CHAPTER I

THE NATURAL AND HUMAN BACKGROUND OF NEOLITHIC SETTLEMENT IN THE BRITISH ISLES

THE NATURAL HISTORY

BEFORE entering upon a description of the material culture of the various groups of early agricultural colonists in Britain, it is essential to sketch an outline of the natural and human background which these colonists encountered on their arrival from the European continent in these islands. The natural background may best be considered in terms of recent geological events, of forest history and the development of the British flora, and of the fauna, terrestrial and marine, known to have existed at the time of Neolithic colonization. The human background is provided by the evidence for communities of hunter-fisher tribes already established, and largely indigenous, in the same period.

The framework within which these phenomena can best be arranged is that provided by the study of post-glacial forest history in northern Europe. This is described at greater length below, but for convenience of reference it can be noted here that a series of climatic phases has been established, each with its characteristic flora, and following one another as the ice-sheets retreated northwards after the Last Glacial period. In terms of plant-history, these have been classified into zones which may be equated in whole or in part with the older nomenclature of the climatic sequence. Thus Zones I-III comprise the Late Glacial phases (with Zone II the warmer Allerød period), IV Pre-Boreal, V–VI Boreal, VII *a* Atlantic, VII *b* Sub-Boreal, and VIII Sub-Atlantic. As we shall see, all the material described in this book can be assigned to Zones VII *a* and VII *b*, and unless other methods of sequential reckoning can be used (such as a true time-scale in solar years) the zoning system is used where possible.

Land and sea movements

The question of the insulation of Britain from the Continent, and the formation of the modern coast-line, has been discussed and summarized in several recent papers (cf. Movius, 1942, 75 ff., also Oakley, 1943; Godwin, 1945). The formation of the English Channel seems to have been an event of Late Boreal times, and Godwin has examined the evidence for a 'rapid and very extensive eustatic marine transgression affecting the shores of all countries bordering the North Sea' during Zone VI (1945, 67). This process continued and culminated in Zone VII, and in east and south Britain submergence continued into at least the middle of Zone VII*b*, though in the south-west there is some evidence of local emergence continuing from Zone VI. The evidence for the relation of this movement to the formation of the north British and north Irish raised beaches has been discussed in detail by Movius (1942, Appendix vi). In Scotland the carse clays of the Firths of Forth and Clyde are deposits of this marine transgression of Zones VI–VII (Godwin has named it the 'Bat Transgression' from its appearance at the Boreal-Atlantic transition), and the so-called 25-ft. raised beach represents its counterpart in the west: the extent of the Scottish subsidence has been recently mapped by Lacaille (1948). Movius would style these beaches as 'Litorina', in reference to the Litorina Transgression of the Baltic, but the extremely complex nature of the late land-and-sea movements in the Baltic, as revealed by recent research, makes equations dangerous, though there is some reason for thinking that the Essex coast subsidence is equivalent to LG iv in Denmark (cf. summary by Troels-Smith in Mathiassen, 1943, 162; Bagge & Kjellmark, 1939, 140ff.).

In south-east England, in the Fenland and on the Essex coast, some Neolithic colonization had taken place before the last phase of marine transgression in Zone VII, while products of late Neolithic stone axe-factories occur in submerged peat-beds on the North Wales coast (p. 292). Evidence for the English Channel region is unfortunately scanty, and the so-called Flandrian Transgression of north France is ill-documented, though undoubtedly of long (if intermittent) duration. But there seems good reason for assuming a late marine transgression in the region of the Scilly Islands (Daniel, 1950, 24), and much the same is suggested by the half-submerged stone circles and cremation-cemetery of Er Lannic in Brittany, evidence from the Channel Islands (J. Hawkes, 1939*a*), and from the Devon and Somerset coasts. Here at Yelland a long stone setting and a flint industry of Secondary Neolithic type (cf. p. 285 below) have been recorded from a submerged land-surface (Rogers, 1946), and at Brean Down, at the seaward tip of the Mendips, a *B*-beaker and a sherd of a pot-beaker of the type found on the submerged Essex coast were again found below present tide level (Dobson, 1938). On the other hand the evidence from the Somerset fens implies that there was 'no substantial transgression' after the end of Zone VI, until Romano-British times (Godwin, 1945).

On the whole then the Neolithic coastline would have approximated to that of the present, except that there may have been considerable land losses along the coastal fringe in south and south-eastern England at least: in the areas of the raised beaches the reverse applies, and old shore-lines may either be high above present high-water mark or (as in the carse-clay areas) buried beneath estuarine silt.

Climate and vegetation history

The general principles of the process whereby the sequence of post-glacial climates in northern Europe has been worked out by means of the resultant changes in forest composition, observed above all in the distinctive pollen-content of peats, are now familiar. The evidence was summarized to date by Clark (1936*a*) and Movius (1942), and the British material has been worked out in detail in a series of studies by Godwin and his colleagues referred to below. The Irish evidence has been admirably dealt with in the work of Jessen (1949) and Mitchell (1945; 1951), and in this connexion it is necessary to point out that before 1949 these workers used a notation for zoning the Irish peat deposits in accordance with Danish usage, but not in agreement with that in use in England by Godwin and others. But this latter system has now been adopted for the Irish material, and its correlation with the previous mode of zoning has been made clear. A single frame of reference is therefore now employed for all such deposits in the British Isles (Jessen, 1949, pl. XVI; Mitchell, 1951, 117). It should also be noted in passing that the peculiar conditions of the eastern English Fenlands led Godwin to adopt a series of subdivisions of Zone VII (*a–d*): these are of local significance only and should not be confused with the division into VII*a* and VII*b* used elsewhere in the British Isles.

The climatic phases with which we are concerned in this book are those of Zones VII*a* and VII*b*—the Atlantic and Sub-Boreal periods. The only Neolithic find directly related to a peat deposit of VII*a* is that at Peacock's Farm in the Fenland, where sherds of Western Neolithic pottery were found in a late Atlantic context in the Lower Peat below the Buttery Clay layer which represents a marine transgression at about the VII*a*–VII*b* transition (p. 94), but several VII*b* correlations can be established. The older Scandinavian dates for these zones were 6000 to 5000 B.C. for the end of Zone VI, and 3000 to 2500 B.C. for the VII*a*–VII*b* transition (cf. Clark, 1936*a*, 53; Jessen, 1949, pl. XVI), and available dates based on radio-active carbon are contradictory—wooden objects from what is almost certainly a VII*b* peat at Ehenside Tarn, 3014±300 B.C., and charcoal from the Stonehenge Aubrey Holes, archaeologically contemporary, 1848±275 B.C. The question of dating by archaeological means is discussed in the final chapter of the book.

VEGETATION IN ZONE VII—THE FLORA OF NEOLITHIC BRITAIN

The evidence for the natural conditions of vegetation in Atlantic and Sub-Boreal times is based most reliably on the pollen-content of stratified peats, but in addition to this, there are the remains of actual trees and other vegetation, in natural deposits, and the charcoal resulting from natural carbonization or artificial burning on humanly occupied sites. This last evidence must be used with caution, and its limitations are discussed below. In southern England attempts to determine climatic and vegetational conditions from the occurrence of certain assemblages of land-snail species in ancient deposits have been made, and this is in turn examined at a later stage.

Evidence from peat deposits

The pollen diagrams constructed from stratified peats in many parts of the British Isles show a consistent evolution of forest assemblages parallel with that from Scandinavia despite local divergences. The majority of pollen analyses at present available are based on a count of the percentages of tree pollens, but following the lead of such Scandinavian workers as Iversen, attention has more recently been turned to the proportions of non-tree pollens as well, with extremely interesting results.

With the climatic amelioration following the Boreal phase the beginning of Zone VII is marked by a decline in the proportions of pine as a forest tree, and a corresponding increase in alder and the other constituents of the mixed oak forest, which becomes characteristic of Atlantic times (VII *a*). Elm is abundant in calcareous regions in VII *a*, and the proportion of oak increases (at least in Ireland) in VII *b*. The significant boundary of VII *a* and VII *b* is seen in most pollen diagrams by a marked decrease in elm (though this is less easy to detect in the Fenland series of eastern England) and a continued decrease in pine. In the Highland Zone of Britain and in Ireland there is a rise in the proportions of birch in VII *b*, but in some areas (e.g. the north Pennines) the occurrence of this tree is likely to be a function of height, for the high-level peats of late Atlantic date in the Pennine region indicate a landscape of 'cotton grass and sphagnum, more alder scrub and probably birch-hazel woods on the better drained slopes' on hills of up to 2000 ft. (Raistrick & Blackburn, 1932, 99).

The Fenland sequence, thanks to Godwin's work, is particularly well documented. Here in earlier Atlantic times forests of tall well-grown timber, with oak, alder and lime predominating, covered the area now fenland, but as a result either of encroaching sea or a wetter climate, or both in conjunction, the region became rapidly waterlogged and 'we can picture the Fenland as a vast tract of sedge fen much the same in extent as now...extremely inhospitable, with alder, birch and sallow forming a light canopy above an undergrowth of abundant sedge and reed'. But in later times drier conditions set in, and the fen margins were 'invaded by a large proportion of oaks, and in some places, by pines and yews'—conditions to be rudely interrupted by the marine transgression which deposited the Buttery Clay in the middle of Zone VII (Godwin, 1940, 298–9).

Artificial forest clearance

In the Breckland of East Anglia, recently a great area of open heath, Godwin has been able to demonstrate artificial forest clearance in ancient times in the most interesting manner (1944). At Hockham Mere the VII*a* pollens show a woodland of oak and alder, with smaller proportions of elm and birch, but at the VII*a*–VII*b* boundary (marked by decreasing elm) the non-tree pollens show a rapidly increasing proportion of grasses and herbs, and also plantain. This is exactly parallel with the phenomena observed in Denmark by Iversen (1941; 1949) and there associated with the first appearance of Neolithic colonists in wooded regions and the cutting or burning down of forest for agricultural clearance. A similar increase in the pollen of grasses just above the VII*a*–VII*b* transition has been noted at Carrowkeel in western Ireland (Mitchell, 1951, 199), and here again is likely to be the result of the arrival of agriculturalists in the region. Pollen-diagrams from the Somerset fens show a consistent feature at or just above the VII*a*–VII*b* transition, marked by a sudden decrease in all forest trees except birch, which shows a complementary peak: shortly after this level, the trees reassume their earlier proportions (except for the decline in elm characteristic of Zone VII*b*) (Clapham & Godwin, 1948). Now Iversen has noted that birch is a 'pioneer tree' which rapidly colonizes an area after a forest fire, and in the Danish pollen-diagrams a high proportion of birch appears in the first stage of forest regeneration after the clearance of woodland by fire, attested for the Neolithic agriculturalists in that country (Iversen, 1949, 12). It seems possible then that the Somerset diagrams might be interpreted in terms of similar artificial clearance of local forest by fire in Neolithic times.

A preliminary examination of peat samples from the Ehenside Tarn site described on p. 295 shows high percentages of the pollens of grasses at a level probably to be equated with the beginnings of the Neolithic occupation of the site. But the Ehenside peat, apparently of Zone VII, has exceptional features which include a very high proportion of beech pollen, a tree usually represented in pollen-diagrams of this period by sparse grains, if present at all (cf. Godwin & Tansley, 1941, 120).

The problem of the south English chalk downland

The chalk downland of Wessex and Sussex, a region of early and continued Neolithic occupation, constitutes a special problem in the determination of its original conditions in Atlantic or Sub-Boreal times. The question has been ventilated in a controversy (Salisbury & Jane, 1940; Godwin & Tansley, 1941) in which the point at issue was the former authors' contention that the charcoal specimens from Maiden Castle indicated that 'in Neolithic times the chalk of Dorset was probably clothed with a closed plant community of woodland of the oak-hazel type'. Their opponents consider that 'no sound evidence is presented for any such belief', and bring forward evidence to show that in Neolithic times (i.e. from Late Atlantic times onward) 'many places in the Wessex downland were bare of trees', the forest taking the form of scrub and woodland patches at most, and that by Sub-Boreal times (Zone VII *b*) there was an increasing amount of grassland, brought about partly by natural causes and partly by deliberate forest clearing for tillage, and by cattle grazing.

The evidence of non-marine Mollusca

The downland problem was independently approached by the late A. S. Kennard on the basis of the non-marine Mollusca found in prehistoric contexts in southern England (summary in Cunnington, 1933; cf. also Stone, 1933*a*; Kennard, 1935, and in Drew & Piggott, 1936; Wheeler, 1943, 372). In brief, he contended that this faunule represented climatic and vegetational associations obtaining locally at the time of the construction of the sites examined (for the Neolithic, these comprised causewayed camps long barrows and flint mines of the Windmill Hill culture, and other sites of late Neolithic date). There seems little doubt that the land-snails would reflect local conditions, but the question remains as to whether they can be used as a basis for generalization. Kennard, using material spread over the whole prehistoric period from Neolithic to Early Iron Age times in southern England, claimed that certain broad climatic phases were in fact indicated, and these were not incompatible with the Atlantic, Sub-Boreal and Sub-Atlantic stages of climatologists.

The land-snail assemblages from sites archaeologically assigned to Neolithic cultures fell into two groups. The first group comprised assemblages of snails which would naturally live under conditions of heavy rainfall (and a higher water-table than today), with a fair amount of sun and winters approximating in severity to those of the present day. With this climate, the faunule implied a vegetation on the chalk downland which was either beech woodland, or 'open wood with open spaces and scrub' (Kennard in Stone, 1933*a*, 240). In the face of the botanical evidence for the great rarity of beech in Neolithic times, the second alternative is to be preferred, but comparison made with the modern land-snail assemblages from a hawthorn thicket and a juniper scrub area on the downs showed that these were dissimilar, in lacking the true damp woodland species.

Sites producing this faunule comprise causewayed camps in Wessex and Sussex (though not Maiden Castle, as we shall see below), flint mines in the latter county and at Grimes Graves, and long barrows in Dorset. An exactly comparable assemblage was also found in the tufa deposit of Blashenwell in Dorset, which is almost certainly of Late Atlantic date and contains a Tardenoisean flint industry (Clark, 1938*b*): the resemblances include the occurrence of the extinct *Ena montana* at Blashenwell, Thickthorn long barrow and Easton Down flint mine, and the absence on the last site and at Blashenwell of the unbanded *Cepea hortensis*. An initial objection to the use of the land-snail assemblages from these sites is that they are almost entirely derived from ditches or mine-shafts, where damp conditions are naturally to be expected, but one must note in fairness that Kennard's second series, indicating drier conditions, also come from ditch-sites, while the Sanctuary site at Avebury (Peterborough and Beaker wares) produced this same assemblage from post-holes and shallow stone-holes.

Kennard's second type of faunule indicates conditions with less rainfall than the first (approximating to modern conditions, in fact), with open downland but with a relict-fauna proper to a scrub-covered habitat, and comparable to the modern test-series from juniper scrub in Wiltshire. The three main sites yielding this faunule are Maiden Castle, Stonehenge and Woodhenge: of the first site the land-snails indicated 'warm and fairly dry conditions, certainly not damper than today. It is not a dry chalk-down faunule, and there was probably coarse herbage' (Kennard in Wheeler, 1943, 372). There is good archaeological evidence, as we shall see, for making the sites of Woodhenge and the earliest Stonehenge approximately contemporary, and Maiden Castle might, like them, be regarded as late rather than early in the Neolithic and therefore of a somewhat different period to Windmill Hill and the long barrows at least. But against this must be set the disconcerting evidence from a pit with Woodhenge pottery near that site, at Ratfyn, which produced a faunule of Kennard's first group, indicating conditions which were 'damp with abundance of shade and little if any grassland', but with luxuriant scrub growth (Kennard in Stone, 1935*a*).

It seems clear that we must use the molluscan evidence with very great care, remembering Kennard's own warning about the extremely local occurrence of land-snail assemblages (1935, 433). With this proviso, it seems reasonable to accept the evidence for damp, wooded conditions in the immediate neighbourhood of the sites which produced the first type of faunule, with locally cleared areas, and probably a drier climate, around those of the second series—the Ratfyn site would imply a similarly localized relict area of heavy scrub. Whether or not the indication of the change to drier conditions in late Neolithic times, as indicated especially by the Stonehenge and Woodhenge evidence, can be equated with the Atlantic-Sub-Boreal transition is another matter. Certainly on archaeological grounds the first type of land-snail assemblage is associated with a number of sites (causewayed camps and long barrows) which should be among the earliest Neolithic structures of southern England, and the beginning of flint mining at least should go back to the beginning of the phase. Stonehenge and Woodhenge are again late in the Neolithic sequence, and probably Maiden

Castle is relatively late as well, and although the 'wet' faunule is again found in Beaker sites, there seems some evidence that the 'dry' assemblage is characteristic of the Middle Bronze Age sites on the downland. Godwin & Tansley feel that despite the doubts felt by archaeologists as to 'the clear-cut conception of a wet Atlantic and a dry Sub-Boreal period' in England, yet 'it is certain that part at least of the Bronze Age in England was relatively dry' (1941, 121). If such climatic fluctuations did in fact take place during the later Neolithic period as defined by archaeology, the land-snails would be likely to reflect them in some measure, even though individual local conditions must render the evidence of slender value unsupported by other factors.

Other botanical evidence: carbonized wood

In their discussion of Salisbury's and Jane's conclusions on the downland flora referred to above (1940), Godwin & Tansley pointed out the inherent limitations in the use of botanical determinations from charcoals and carbonized wood in ancient hearths or other deposits to establish the character of the local flora (1941). Fuel wood may be brought long distances, and naturally carbonized worked specimens (such as hafts, etc.) may be imported: Childe suspected this with a piece of oak from Rinyo (Childe, 1948*b*). Again, in coastal regions or on islands, drift-wood may play a very important part in carpentry and as fuel, and the spruce posts at Stanydale in Shetland seem certainly to be explained as drift-wood from the North American continent (see below, p. 263).

But in general, the charcoal determinations from British Neolithic sites confirm the results of pollen-analysis in a convincing manner. The constituents of the mixed oak forests predominate, and among the rarer trees one may note beech at Cissbury in Sussex, Rodmarton and Nympsfield in the Cotswolds, and Ehenside in Cumberland. The presence of gorse on downland sites such as the Trundle and Cissbury should imply open scrub, and it is also recorded from Southbourne (near Bournemouth) and Pentre Ifan in Pembrokeshire. In Ulster, gorse is again noted in Clyde-Carlingford sites, and these also have produced birch, which confirms the pollen evidence for this tree in some numbers during Zone VII*b* in Northern Ireland: it is again present at Clettraval in the Hebrides and in the Rinyo-Clacton sites of the Orkneys. To the occurrences of yew noted by Godwin & Tansley (1941) one may add Whitehawk, Hembury, Rodmarton and Nympsfield as Neolithic finds; the pine at Woodhenge is exceptional on a downland site and is commented upon below (p. 341) as a probable import from adjacent heathland.

PLATES

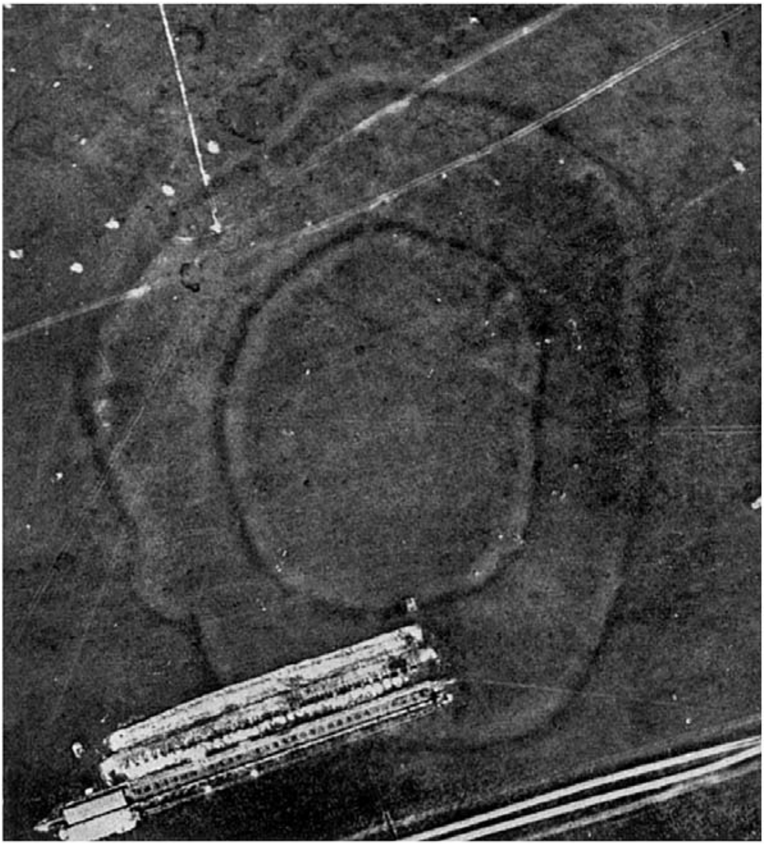

PLATE I Air photograph of causewayed camp at Robin Hood's Ball, Wiltshire.

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