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How landscape defines communities in prehistory: an environmental reconstruction of the prehistoric Pebblebeds landscape

Michael J. Allen and Christopher Tilley

Why environmental archaeology?

Environmental archaeology should be used to inform archaeological enquiry and not just gather palaeo-environmental data from an archaeologically derived data set. Environmental archaeological scientists undertake excellent programmes of analysis. In the past few decades, although they have addressed an archaeological agenda (contra Thomas 1990), all too often their reporting is more directed to fellow archaeological scientists (i.e. their peers) than either the archaeology of the project or, more specifically, to how their evidence may allow us to consider and experience landscape from a prehistoric community or personal perspective. Ironically, environmental archaeological science is well set to address issues of landscape, land-use and the lived-in environment in a holistic way and help define prehistoric life-ways and the constraints of the environment in which past communities lived; they were immersed in the detail of the changing landscape for their survival and their livelihood (Tilley 2010). As archaeologists we must attempt to recreate the world in which they lived; of which the physical landscape, vegetation and soils were more than just a stage upon which they acted their lives but were the world in which they lived and within which they learnt, engaged, reacted to, modified and tamed.
Environmental archaeologists are good at taking samples and analysing soils to provide data and interpretations of these physical elements and also to track changes through time, especially those directly or indirectly caused by human action (cf. Bell 1983). They are less good when applying scientific, objective principles to wider, more ephemeral interpretation, and find it harder to explore areas less easily and demonstrably definable. Defining vegetation and land-use histories is one thing; commonly done exceptionally well within the archaeological discipline (e.g. Scaife 1991; Macphail and Scaife 1987; Fyfe et al. 2003a, 2003b, etc.), but attempts to actually define and map vegetation and land-use over time and space are very few and far between. This praxis seems to be unconsidered and, surprisingly, archaeologists have not engaged with it. Allen’s work in the Stonehenge landscape nearly 30 years ago, for instance, was quite naïve and simplistic (Allen et al. 1990); the four maps of the Stonehenge landscape at different periods (Allen et al. 1990: fig. 155) showed the environmental reconstruction (woodland, secondary wood, grassland and tillage) only around each site or sample point. Restricted by ‘academic honesty’ or lack of self-confidence, the rest of the area was left uninterpreted and blank – a failure in one respect as the white spaces looked like an open, rather than the wooded, landscape that at the time we assumed existed in the earlier prehistoric periods (Mesolithic – Neolithic). Nearly 10 years later, the acquisition of more data (20 years of research) and increased boldness allowed land-use or vegetation ‘envelopes’ to be draped over a 3-D terrain model of the landscape (Allen 1997) and thus, for the first time, provided a complete map of prehistoric vegetation and land-use based on environmental archaeological data and interpretation, to date surprisingly still one of the few examples of this approach. These data also provided the basis for the landscape video on display in the Stonehenge Visitor Centre. Obviously we cannot verify every location, but it does provide a more scientific, data-based, interpolated landscape map; and one that can be tested and modified with new fieldwork and data. The current research from Parker Pearson’s Stonehenge Riverside Project will do just that (Allen unpublished MS).

Time depth is easy, but the spatial parameters are more difficult to prescribe and define with any degree of confidence without the vast amount of data required (cf. Allen 1997, 2000a; Table 8.1), and there is also a real lack of self-confidence and engagement amongst the analysts as a whole. The next step, of trying to really recreate that landscape as a living world and get a feel for the landscape, is seen by many as a ‘step too far’. Yes it is difficult, and yes in many ways it is unprovable, but if it allows archaeologists to better understand people and communities in the past then it is clearly an avenue that should, with appropriate data and
albeit with caution, be attempted. In Cranborne Chase we have one of the largest and densest palaeo-environmental data sets. Using our palaeo-environmental interpretations based on land snails, soil analysis and more limited charcoal and charred plant remains, I have attempted holistic landscape reconstruction from two viewpoints; first passing through the Allen Valley, Cranborne Chase, Dorset in the Later Neolithic and describing the landscape (Allen 2000b), and second as a view from Gussage Down looking out over Down Farm and Wyke Down as Middle Neolithic ‘Cranborne woman’, and then again in the Later Neolithic and Later Bronze Age, describing the landscape, vegetation and land-use she could see (Allen 2002).

**Our aims for the Pebblebeds**

The Pebblebed heathland (Figure 8.1) is about 153 km$^2$, and although it contains over 30 prehistoric cairns (see Figure 1.10), only 7 prehistoric sites have environmental data which span the Neolithic to Later Bronze

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**Table 8.1** Comparison of density of environmental data sets in chalkland landscapes and the calculation of a ‘confidence factor’ (based on Allen 2000a: table 4.2).

<table>
<thead>
<tr>
<th>Study area</th>
<th>No. of data sets</th>
<th>Km$^2$ study area</th>
<th>Density (data-sets km$^2$)</th>
<th>Confidence factor (density × 100)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allen Valley/Down Farm</td>
<td>35+</td>
<td>12</td>
<td>2.917</td>
<td>291.7</td>
</tr>
<tr>
<td>Dorchester</td>
<td>12</td>
<td>35</td>
<td>0.343</td>
<td>34.3</td>
</tr>
<tr>
<td>Stonehenge 1</td>
<td>13</td>
<td>54</td>
<td>0.240</td>
<td>24.1</td>
</tr>
<tr>
<td>Stonehenge 2</td>
<td>19</td>
<td>80</td>
<td>0.238</td>
<td>23.8</td>
</tr>
<tr>
<td>Winchester</td>
<td>3</td>
<td>16</td>
<td>0.187</td>
<td>18.7</td>
</tr>
<tr>
<td>Avebury</td>
<td>20</td>
<td>130</td>
<td>0.154</td>
<td>15.4</td>
</tr>
<tr>
<td>Cranborne 1</td>
<td>22</td>
<td>150</td>
<td>0.147</td>
<td>14.7</td>
</tr>
<tr>
<td>Isle of Wight</td>
<td>9</td>
<td>64</td>
<td>0.140</td>
<td>14.1</td>
</tr>
<tr>
<td>Pebblebeds</td>
<td>15</td>
<td>150</td>
<td>0.1</td>
<td>10.0</td>
</tr>
<tr>
<td>Strawberry Hill</td>
<td>1</td>
<td>10</td>
<td>0.100</td>
<td>10.0</td>
</tr>
<tr>
<td>Lewes</td>
<td>9</td>
<td>106</td>
<td>0.085</td>
<td>8.5</td>
</tr>
<tr>
<td>Kent</td>
<td>3</td>
<td>1,500</td>
<td>0.0002</td>
<td>0.2</td>
</tr>
</tbody>
</table>
Age (Table 8.2). We do not have enough data to look at environmental reconstruction in any great temporal or spatial resolution (see Table 4.1), so instead of examining this in landscape detail (cf. Allen 1997: plates 1–5), our aim here is to define a series of prehistoric landscape types and see change over time between those zones, and thus develop a narrative defining and characterizing the landscape and land-use, and examine changes in, principally, the area of the Pebblebeds. We are limited by just 15 reports covering three or four disciplines, some of which are only assessments or species identifications. The most useful data are
Table 8.2  Palaeo-environmental data sets from the Pebblebeds.

<table>
<thead>
<tr>
<th>Site</th>
<th>Phase</th>
<th>Charcoal</th>
<th>Pollen</th>
<th>Soil microscopy</th>
<th>Geoarchaeology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colaton Raleigh settlement</td>
<td>M-LBA-IA</td>
<td>Challinor (n.d.) 13 ids</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Aylesbeare platforms</td>
<td>MBA c. 1400 BC</td>
<td>Challinor assessment</td>
<td>–</td>
<td>Banerjea (Appendix 14)</td>
<td>–</td>
</tr>
<tr>
<td>Jacob's Well</td>
<td>Neo-MBA peat 1400–1300 BC structure 1700 BC</td>
<td>Challinor (Appendix 9)</td>
<td>Batchelor (Appendix 12)</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Tor Cairn</td>
<td>EBA/Beaker</td>
<td>Challinor (Appendix 2)</td>
<td>Scaife (Appendix 6)</td>
<td>Macphail (Appendix 6)</td>
<td>Allen (n.d.)</td>
</tr>
<tr>
<td>Little Tor Cairn</td>
<td>EBA/Beaker</td>
<td>Challinor (Appendix 8)</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Twin Cairn A</td>
<td>EBA/Beaker</td>
<td>Challinor (Appendix 9)</td>
<td>Pokorný (Appendix 10)</td>
<td>Lisá (Appendix 11)</td>
<td>–</td>
</tr>
<tr>
<td>Longo Bottom bog</td>
<td>Neo–BA</td>
<td>–</td>
<td>Batchelor (Appendix 16)</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Data sets</td>
<td>–</td>
<td>6</td>
<td>5</td>
<td>3</td>
<td>1</td>
</tr>
</tbody>
</table>
the pollen analysis from Jacobs Well, Tor Cairn and Little Tor Cairn, and soils and geoarchaeology of the Aylesbeare Platforms, Tor Cairn and Twin Cairn A.

**The Pebblebeds landscape and study area (Figure 8.1 and Figure 8.2)**

The Pebblebeds are framed by two different geologies and landscapes; to the west is the Exmouth Sandstone and Mudstones and the Littleham Mudstone formations and the river Exe and its estuary, and to the east the Otter Sandstone formation and river Otter. The main Pebblebeds (Budleigh Salterton Pebblebed formation) exposure extends for about

![Figure 8.2](image.png)

**Figure 8.2** The Pebblebeds landscape. The big late Early/Middle Bronze Age cairn is visible in the cut patch above the heather to the north. Tor Cairn below in heather. Twin Cairn A is to the right and at the end of the vegetation-cut area on the spur to the left of the valley to the west (left) of Tor Cairn. Areas of scarring are topsoil-scraped areas. The two semi-circular ones are at the top of the valley separating Tor Cain and Little Tor Cairn from Twin Cairn A. Variations in vegetation cover are the product of rotational heathland management (Source: author)
1 km from West Hill to Budleigh Salterton along the coast and runs parallel with the river Otter for 13 km inland. They are currently lowland heath supporting humo-ferric podzols of the Goldstone Association (Findlay et al. 1983) with a scarp edge to the west overlooking the Exmouth Sandstone and Mudstones and the Littleham Mudstone formations, which generally support stagnogley argillic brown earths of the Whimple 3 association. The Pebblebeds slope gently southeast onto the Otter Sandstone formation, supporting typical brown earths of the Bromsgrove association, with the river Otter about 5–6 km to the east.

**Land-use history**

Human activities and use of the landscape modify, alter and both directly and indirectly fundamentally change the vegetation cover, the soils and local hydrology, create a changing landscape which is the stage upon which societies act, and within which they react. It is the resource base for much of the food economy, as well as for expressing social, political and individual identity. This is exemplified in the Pebblebeds by the selected use of colourful and attractive pebbles to create non-funerary cairns; monuments that reside in a landscape to be engaged with from construction to visitation (see Chapters 3–7). They are monuments specifically located with extensive viewsheds; locally the small cairns often overlook a local dry valley or small stream, but generally not over the contemporary heath landscape. Beyond this, most look out and over the landscape of the Otter Sandstone formation to the east and southeast (see Chapters 1 and 3). In contrast to many of the later Early and Middle Bronze Age monuments, despite a careful choice of location and viewsheds, the very Early Bronze Age Beaker cairns are deliberately but not conspicuously located. They cannot be seen from many locations in the landscape. In fact these small, modest cairns are hardly visible even in the current low open heath, predominantly of herbaceous plants and grasses, until you are within metres of them.

Defining the precise nature of the landscape, vegetation cover, soils and the land-use before, during and subsequent to their construction is crucial to attempting to understand how past communities saw and used this landscape and how the Pebblebed cairns became an integral and significant part of that landscape in the Earlier Bronze Age. The aim is to try and mantle the visible and viewed contemporary landscape with an experiential interpretation of prehistoric land-use
and vegetation patterns in order to further develop an understanding of human actions, activity and even decision-making in the prehistoric Pebblebed landscape. We attempt to provide a reconstruction of the changing landscape and land-use patterns from the pre-cairn (later Neolithic) to post-cairn and Early Bronze Age cairn phases (Mid to Later Bronze Age). We may begin by posing a number of questions. How did the vegetation cover affect communities’ decisions to use this landscape? How did the communities respond to the some of the inadvertent changes in the vegetation and soils and their unintentional consequences? How is this reflected in the surviving archaeological record? The Pebblebeds landscape has subtle but significant topographic variation in its slopes and the minor dry and wet peat-filled valleys that are an important part of this landscape. The generation of just large, broad generic and landscape-wide changes in vegetation types allows only very non-specific generic interpretations that cannot do justice to the landscape lived in and used in the past.

We need, therefore, to be bold and aim to provide a reconstruction of the changing land-use patterns at a scale that is valid for archaeological interpretation – and this needs to be undertaken in relation to specific site locations and their immediate environs, rather than at a sub-regional scale. Allen previously attempted such a reconstruction in relation to the environmental landscape of the prehistoric monuments of Cranborne Chase in Dorset by adopting the perspective of a Neolithic woman surveying the landscape she could see from a specific and single viewpoint (Allen 2002). Such reconstruction stresses the central role of the imagination in the environmental reconstruction of landscapes, without which a picture of how it might have been to live in, and experience, these landscapes in the past will never emerge. A map with ‘envelopes’ of uniform single vegetation types draped over the whole Pebblebeds area, or even schematic landscape profiles, is not very useful here. We do not wish to create a two-dimensional ‘stage’ with a single vegetation or land-use type, nor to view the twenty-first-century landscape inhabited by prehistoric monuments, but to inhabit the prehistoric landscape and attempt to view it, to some extent at least, as prehistoric inhabitants may have done (cf. Allen 2002).

The date of the construction of the first cairns on the Pebblebeds (see Figure 3.4) is early: the first of these (2130–1890 and 1920–1690 cal. BC; Bronze Age period 2/3) is much earlier than that for many other well-studied heathland and podzolic landscapes such as the Dorset Heath (e.g. Cox and Hearne 1991) and Surrey Heath (see Macphail and Scaife
1987, and to a lesser extent Branch and Green 2004). Recent research by Groves et al. (2012) on the Lower Greensand areas of Hampshire and West Sussex has suggested that heathland vegetation here only became established in the Late Bronze Age, c. 1000 BC, period 6, in association with human activity involving animal grazing and burning. The extent of the heathland area subsequently changed in tandem with less or more human activity but reached its maximum during the medieval to post-medieval periods. Elsewhere archaeological evidence has suggested that the oldest monuments in heathland areas in eastern and central southern England were constructed during the Middle Bronze Age (Dimbleby 1962; Branch and Green 2004). None of the barrows in these heathland areas contained Beaker burials. The first diagnostic artefacts associated with them are dated to the later part of the Early Bronze Age (period 4) (Bradley and Fraser 2010: 20). The development of heathland on the East Devon Pebblebeds associated with cairns of Beaker date is thus significantly earlier than in lowland areas in central southern and southeast England and, like much else in southwest England, represents a quite distinct regional tradition.

Many of the first round barrows built on the chalk downland of southern England were constructed near to older Neolithic monuments – long barrows, causewayed enclosures, cursus monuments and henges – and in areas of fertile land that had never been densely wooded (French et al. 2007). In the case of the Pebblebed heathlands we have an area that was similar to the Wessex chalk downlands with their dense concentrations of sometimes richly furnished graves in that it, too, was not densely forested. However, the Pebblebed cairns are comparatively few in number (the total would equal just one cemetery area in the vicinity of Stonehenge or on the south Dorset Ridgeway). The Pebblebeds are completely lacking in earlier prehistoric monuments. Known Neolithic hilltop enclosures are situated some distance away to the south, northwest, north and possibly northeast (Chapter 1). The nearest of these, High Peak and Hembury, are, respectively, 5 km and 10 km distant from the nearest heathland fringe.

In the coastal area between south Dorset to the west and the South Downs to the east most heathland barrows were built in a single phase on newly opened ground in areas that had not been inhabited before. Most are significantly smaller than those found on the chalk downlands of central southern England and they are either isolated or occur in much smaller groups. Extensive areas of land around them were stripped of turf and a mound of sods constructed. The mound was then enlarged by enclosing it with a ditch and completed with a capping of sand and
gravel. Few of these mounds have produced any grave goods (Bradley and Fraser 2010: 22–3). There are significant contrasts between these Middle Bronze Age barrows and the Beaker cairns on the Pebblebed heathlands that were (a) constructed in a number of distinct phases; (b) not ditched; (c) had no extensive areas of cleared sods around them; (d) involved the curation of materials to construct them from a wide area in their surroundings; and that (e) did not cover a burial but were associated with multiple fires prior to and during their construction (see discussion in Chapter 3). The only direct point of similarity is the relative absence of artefacts and the fact that both are associated with the development of an open heathland landscape.

The evidential basis

Before we go any further, we review the data on which our interpretation is based, thus clearly identifying both the strengths and weakness in time, space and resolution. What we are attempting is a nested land-use reconstruction; at one end a slightly more general but intimate vegetation and land-use map, and secondly at the site scale (i.e. around Tor Cairn/Little Tor Cairn, Twin Cairn A and at Jacob’s Well) a higher-resolution interpretation of the lived-in landscape at the walk-over scale.

Our nested landscape interpretations are based on limited but targeted environmental work: pollen analysis (and assessment), charcoal identification, soil micromorphology and geoarchaeology. Our data sets derive from the excavation of three Early Bronze Age (Beaker) cairns, Tor Cairn, Little Tor Cairn and Twin Cairn A, on the southeast part of the heathlands, the Middle Bronze Age (period 5) burnt mound of Jacob’s Well situated just below the western scarp edge of the heathlands, and three pebble platforms on Aylesbeare Common in the northern area of the heathlands. It also includes peat and pollen analysis at Longo Bottom in the southeast heathland area. Numerous attempts were made to obtain pollen cores from bog valley sediments across the heathlands but we were successful in just this one location. Elsewhere there was insufficient depth of deposits to provide viable samples for study. Detailed work of a small area of c. 4 km² provides the basis for attempting to provide a concept of land-use patterns over the wider Pebblebeds landscape comprising some 50 km² (Figure 8.1 and Figure 8.2). The weakness in our interpretations can be seen in the distribution of the locations of environmental work (Figure 8.1), and the list of the analyses, some of which are just assessments (Table 8.2).
A landscape and land-use history for the Pebblebeds

Land-use history will be examined for four periods: (1) the Mid to Later Neolithic (i.e. pre-cairn construction landscape); (2) Beaker/Early Bronze Age period 3 (cairn construction); (3) Early Bronze Age (immediate post-cairn construction); and (4) Mid to Late Bronze Age period 4/5 (a wider landscape of cairns). There is relatively little archaeological activity or palaeo-environmental evidence for the pre-cairn environment and land-use so we have, in part, to turn to evidence from wider afield, set against a regional background provided by analysis from other projects such as the A30 Honiton to Exeter (Fitzpatrick et al. 1999), southwestern gas pipeline (Mudd and Joyce 2014), the Exe valley palaeo-environmental studies (Fyfe et al. 2003a, 2003b) and from regional overviews (e.g. Wilkinson and Straker 2008; Straker et al. 2008). We have little tangible evidence of the nature of the landscape in the Neolithic for the Pebblebeds. Changes did not occur coevally across the Pebblebeds, although this text may to some extent imply this. The broad changes have been highlighted though at individual places where they may have occurred at slightly differing times.

The cairn landscape as seen through ‘prehistoric’ eyes

Evidence for a pre-cairn landscape (Earlier to Mid Neolithic)

The Pebblebeds are clearly marked out in the published map of ‘climax’ woodland at c. 3750 BC in the southwest (see modified map in Wilkinson and Straker 2008: fig 3.3, 67, based on Bennett 1989; Jones and Keen 1993: fig. 10.5, 232), as an area of alder within an otherwise oak woodland, excepting birch woodland on high Dartmoor. Otherwise a lime, oak and elm woodland is seen as prevalent (Wilkinson and Straker 2008), but researchers have just draped this interpretation over the entire Triassic and Devonian hills and valleys of south Somerset, Devon and Cornwall (70). Much of the Southwest is considered to have been wooded throughout the Neolithic and the Early Bronze Age (Robinson 2002: 55; Wilkinson and Straker 2008), with clearance only occurring later in the Bronze Age across most of the high moors, where, as a consequence, heathland had developed by the end of the Bronze Age. The model for South Devon (based on pollen from numerous workers across the southwest) suggests that these large-scale clearance episodes had occurred by the Mid–Late Bronze Age. The work in the Exe Valley (Fyfe et al. 2003a) provides a long vegetation history, but that for the Neolithic and Bronzes Ages does not
differentiate readily between upland and lowland heath/moor, and certainly does not attempt the finer-grained ground-level land-use interpretation we seek for the Pebblebeds. There are, however, three elm declines in the southwest which are accompanied by a decline in oak woodland and increases in grasses, and this, together with the suggestion of the upland having scrubbier woodland and open grassland in the Later Mesolithic (Fyfe et al. 2003a, 174), may suggest an open woodland with grasses and herbaceous vegetation.

So what was the Pebblebeds landscape like? For Tor Cairn we have two pollen spectra. One of these is derived from inverted turfs beneath the cairn. The other is from context 22, a dark, charcoal-rich sandy layer beneath the primary core cairn overlying a central pebble-filled pit, discussed in Chapter 3. If we are correct in assuming that the material composing context 22 in Tor Cairn was raked up from the area in the vicinity of the cairn and represents deposits below the humic A horizon of the former soil then the pollen from it (Pokorný, Appendix 4) relates to a pre- cairn environment, and possibly the post-clearance phase. This shows the area in the vicinity to be an open oak woodland with an understorey of hazel, grasses and ferns. There is limited heath in the area. The oak woodland at this time would be significantly different from that occurring off the Pebblebeds to the east along the Otter valley and on the soils mantling the Otter sandstone and to the west below the scarp slope of the Pebblebeds extending to the Exe estuary. The trees would have been much shorter, relatively speaking, and stunted, with less prolific growth and the canopy significantly less dense, allowing more sunlight to penetrate, with an understorey providing more browse. Such woodland would have been significantly easier for people to move through and would have provided excellent resources for hunting and gathering.

The pollen analysis from Longo Bottom (Batchelor, Appendix 16) by contrast suggests a much more open scrub woodland of hazel and grassland and ferns, with alder (reflecting the valley location), oak, lime, pine, birch and elm at 3660–3530 cal. BC during the Neolithic. The Pebblebeds at this time constituted a complex mosaic of a relatively open oak woodland in the higher areas (now mantled by dry heath) and a more open landscape along the valleys with their mires. For Jacob’s Well, immediately below the western scarp of the Pebblebed ridge, the pollen analysis of peat below a Middle Bronze Age burnt mound shows it was located in drying damp open alder carr with hazel, willow, holly, ivy and honeysuckle shrub understorey, with grasses and herbaceous vegetation including sedges and fern (Batchelor, Appendix 12). The drying of this wetland wood and the increase in birch as alder carr dwindled occurred
prior to the burnt mound and fewer fens occurred in the grasses and sedges. Drying locally occurred to such an extent that the soil surface was dry, enabling relatively easier human passage (Figure 8.3). Perhaps this drying out might have enabled easier access to, and in part facilitated, the later burnt mound activity, which itself may be a part of the process of opening up the landscape and clearing the wetter areas of woodland on floodplains and around springs (cf. Brown et al. 2016).

Later Neolithic open woodland and moorland

Prior to cairn-building, the Pebblebeds would have been a mosaic of open, principally hazel woodland with some oak, with denser oak and hazel woodland on sheltered gentle slopes and valley sides, and valley bottoms containing some alder and willow. The oak trees would have been perhaps no more than 5–10 m high. The closest contemporary analogy would be the stunted oaks of Wistman’s Wood on Dartmoor (Figure 8.4), where in contrast the trees grow in a dense jumble of boulders hindering movement, whereas on the Pebblebeds the forest floor was free of stones. Even at this stage higher areas on the Pebblebed bedrock supported thinner soils, some of which were already becoming podzolic (i.e. patches of heathland were developing, of limited extent). Visibility of the wider landscape would have been limited. The Otter and the Exe and the hills beyond them and the sea to the south, although clearly important to the local communities for fishing and fowling (see Figure 1.9), would not have been visible even during the winter months following leaf fall. The woodland allowed the further penetration of sunlight through the woodland, making the movements of animals more visible. The open nature of the woodland, with bright and dappled light, can be seen from the mixed alder carr at the base of the peat at Jacob’s Well (Figure 8.3). Again at Longo Bottom, although also from peat, the openness of the woodland in the surrounding drier landscape is also hinted at with oak, lime, pine, birch and elm and open grassy vegetation; there is also a small heathland component there throughout as far back as the Neolithic with a hint of development towards the top of the sequence (Batchelor, Appendix 16).

Trackways through the landscape showed where animals have foraged, browsed and drunk in shallow pools and where water seasonally trickled; the valleys were not yet true wet mires as the soil cover was generally a thicker brown earth or acid brown earth (possibly 40 cm thick), with patches of weak podzolic soils acting as a sponge soaking up much of the rain-water. Some small incised gulleys and rivulets may have channelled some water into valley bottoms where seasonal streams flowed
Figure 8.3  Percentage pollen diagram from Jacob’s Well, Woodbury Common, Devon (Source: author)
over ground and, in so doing, locally exposed the pebbles. Elsewhere they were still concealed by a mantle of dark soil.

With patchy heath on the upland exposed moor and grass and ferns providing a good ground cover, parted only by animal tracks, rivulets, stream cuttings and localized balding patches in the most exposed places, only rare and limited but important glimpses were given of the Pebblebed geology; the wet rounded pebbles with their smooth multi-coloured surfaces gleaming against the greens of the ferns, bracken and undergrowth. Looking out from this upland the Otter Sandstone landscape would have been more uniformly and densely covered by alder within an otherwise oak woodland interspersed with hazel. From the Pebblebeds the local mosaic and variations within this woodland would not be that apparent, as only the woodland canopy would be seen. The surrounding landscape would have resembled an almost complete ‘sea’ of woodland that effectively concealed the movements of people through it, their presence apparent only from the smoke of fires. Although not visible at this time from the Pebblebeds, the river Otter, an important communication route and source of a variety of resources, would have been visited regularly – so although hidden it was not an ‘invisible’ part of prehistoric communities’ life-way.

The occasional glimpses of the Pebblebeds, the rounded, colourful, attractive stones, would have made them a rare, and by the Early Bronze Age, possibly prized commodity, valued by communities in the
area, and imbued with more than just esoteric value and significance. Their rarity, being exposed only within and along the sides of the occasional slope or gully, although much more frequently along rivulet and stream beds, and more rarely and randomly distributed bare patches in higher areas and the steeper slope edges, would have contributed to their perceived social and symbolic value. The local populations of the Later Neolithic, Beaker and Early Bronze Age were familiar with these beautiful pebbles from their visits to the beach at Budleigh Salterton as part of their seasonal round. Seeing such stones normally only found in the liminal space of the beach between the sea and the land must have been a source of wonderment and surprise: how had they ended up so far inland and on a ridge brushing against the sky? Some were collected and taken away to their temporary seasonal dwellings on High Peak and Hembury. There the woodland had been removed and the hilltops were bald. Neither settlement was visible, but from both one could look down and across the Pebblebeds to the north of High Peak and to the south of Hembury. The lighter character of the woodland running along the Pebblebed ridge would have been apparent and provided a stark contrast in relation to the density of the forest cover elsewhere.

**Beaker and Early Bronze Age period 3 immediate pre-cairn environs: open moor and open wood**

The pre-cairn construction land-use is evidenced in data from the Tor Cairn buried soils (pollen, soil and to a lesser extent geoarchaeology). The immediate pre-cairn environment is, however, missing from Tor Cairn as a result of truncation and loss of the A horizon (Macphail, Appendix 5; Scaife, Appendix 6), but was possibly a grazed glade within open woodland of oak, hazel and lime with some birch and alder existing with grasses and pasture, and again hints of heathland development (Scaife, Appendix 6; Pokorný, Appendix 4). The presence of heather in the truncated soil suggests greater heath existed at the time of construction and is confirmed by the presence of acid soil formation and weak podzolization (Macphail, Appendix 5) – and possibly even management of the heath by fire as indicated by micro-charcoal presence. Although much of the pollen and soil data refer to the phase 1 Neolithic environment, the fact that the soil shows podzolization indicates clearances, grassland and heath. This is a developed open landscape, thus clearance must have occurred prior to, and not for the construction of, the Early Bronze Age and Beaker pebble cairns. The cairns were built in a landscape that had
already been cleared and had become locally relatively open, characterized by grasses, ribwort plantain and dock/sorrel-type plants typical of pasture with ferns (*Dryopteris*) and herbaceous flowering plants (*Melampyrum*) possibly typical of forest grazing, and heath occurring within areas of open woodland that had been little altered.

In the Earlier Bronze Age the Pebblebeds had become a wider, and more varied, landscape in terms of the vegetation that grew on it. Much of it was still forested but substantial open areas now existed. On these there developed a fine-grained mosaic of vegetation consisting of tussocky grasses and herbs, with heath and ling and stands of scrub and shrubs (such as hazel, *Prunus*, blackberry, heather and honeysuckle). The valley slopes were dry and locally supported light oak- and hazel-dominated woodland, elsewhere dominated with patchy scrub – typically shrubby plants such as hazel, blackberry and some heather – that is, an intermediate community between grass or heath and high forest. The valleys to the east of Tor Cairn and to the west, between it and Twin Cairn A, contained intermittent streams cutting through sandy soils further exposing the bedrock of pebbles. Some of the valleys cutting into the Pebblebed ridge at this time were broad, dry and open. Other smaller valleys were much more overgrown. Up and down all of them were trackways through the vegetation made by animals and communities moving from the Otter Sandstone landscape and the Exmouth and Littlesham Mudstone areas and up onto the Pebblebeds ridge. This was a seasonally visited, opened but not tamed landscape. The opening of the original woodland cover allowed and encouraged more graze, altering the vegetation, encouraging coarse grasses and herbs and low-growing shrubs, and exposing patches of bare soil and pebbles. Soil erosion and runoff increased, gullying locally and intermittently some of the ridge slopes and the valley sides, feeding water to the streams. Around the edges of the pebble ridge clearance was also occurring and some of the denser woodland was shed. Localized activity and probably temporary settlement took place on the spurs of higher landfringing the Pebblebeds to the south and southeast by the edge of the Otter Sandstone and overlooking the Otter valley. At this time small pebble cairns were constructed on the spurs bounded by valleys. The pebbles were collected or dug up from exposures in the valley sides. Other special pebbles and blue stones were curated and transported from elsewhere, where they were exposed during journeying across the landscape, and the cairns were both enlarged and their multicoloured surfaces renewed. Some of these small, discreet structures were locally intervisible but never from very far away. Because the landscape around them had been cleared of woodland, views out from
them across the more densely forested areas below became extended to the sea to the south. Pairs of cairns were aligned with the midwinter sunrise. High Peak, now no longer settled but a hill of ancestral significance, was prominent on the skyline. At Twin Cairn A, mushroom spores indicate construction taking place during late September or early October (Pokorný, Appendix 10), at the end of the grazing season. Fires were lit during the construction of this cairn. Much of the material that was burnt was mature oak wood derived from further forest clearance in the vicinity (Challinor, Appendix 9). The oak itself was a tree redolent with a particular symbolic load related to the hardness of its wood, its use in domestic dwellings and its longevity.

Shortly after, or in tandem with, the construction of the pebble cairns the first domesticated animals were introduced to the Pebblebed ridge as a supplement to the traditional diet of game (red and roe deer and boar), fish and fowl, nuts, mushrooms, roots, blackberries and other berries. The domesticated animals, principally cattle but also sheep, had kept the cleared areas open and made those areas that were still wooded much more open through intensive grazing of the understorey. The Pebblebed ridge was never permanently settled, since the soils in the cleared areas were becoming too poor and thin and increasingly acidic. The domestic animals were taken up onto the heathlands around May and collected and taken down to the surrounding lowlands in late October/early November, as they were in medieval times and the first half of the twentieth century. Purificatory fire rituals at the cairns, protecting the animals and humans against danger and sorcery, may have taken place in association with these movements of animals up onto the Pebblebeds ridge and down again to byres and enclosures where they were overwintered (see Chapter 3).

Landscape in transition: open heathland (Early Middle Bronze Age and Middle Bronze Age, periods 4–5)

The opening up of the Pebblebed landscape and creation of the cairn lands free of many trees enabled graze and browse. It was a visited and utilized landscape, but not a landscape that was lived in by Middle Bronze Age populations. The mosaic of open herbaceous vegetation included more heath, with heather (ling) and possibly gorse becoming locally more dominant; soil podzoilization characterized the surface and sandy soils were drained of colour by leaching. Their lower, and mainly hidden, soil profiles were richer browns and reds as a result of iron enrichment, and these mantled the bedrock of pebbles. Grazing and numerous
pathways led to faster erosion of the loose sandy soils. Areas of bare soil grew and low vegetation and sandy trackways leading off the Pebblebeds upland were commonplace. As the soils no longer acted as a ‘sponge’ mantling the landscape, the thinner and sandier soils led to greater runoff and greater erosion, and the valley floors became wetter and infilled, if only temporarily, with sediments. Localized peat formation with a boggy herbaceous vegetation of rushes and open alder carr developed along the stream valleys, transforming some of them, making them less readily passable. This was now a landscape in transition – the grassland and the soils were disappearing, heath was more dominant, valleys wetter and woodlands and stands of trees thinner and fewer. The underlying pebbles were becoming more common on the surface as large areas were exposed on the higher ridge, and were increasingly exposed along valley sides, and in trackways becoming sunken in places and incised by both footfall and water runoff.

**Heath and grassland (Bronze Age periods 5–7)**

Long-term grazing led to the open heath with sparse heather and ling kept down by grazing and burning to maintain a grassland sward. Beneath this, thinned, poor podzolic soils existed and peat formation in the valleys was locally appreciable, with up to half a metre of wet spongy peat existing under the tussocky sedge and alder carr. No longer was this a landscape rich for its seasonal graze; no longer was this a landscape with just glimpses of rare Pebblebed ‘jewels’ – they were commonly found over the entire landscape, in pathways, valley sides and on the top of the localized ridges traversing it. The landscape was being turned from one of life into one intended for the dead, with the more typical monumental cairns of the Mid to Late Bronze Age being constructed on the highest places, intervisible with each other and from the hilltops of the wider landscape beyond. In association with these, pebble sculptures/platforms perhaps associated with mortuary rites were constructed in close association with the monumental barrows, while at Jacob’s Well the pebbles were crushed and met a symbolic death (Chapter 6). Human intervention had by now revealed the bones of the land by the removal of forest cover not only on the Pebblebed ridge but beyond it to the west and the east along the Otter and Exe valleys. On the Pebblebeds podzolization had occurred, and an open heath with low vegetation and heather (*Calluna vulgaris*), dense tussocky grasses interspersed with low woody plants and some patches of bramble might have been typical. Grazing and human presence and possible management by fire kept woody vegetation at bay, kept grasses
down and enabled open bare soils to be exposed and eroded, exposing patches of pebbles here and there, especially on large open areas, the edges of slopes, the slopes themselves and in tracks and pathways. A sensory revolution had taken place in which for the first time the intricacy of the contours of the hills and valleys was revealed (Tilley 2007). Settlement remained, however, on the periphery of the Pebblebeds and along the Otter Vale – the economic value of the Pebblebeds diminished and so did the range and variety of human tasks undertaken there. Hayne Lane, situated just above the floodplain 300 m south of the river Otter, and Castle Hill, about 500 m distant from and west of the Otter, represent well the situation of MBA settlements with enclosures and round houses along the Otter valley. They are situated respectively just 6 km and 3 km to the northeast of the top of the Pebblebed ridge. Here the environmental evidence shows a well-developed MBA heathland landscape in the vicinity of these settlements, characterized by extensive open areas with heather and gorse as well as birch, oak and pine present (see Figure 8.5). The representation of blackthorn and hawthorn suggests, together with the tree species, a shrubby habitat in which open areas were regenerating in patches while others were being cleared (Gale 1999: 194–6). Crops

Figure 8.5  Heath and light woodland on the Pebblebeds (photo: Mike Allen)

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grown include bread, emmer and spelt wheat, barley, bean, pea and flax (Clapham and Stevens 1999: 197). We suspect that in the Later Bronze Age, as elsewhere, localized high-ground peat occurred in patches as a result of localized soil runoff and generally wetter climatic conditions; peat growth at this time is seen in a number of places in the Southwest. Both soil and localized peat development may have led to reparation of the bare soil-stripped areas, covering pebbles and once again hiding them from immediate view and accessibility in many places.

Discussion

Clearly the Pebblebeds today are an open, managed landscape with few resources and sparse tree cover (excepting modern plantations), with some open valleys and other wooded and boggy valleys. This is a humanly created landscape, and one very different from that experienced by prehistoric communities. The area was an open heathland; one exploited and used many centuries before any of the comparable heaths of Dorset, Sussex or Surrey. The Pebblebeds landscape was probably one of the first such landscapes to be utilized and was exploited starting with the Early Bronze Age/Beaker communities for economic and other resources.

Early use

The Southwest is generally seen as being backward and peripheral in prehistory compared with societies in Wessex and the southeast. This perception has led to some landscapes receiving only a little archaeological attention, which has tended to reinforce such a picture. During the last 20 years numerous arguments have been made with regard to the Bronze Age in the Southwest as representing a distinct regional tradition in terms of both domestic and funerary architecture and grave good assemblages (Quinnell 1988; Johnson and Rose 1994; Bender et al. 2007). The evidence from the Pebblebeds discussed in Part I of this book indicates that, rather than being backward, these communities had a very different set of traditions, not only in terms of dwelling and burial practices but also in the manner in which populations related to the landscape and exploited its resources. The heathlands were created and utilized many centuries before comparable areas in south and southeast England. Areas such as Wytch Farm on the south Dorset heath (Cox and Hearne 1991), the West Sussex heath (Drewett et al. 1988) and Surrey heath (Bird and
Bird 1987; Cotton et al. 2004) show extensive heathland only in the Mid to Late Bronze Age as a result of clearance and human activity, whereas on the Pebblebeds there was podzolization and heathland in the Beaker period and Early Bronze Age, in tandem with the cairn building in this landscape.

Why is the Pebblebed landscape exploited so early? A combination of local Late Neolithic and Early Bronze Age communities resident in the South Devon landscape and the comparative openness of the Pebblebeds landscape invited early exploitation; not for woodland resources, which were almost ubiquitously abundant, but for open graze and browse, for the provision of commanding views especially to the east and southeast across the Otter vale, and perhaps too for the mystical powers of the pebbles themselves. It was, however, the utilization of the landscape for graze, the removal of the vestiges of open woodland, that, as is the case on Surrey, Sussex and Dorset heaths, led to soil degradation and acidification, podzolization and heathland development, and larger-scale exposure of the pebbles.

From the Beaker period onwards we can clearly recognize certain long-term continuities in the manner in which the heath area was utilized up until the 1950s: its use for seasonal summer grazing on grassland created and maintained by animals and by fire burning or swaling. The medieval parish boundaries are long linear strips including both low-lying areas and upland heath areas and the heath was common land. It was only when this usage stopped following the Second World War that the entire area reverted to the ‘classic’ dry heath vegetation of heather, ling and gorse. Settlements since the Bronze Age have always concentrated on the heathland fringes and along perennial streams flowing off the heathlands, while they themselves have never been permanently settled. Clear evidence of this is in the settlement site of Colaton Raleigh, just below the Early Beaker pebble cairns and the Bronze Age sites discovered just to the north and east of the heathlands during the A30 and gas pipeline excavations (Fitzpatrick et al. 1999; Mudd and Joyce 2014).

Hidden treasures

One of the attractions of this landscape may have been the pebbles themselves. Initially these attractive, rounded, colourful pebbles would have been hidden in the landscape, with rare glimpses of them in the open woodland and in rare exposures. Most were hidden by moderate soil cover and vegetation. Their rarity added to their social and special
value. Exploitation of the landscape, however, gave rise to soil deflation, podzolization and erosion, with gullying in the valleys and exposures on hillslopes and stream beds in valley bottoms, eventually leading to larger exposures on the upland itself. Although they had become socially and symbolically important materials utilized in the construction of the early pebble cairns, with the opening up of the heathland these same materials were now available in abundance and they were used to construct large cairns high up in the landscape and symbolic sculptural forms. Meanwhile at Jacob’s Well the pebbles were being burnt, crushed and destroyed. By the Early Iron Age they appear to have lost their symbolic significance. Pebbles now became simply useful and abundant local building materials utilized in the construction of Woodbury Castle and domestic dwellings. It was only in the late eighteenth century onwards that their material and aesthetic properties became appreciated once more (see Part II). This loss of significance is concomitant with soil developments and regrowth of the peat engulfing pebble exposures and erasing them, temporarily, from the landscape.

Summary and a social landscape model

Landscapes are not passive platforms upon which communities acted, but holistic arenas in which people acted and interacted (Tilley 1994, 2004, 2008, 2010). The changing landscape provided the potential that enabled and facilitated human actions, that is, environmental possibilism (cf. Bell and Walker 1992, 8), rather than determined human action (environmental determinism); those communities had choice and decision. The changing landscape invited and encouraged those actions and activities. From this we can create a model for the interaction and development of the prehistoric landscape and land-use at the Pebblebeds, for they are integrally entwined.

1. The Pebblebeds, by virtue of the thick bed of pebbles and the soils developed over it, probably supported a more open woodland and vegetation subtly but significantly and distinctly different from that of the surrounding area.
2. Glades already clear and free from extensive woodland (cf. Vera 1997, 2000) were exploited for graze and pasture from earliest times, and probably from the Mid to Later Neolithic.
3. Within this landscape, rare multicoloured pebbles came into view; pebbles that had been seen elsewhere such as the Otter river and the
beach at Budleigh Salterton, but here they were appearing from the ground almost as if being born. The pebbles are visually attractive, and most of a size that is easily collected and handled. In the Beaker period they were less visible and rarer, and became special, important and significant – and so did the Pebblebeds.

4. As human activity increased in the Middle Bronze Age (visitations, tree and shrub removal, and extensive grazing), podzolization and the development of heath increased. The sandy soils were prone to deflation, erosion and colluviation, revealing exposures of pebbles on the hilltop and slopes, as well as in narrow cuts made by footpaths and tracks.

5. Subsequently in the later Middle to Later Bronze Age pebbles were selected, collected, treasured, used and made into big cairns and pebble platforms. Each pebble is unique and the colours attractive, and pebbles became significant and part of the valued social ‘currency’ of the landscape – they are imbued with meaning and may represent a form of ‘wealth’. This wealth of pebbles enriched the communities venerating them or ‘owning’ this landscape (see Chapter 7).

6. After this period and at about 1300–1400 BC the use and significance of the pebbles diminished, and this coincides with soil development and local high peat growth in the Late Bronze Age that swallowed up what were once larger exposures, again hiding many of the pebbles below the soil – taking them back into the earth.

Postscript (Michael Allen): The spatial visualization of these landscapes requires the palaeo-environmental scientific data, interpretative and imaginative cognition, familiarization with the physicality of the landscape and a certain amount of empathy. In the chalk downlands, where I have worked for over 40 years, that empathy clearly exists. The interpretation here has been more difficult because this is a more challenging landscape and my familiarity with the topography, soils and landscape is not yet as great, and I have, in part, been reliant on Chris for this.