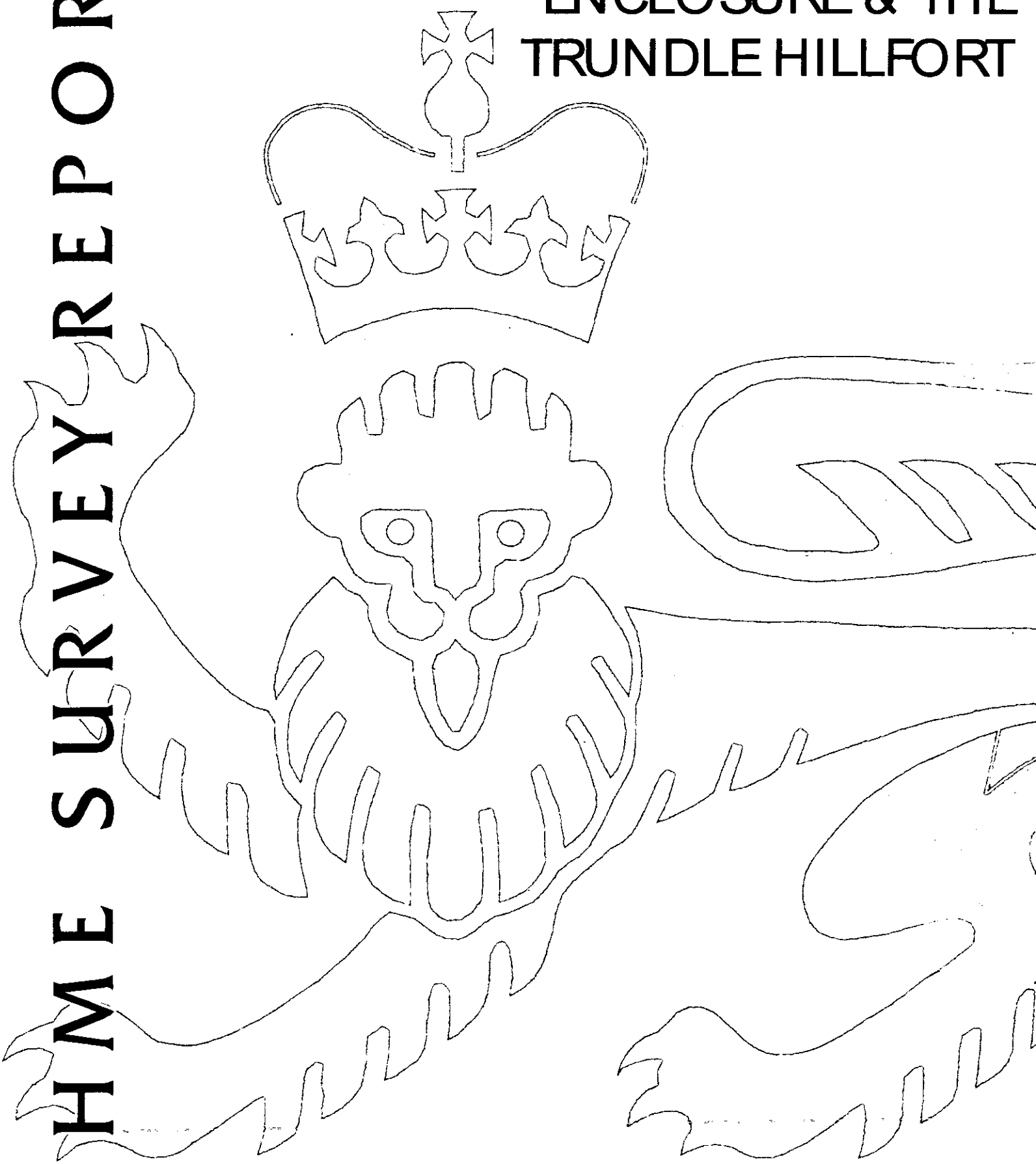
RCHME SURVEY REPORT

A CAUSEWAYED ENCLOSURE & THE TRUNDLE HILLFORT



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A CAUSEWAYED ENCLOSURE AND THE TRUNDLE HILLFORT ON ST. ROCHE'S HILL SINGLETON, WEST SUSSEX

An Earthwork Survey by The Royal Commission on the Historical Monuments of England

ENCLOSURE AND INDUSTRY IN THE NEOLITHIC

May 1995

ROYAL COMMISSION ON THE HISTORICAL MONUMENTS OF ENGLAND

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CONTENTS

LIST OF FIGURES

1. INTRODUCTION

In May 1995 the Royal Commission on the Historical Monuments of England surveyed the well-preserved earthworks of a Neolithic causewayed enclosure, on St. Roche's Hill, as part of the project to record Enclosure and Industry in the Neolithic Period. The causewayed enclosure is often known as The Trundle, although this name properly applies only to the Iron Age hillfort which partially overlies it. The Iron Age hillfort and the remains of the chapel of St Roche were also surveyed.

St. Roche's Hill lies in the parish of Singleton in the Chichester district of West Sussex (National Grid Reference SU 8774 1107). It is a fairly isolated chalk outcrop whose summit stands at a height of 206m above OD; both monuments consequently command panoramic views and are conspicuous from the surrounding landscape (Page 1905, 466). The site, which is now managed jointly by the Goodwood Estate and Sussex Nature, is under typical downland pasture and was protected in 1958 as a Scheduled Ancient Monument (W SUSX 41 a & b). The causewayed enclosure and the hillfort are recorded in the National Monuments Record as SU 81 SE 52 and 21 respectively.

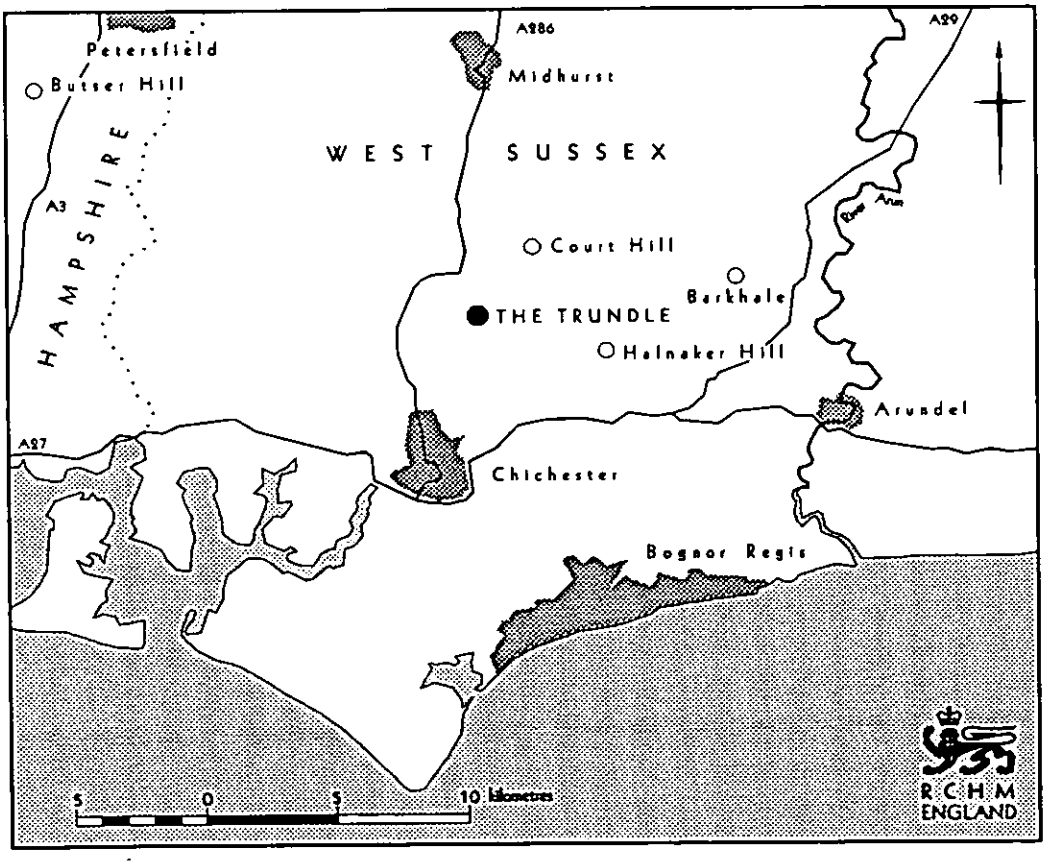

Figure 1: Location map

1. INTRODUCTION

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2. ARCHAEOLOGICAL HISTORY

The Neolithic causewayed enclosure (SU 81 SE 52)

In 1925, the slight earthworks within the hillfort were first identified as a 'causewayed enclosure' by OGS Crawford, whose search was prompted by the recent discoveries of the enclosures on Windmill Hill and Knap Hill. An aerial photograph revealed the remains of what Curwen later termed the 'inner' and 'outer' ditches (NMR a, reproduced in Curwen 1929, plate 1; 1954, plate 6).

In 1928, EC Curwen, having been notified of the discovery by Crawford, carried out a detailed analytical earthwork survey (Figure 2, after Curwen 1928, plate 2), which was subsequently re-used by Ordnance Survey and has remained the standard depiction of the site. The interrupted banks and ditches were partially visible to the eye and the plan was completed using Curwen's percussion technique. The terminology adopted by Curwen to denote the main archaeological features has been retained throughout the RCHME report.

In 1928 and 1930, Curwen excavated several trenches across the Neolithic earthworks (Curwen 1928; 1930). The first season's work was recorded on aerial photographs (NMR b). The terminal of one segment of the 'inner ditch' was excavated in 1928. The primary fill contained pottery, flint flakes, quern fragments, grain rubbers and a bone object, interpreted as a phallus. Curwen suggested that the layer had been formed by silting both during and after the Neolithic occupation, but the depth of the deposit and the description 'clean chalk rubble' indicates that it may have been an episode of deliberate back-filling; a thick overlying deposit was interpreted as subsequent silting under turf during the Bronze Age and possibly deliberate levelling in the Iron Age. The butt-end of the adjacent segment was excavated in 1930, revealing a similar sequence. In the primary deposit, three carved chalk objects were found: a chalk 'cup', a perforated block and a semi-circular block scratched with radiating lines. Some charcoal and fragments of two finely flaked arrowheads were also found in this layer. The earthwork was thought to be defensive in function, on account of its size.

Two complete segments of the second ditch were excavated in the 1928 season. The basal fill was again sterile, suggesting deliberate back-filling, with Neolithic material only in the secondary silts. A third intervening segment was excavated in 1930, revealing what was evidently a V-shaped re-cut containing an accumulation of chalk blocks and

associated occupation debris: 'hearths', pottery, bones and worked flints. Around the edge of the ditch was an arrangement of five shallow post-holes, up to 18 inches (0.45m) in diameter; this discovery led Curwen to re-open the 1928 trenches, revealing four post-holes around the southern half of one and at least four around the south-eastern part of the other, and to interpret the whole second ditch as a line of 'pit dwellings'. Piggott's (1954, 20-4) work on Neolithic cultures, re-examined the evidence and argued that all the post-holes related to the Iron Age occupation. Curwen accepted this interpretation and suggested that the inner ditch may have formed a cattle enclosure, with the spiral ditch acting as a funnel to collect them and the deeper outer ditch forming a line of defence (Curwen 1954, 84-7).

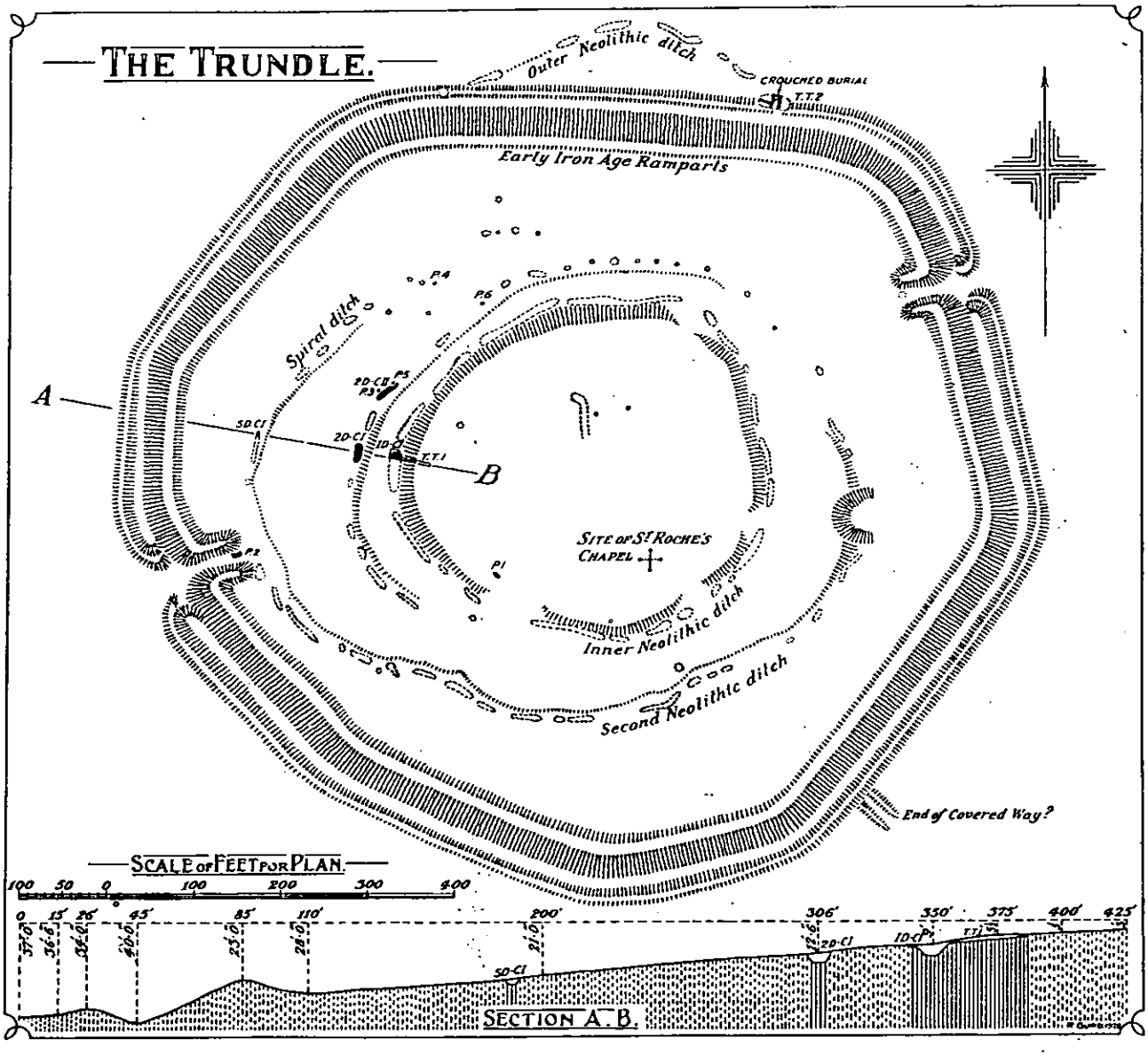

Figure 2: EC Curwen's earthwork plan (1928)

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Another trench was excavated across the terminal of a segment of the 'spiral ditch', with similar results to the second ditch. The 'outer ditch' was excavated at the point where its eastern end is overlain by the Iron Age counterscarp bank, revealing the crouched inhumation of a young woman underneath a small cairn of chalk blocks, in a pit cut into the upper silt of the Neolithic ditch. The burial was dated by its stratigraphic position to the early Bronze Age 'Beaker' period, though the only associated find was a perforated shell (*Porosphaera Globularis*).

The Neolithic pottery was of Windmill Hill type, represented by characteristic round-bottomed vessels with handles in the form of horizontal lugs, simple upright rims and ornament confined to parallel combings and lines of stabbed dots. Some carinated sherds were found, similar to finds from Cissbury, decorated with grooves, incised lines and rows of impressed dots along the carinations. Residual flints were found in the Iron Age deposits, though far more common in the Neolithic levels. JDG Clark, who prepared the flint report for the 1930 excavations, noted that 2197 flints were recovered of which only eighty-six were cores and fifty-nine were implements; the rest were waste flakes. This number, however, represents 2.7% of the total assemblage - slightly higher than the average found on the other enclosures (Drewett, Rudling and Gardiner 1988, 40). The most commonly found implements were serrated flakes and scrapers (twenty-eight and twelve respectively); of the former, seventeen were thought to have been used for cutting wood, due to their polished surfaces. An axe rough-out and two fragments of leaf-shaped arrowheads were also found. There were three roughly shaped chalk cups and six possible chalk objects; of the latter, four were scored with parallel lines, similar to pieces found at Harrow Hill, and two were perforated. Some quern fragments were also found, including most of the lower stone of a saddle quern. Bone tools included two awls. Ox and pig bones were the most abundant, while sheep/goat and deer bones were rare. Twenty three species of land snails were excavated from Neolithic deposits which were taken to indicate that damp woodland conditions were prevalent.

In 1969, Bradley observed a cropmark running in an arc across the ridge outside the hillfort to the west on Crawford's aerial photograph and suggested that this might be either an extension of the 'outer ditch', or a spur dyke similar to that found at Hambledon Hill (Bradley 1969, 133-4).

In 1980, Bedwin and Aldsworth excavated an area of approximately 40m^2, in advance of alterations to the western radio station (Bedwin and Aldsworth 1981). Part of the segment of the 'spiral ditch' previously excavated by Curwen was re-examined, for the most part confirming his observations. The layer of coarse chalky rubble, encountered by Curwen, which tipped downwards from the eastern side of the ditch was interpreted

as rapid silting; however, the description 'compacted' may again indicate that the layer was a deliberate deposit. A possible denuded bank was recorded on the eastern (inner) side of the ditch. A post hole was tentatively interpreted as a possible gate structure, in the light of the fact that access is easier up the western side of the hill (Drewett, Rudling and Gardiner 1988, 38). Drewett's analysis of the pottery identified thirty-two sherds of Neolithic pottery from the lower layers, including part of a carinated bowl with a perforated lug decorated with incised diagonal lines, consistent with an earlier Neolithic tradition. The total assemblage of sixty-eight pieces of worked flint included one core and a relatively high proportion of primary flakes, but no tools, which may suggest that core preparation was carried out in this area. Three pieces of carved chalk lay on the base of the ditch: one possible spindle whorl and two incised blocks. A few fragments of animal bone were also found, including cow, pig and sheep/goat.

The *mollusca* assemblages, analysed by KD Thomas, were initially thought to indicate that the enclosure ditch had been constructed in an area which had been recently and extensively cleared. However, this conclusion was revised in 1982, following the reclassification of *Vallonia costata* as a woodland species, which altered the relative percentages in the assemblage; the enclosure may therefore have been constructed in a more localised clearing (Thomas 1982, 152-3). This interpretation is supported by the unquantified assemblages recorded from Curwen's excavations. After the abandonment of the causewayed enclosure, the increase in relict woodland species suggests that the area became overgrown with scrub, which was cleared again prior to the construction of the hillfort.

Four radiocarbon determinations have been obtained from the causewayed enclosure (Bedwin and Aldworth 1981; Drewett Rudling and Gardiner 1988):-

2895 ±95 bc	3690 BC	(I-II, 614)	Secondary silt of 'inner ditch'
3290 ±140 bc	4390-4010 BC	(I-II, 615)	Primary silt of 'second ditch'
3090 ±170 bc	4190-3900 BC	(I-II, 616)	Primary silt of 'second ditch'
2910 ±100 bc		(I-II, 612)	Secondary silt of 'spiral ditch'

'The Trundle' Iron Age hillfort (SU 81 SE 21)

The earliest known large scale-depiction of the hillfort is an etching of 1723, made for Stukeley's Itinerarium Curiosum, which shows St Roche's Hill from the north (original held in Gough collection). In 1804 Hay mentioned 'the remains of a small camp, in a circular form' on St Roche's Hill which was 'supposed to have been raised by the Danes, when they invaded and plundered this country' (Hay 1804, 543). Horsfield (1835, II, 81) discussed this possibility and another local tradition that the earthworks had been

constructed by a great Roman army, but favoured a later prehistoric origin. Mason's description of the Goodwood estate reproduced a drawing of the hillfort by a local antiquarian, T. King, and included a relatively detailed description of the earthworks, which erroneously concluded that the eastern gateway was 'evidently a modern innovation' (Mason 1839, 171-6). In 1850, the local antiquarian the Reverend Edward Turner mentioned the existence of 'pits' within the ramparts but appears to have been referring to the marl pits, since he compared them to the Neolithic flint mines at Cissbury. However, he added that 'fragments of ancient British pottery' (some possibly of Neolithic date) could be exposed wherever the turf was removed within the hillfort (Turner 1850, 183). By the later nineteenth century, the earthworks were generally regarded (eg Ordnance Survey First Edition 25-inch map, surveyed 1873, published 1877) as a 'British Camp' - ie an Iron Age hillfort. The Victoria County History considered it to be a contour fort 'of early character' (Page (ed) 1905, 466). In 1916, Allcroft pointed out a number of other characteristic Iron Age features and finally dismissed the other local traditions. He suggested that the name of 'The Trundle' derived from the Anglo-Saxon word for a hoop (Allcroft 1916, 75), although the general obsession with linguistic derivations at that time led to many erroneous interpretations.

Curwen's plan recorded the hillfort and his excavations of the causewayed enclosure encountered a number of typical pits and post-holes. The upper levels of most of the ditch segments contained Iron Age material, and Curwen suggested that the upper layer of the inner ditch fill might have resulted from a deliberate attempt to level the Neolithic earthworks. In 1930, he went on to excavate the north-eastern gateway, revealing three large post-pits and twenty-four smaller post-holes, which he interpreted as a succession of gate structures. A relatively simple dual portal existed in Phase I, dated to the later part of the La Tene I period (ie the fourth to third centuries BC). In Phase II this was redesigned as a passage gateway, formed by wooden revetments retaining two newly added in-turned earthworks. It is uncertain whether there was a single gate at each end, or whether there was a massive dual portal at the inner end, represented by the three massive post-pits (Cunliffe 1974, figure 13.10); Curwen himself interpreted this as a third unfinished phase of development. On the basis of limited excavation in 1928, a comparable structure was thought to have existed at the south-western gateway.

The 1930 pottery report was prepared with contributions from Christopher Hawkes; La Tene I and II pottery corresponded to finds from St Catherine's Hill and was taken to indicate continuous occupation throughout the Early/Middle Iron Age. The La Tene II pottery mostly represented 'saucepan' pots or globular bowls decorated with straight-wavy incised lines and slight depressions, dating to the third to second centuries BC. A

large jar with an everted rim and decorated with impressed dots was considered to be analogous to finds from St Catherine's Hill and Swallowcliffe Down. Very small fragments of quernstone were numerous, and in the 1930 excavations of the eastern gateway many larger rotary quern fragments were found. Considerable numbers of flint flakes and cores were found in Iron Age contexts; Curwen observed that these were presumably mostly residual, although he added that 'the technique displayed on the flints from the undisturbed Iron Age strata is markedly more wasteful than the more ancient work'. Some iron slag was found and a few iron objects including two spear heads, parts of two adzes and a small sickle. Other finds included two bone tools, four perforated bones or tusks, three spindle whorls, a blue glass ring and fragments of Kimmeridge shale bracelets. The faunal remains were not quantified, but the bones of domestic cattle (*bos longifrons*), horse, sheep/goat and pigs were common, while roe deer, dog and cat were very rare. Four oyster shells were found in Iron Age contexts. Nineteen species of land snails recovered from the early Iron Age levels were indicative of damp conditions, although milder than Neolithic times. Woodland clearance, possibly associated with ploughing, led to a dramatic rise in the relative numbers of species associated with open-country and disturbed soil conditions.

A field observation by Ordnance Survey in 1963 noted that casual inspection of the molehills produced not only many coarse gritted sherds but a sherd of smooth black Iron Age pottery, a few small sherds of Romano-British wares and a small fragment of a Roman brick (NMR d).

Figure 3: RCHME earthwork plan, surveyed at 1:1000 scale

3. DESCRIPTION OF THE EARTHWORKS

For names and letters which appear in bold in the text, see RCHME earthwork plan surveyed at 1:1000 scale (figure 3). There is relatively good aerial photographic coverage of the site, which in addition to revealing certain degraded archaeological features also gives a good sense of the topographical location (NMR a, b, c, d; CUCAP a, b, c).

The Neolithic causewayed enclosure

Curwen's original descriptive terms have been retained for the RCHME report, but it should be noted that due to the complex inter-relationships of the earthworks these terms are no longer entirely adequate.

The **'inner ditch'** and its internal bank enclose a sub-circular area of 0.95ha, measuring 108m west to east by 100m north to south. The superficial appearance of the ditch suggests that it is formed by twenty-six segments, which vary in length from 4.5m to 36.0m, and in width from 4.0m to 7.0m. Some of these segments appear to result from re-cutting, and consequently only seventeen complete or partial causeways, generally between 1.5m and 6.0m wide, can be identified. The maximum depth of the ditch segments is now 0.3m; Curwen's excavations on the west of the **inner ditch** demonstrated that at that point it was originally 1.4m deep, with a flat-bottomed almost U-shaped profile. The inner sides of the ditch segments, which were shown by excavation to be steeper, are generally more prominent on the surface and formed by an almost continuous scarp. With the exception of a 35m long stretch on the eastern side, the internal bank is separated from the ditch by a berm 1.0m wide on average. The outer face of the bank is an almost continuous and much more prominent feature, reaching a maximum height of 1.6m on the north-eastern side around causeway **a**. The back of the bank is no more than 0.2m high and absent for a distance of 40m on the south-west; elsewhere it is discontinuous, with apparent indications of six complete breaks up to 5.5m wide. Contrary to Curwen's suggestion, only one of these, causeway **a** on the north-east side of the enclosure, clearly coincides with a complete break in the inner ditch and could be regarded as a likely entrance.

Within the **inner ditch**, on the northern side of the enclosed area, two slight scarps separated by a sub-rectangular depression 10.0m long and 5.8m wide, seem to result

from much later activity, rather than being an element of the causewayed enclosure. The **'second ditch'** was traced by Curwen from a terminal on the south-western side of the enclosure through a 520 degree circuit of the hilltop in a clockwise direction, and he distinguished the overlapping section with the name **'spiral ditch'**. From the south-western terminal identified by Curwen, up to a point some 40m south of causeway **a**, the **second ditch** maintains a fairly constant distance of between 6m and 10m from the **inner ditch**. It is superficially similar in appearance to the **inner ditch**, being formed by some eighteen segments, which vary in length from 5.0m to 13.0m and in width from 3.0m to 7.0m, separated by some thirteen causeways. Also like the **inner ditch**, these segments are linked by a continuous and much more prominent scarp which reaches a maximum height of 0.7m on the north-eastern side of the enclosure near causeway **a**; however, there is no trace of any back to this scarp. The two segments excavated by Curwen both had U-shaped profiles with almost vertical sides and a flat base, and depths of *c*.1.0m.

On the western side of the **second ditch**, some 20m south of the modern track, a diverging section of causewayed ditch apparently represents a re-cut of the earthwork, though the intersection of the two features is confused by the course of the track. This fades away approximately 70m to the north, where it lies some 15m from the **second ditch**. All but the southernmost of the ditch segments are much smaller in size and are visible only as grass marks or depressions of minimal depth. The intersection of the two features coincides with a slight counterscarp bank, which is visible for some 27m, and a commensurate modification of the internal scarp.

At a point some 40m south of causeway **a**, the slight scarp of the **second ditch** abruptly diverges from the **inner ditch** and thereafter, as far as pit **b**, maintains a distance of between 18m and 28m from it. This strongly suggests that this may be the real beginning of Curwen's so-called **'spiral ditch'**. Two slight scarps no more than 0.2m high possibly represent the continuation of the **second ditch** around the south-eastern side of the hilltop, perhaps indicating that the earthwork was at some stage a complete circuit concentric with the **inner ditch**. The more easterly of the two scarps is associated with a single segment of ditch measuring 6.8m long and 3.5m wide.

The **spiral ditch**, as re-defined above, may also have completely encircled the hilltop, though its course beyond the western **radio station** is uncertain. In addition, it is uncertain whether the ditch represents a single contemporary earthwork or two different phases, which intersect at a point somewhere close to pit **b**. Although the angle change at this point is not as pronounced as Curwen's plan would suggest, there is evidently a difference in alignments. As far as pit **b**, the spiral ditch is formed by eleven segments

linked by a more prominent inner scarp up to 0.4m high, separated by eleven causeways between 1.0m and 6.5m wide. Most of the ditch segments are relatively long and regular in shape, all except two being between *c.*10m and 21.0m in length and 4.0m wide on average.

Pit **b**, which lies at approximately the change of angle in the **spiral ditch**, is unusual in that it appears to lie at right angles to the other earthworks and to cut through the internal scarp. Although the pit is not certainly of Neolithic date, its position and anomalous form may be significant.

Between pit **b** and the western **radio station**, the alignment of the **spiral ditch** curves further outwards away from the **second ditch**. The six visible segments are again more variable, ranging from an almost circular depression some 8m in diameter to a segment 24.5m long and 3.5m wide. Beyond the radio mast, it is unclear whether the earthwork curved back eastwards, as Curwen's plan suggested, or whether it continued in a smoother curve suggested by an irregular and more ephemeral scarp lower down the slope - the relationship has been obscured still further by the disturbance associated with the masts. Both Curwen and Holgate excavated a segment of ditch within the fenced compound around the radio mast, but neither trench was extensive enough to demonstrate the form and relationship of the more westerly earthwork. At this point the ditch was shallower, 1.0m deep, with a broad flat base.

Between the western and eastern **radio stations**, the more prominent earthwork, only part of which was recorded by Curwen, comprises a series of at least nine ditch segments varying between 5.5m and 13.5m long. The earthwork maintains a gentle curve parallel to the **second ditch**, at a distance of between 16m and 25m. Much of this section is intermittently disturbed by a number of irregular hollows, mounds and better defined sub-circular scoops, which are interpreted as possible Iron Age house platforms (see below). The course of the ditch beyond the eastern **radio mast** is uncertain, but there are slight traces of two possible continuations, one a very degraded scarp extending for some 13m to the south-east of the fenced compound, and the other a scarp 24 metres long with an associated ditch segment at least 15m long.

Another apparently separate scarp runs parallel to the eastern end of the **spiral ditch** at a distance of between 12m and 24m. Although it is uncertain whether this is associated with the causewayed enclosure rather than later ploughing, there are two possible instances of segments of ditch.

The **outer ditch**, as recorded by Curwen, is an angled section of earthwork extending for a total length of 120m outside the Iron Age ramparts on the northern side of the hill. The earthwork runs obliquely across the natural contours in a broad 'V' and the change of angle, which lies some 18m from the hillfort, is a considerable distance down the natural scarp slope of the hill. There are nine ditch segments varying between 4.0m and 10.5m long, with a maximum depth of 0.2m. The section excavated by Curwen was almost V-shaped and 9 feet (2.7m) deep; the layers in his published section do not indicate the existence of a deliberately formed internal bank, though the profile clearly suggests that one existed. The internal scarp stands up to 1.4m high, and there is a considerable counterscarp bank up to 0.3m high. In the course of the RCHME survey, a surface concentration of flints was noted in the area between the outer ditch and the counterscarp bank of the hillfort and twenty worked pieces, including a small core, were collected. The remainder were all secondary waste flakes. These, together with other surface finds from the site, have been given to Lewes Museum.

Bradley (1969) observed that **cropmarks** extending across the spur around the western side of the hilltop might be a ploughed out continuation of the **outer ditch** of the causewayed enclosure, or a spur dyke. Although the natural topography of the hillside does not allow very accurate aerial photographic transcription, RCHME's Aerial Photographic Unit recorded cropmarks possibly representing two or three different features, which are not necessarily contemporary (NMR d). The linear mark to which Bradley referred was probably a continuous (ie not 'causewayed') ditch, extending for at least *c.*250m, with a slight bend to the east approximately mid-way along its length, which corresponds to the highest point of the ridge. A broad degraded scarp recorded on the ground by RCHME appears to represent an upcast bank immediately downhill of the ditch.

Some 25m east of the main ditch, at least three marks suggest a possible causewayed ditch, whose alignment would correspond equally well with that of the **outer ditch**. One of these segments, immediately to the south of the track, survives on the ground as a broad and degraded but apparently segmented section of ditch 25m long. A slight indication of an in-turn at the southern end of the earthwork mirrors the form of the adjacent ditch segment which can be traced only as a cropmark. It is likely that the feature originally continued onto the southern slope of the hill, but the inaccuracy of the transcription does not allow it to be located with certainty.

A third linear feature seems to extend away from the in-turned ditch segments, but is apparently aligned on the entrance to the Iron Age hillfort; it is therefore probably of Iron Age or later date and is discussed below.

The Trundle Iron Age hillfort

The Trundle is a well-preserved polygonal univallate enclosure with an internal area of 5.66ha, formed by a massive bank and external ditch, with a slighter counterscarp bank. The overall internal dimensions of the hillfort are 280m west to east by 260m transversely. Although some of the angle changes in the circuit are not quite as pronounced as Curwen's plan suggests, the rampart certainly comprises some nine straight sections, which to some extent echo the shape of the **inner ditch** of the causewayed enclosure. There are two opposing entrances on the south-west and north-east, of which the latter was excavated completely by Curwen. The rampart follows a false crest for the most part, and some sections cannot be seen from the summit of the hill.

The internal rampart bank has an average basal width of 9.0m and internal height of 1.8m, though for a considerable distance on the north it is diminished to only 0.5m. A number of minimal scarps suggest that this may be due to ploughing along the natural slope. The superficial appearance of the bank suggests that it may have been heightened by approximately 0.8m in a later phase. Immediately inside the rampart is a very regular quarry hollow, on average some 6.0m wide and 0.2m deep. The external ditch averages 10.5m wide and ranges from 0.7m to 1.8m deep, so that the external face of the rampart stands up to 5.5m high. On the northern and south-western sides of the hillfort, the ditch is disturbed by a series of depressions, of which some are rectangular enough to suggest deliberate modification, and others probably result from the removal of trees. The height of the counterscarp bank is 0.4m on average, but increases to 1.5m where it overlies the **outer ditch** of the causewayed enclosure.

The two entrances face west-south-west and east-north-east. Both have in-turned flanking earthworks, which Curwen's excavation confirmed were later additions to the rampart, contemporary with one of the later phases of the development of the gate structures. The flanking banks are up to 1.2m high and project up to 13.0m into the interior. In the course of the RCHME survey, several imported beach pebbles (slingstones) were noted near both gateways. The superficial form of both entrances has been distorted by slightly later traffic, but the excavation of the eastern gateway showed that the passage had originally been *c*.5m wide. The terminals of the rampart banks on either side of the entrances have been more extensively and deliberately modified. In particular, the southern terminal of the western gateway and the northern terminal of the eastern gateway have been spread and levelled, apparently in order to create broad platforms. The date of these changes is speculative, but is probably Post-Medieval.

Scattered around the interior, traces of some fifteen possible house platforms were identified. These are generally circular depressions ranging from 5.5m to 8.5m in diameter, scooped up to 0.1m into the natural slopes. Two larger sub-rectangular platforms, one some 12m long by 8m wide and the other 10m long by 6m wide, lie adjacent to the **spiral ditch** on the northern side of the hill. These may be associated with the putative lynchets mentioned above.

A linear **cropmark** comprising two narrow ditches or slots 5m - 8m apart extends for 70m east-north-eastwards from the apparently causewayed ditch. It thus appears to be aligned on the western entrance of the hillfort, and is therefore probably Iron Age or later in date.

A concentration of prehistoric pottery was observed centred around SU 8770 1115, where the Neolithic earthworks appear to be most disturbed and ploughing may have occurred, as described above. Of the total assemblage of forty-four small abraded sherds, only two are diagnostic rim sherds: one Early/Middle Iron Age, similar to Curwen's La Tene I, and the other probably Neolithic. The fabrics range from dark coarse flint-gritted sherds to buff coloured finely-gritted shell-tempered wares; one sherd uses pre-fired ceramic material (presumably a ground-up pot), and three have traces of haematite inclusions. Most of the fabrics are more likely to be of Iron Age rather than Neolithic date. Two fragments of quernstone were also recovered.

Linear ditch (SU 81 SE 14)

A linear earthwork of uncertain date runs at right angles away from the south-eastern side of the hillfort for a distance of at least 50m. As noted by Curwen, it is clearly overlain by the counterscarp bank, but does not continue into the interior, suggesting an origin contemporary with an early phase of the hillfort. For some 15m immediately adjacent to the rampart, the linear earthwork, comprising a ditch 3.0m wide and 0.3m deep with a low bank on either side, is well-preserved. Further to the south-east, the earthwork has been degraded by ploughing, and only a slight trace of the central ditch survives.

Bronze Age cross-ridge dykes (SU 81 SE 19 & 20)

Two cross-ridge dykes, apparently blocking the main approaches to St Roche's Hill, were not surveyed by RCHME. A fairly slight bank and ditch, with the ditch on the south-south or uphill side, crosses the main ridge which approaches The Trundle from the north-west. This earthwork was first surveyed by Ordnance Survey in 1873 (Ordnance Survey 1877), and most recently in 1970. As a whole it extends in three straight sections,

roughly from west to east from SU 8727 1134 to SU 8749 1141, with a straight central section 145m long, and shorter sections turning back to the south at both ends (NMR e).

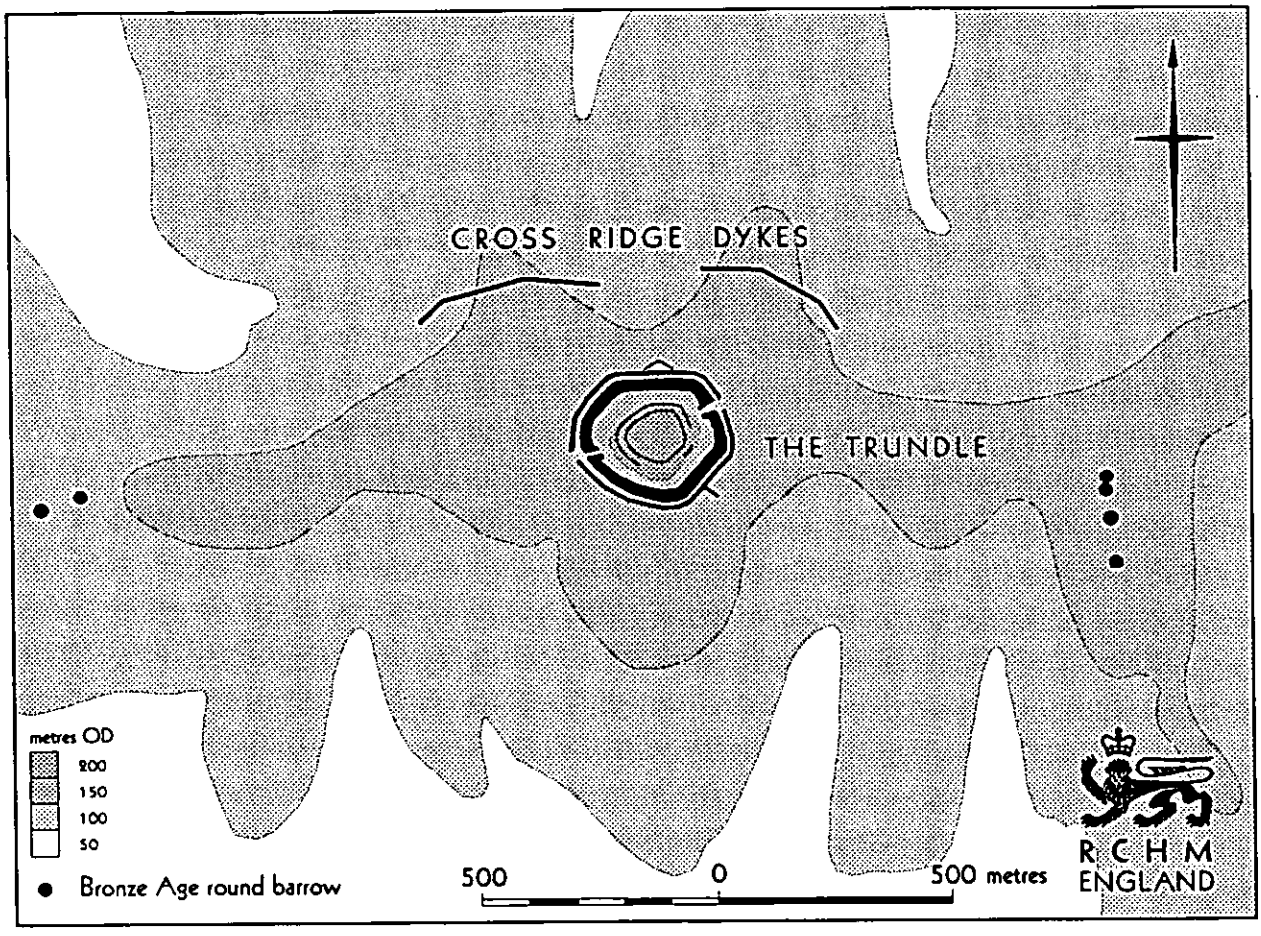

Figure 4: Earthworks in the vicinity of St Roche's Hill

Some 400m to the east, the second dyke is similar in form to the first, crossing the ridge which approaches from the north-east; there is no evidence that the two earthworks ever joined up with each other. This dyke, which is better preserved for the most part, extends in three straight sections, roughly from north-west to south-east, from SU 8787 1144 to SU 8810 1130. The part which lies to the west of the Charlton to Goodwood road has been almost levelled by ploughing. A crouched burial was recorded at SU 8795 1143 when a section of the earthwork was destroyed by the construction of a car-park, which was dated to the Bronze Age by the proximity of the dyke and an alleged round barrow (Collins 1960-1).

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St Roche's Chapel and associated monuments (SU 81 SE 15 & 22)

The chapel stood on a sub-circular mound, some 21m in diameter and up to 1.2m high, which occupies the summit of St Roche's Hill. The material for this mound may have been obtained from a slight depression on the south-west, part of which is suggestive of a remnant of an encircling ditch. The mound lies in the south-west corner of a quadrangular enclosure, defined by minimal scarps, which measures some 60m south-west to north-east by 50m transversely, its south-eastern side abutting the denuded bank of the **inner ditch** of the causewayed enclosure. Cut into the mound are the earthwork remains of two adjacent rectangular buildings lying on the same south-west to north-east alignment. The more north-westerly of the two measures 4.2m long by 3.3m wide; these dimensions correspond precisely to those recorded when the wall foundations (allegedly of the chapel) remained visible (Mason 1839, 174). The other building, which is more heavily disturbed, approximately 6m long by 5m wide. Traces of flint walling have also been recorded here by previous investigators, and from this it has been inferred that this might be the chapel (NMR e). The evidence is inconclusive, but whichever of the two buildings is not the chapel is likely to be the later windmill.

Allcroft found fragments of medieval tile and pottery on the surface around the site of the chapel; sixteen sherds were collected in this area during the RCHME survey, including three sherds of green glaze, two of stoneware, and a fragment of glazed floortile. Numerous fragments of unglazed rooftile were not collected. None of the material is certainly of Medieval date, but five sherds are possibly Roman.

Within the quadrangular enclosure around the site of the chapel, a circular embankment some 11m in diameter contains a central depression 0.5m deep. This was probably a windmill mound, but may have been a small dew-pond. On the south-eastern side, a lower section of the embankment probably allowed access.

A sub-rectangular mound 0.6m high adjoins the main sub-circular mound, and supports an Ordnance Survey triangulation pillar. This was presumably also the site of the trigonometrical station erected in 1791 (Allcroft 1916).

In addition to the access through the gateways of the hillfort, a third trackway was probably associated with the chapel. This approached from the north-west, cutting to a maximum depth of 0.8m into the rampart, with a causeway across the ditch, but cannot be traced elsewhere, either inside or outside the hillfort.

Marl pits (SU 81 SE 53)

Two large marl pits, apparently erroneously likened to the flint mines on Cissbury (Turner 1850, 181), lie on the south-eastern side of St Roche's Hill. The first, located at SU 8783 1106, cuts through the **spiral ditch** of the causewayed enclosure. It is sub-circular, 14.0m in diameter and up to 1.2m deep, with low spreads of spoil to the south and east. There are slight traces of a track approaching from the west. The second marl pit, located at SU 8787 1100, cuts through the side of the hillfort ditch and the counterscarp bank. It is also sub-circular with a diameter ranging from 10.0m to 13.0m and a maximum depth of 1.7m, with spoil spread down the slope to the south-east. The pit was entered from the south-west by a track, which ascends the rampart of the hillfort.

World War II remains (SU 81 SE 54)

During the Second World War, each of the two **radio stations** held four wooden masts supporting VHF navigational equipment. All are visible on wartime photographs (NMR d; CUCAP a; Pailthorpe and Serraillier 1987, Plate 21b). Of the original eight masts, four survived until the 1970's, but only one, in the eastern radio station, still stands at present. A concrete foundation roughly midway between the two supported a corrugated iron 'nissen' type structure.

A large number of slit trenches and fox holes were cut into the Iron Age rampart and the counterscarp bank.

4. INTERPRETATION AND DISCUSSION

The Neolithic causewayed enclosure

The causewayed enclosure on St Roche's Hill is one of only two Neolithic enclosures in Sussex (the other being on Halnaker Hill) which occupy genuine hilltops, rather than spurs, saddles or false-crests. The choice was clearly partly determined by the summit's extensive views over, and equally its conspicuousness from, the surrounding landscape. The importance of visibility was common to most of the upland enclosures, but St Roche's Hill and Whitehawk (TQ 330 048) were unusual in their panoramic as opposed to more restricted prospects (Drewett, Rudling and Gardiner 1988, 35-6; Drewett 1994). From the summit of the hill, the possible Neolithic enclosures on Court Hill (SU 898 138), Halnaker Hill (SU 926 097) and Butser Hill (SU 709 201) are visible, though the nearest truly causewayed enclosure at Barkhale (SU 976 126), is just hidden by the intervening topography.

The location is also somewhat atypical in that the **inner ditch** displays none of the awkwardness in relation to the natural topography which has long been noted as characteristic of the other Sussex enclosures. The **outer ditch**, however, is different, running obliquely across the contours to a point some way down the steepest side of the hill, well below the crest of the slope. This sort of phenomenon was first noted by Curwen (1930, 49), and Smith (1971, 92) comments that the whole class of monument has 'the appearance of predetermined plans carried out regardless of topography'.

The sub-circular plan of the **inner ditch** is typical of the majority of the inner circuits of causewayed enclosures. The size of the central enclosed area, at 0.95ha, is only slightly larger than the other examples in Sussex, and comparable to the Wessex sites. Mercer (1980, 61) has suggested that an area of *c.*1ha may have related to a normal unit of Neolithic settlement, though in many cases there is little evidence for permanent settlement in causewayed enclosures. It cannot be taken for granted that the **inner ditch** was the earliest enclosure (Evans 1988, 85), but its position, together with its typical size and form, suggest that it was.

The RCHME plan of the rest of the enclosure suggests the possibility of a more complex construction sequence than Curwen's plan and excavation suggested. Evans (1988) has noted that the striking plans of causewayed enclosures in general has led

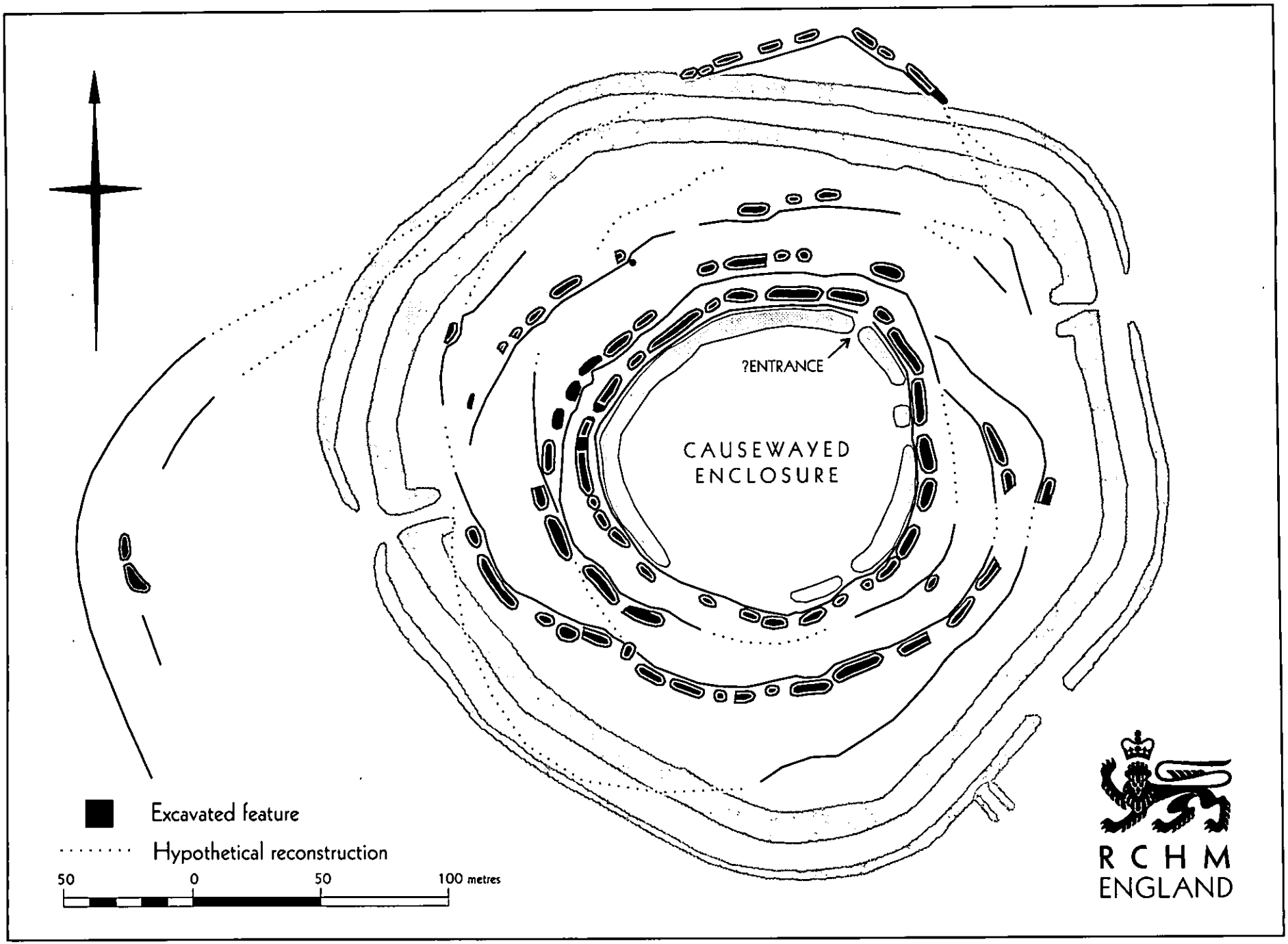

Figure 5: RCHME interpretative plan (Neolithic phase)

Figure 5: Interpretative plan of the causewayed enclosure

them to be discussed as static entities, although it is likely that their forms and functionswere probably actively modified over time. It appears possible that the **second** and **spiral** ditches, rather than being a single earthwork, may actually have been two separate complete circuits, of which certain sections can no longer be traced on the ground surface. Of these two, only the **second ditch** appears to be concentric with the **inner ditch**, and Curwen's excavations demonstrated that these two shared a similar profile. It is also possible that the **spiral ditch**, as re-defined by the RCHME survey, represents two distinct whole or partial circuits which either overlap or join close to pit **b**. However, it should be noted that the technique of digging individual segments may by its very nature lead to slight misalignments of this sort (Evans 1988, 88). The original course of the earthwork to the east of pit **b** may be represented by the apparent re-cut of the western side of the **second ditch**. Thus, the spiralling form first noted by Curwen and subsequently much debated, may actually result from the superimposition of a series of several eccentric enclosures, not all of which were necessarily actively in use or even clearly visible, at the same time. The complexity of the multiple enclosure has often been compared with that of Whitehawk, and the RCHME's recent re-survey of that site, where Curwen also suggested the presence of spiralling earthworks, indicates that this enclosure may comprise a similar series of overlapping eccentric circuits. It is worth noting that while Evans' (1988) discussion of the implications of concentricity cannot be applied literally to the causewayed enclosure on St Roche's Hill, none of the outer circuits seems to have impinged upon the **inner ditch**, despite their eccentricity, and thus that the inner space remained metaphorically, if not geometrically, central. The relatively massive size of the inner earthwork may indicate that it was formed by a succession of enlargements, though Curwen's report does not record the nature of the bank. Both possibilities seem consistent with the periodic addition and re-cutting of individual segments of ditch, which has been demonstrated by excavation both on St Roche's Hill and elsewhere. The exceptional instances of pits cut across the line of the earthwork, such as pit **b**, may have functioned as markers delimiting the extent of different sections or phases.

The **outer ditch** appears to have been continued to the west by one or both of the main **cropmarks** first noted by Bradley (1969, 133-4), rather than being completely overlain by the Iron Age rampart as Curwen suggested. The westernmost of the two main linear cropmarks appears to be unalike the **outer ditch** in that it is continuous; this may therefore be a spur dyke as Bradley suggested, following the line of the more easterly possible causewayed ditch. On the eastern side of the enclosure, however, the slight earthworks within the ramparts are not perfectly aligned with the better preserved section outside, and it is possible that the hillfort completely obscures an earlier feature. The surviving portion of the **outer ditch** may then have been part of a relatively large enclosure, comparable in its overall area to the largest Wessex enclosures.

The two radio-carbon determinations from primary silts both come from the **second ditch**. The uncalibrated dates of 3290 ±140 bc and 3090 ±170 bc are somewhat earlier than the date range of *c.*3000-2500bc obtained from other sites and suggest that the causewayed enclosure was constructed at least three hundred years earlier than any other in Sussex. Despite this, the molluscan samples suggest that the enclosure was perhaps built in a more extensive clearing than the other enclosures, with the exception of Whitehawk (Drewett, Rudling and Gardiner 1988, 24). However, the evidence is somewhat confusing, given that *taxa* associated with both shade and woodland clearance were found in all the layers containing Neolithic material (Bedwin and Aldsworth 1981, 211-3).

The function of causewayed enclosures remains a subject of debate, and each site may have encompassed a number of different communal activities, which perhaps also changed over time. Curwen's initial interpretation of the inner ditch as a defensive enclosure may be borne out by the more massive scale of the earthwork, and its respect for the natural topography. The difference in size may have been more marked originally, if Curwen's suggestion that the secondary fill of the ditch resulted from an Iron Age attempt to level the ground is correct. Curwen and Piggott's re-interpretation of the spiral ditch in 1954 as a means of funnelling stock towards the central enclosure now seems untenable; its form is evidently too elaborate to allow any such straightforward functional explanation. More recent theories have interpreted many causewayed enclosures as possible centres of cult or ritual activity connected with death (Smith 1971; Drewett 1977; Drewett, Rudling and Gardiner 1988, 41-3). While the distribution of burial monuments in East Sussex appears to be concentrated between the three known enclosures, the concentration of four barrows in West Sussex lies some 10kms to the north-west of St Roche's Hill. Evans (1988) has suggested that the form of causewayed enclosures may indicate that their importance was vested in the very act of their creation and re-creation, an event which may have periodically affirmed the essential communal unity of geographically and socially isolated groups. Drewett has discussed alternative models in which causewayed enclosures were on one hand peripheral to normal social activity and on the other central to several major settlements (Drewett 1975; 1978). Occupation within the causewayed enclosure itself, though not necessarily throughout the year or throughout the lifespan of the enclosure, is possible, given the widespread presence of pottery and flintwork on the surface, and the nature of the faunal assemblage. However, very little is known of the interior of the enclosure and of the pits excavated by Curwen, only number 4, which was shallower than the others and contained no pottery, may be associated with the Neolithic phase (Drewett, Rudling and Gardiner 1988, 38). The relatively large quantity of possible occupation debris on the site again has most in common with Whitehawk (ibid. 42-3).

The linear ditch

The linear ditch is apparently contemporary with an early phase of The Trundle hillfort, which Curwen dated to the fourth to third centuries BC, but its form is comparable to many Late Bronze Age land divisions often referred to as 'ranch boundaries'. A number of hillforts in Hampshire, such as Woolbury, Danebury, Ladle Hill and most notably Quarley occupy positions which relate to such earlier boundaries. There is some evidence that the hillforts themselves actually originated in the Late Bronze Age or earliest Iron Age; the hillforts of Ladle Hill and Quarley appear to have overlain Bronze Age enclosures which formed the terminals of single linear ditches (Cunliffe 1990). The Trundle is usually considered to be a later creation after a long period of disuse, but given that Curwen's examination of the hillfort concentrated on the gateway without sectioning the rampart, it is possible that a comparable Bronze Age enclosure was missed. The two cross-ridge dykes to the north-west and north-east of St Roche's Hill, and possibly the westernmost linear **cropmark**, if this was a similar earthwork, seem to block the two principal natural spurs which approach the hilltop. This perhaps also indicates the continued importance of the place, since in Sussex they are generally dated to the Late Bronze Age or Early Iron Age (Bedwin 1979, 14-5).

Another possible Bronze Age monument is the sub-circular mound on which the chapel of St Roche was built. The dimensions of the mound would correspond to a moderately sized bowl barrow, and there are slight indications of an encircling ditch. Given the conspicuousness of the location, and the regular coincidence of Bronze Age barrows with Neolithic causewayed enclosures, it would in fact be remarkable if there were *not* a barrow on St Roche's Hill. If the mound is Bronze Age in origin, it may also be significant that the putative Late Bronze Age linear ditch is apparently aligned on the feature.

However, the only generally accepted evidence of Bronze Age activity is the probable 'Beaker' period burial encountered by Curwen at the point where the rampart of The Trundle overlies the outer ditch of the causewayed enclosure. As suggested by Curwen, the location of this Early Bronze Age interment seems unlikely to be coincidental and may be some form of terminal or foundation deposit.

The Trundle Iron Age hillfort

St Roche's Hill physically and visually dominates the surrounding landscape, and the choice of such a location for The Trundle is typical of the majority of Wessex and Sussex hillforts. This has generally been explained in terms of military defence; however, the location of the hillfort may owe as much to the existence of the pre-existing enclosure as to the natural topography. Although, as first noted by the Victoria County History

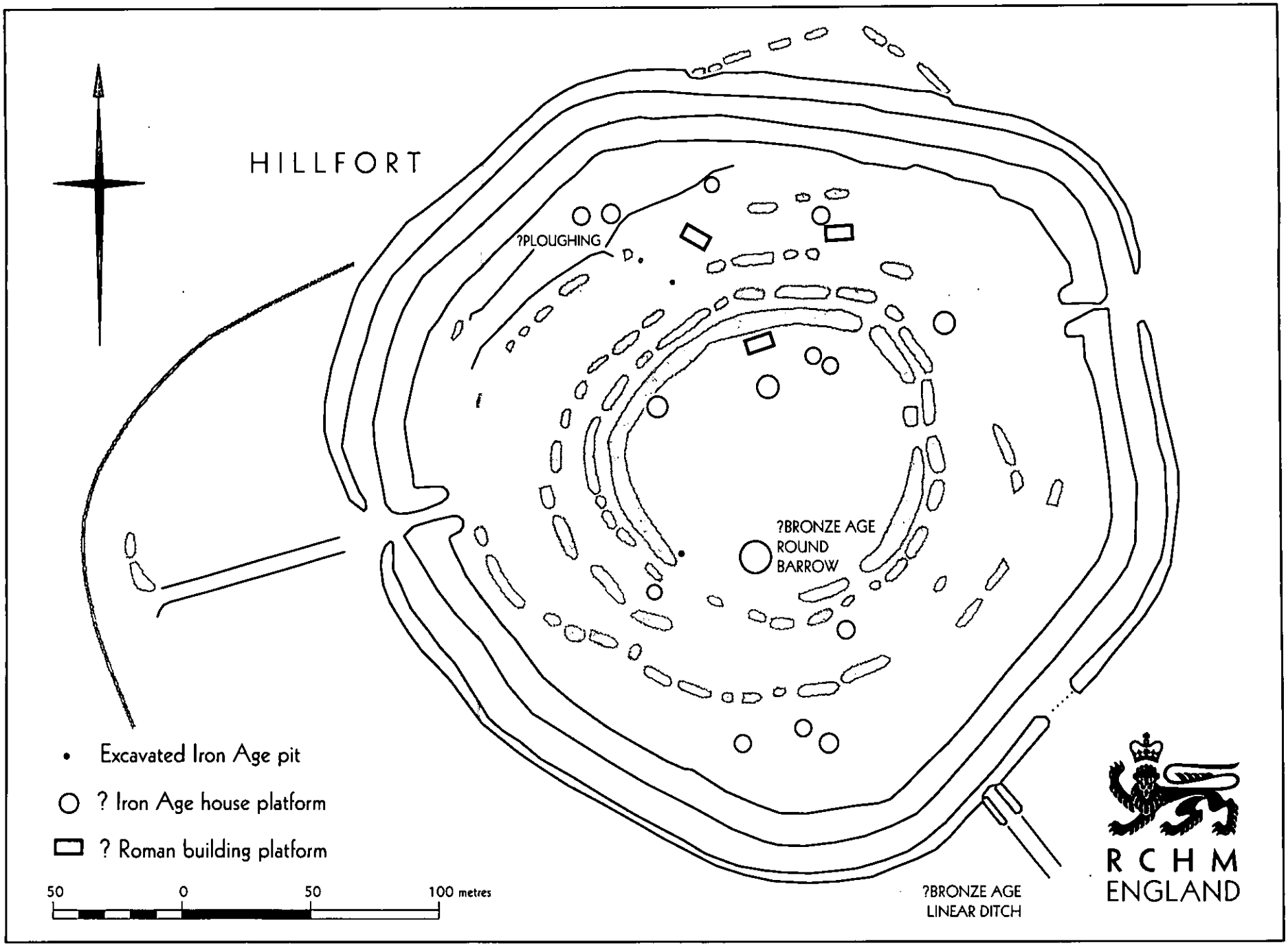

Figure 6: RCHME interpretative plan (later prehistoric/ ?Roman phase)

Figure 6: Interpretative plan of The Trundle Hillfort

(Page ed. 1905, 466), the ramparts approximately follow the false-crest of the hilltop to form a 'contour fort', they also to a large extent echo the course of the **inner** and **second** ditches of the causewayed enclosure. These are now the most prominent earthworks of the Neolithic monument, and must have been more substantial in the first millennium BC, particularly if Curwen's suggestion that the upper fills of the **inner ditch** result from Iron Age attempts to level the ground. Furthermore, the well-defined polygonal perimeter of the hillfort is otherwise somewhat unusual in the regional context, most hillforts in Sussex tending to be fairly curvilinear. It is also possible that visibility and intervisibility, which were clearly considered important factors in the location of the causewayed enclosure, also influenced the siting of the later monument.

Curwen's suggestion that The Trundle in its developed form dates to the fourth to third centuries BC is generally accepted. However, Cunliffe (1966) identified three sherds of 'Caburn I' style pottery, which he dated to the sixth to fifth centuries BC; this date was later pushed back into the eighth to seventh centuries BC - ie the period of the Late Bronze Age to Iron Age transition (Champion 1980), supporting the possibility of continuity discussed above. The hillfort is usually grouped with Cissbury (TQ 139 080) as one of the phase of 'developed' hillforts (eg Cunliffe 1976; Drewett, Rudling and Gardiner 1988, 151-3). These are generally thought to be comparable to the classic Wessex sites, in that they are apparently defensive in character, with evidence for a wide range of domestic, craft and trade activities. The development of the gate structure of The Trundle, together with the addition of the in-turned earthworks, is paralleled at St Catherine's Hill (SU 484 276) and Danebury (SU 323 376) in Hampshire (Cunliffe 1974, 255-65) and the RCHME's identification of a possible heightening of the rampart would correspond well with this sequence. The possible house platforms recorded by the RCHME survey, and the high incidence of Iron Age features encountered during Curwen's excavations, including pits and post-holes, together with the broad range of artefacts, seems to indicate that the hillfort was fairly intensively used and may have been permanently occupied, with a number of craft activities taking place. A fairly rich assemblage, including metalwork, imported quernstones, a blue glass ring and parts of two shale bracelets, imply the importance of trade and exchange.

The two narrow ditches or slots which survive only as **cropmarks** appear to delimit a ditched trackway aligned on the western gateway of the hillfort, which must therefore be of Iron Age or later date. It is also possible that the apparently causewayed ditch, which is in-turned at this point in a manner similar to an entrance, is contemporary; a comparable outer ditch was excavated at Danebury Iron Age hillfort in Hampshire. The survival of earthorks immediately to the north of the cropmark suggests that the putative trackway at some time defined the edge of ploughing to the south.

The RCHME's identification of two possible sub-rectangular building platforms, together with the surface finds of Romano-British pottery and in 1963 a single possible 'Belgic' sherd, may indicate the possibility of continued or renewed occupation on the site. The probable existence of an undefined area of ploughing on the northern side of the hillfort may indicate that a small farmstead, similar to the one at Cissbury (TQ 139 080), stood in or near the hillfort. The presence of the fragment of Roman brick on the site is more likely to be associated with the practise of manuring arable land than with any more major building.

The later monuments

Allcroft (1916, 75) noted that the French saint Roche probably died in the plague outbreak in the middle of the fourteenth century, and allowing some time for his canonization and acceptance into England, suggested that the chapel cannot have been constructed much before the end of that century. A document dated 1570 refers to the 'late' chapel, possibly indicating that its use as such ended around the time of the Dissolution (Lower 1857, 224-5). A map of 1575, by Christopher Saxton, shows the building apparently intact, and while a map by John Norden of 1595 only marks the hilltop as a castle (Margary 1970, plates 3a and b), the engraving of 1723 suggests that several courses of masonry belonging to the original chapel still survived.

The earliest reference to the existence of a beacon on The Trundle - presumably very close to the chapel site, since this occupies the highest point - dates to 1586 (Kitchen 1986, 189), when it was mistakenly fired during an episode of civil unrest. No beacon was portrayed on Norden's map of 1595, but both Jansen's and Ogilby's maps (Margary 1970, plate 4b), dated 1646 and 1675 respectively, mark its site. The existence of a beacon was again recorded in 1731 (Turner 1867, 167) and in the Napoleonic period (Kitchen 1986, 189; OS 1-inch map 1813). A windmill is also known to have stood on the hilltop until its destruction by lightning in 1773 (Haines and Arnold 1880). This was probably a separate, newly-built structure which stood on the circular mound with the central hollow (alternatively perhaps a small dew-pond). One or other of the buildings was used as a masonic lodge between 1717 and 1757 (Allcroft 1916) and a gibbett stood nearby in the eighteenth and early nineteenth centuries (Ordnance Survey 1813; Turner 1867).

It is therefore seems likely that the chapel may simply have been converted (or robbed) to form a foundation, or perhaps storehouse, for the beacon, and this structure may in turn have been robbed or re-used in some way, by the adjacent windmill.

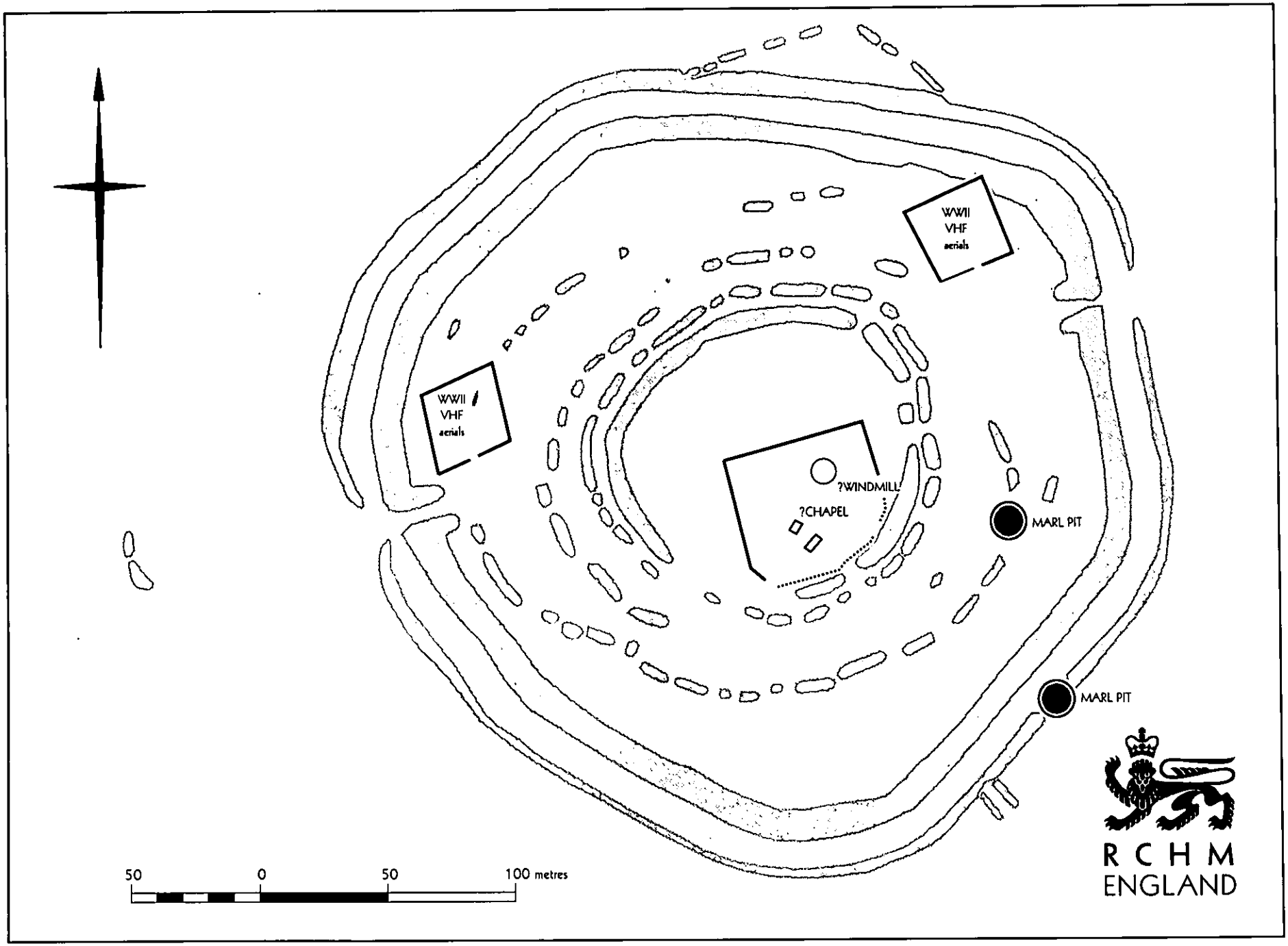

Figure 7: RCHME interpretative plan (Medieval and later monuments)

Figure 7: RCHME interpretative plan later monuments

In 1930, Fox recorded a memory from an elderly local inhabitant that the bank of the inner ditch had been planted with a thorn hedge surrounding a stand of fir-trees a century earlier, and mentioned that two thorn trees survived. Neither the hedge nor the plantation were recorded on the Ordnance Survey 25-inch First Edition, surveyed in 1873 (Ordnance Survey 1877). It is possible that the plantation was an eyecatcher for Goodwood House, though Mason's fairly full description of the estate makes no mention of any such feature.

5. SURVEY AND RESEARCH METHODS

The earthwork survey was carried out by Alastair Oswald and David McOmish of the RCHME. Control points and hard detail were surveyed using a Wild TC1610 Electronic Theodolite with integral EDM. Data was captured on a Wild GRM 10 Rec Module and plotted via computer on a Calcomp 3024 plotter. The details of the plan were supplied at 1:1000 scale with Fibron tapes using normal graphical methods. The features visible only on aerial photographs were transcribed and interpreted by Carolyn Dyer of RCHME's Aerial Photographic Unit. The historical and archaeological background was researched by Kate Fernie of the National Monuments Record, and the CAD based interpretative drawings were produced by Trevor Pearson. the report as a whole was researched and written by Alastair Oswald and edited by Peter Topping.

The site archive has been deposited in the National Monuments Record, Kemble Drive, Swindon SN2 2GZ (SU 81 SE 52).

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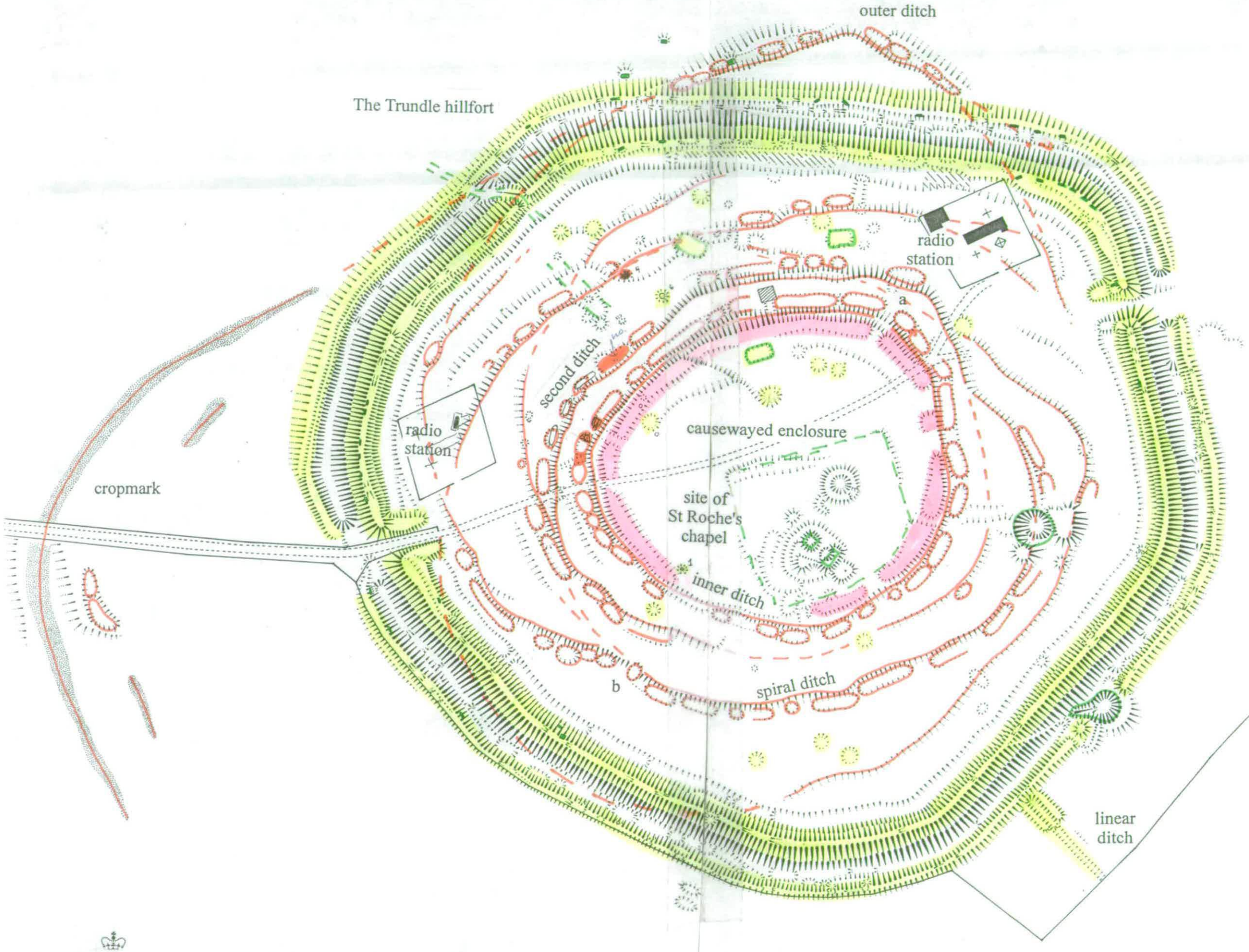
outer ditch
The Trundle hillfort
radio station
a
second ditch
causewayed enclosure
radio station
cropmark
site of St Roche's chapel
inner ditch
b
spiral ditch
linear ditch