several well-preserved hillforts along the coast, two in Castle Lady Valley, one to the north of Merrion and several others on the periphery of the area (Map 5). On the basis of the sparse collection of artefacts from these forts it would appear that they were abandoned in the first or second centuries following the Roman occupation of Britain. Between the abandonment of the hillforts and the coming of the Normans the pattern of settlement is simply not known, though there is good archaeological and etymological evidence to indicate churches had been established on their current sites in the parishes of Castlemartin, Warren, St. Twynnels and Bosherton prior to the Norman conquest.

The Normans inherited an agricultural landscape onto which, in the late 11th and early 12th centuries, they superimposed their own system governed by the pattern of obligations and service outlined above. To guard their newly-conquered lands a strong earth and timber castle was constructed at Castlemartin - a site, incidentally, that may have been an iron age fort - around which a village developed. Earthworks to the south and south-west of the modern village testify that this settlement once covered a larger area. Medieval pottery and stone foundations discovered during the range electrification scheme from a part of these earthworks demonstrate they are the site of dwellings dating back to at least the 14th century. Earthworks around Warren Church indicate that this settlement was also more extensive in the past. The form of the settlement at St. Twynnels Church is not known. The present small nucleated village at Bosherton may have its origin in the Medieval Period. By the time of the first large-scale maps of the area, 1787 and c.1840 (Maps 15, 16), it is clear that there were then three nucleated settlements; Castlemartin Village, Warren - Merrion and Bosherton; these may have been founded by the Normans and abandonment of them may have begun in the 14th century. It is likely that much of the dispersed settlement pattern so apparent on the 1787 map did not come into existence until the later Medieval Period or early Modern Period. In the relatively small parishes of Warren, St. Twynnels and Bosherton it is possible to envisage the

small, nucleated, medieval villages surrounded by fields farmed under a common agricultural regime. Under this system tenants would farm several strips allocated to them in the surrounding unenclosed large common fields. Clearly there is size limit beyond which it would be impracticable for the fields to extend away from the nucleated villages. This limit was probably not reached in the three parishes mentioned above. At Castlemartin, a much larger parish, it is possible to imagine a common field system around the village, but the time involved in travelling from the village to farm land along the coast to the south would have been prohibitive. Secondary settlements - Flimston and Linney - were therefore established here, probably in the 12th century. Certainly the name Flimston - 'Flemmings' ton' - suggests a foundation in the late-11th or early-12th centuries when it is known that people from the Low Countries were settling in south Pembrokeshire. The knight's fee, described above, was the mechanism by which these settlements were founded. It is important to stress that these settlements were not established on virgin ground, but on land that had been farmed for millennia, though at the time of foundation it is likely that this ground had reverted to marginal land, but on which all the established land divisions were visible. It is also possible that the territories carved out by the Normans and in which settlements were founded were based on pre-Norman land divisions and settlement patterns.

The form of the medieval settlement at Linney is known. A series of low terraces on a north-facing valley side represent the remains of a small nucleated village. This village continued in existence up to at least 1480 when 13 tenants were recorded. It is worth noting that these were still bond tenants and were required to 'plough for the lord without food at any time of the year it pleases the lord, and shall also reap in autumn'; this by then anachronistic system may have been instrumental in preserving the coherence of this nucleated settlement plan throughout the Medieval Period. Abandonment of this settlement was probably gradual with Linney and Linneyrow farms the last of the houses to be occupied; the former finally abandoned between 1787 and c.1840, the latter surviving up to 1939.

No earthworks survive at Flimston to indicate the morphology of the medieval settlement. It was clearly of some size for in the 16th century half of Flimston comprised five tenements.

Breakdown of the feudal system and the rise of private ownership enabled individuals to amass strips in the open fields. The dramatic fall in population caused by famine and pestilence in the 14th century - population levels did not again achieve similar numbers until the Post-Medieval Period - facilitated this process and a move away from arable cultivation to sheep farming encouraged it. These amassed land holdings would have been enclosed and eventually a dwelling would be built upon them, the original house in the village being abandoned. As late as c.1840 the after-effects of this process can still be seen. Moor Farm (Map 16, No. 10) sat in the centre of a holding of small fields to the south-east of Castlemartin village. However, a small plot of land with a cottage and a narrow field to the north-west of the village, still in the possession of Moor Farm, was probably the original dwelling site. This contraction of nuclei and dispersal of settlement may have begun by the 14th century. There are hints that Pricaston and Ermigate were in existence by then. East and West Gupton are recorded in 1480 and Southrow, Loveston, Carew, Layton, Brownslade and the others during the 16th century.

An example of this process of dispersal and change is preserved on surviving maps. Longstone, Southrow, Quarpool and Addlegutter Farms in Warren parish had, prior to 1787 (Map 15), acquired large acreages of land, but this was scattered across the parish and intermixed with that of other holdings. No one farm held a consolidated block of land within the former common fields. Dispersal of settlement - the four farms - was therefore to the edge of the common fields in a narrow band squeezed between the parishes of Castlemartin and St. Twynells. This was advantageous for the farms as they were then able to exploit and enclose the rough grazing/pasture between them and the sea cliffs. The recording of Southrow farm in the mid-16th century demonstrates that this process had occurred by then. By the time of the tithe survey in 1839 virtually the whole of Warren parish had been consolidated into three large farms; Warren, Merion and Longstone. Southrow, Quarpool and Addlegutter farms had been wiped from the landscape.

The changes in the landscape recorded between 1787 and c.1840 were in no doubt the direct result of the appointment of John Mirehouse as agent for the Cawdor Estate. He was an agriculturalist of some note, and as well as improvements to Warren parish noted above he remodelled Brownslade House, farm and

gardens. His most notable contribution, however, was the driving of the straight road from Stackpole House almost to Brownslade - the present main road of the area.

It is important to stress the change and dislocation of the settlement pattern which overlies the basic picture of continuity. An examination of Maps 15 and 16 demonstrates how small cottages such as Flimston Villa came into being probably as dwellings for landless labourers, attracted land to themselves and developed into small agricultural holdings. Conversely, Slade House, Castle Lady House (formerly Drayton House and recorded in 17th century records as Drydown), Tar Shipping and Layton Farm (recorded in the 16th century but the site long since lost by the late-18th century) were at one time substantial agricultural holdings but had declined to cottages or disappeared by 1787.

b. Administrative Units and Territories (Map 14)

The ecclesiastical parishes of Castlemartin, Warren, St. Twynnels and Bosherston are now the only administrative units which have known and traceable boundaries. These were probably established in the 13th century. The ecclesiastical parish of Castlemartin has always been assumed to have been coterminous with the medieval Manor of Castlemartin. Surviving medieval records show, however, that the manor included lands which now lie beyond the northern limit of the parish. This, coupled with the existence of other territories - the half a knight's fee at Flimston and a possible further one at Linney - indicate that origins of the parish of Castlemartin are complex. Certainly its large acreage for a south Pembrokeshire parish, 4502 acres in 1838, suggests it was carved out of several pre-existing territories.

It is interesting to note on Map 14 the thin tongues of land in Warren and St. Twynnels parishes which allow access from settlements around the churches to what was probably rich grazing land held in common along the sea cliffs.

The extent of the Bishop of St. David's Estate recorded in 1326 at Warren can be traced for at least part of its course on maps. The parish boundary between Warren and Castlemartin to the west and south-west of Warren Church is clearly demarcated by the different patterns of land holding in 1787 (Map 15). This parish boundary probably follows the boundary of the Bishop of St. David's Estate. The southern limit of the estate was formerly indicated by Ermigate Cross (Map 14). Two fields known as 'Cross Park' suggest further cross sites marking the southern boundary of the estate. If this suggestion is correct, then the estate formerly encompassed part of St. Twynnels parish. From the eastern cross site the estate boundary may have turned to the north towards Hayston.

It is perhaps of interest to note that without documentary information it would not be possible to pick out on the ground the parish or other major land divisions from the mass of common field banks.

c. Roads and tracks (Map 13)

Map 13 shows the system of roads and tracks as it existed at the time of the first large-scale mapping of the area in 1787. It is notable that in the southern portion of the four parishes there is a strong axial, or rather co-axial, element to the system which divides the landscape into a number of roughly equally sized squares. This element is emphasised when the parish boundaries, discussed above, and the field system in the far south-west, described below, are also considered. This co-axial system could not have arisen without a strong element of planning some time in the past. The date of this is discussed in the following section.

d. Field systems (Maps 14, 15 and 17)

There is a clear, rectilinear, co-axial field system manifest by a series of relatively small square enclosures in the far south-west of the range on the former farms of Linney, Pen-y-Holt and Warmans Hill with less discernible elements of the system to the east at Mount Sion and Stevens Down (Maps 15, 16). This system is aligned with the roads and tracks described above and to some extent with the parish boundaries. An indication of the antiquity of the system is provided at the deserted medieval village of Linney (site no. 14632). The banks of the field system are associated with this settlement. A further clue to the date of this

co-axial field and road system is provided by the Boundary of the Bishop of St. David's Estate to the west and south-west of Warren church. The configuration of this boundary (Maps 14, 15) strongly suggests that the estate has been superimposed onto the pre-existing co-axial system. The estate was probably granted to the Bishop of St. Davids in the Norman Period, although there is some evidence which suggests it was a pre-Norman grant. Either way, it demonstrates that the co-axial system was in existence prior to the Norman conquest.

Clearly, the laying out of a unified, co-axial field and road system across a large tract of land from Bosherton to Linney Head would have required extensive political and economic power in the pre-Norman Period. Iron age hillforts in the area demonstrate that this power was then present, so it is therefore to this period that we must look to seek the origin of the co-axial field and road system. There is single piece of purely archaeological evidence that seems to support the theory that this system originated in the Iron Age. Beneath a low, stony field bank, part of the co-axial system, that runs southwards from Linney medieval village to the coast was a distinctive 'gleyed' soil. The only other place in the range that this type of soil was seen was beneath one of the large defensive banks of Linney Head iron age hillfort. The defensive bank and the stony field bank may therefore be contemporaneous.

The small square fields of the co-axial system arose because of the use of the ard, a primitive plough. An ard could only scratch the surface of the soil and so it was necessary to make a second pass over the ground at right angles to the first; this tended to produce squarish fields. Examples of ancient 'cross-plough' marks were found preserved beneath later deposits during excavations on Stackpole Warren. The more sophisticated mouldboard plough required more animals to pull it and was difficult to turn; this led the development of long, thin strip-fields in the Medieval Period such as are described below. The reasons why this system of small, square fields on Linney Head survives are probably very complex. Two suggestions are here given. First, it may have been that small fields surrounded by banks topped with hedges provided vital protection for crop growing on this very exposed headland. Second, the conservative character of Linney Village bond settlement may have mitigated the effects of changes in agricultural practice during the Medieval Period.

The Normans inherited a planned and managed landscape. Onto this pre-existing co-axial system they superimposed an agrarian landscape regulated by feudalism. The classic agrarian landscape of the Norman south-west Wales is the open, common or strip field system. The after-effects of this medieval form of cultivation can be traced on the first large-scale maps of 1787 (Map 15). In Warren parish the several farms consisted of plots of land scattered across the parish. These are the remains of unenclosed strips that formerly lay within larger common fields. It can be seen on the map that in a few instances narrow strips of land belonging to different owners were not separated by hedges or banks. Around Castlemartin village long narrow fields are the enclosed former strips of common fields and at Moor Farm (Map 15, No. 10) the wider but relatively long fields are the result of several strips parcelled together prior to enclosure. The field and tenure pattern around Bosherton village also indicates former common fields. It seems likely that common field farming also operated around the settlements of Flimston and Pricaston; the specific mention of Pricaston Hedge in a document of 1621 implies that large hedged boundaries were an unusual and noteworthy part of the landscape. Here the enclosure pattern has evolved and developed so that it is no longer possible to recognise even relict elements of the former common field system.

A good idea of how a landscape can develop from one of unenclosed strips in common fields to one of fields enclosed by hedges can be obtained by the study and comparison of the area to the south of Warren Church - now occupied by Merrion Camp - on the two maps included in this study: one based on surveys of 1787, the other on the c.1840 tithe maps. In 1787 the predominant field pattern was one of north-south aligned strips based on the old common field system. These strips would originally have been separated by baulks - narrow bands of unploughed land. By 1787 some of these strips had been collected together and formed into small fields by the construction of hedgebanks often on an east-west alignment. When the landscape was reorganised between 1787 and 1840 - the results can be seen on the 1840 map - these east-west hedgebanks were utilised as part of the new system; the older, less substantial north-south baulks were erased. By this means a landscape of regular, rectangular fields arose from the earlier common fields. The common medieval field method of farming operated with the co-axial system established at an earlier

period, perhaps in the Iron Age. As described above, some pre-common farming enclosure patterns - those in the far south-west around Linney - remained in use through the Middle Ages up into modern times. The boundaries of these early enclosures are quite distinctive; this realisation prompted the examination of hedgebanks as they were cut through by trenching for the 1993 electrification programme and also the inspection and recording of every other hedgebank on the range where this was possible. Seven basic types of bank were recorded (Map 17): topsoil construction, topsoil subsoil mix, mixed earth and stone bank, rubble bank, coursed stone bank, stone wall and 'Pembrokeshire' hedgebanks. Four of these categories are further subdivided by size. Most of the hedgebanks on the range are now stripped of vegetation and many of them have gaps bulldozed through them; these two factors enable examination of their size and composition. The results are discussed below.

Associated with the possible iron age, rectilinear field system near Linney were two distinctive types of bank; rubble, and stone and earth mixed. These banks rarely achieved a height of over 0.3m. A further small grouping of this type of boundary can be seen at Stevens Down at the southern end of Bosherton/Warren parish boundary. Here they are also associated with a rectilinear field system suggesting that they may have survived from the Iron Age.

The most common form of hedgebank was the simple, unstructured dump of topsoil or topsoil and subsoil mixed. Construction of these was still being undertaken in the early- to mid-19th century - they bound the early-19th century road from Stackpole to Brownslade. The period of their inception is not known but their strong association with areas of former common field cultivation perhaps indicates that it was in the 16th century. Areas of land that were enclosed over a short period of time can be detected where groups of similar sized, earthen boundaries exist such as to the south of Trevalen. This particular area was enclosed prior to 1787. Only around Linney was it possible to identify two-phase hedgebanks. Here large earthen banks overlay older rubble boundaries.

One of the most striking pieces of evidence to emerge from this survey of hedgebanks is the paucity of 'Pembrokeshire' banks - alternate layers of earth and stone, and where they were recorded they are of relatively recent date, probably 19th century. Banks constructed entirely of stone and dry stone walls are of a similar date.

The resilient nature of certain landscape elements against a background of economic development and changing farming practice is demonstrated by the wide variety of hedgebank types and is also supported by the topographical and historical data. What is clear from this study is that in times of population increase (when more land was taken into cultivation) older, pre-existing hedgebanks, fields and tracks - the legacy from earlier generations of farmers - were reused, adapted and changed to suit current practices. When the population contracted, for example in the mid-14th century in the wake of pestilence and famine, these modified banks, fields and tracks fell into disuse only to be modified by later generations of farmers. By this process, the ancient co-axial field system survives in the modern landscape.

Evidence of ridge-and-furrow cultivation, showing on aerial photographs but not readily detectable on the ground, demonstrates that much of the range has been at one time under the plough. In the late-18th century farmers were encouraged to plough their land into long ridges generally about 6m wide for better corn production. It is probable that much of the ridge-and-furrow now visible in south-west Wales dates to this period, though this method of cultivation has been common practice for many centuries. The surprising aspect of the ridge-and-furrow at Castlemartin is its distribution along and very close to cliff tops from Linney to Stack Rocks. This is beyond the area of cultivated land depicted on the 1787 and c.1840 maps.