The Design and Distribution of Stone Circles in Britain; a Reflection of Variation in Social Organization in the Second and Third Millennia BC.

A thesis submitted for the Degree of Doctor of
Philosophy in the Department of Archaeology
and Prehistory, University of Sheffield.
December 1987.

by
John Barnatt.

'in three volumes'
Volume 1.

CONTENTS

Volume 1

Chapter 5: Stone Circles Classes and their Distribution.

Chapter 6: Additional Architectural Features, Related Monument Forms and Monument Complexes.

Volume 2

Volume 3

Illustrations (placed at end of thesis: Volume 3, page 174 onwards)

38: A Hebridean Open Circle (class G); Achmore (16), *after Ponting and Ponting 1981.*

39: Examples of Recumbent Stone Circles (class H); Castle Fraser (121), Sunhoney (188), *both after Thom et al. 1980 with additions,* Loanhead of Daviot (156) *after Kilbride Jones 1934-5*

40: Examples of Recumbent Stone Circles (class H); Aikey Brae (98) *after Coles 1903-4,* Candle Hill (120) *after Coles 1901-2,* Tommagorn (191) *after Thom et al. 1980 with additions.*

41: Examples of Recumbent Stone Circles - variants (class H); Dyce (133), Garrol Wood (140) *both after Thom et al. 1980 with additions,* North Strone (168) *after Coles 1901-2.*

42: Examples of Clava Cairns and Ringcairns (class I); Culburnie (70), Kinchyle of Dores (83), Tordarroch (95) *all after Henshall 1963.*

43: Examples of Kincardineshire Ringcairns (class J); Raedykes NW (174) and SE (175), *after Thom et al. 1980 with additions.*

44: Examples of Small Circles in eastern Scotland (class K, type F14); Torbreck (94), *after Frazer 1883-4,* Cullerlie (128) *after Kilbride Jones 1934-5.*

45: Examples of Small Circles in eastern Scotland - graded (class K, type F14); Killin (238), Tigh na Ruaich (253) *both after Thom et al. 1980.*

46: Examples of Small Circles in western Scotland (class K, type F18,19); Callanish (17), Cnoc Fillibhir Bheag (21) *both after Tait 1978 with additions,* Machrie Moor 4 (45) *after Mc Lellan 1977,* Loch Buie (40) *after Thom et al. 1980.*

47: Examples of Scottish platform circles (class K - types SP1,3); Machrie Moor 5 (46) *after Roy et al. 1963 with additions,* Croft Moraig (224) *after Piggott and Simpson 1971.*

48: Examples of Scottish platform circles (class K - type SP2); Moncrieffe (243) *after Stewart 1985,* South Ythsie (517) *after Thom et al. 1980 with additions.*

49: Examples of Scottish variant circles (class K - types F15,17); Auchinduich (7), Auchany (5), *both after RCAHM 1911.*

Tables

Acknowledgements

Many thanks to the staff of the Department of Archaeology and Prehistory, Sheffield University, with particular mention to Andrew Fleming my tutor, all of whom on occasion provided inspiration and advice and were extremely tolerant over the inordinate time the research took due to financial and personal crises. Andrew helped enormously with presentation by his detailed criticism of the garbled first drafts of the text. Other researchers made useful comment and provided data on specific topics, particularly, Aubrey Burl, Clive Ruggles, Gordon Moir, Anthony Harding, Graham Lee, Steve Pierpoint and Pete Herring. Over the years others have provided help with fieldwork by joining survey teams, or have given information on undocumented sites, notably Aubrey Burl, Andrew Fleming, Clive Ruggles, Gordon Moir, Nick Thorpe, Julian Thomas, Mike Pitts, Rosemary Robinson, Tom Greaves, Ken Smith, Pete Herring, Jacky Nowakowski, Nick Ralph, Brian Larkman, Lee and Lydia Crampton, Dave Patrick, Ann Haigh, Tim Laurie, Paul Hewitt, Tim Fell and George Barnatt. The staff of Sheffield University Library were extremely tolerant over the numerous inter-library loans they provided. Simon Harrod helped by letrasetting many of the figures and proof reading the text.

The greatest debt is to Brenda Barnatt, my wife, who has tolerated the long working day during the last year without complaint, and provided many hours of invaluable labour on the word processor.

Abstract.

Stone circles are a diverse monument form which may well incorporate a complex palimpsest of sites of varying functions and dates. Multivariate analyses of their architectural variability provide the basis for a taxonomy which divide the data into 14 distinct types of stone circle. These are argued to form a base for further research which avoids many of the problems inherent in simplistic comparisons of stone circles as a whole. A corpus of stone circles has been compiled. The design, date and distribution of each stone circle class is examined. In addition, the controversial hypotheses instigated by Thom, on geometry, metrology and astronomical orientation, are reviewed and placed within the more general interpretive framework used here to define stone circle taxonomy.

The other major theme presented here is an analysis of the distribution of the 14 stone circle types in relation to topography, settlement and other monuments. This highlights a diverse range of patterns which becomes apparent once differential survival rates are accounted for. At one extreme, in peripheral areas such as the Peak District's East Moors, are simple one to one correlations of field systems/cairnfields to small, similarly designed monuments. Towards the other end of the spectrum, as on Dartmoor, are complex patterns where hierarchies of different monument forms exist, which can be argued to function on different levels; ranging from the purely local to regional meeting places. Variation in the character of such patterns from region to region are argued to reflect significant differences in social organization across Britain. While some of these differences can be seen in terms of 'core' and 'peripheral' zones, others suggest that some lowland communities were organized very differently from those in areas such as Wessex.

Chapter One

Introduction.

1:1 Stone Circles; Past Research and Future Potential.

There are several hundred stone circles which survive today, scattered arround upland Britain. They are of diverse design and scale, often displaying discrete regional sub-groupings, in terms of architecture and siting characteristics. While the extensive research of Burl (1976) has explored much of this variation, other aspects have remained largely uninvestigated.

In recent years stone circles have received more than their share of controversy over hypotheses on their layout and astronomical orientation. This thesis puts these in perspective with a more general analysis of stone circle design and variability. This re-assessment of stone circles quantifies their diversity by using a multivariate approach and identifies 14 classes of stone circle. The distribution of classes is also examined and explanations explored for the diverse patterning displayed.

Past Research.

Many stone circles were documented in the eighteenth and nineteenth centuries, influenced by the then current interest in Druidism. Stone circles and funerary monuments attracted many early excavators but in the former case the results were frequently minimal and are typically poorly recorded. Little attempt was made to synthesize the data as a whole, or explore inter-regional variation in design and content, although in the late 19th century some excellent regional studies were undertaken. Notable are the works of Dymond (1877 et seq), Fraser (1883-4), Lewis (1882 et seq), Lukis and Tregelles (1894,1906), and slightly later, the extensive work of Coles in Scotland (1893 et seq) and Gray in southwest England (1907 et seq).

In the present century the degree of interest in stone circles and barrows was reduced as archaeologists redressed the balance by investigating many previously neglected types of site. However, occasional excavations of stone circles have taken place, which as techniques have improved, have added invaluable data to our understanding of the monuments. In addition many valuable surveys have been published by the RCAHM and regional studies produced by Piggott S. and C.M. in Dorset (1939), Grimes in Wales (1963) and Henshall in Moray Firth (1963).

Interest in stone circles was again aroused by the hypotheses of Thom because of their far reaching implications (Thom 1954 et seq). One problem with this research was that little attempt was made to interpret the multitude of surveys archaeologically; as no overall review of stone circles had ever been undertaken it was difficult to put the work of Thom in its proper context. This problem was redressed by Burl who compiled the first nationwide corpus of sites and presented voluminous syntheses and interpretive comment on the diverse data displayed by stone circles (Burl 1976). This work laid firm foundations for any future study of these monuments. It is only when such a work is compiled that significant patterning and diversity comes into clearer perspective and that interpretive problems become apparent.

Present Problems; the Aims of the Thesis.

While all stone circles by definition are architecturally similar monuments, their wide range of scale and design probably represents a palimpsest of varying traditions which may well have been current for upwards of a millennium. A major problem for current research is that a detailed systematic analysis of design is needed, in order to sub-divide the data into meaningful groups for study. While Burl identified several classes of circle, such as Recumbent Stone Circles and Four Posters, the majority of simpler free-standing rings had not been fully integrated into a usable framework. Burl highlighted many similarities and/or differences in design between specific sites and regions. However, a limitation in his presentation of this data, is that while in many cases such observations may well be pertinent, it remained to be tested which would stand up to more rigorous analysis.

The aim of the present study is threefold. The preliminary objective is to analyse the hypotheses of Thom in order to review their relative values, and hence assimilate such data as survives re-examination into a more general assessment of stone circles. This re-evaluation concludes that much in Thom's hypotheses cannot be substantiated. Geometry and metrology suffer worst; the careful planning of complex geometries using a megalithic yard is argued against. However, a dichotomy between carefully planned 'circular' sites and others 'laid out by eye' is supported by other aspects of their design and distribution, which separate the former type into three discrete classes of stone circle. Although many of Thom's data on astronomical orientations can be criticised, a good case can be made for low-precision astronomy on the basis of other studies by various researchers (see 3:2).

The second aim is to devise a taxonomy of sites based on systematic analysis of their architectural traits using a multivariate approach. The main purpose of this is to provide realistic groups of sites which are likely to be of similar date and function. Fourteen classes of stone circle are identified. The majority are discrete entities both in terms of their architecture and distribution. However, small stone circles are less susceptible to analysis and two out of four classes of these display significant overlap in diagnostic characteristics. The utilization of the 14 classes, it is hoped, avoids problems in further analysis that would arise by comparing monuments of diverse scale and design that have little bearing on each other except for superficially similar architecture.

The third aim of the thesis is to present a hitherto neglected aspect of study; an analysis of stone circle distribution in relation to regional topography and settlement. This assessment led to the proposal of a model that identifies several types of stone circle distribution pattern on the basis of the regularity in distance between comparable monuments. The spacing interval varies significantly from class to class. Type of distributional pattern changes with topography. In some areas, these patterns are suggested to combine hierarchically according to the social level at which they operated, while at the same time there are strong regional differences across Britain. Major contrasts not only occur between areas which were capable of sustaining relatively high populations in comparison with those that were less favourable, but also between regions with similar topographies and soils.

Stone Circles and Prehistoric Societies.

While the function of stone circles in terms of rituals and ceremonies that took place within them will always remain largely speculative, it is clear that they were monuments of some importance in the Later Neolithic and Earlier Bronze Age (see note 1). Larger stone circles and henges are the most common monument-form whose design indicates they were likely to have been built to contain large numbers of people. The amount of energy expended in building these monuments is frequently substantial, and far in excess of the majority of other building projects known for the period. They may well be the prime meeting places of their era where many socio-economic and/or socio-political interactions were given form. As such their study is of great relevance in understanding the workings of prehistoric society.

The general interpretation of British data on the character of social organization during this period has been reviewed recently (Pryor 1983, Bradley 1984a, Bradley and Gardiner 1984). These studies break new ground in that explanations are examined which highlight regional diversity and interaction between competing or complementary facets of social regulation which change through time and space. Such an approach has greater potential than traditional explanations for interpreting the diversity of data. However, while these studies have laid foundations for future research, both by providing general interpretative frameworks and by brief application at specific regional test cases, detailed analyses of broad data-sets in these contexts are still in their infancy. The distributional analyses of stone circles is used here to highlight specific aspects of interpretation in relation to the framework laid down by Bradley (1984a,b,c).

While any study of the dynamics of prehistoric society obviously needs to examine all facets of the data, in the long term it may be that communal monuments are of particular importance in understanding social organization, in that they may be one of the most direct reflections of this (see note 2). They obviously do not hold the full answer, particularly because it is likely that some communities in some regions or at specific periods, probably chose not to build monuments. However, any patterning that can be demonstrated to reflect discrete monument networks can be compared and contrasted and hence provide data on at least part of the spectrum of organization in the Later Neolithic and Earlier Bronze Age. It is perhaps the differences in pattern that will reveal the most about dynamics and hence be the most interesting.

The prime instigator of research into the patterned distribution of larger monuments was Renfrew with his much debated hypotheses on monuments in Wessex and of chambered tombs in Scotland (1973,1976). The interpretation of the Wessex data has been questioned in the light of new interpretive frameworks devised by Bradley (1984a-c) which illustrate that static or over-generalized models have their problems. However, these new approaches do not negate significant monument patterning (see 9:12,10:1,10:6). Little further application of detailed distributional models has taken place at henges and stone circles elsewhere, although studies utilizing other monument forms, such as chambered tombs by Fraser (1983) and cursus monuments by Pierpoint (1980,1981), are pertinent.

The analyses undertaken in the present study are designed to test how widely a specific distributional model can be applied, and to investigate potential diversity in patterning, both between regions and between specific types of site within regions. The view taken here is that different monuments (of different types and scale) are likely to be patterned according to a complex interrelationship of factors. At one extreme, small stone circles may well function on the simple level of the extended family/local-group and their main purpose would be for rituals and ceremonies of only local significance, probably related to 'everyday' activities and family concerns. Larger sites took on additional roles as focal points on communal and/or inter-communal levels. While some such sites may place emphasis on socio-economic factors, acting as exchange centres, the majority are likely to also have socio-political functions.

Until recently it seems to have been frequently assumed that prehistoric society in the Later Neolithic/Earlier Bronze Age was essentially similar throughout Britain, many regions being pale reflections of Wessex. This view has recently been modified considerably with the highlighting of regional differences between the development of various 'core zones' which supported relatively high populations (Pryor 1983, Bradley 1984a) (see note 3). Dichotomy between 'core' and 'peripheral' zones is also seen as important. New explanations stress the importance of interaction between regional systems (Bradley 1984a, p41-67). It is argued here, using further diversity of pattern at ceremonial monuments, that this reflects more fundamental differences in social organization in some areas of Britain, which go beyond the concept of 'core' and 'peripheral' zones and regional diversity in monument form.

Note 1: The Neolithic and Bronze Age are subdivided throughout the thesis into 'Earlier' and 'Later' halves, rather than following the conventional threefold division. The division of the Bronze Age into two has been adopted previously by Barrett and Bradley (1980). The system addopted here follows Burgess (1980,p23-4) in the sense that 'Later Neolithic' equates approximately with his Meldon Bridge and Mount Pleasant periods (c2500-1700bc) and 'Earlier Bronze Age' equates with his Overton and Bedd Branwen periods (c1700-1250bc).
Note 2: The term 'communal' is used here and henceforward in a non-specific sense and does not inply any particular type of social organization or population size.
Note 3: The term 'core zone' is used here and henceforward to refer to areas where archaeological data and assessment of relative carrying capacity point to well established populations of relatively high density due to favourable topography and soils (cf Bradley 1984a,p41).

1:2 Stone Circles and Their Place in a Continuum of Contemporary Monuments.

When studying the distribution of monuments, in regard to their significance as indicators of the dynamics of social organization, it may well be misleading in some areas to examine one monument type in isolation. Different communities may well have built radically different monument types which in terms of their function as foci for group interaction served similar purposes. It would take many years to analyse all monument forms in detail. The current research, of necessity, has concentrated on stone circles. To overcome the problem in the case of larger monuments, existing corpora and other published sources have been used to study the distribution of henges and cursus monuments. Smaller monuments such as ringcairns, barrows and stone rows are too numerous to cover nationally and study of these has been restricted to detailed test cases in the Peak District and South West England.

A further problem with defining the limits of research is the occasional similarity of stone circles to related monument forms; which to some extent form parts of a continuum and hence perhaps ought to be included in the main corpus. The only larger monuments under consideration here are henges (see 6:8) and timber circles (see 6:9). Summary corpora of all published examples of these have been compiled (Appendices 4,5). In the case of henges this includes several previously unpublished sites and the corpus summarizes extensive work undertaken to update and clarify the range of this monument form. Several sites included in earlier henge lists have been rejected and hengiform sites are not considered because of acute problems of definition and interpretation (see 6:8).

Sites of similar form to small stone circles present more of a problem. Existing typologies have inherent problems (see 6:10). Some types, such as kerb-cairns and kerbed barrows, can be argued to have different functions. Relatively clear-cut lines, on architectural grounds, can generally be drawn between these and stone circles (see 6:10). This is not the case with ringcairns. While it has proved possible to study these in some detail in the Peak District and demonstrate their functional similarity to stone circles, this has not been possible in other regions. In many cases they are poorly documented; no published corpora having been compiled and problems of identification never resolved (see 6:10). Hence these sites were reluctantly excluded from much of the distributional analyses because extensive fieldwork would be required to document their numbers and range.

1:3 The Present Research; Fieldwork and Other Approaches.

In order to achieve the research aims defined in 1:1 a variety of approaches was required. The first necessity was to compile as accurate and detailed a corpus of stone circles as possible (see 1:4,Appendices 1-3). Burl, in compiling the first such nationwide list, included all sites which had been refered to in literature as stone circles (Burl 1976). However, in a significant number of cases further research reveals that such interpretations are often tenuous and open to more viable alternative explanations, or in some cases are spurious identifications (see Appendix 3). In order to clarify this situation extensive archive research was undertaken. Eighteenth and nineteenth century sources often also provide useful data on sites which have subsequently suffered damage or destruction. A number of new discoveries have also been added to the corpus.

In order to make a detailed study of the design of stone circles, the archive research was essential to identify the quality of available data. As expected the data was patchy, some regions being well documented while others were poor. Many of the Scottish and Welsh sites were adequately recorded by the RCAHM and such researchers as Coles (1899 et seq), Henshall (1963), Grimes (1963) and Thom (Thom et al 1980). However, other specific zones were identified where the data was significantly inadequate. In England this was particularly true on Dartmoor and in the central Pennines. As comprehensive field survey of all stone circles in Britain was out of the question, due to time/financial restrictions, a programme of selective survey was planned. In the Peak District the situation had already been partially rectified by my previous fieldwork between 1974 and 1977 (Barnatt 1978). Further work here has revealed a number of new sites. Sites in Cornwall had also been surveyed before commencement of the thesis - in 1978-9 (Barnatt 1982). The sites on Dartmoor were systematically surveyed between 1981 and 1983. The stone circles of the Central Pennines (and some in Cumbria) were visited and assessed between 1983 and 1984 and in some cases new surveys executed.

The stone circles of Ireland were a major problem, due to inadequate data. While specific sites and regions are well documented others are not. Extensive fieldwork was impractical due to the amount of time required to bring a corpus up to an adequate state for making detailed comparative analyses of design and distribution. Hence, it was reluctantly decided to exclude Irish sites from detailed analyses. A summary of the known Irish data is given in 7:4 for comparative purposes.

Once the corpus had been compiled and supplemented by fieldwork, the data were organized according to levels of detail/ reliability available for all sites (see 1:4). The number of stone circles which are well preserved is relatively small and while the design of these can be analysed with more certainty than sites in a poorer state of preservation, it was felt that the latter should also be studied where possible. The need to establish the classification of as many sites as practicable arises in order to study the the detailed distributional inter-relationships of site-types and their siting criteria. Therefore, the approach adopted was to devise a data-base, which while allowing for degrees of reliability, was as broad as possible. In specific analyses some sites in the main body of the corpus (Appendix 1) thus had to be omitted. However, all sites incorporated in this have some data which gives clues as to their design-type.

Analysis of the data which led to the definition of a taxonomy of sites was undertaken intermittently between other work commitments from 1984 to 1987.

When the thesis was started it was thought that much of the research would be directed towards an analysis of the hypotheses of Thom in order to put these in clearer archaeological perspective. However, after protracted work between 1979 and 1984, it was decided that this to a large extent gave results of only limited value in regard to a broader interpretation of stone circles and the communities that built them. Attention was turned to the interrelationship of stone circles to settlement/other ceremonial monuments and the potential for perceiving significant patterns in their distributions.

The early work on geometry and astronomy included detailed archive research into all sites (of all types) studied by Thom in order to establish their archaeological status. Statistical work was executed on metrology in conjunction with Gordon Moir. Experiments were also carried out in 1981 in partnership with Pete Herring, to investigate problems of assessing site shape and design. Trial fieldwork to explore astronomical orientations in relationship to other siting biases was carried out on Arran in 1979 with Steve Pierpoint, and made possible by assistance from Aubrey Burl (in conjunction with his excavations on Machrie Moor).

In order to follow up my interests in the siting of monuments within specific regions/topographic zones, and their relationships to other monuments and settlement, it was necessary to select test cases and carry out further extensive fieldwork. The prime criteria for any given area, were that a high density of stone circles should exist, in conjunction with as good a preservation rate as possible for prehistoric sites in general. Only a few such areas exist. In some marginal areas, such as much of the Welsh uplands and the Pennines, stone circles are only found intermittently. In contrast, in areas of Scotland where stone circles are particularly dense, as in Tayside and Grampian, these are largely found in agricultural zones and prehistoric settlement data is patchy. In other areas of Scotland, particularly in the west and north, much evidence is masked by deep peat and hence a study of the distribution of visible remains could be biased to the extent that results may well be spurious.

Two areas for detailed research were identified; Dartmoor and the East Moors of the Peak District. These contrast with each other; the East Moors have only small stone circles, all of similar design, in a landscape of relatively uniform topography. Dartmoor has a much greater variety of sites in varied topographical locations. Previous research on Bodmin Moor (fieldwork 1979-80; Barnatt 1982) provided a third area useful for comparative purposes (supplemented by limited fieldwork 1982-3).

The relationship between stone circles and settlement on the Peak District moorlands was problematical in that no systematic survey had ever been undertaken to establish if significant gaps existed in the data. This was rectified by an intensive fieldwork programme in 1982-3 and further work from 1983-5. The prehistoric sites on Dartmoor are so numerous that such a systematic study was impractical and to a large part unecessary because of the extensive work of Fleming across Dartmoor as a whole (1978,1980,1983, pers.comm.), and Smith in the Plym valley (in; Balaam et al 1982). Although recent research into settlement patterns on Dartmoor has been extensive, the ceremonial monuments have been neglected by comparison. While Worth (1901 et seq) and Grinsell (1987) have recorded many specific sites, a significant proportion of the stone circles and related monument-forms remained unplanned. As noted above, these were surveyed between 1981 and 1983. During this period the opportunity was taken to familiarize myself with the prehistoric sites in general and many specific interrelationships of stone circles to other monuments were examined.

When presenting the thesis major problems have arisen, revolving around the imposed restrictions on length of text. In the case of the research undertaken to investigate Thom's hypotheses it was felt a detailed account would create an imbalance, placing undue emphasis on specific elements of stone circle design. Hence, these issues are only discussed briefly (chapters 2 and 3) in order to put them in perspective in respect of the aims of the thesis in general. The detailed research is summarized and much of this has been more fully presented elsewhere. Work on geometry and metrology has been fully published (Barnatt and Moir 1984, Barnatt and Herring 1986), as has the fieldwork on astronomical orientations on Arran (Barnatt and Pierpoint 1983). A report on the archaeological status of all sites used by Thom for his astronomical hypotheses has been prepared, but due to its length, and significant overlap with data presented by Ruggles and others, a publisher has not yet been found and this project has temporarily been shelved.

Several of the detailed fieldwork projects have had to be summarized and it is planned that full reports will appear elsewhere. This is particularly true with Peak District research where many aspects of the discovery and analysis of field systems/cairnfields are not directly pertinent to the thesis. This is already partially published (Barnatt 1986,1987). A detailed corpus of stone circles and ringcairns for this region has been prepared (Barnatt forthcoming). A corpus of the Dartmoor monuments will be prepared for publication at a future date.

The data included in the thesis itself fall into 4 parts. The first, the corpus, is presented as a series of appendices (1-3). Pertinent notes on aspects of this data are included in the next section. The second part summarizes research into Thom's hypotheses (Chapters 2 and 3). The third deals with multivariate analyses of the corpus, resulting classification, and how this affects the interpretation of stone circles (Chapters 4-7). The last illustrates and discusses detailed investigation of the distribution of stone circles and how the postulated model may relate to social organization in prehistoric Britain (Chapters 8-10).

Whenever specific sites are mentioned in the text of volume 1, biographical details are ommited; these are to be found in the appendices. Chapters are divided into sub-sections which are numbered to facilitate cross-referencing and unnecessary repetition of data.

1:4 The Corpus; Explanatory Notes (fig.1).

The corpus of sites is divided into three sections. The first lists and describes all sites where data exist to enable them to be utilized in some or all of the analyses (517 sites). The second lists sites where no such data exists (150 sites), in the majority of cases because the site was destroyed without adequate description. The third lists sites claimed in the literature as stone circles, for which a better case can be made for alternative interpretation, or where significant doubt exists over their status (265 sites).

In many cases nineteenth century antiquarians referred to varied structures as stone circles, as for example barrow kerbs or other circular structures as well as fortuitous stone arrangements. Where these sites survive today inspection clarifies the issue. In cases where sites are destroyed this is more problematic. Where authors also note extant sites, the degree to which their interpretations are reliable can be assessed. Where not, specific sites are given the benefit of the doubt and included in appendix 2. One set of exclusions requiring comment are early Ordnance

Survey records. They marked many previously destroyed sites and other assorted structures as stone circles on first edition maps; these are not accepted in appendices 1 or 2 without additional data being available. In appendix 3, criteria for rejection are detailed in every case.

After assessment, the corpus includes 667 sites which are likely to be genuine stone circles, a total which, despite significant additions of recently discovered sites, is no higher than that put forward by Burl (1976).

The location of all sites in appendices 1 and 2 is illustrated in figure 1, from which it can be seen that their distribution/survival is far from even. The exploration of reasons for this is one of the major topics of forthcoming chapters.

The presentation of the corpus of accepted sites (Appendix 1) is inherently lengthy due to to inclusion of all data utilized in analyses. In order to minimize the length much of the data is tabulated. This is particularly the case with details on the ring of orthostats itself; hence at the majority of sites, no verbal description is given except for details of additional features and excavations. While this is not ideal, lack of space makes this a necessary evil.

Many of the details of tabulation are self explanatory (see Appendix 1; key). However, several points need further comment here. The site status follows the classification devised here after multivariate analyses. Column B2 details relevant sub-classes and adds previous authors' descriptive terminology wherever appropriate. Data on design detail were derived from the most accurate plan/source (Column C1). However, in many cases this needed to be supplemented by data on internal features, stone heights, destroyed stones and other specifics. In the case of Thom's plans these are often the most reliable for assessing shape and stone spacings but frequently do not include data on additional features or the archaeological status of particular stones. All such additional data are to be traced by refering to the sources tabulated in the site bibliography.

These bibliographies include all sources used, except for cases where a site is mentioned but the source contains no useful data that adds to our knowledge of the site, or where this is better expressed elsewhere. The exception to this is at sites which have suffered no damage since first recorded. Here, early detailed descriptions are included to illustrate this point. Although extensive archive research was undertaken it should not be assumed the bibliographies are comprehensive.

Chapter Two

The Geometry and Metrology of Stone Circles.

2.1 Past Research; A Brief Review.

In 1955 Thom first proposed that stone circles were not laid out in crude circular fashion but were carefully planned as a range of geometric designs (Thom 1955,1967). These included true circles, ellipses and flattened or egg-shaped rings. All more complex shapes were characterized by designs derived from internal right-angled triangles, the corners of which were used to inscribe the arcs which defined the ring. Thom also proposed that these layouts incorporated a standard unit of measurement, the megalithic yard (0.829m). He hypothesized that the rings were laid out to synthesize a variety of 'whole-numbers' and that the deviations from true circularity enabled the circumference to be approximated to three times the diameter (rather than the awkward π). Examples of each geometric type were found scattered throughout Britain and the megalithic yard was argued to be standardized to a very fine degree of accuracy.

These hypotheses have always provoked controversy. While some archaeologists have attempted to synthesize them into a general interpretive framework, other researchers have pointed out problems or variations in interpretation of specific aspects of the data (Cowan 1970, Burl 1976, Angell 1976,1978, Heggie 1981, Barnatt 1982, Patrick and Wallace 1982).

It was not until 1980, with the publication of Thom's full data-base (Thom, Thom and Burl 1980), that more fundamental problems with the hypotheses became apparent. These revolve around the quality of data. Many utilized sites are relatively poorly preserved and assessment of their original shape cannot be attempted without markedly subjective judgements. Several of the sites surveyed by Thom were not stone circles despite being marked as such on the Ordnance Survey maps current at the time of Thom's fieldwork. These include a variety of sites, ranging from kerb-cairns and similar structures, to huts and enclosures. Other sites have to be rejected because of poorly documented but extensive

Victorian restoration, where there is no indication as to whether stones were re-erected in their original stoneholes or not.

The archaeological status of all Thom's data was re-assessed in detail and has been published (Barnatt and Moir 1984). Only 76 sites proved suitable for analysis of geometry, while 191 were rejected. Somewhat lower standards of degree of preservation were acceptable for a statistical study of the megalithic yard based on site diameters. Hence, 100 sites were suitable for analysis, while 111 were rejected (totals vary between the two data-sets following Thom).

A summary of the re-analysis based on the revised data-bases is given below (2:2,2:3) together with assessment using a larger data-set derived from the current corpus (2:5). This re-assessment concludes that hypotheses on complex geometries and the megalithic yard cannot be substantiated. However, a strong case for a dichotomy between carefully designed 'circular rings' and others laid out 'by eye' is argued for.

A Re-assessment of the Data; New Approaches.

2:2 Geometry.

In 1984 it was proposed by Barnatt and Moir that the shapes displayed by stone circle plans may be the result of laying out 'by eye' rather than the geometric planning. It appears to have been assumed previously that laying out by eye would give crude results. This is not necessarily the case, if the builders were interested in erecting a monument which appeared perfectly circular. Inherent perceptual problems in visual assessment of such a structure, in the absence of a bird's eye view (a plan), lead to results which would be very similar to the shape displayed at stone circles and given a geometrical interpretation by Thom. Circles assessed visually will rarely be truly circular (despite appearing to be so) because of distortion due to perspective (ie 2 fixed points will appear progressively closer together as distance increases). However, smaller 'wobbles' in a ring can easily be corrected by looking along any given arc. The end results are rings with smooth arcs but with small overall distortions, in the form of bulges or flattenings, which give quasi-geometrical shapes. These hypotheses on the properties of circles laid out by eye were later tested by using volunteers to construct over 100 such rings and surveying the results (Barnatt and Herring 1986).

The two hypotheses - specific geometric designs and 'layout by eye' - represent near-opposite ends of a spectrum of viable layout methods that could be proposed for stone circles. While all such possibilities could perhaps be examined, it is argued that if no distinctions can be detected at a basic level that allows assessment as to which of the two hypotheses stated here best fits the data, then further detailed analyses are unviable.

Three approaches were devised by Barnatt and Moir in an attempt to distinguish between Thom's geometrical hypotheses and 'laying out by eye'. The first was an examination of deviation from true circularity. Geometrical layouts may display peaks at specific points, while 'laying out by eye' would produce random deviations. The second approach concerned symmetry; only geometrically designed rings would have careful planning around one or two axes. The third looked for repetition of identical shapes, as again these would only occur in any quantity in planned rings.

In the case of the last two criteria, high standards of site preservation were necessary for assessment. Barnatt and Moir concluded that the results were equivocal, as data-sets were too small to produce significant pattern/repetitions and hence the two hypotheses could not be differentiated.

The degree of deviation from true circularity showed no significant peaks at non-circular stone circles. The analysis of the experimental data-set by Barnatt and Herring confirmed that non-circular stone circles were compatible with 'laying out by eye', in terms of histogram characteristics which plotted deviation from circularity. The experimental data set could also have geometries superimposed upon them, following the criteria devised by Thom and using the same range of basic design-types. These fitted as well or better than the proposed solutions at stone circles put forward by Thom. This confirmed that no distinctions can generally be drawn between the two opposed hypotheses using the criteria discussed above.

One unexpected result, which contrasts with those given above, is that there is a series of stone circles of specific types which are close to being truly circular. The paucity of examples with such degrees of deviation from circularity in the experimental data confirmed that this pattern of distinctive circular sites was real. In both the 1984 and 1986 papers it was suggested that these 'circular sites' could be recognized as 2-3 distinctive circle types by other characteristics of their design, such as regular stone spacing and equal or graded stone height (confirmed here - see 2:5 and 5:15,5:24,5:27). They also had discrete distributions, in contrast to the non-circular geometric types of Thom which displayed no recognizable regional patterning (after removal of unacceptable examples - see 2:1).

Many of the sites suggested by Thom to have sophisticated geometries consist of rings of stone where the stone height and spacing is uneven and bear little discernible relationship to the geometric layout.

In combination, all the factors noted above suggest that geometric planning is as a general rule a less well supported hypothesis than those presented in 1984/1986. Thus a dichotomy can be proposed between carefully-built 'circular rings' with many symmetrical design characteristics, and others likely to be 'laid out by eye' which usually have less uniform features. This contributes to the taxonomy of stone circles presented below, which includes a more complete data-base incorporating sites not surveyed by Thom (see 2:5).

2:3 Metrology.

A statistical re-evaluation of the data supporting the megalithic yard, undertaken by Moir, shows that the conclusions reached by Thom are problematical (Barnatt and Moir 1984). Thom's early data-set (36 sites) used for the initial determination of the unit (Thom 1955) is given strong statistical support. However, the more extensive data added after this date (Thom 1967; 87 additional sites) offer no support, except at non-circular sites which are irrevocably linked with the geometric designs postulated for them (21 examples).

A more fundamental problem with this data is that if most sites were laid out 'by eye', use of any accurate unit of measurement seems inappropriate. While diameters of sites may well have been determined by crude methods such as pacing, the use of a standard measuring rod would be unnecessary. The latter method would have been contrary to the nature of the approach adopted in designing such rings (see 2:5). Even if such measuring devices were employed, the evidence for this would be irrecoverable. At circles designed 'by eye', a likely approach to laying them out would be to determine their size by establishing 2 diametrically opposite markers before other positions round the ring are plotted. While the distance between these two markers may be measured, their positions cannot be re-established retrospectively, as 'layout by eye' produces random fluctuations in diameter round the circumference and there is no way of telling where the starting points were. A statistical analysis of the 18 'circular sites' in Thom's data-set argued to be laid out with 'peg and rope' gave no support for the megalithic yard or any other standard unit of measurement (Barnatt and Moir 1984, G. Moir pers.comm).

2:4 Numeracy.

In 1976 Burl presented a detailed analysis of the original number of orthostats at stone circles. He argued that 4 specific regions (and a fifth in Ireland) displayed preferences on the part of the builders in the choice of stone numbers, which in turn indicated counting systems using base-units of 4,5 and 6. While it would be surprising if Neolithic and Bronze Age societies were innumerate, the details of Burl's analysis can be questioned.

The approach Burl addopted was to compile a data-base of sites where estimates of original stone numbers could be made to within ±2 stones. While this may be adequate for statistical analysis of a large coherent sample, the bulk of Burl's positive data came from relatively small regional sub-sets. Errors or uncertainties in some estimates at this level could negate the conclusions drawn. A more fundamental uncertainty is that in some cases spurious results could be derived from regional analyses which includes circles of different classes; at the same time significant data may be masked.

Because of the uncertainties noted above, the data on numeracy have been re-assessed here. The criteria for selection of sites were made more stringent and only stone circles where the exact original number of stones can be postulated with some confidence are included. These selections are based on methods of estimating numbers of missing orthostats described in 4:3 and applied throughout appendix 1. This procedure is essential to minimize the problems mentioned above regarding the analysis of small sub-sets. While number estimates for occasional sites may be in error, it is felt that the best compromise has been reached between too small a data-set for analysis and a larger data-base whose unreliability negates its usefulness. The data are examined in relation to the stone circle classes defined in chapters 4 and 5. While this differs from Burl's approach, there is a strong degree of overlap in that the majority of classes have distributions confined to specific regions. This is not the case with Small Circles (classes K/L-see 5:33-5:39) and hence these have been subdivided regionally for the purposes of this analysis.

The revised data-base is too small to draw strong conclusions but some patterns are discernable (table 1). With small stone circles (table 1-classes K-N) the data is of questionable interpretation. For the group as a whole there is a tendancy for low even numbers to be prominent (4,6). However, this preference for even numbers is not apparent at sites with more stones. Subdividing the data, the only groups where possible patterning exists are in eastern Scotland (Small Circles-NE and Four Posters). Burl argued that this area had evidence of a preference for 4 and 8 stones and possibly 6 and 10. The evidence for 8 and 10 is not apparent in the revised data-set.

The interpretation of the preference for 4 and 6 is debatable. Four Posters by definition have four stones and the preference for

Table 1: The number of examples of specific original numbers of orthostats. Only sites where where this can be determined with reasonable certainty are included.

	Number of orthostats																					
	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
N Four Posters	32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
K Small Circles - NE	-	-	15	1	3	5	2	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Small Circles - NW	-	1	2	-	2	2	1	-	1	1	-	1	1	-	-	-	-	1	-	-	-	-
L Small Circles - South	-	2	3	1	4	6	4	5	2	2	1	1	3	-	-	-	1	-	-	-	-	1
M Dartmoor Row Circles	-	-	-	-	-	1	4	1	-	1	-	2	1	-	-	1	-	-	-	1	-	-
TOTAL	32	3	20	2	9	14	11	7	4	4	1	4	5	-	-	1	1	1	-	1	-	1
H Recumbent Stone Circles	-	-	-	-	1	5	6	6	5	2	-	-	1	-	-	-	-	-	-	-	-	-
I Clava Cairns	-	-	-	-	-	2	1	3	1	1	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	-	-	-	-	1	7	7	9	6	3	-	-	1	-	-	-	-	-	-	-	-	-
F Wessex Variants	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
D Northern Henges	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-

	Number of orthostats																					
	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
E Symmetrical Circles	-	1	-	-	-	3	1	1	-	-	-	-	1	-	3	4	-	-	-	-	-	-
D Portal-Stone Rings	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1	-	-
Centre-Stone Rings	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
SW Wales Hybrids	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C Western Irregular Circles	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2
TOTAL	1	1	1	-	1	3	1	1	-	-	-	-	1	1	4	4	-	-	-	2	-	2

this number may result from a desire to define a square monument rather than from numerical considerations (see 5:43). Burl argued that the choice of numbers of stones in stone circles in general was not diameter related. However, the analysis of stone circle taxonomy given here (chapters 4,5) shows that the majority of classes are indeed to some extent diameter related. As a general rule, broad parameters are defined for each circle class, where stone numbers increase with diameters (figs.4-12), as if comparable spacing between stones rather than stone numbers was of prime importance. However, it must be stressed such patterns are not exact but are more likely to be operating on the level of the overall appearance of the monuments and their resulting general similarity to each other. Within these diameter-related parameters there is sufficient leeway for builders to express numerical preference. This may be the case with the 6 stone rings of north-east Scotland. While it could be argued that both the 4 and 6 stone rings are diameter related in the sense that there was a desire to build particularly small monuments, this does not explain why rings with 5 and 7 stones were avoided. However, it is curious that higher even numbers are not emphasised and it must remain open to question whether the pattern is significant or the product of the small number of sites in the data-set.

The other major group of sites where numerical preferences are apparent is also in Eastern Scotland. Both the Recumbent Stone Circles (class H) and Clava Cairns (class I) normally have between 8 and 13 stones (one exception-see 5:24), with 9-12 stones being predominant. These are the only monument classes where the number of orthostats is not in any way diameter related (fig.6). The diameters vary from 10.0 to 36.5 metres, while stone numbers remain within constant parameters. This standardization clearly relates to a preconceived design of an 'ideal monument'. The data give no clues to the counting-base of the builders as all numbers from 9 to 12 are common.

In the other two regions where Burl proposed that preferred numbers existed the re-examination presented in table 1 fails to support this. His data for the Solway Firth region, for 9 and 12 stones, is a sub-set of my Small Circle-South class (class L-see 5:37). The totals for the class as a whole are too small to support any conclusions. The other region Burl highlighted is South West England where it was argued that the numbers 14, 19-20 and 29-30 were prefered. At stone circles within this numerical range (table 1-classes E-C), all totals are so small that conclusions would again be of dubious significance. The only cases that could be made are for the numbers 20,29 and 30. However, in the case of 29, the three sites are the adjoining rings of the Hurlers. Two out of four of the rings with 30 stones are the adjoining rings at Grey Wethers. While these sites indicate the numeracy of the builders and a desire to standardize within a specific monument-complex, this finding cannot be extrapolated to the region as a whole.

In conclusion, the data are generally of questionable significance; only in eastern Scotland can a case be made for preferential choice of stone numbers and even here this does not provide evidence for specific counting-bases employed. Stone circle builders were clearly numerate as illustrated at specific sites such as those noted above where numbers are repeated, or as in the cases of The Sanctuary and Shovel Down A, where each set of concentric rings displays regular numerical progressions as diameters increase (see Appendix 1: sites 481,508). However, at the majority of sites the general impression given is that the main concern of the builders was the overall effect of the monument, and the specific number of stones was unimportant or now has no recoverable interpretation.

2:5 Symmetrical and Irregular Circles (fig.2).

When the full data-base (Appendix 1) is analysed it continues to support the dichotomy between stone circles laid out 'by eye' and symmetrical rings laid out as 'true circles'. These distinctions were originally drawn using 76 sites identified amongst Thom's surveys as suitably preserved for study. The present data include 189 sites where evidence survives to assess how circular they are. While Thom surveyed the majority of well preserved sites, some additions have been made. At other sites in somewhat poorer condition, clear cut evidence survives to indicate that they were far from circular. While these could not be included in assessment of exact shape, they can be used to explore the contrast between circular and non-circular rings and hence are now incorporated in the data-base. In contrast, standards for identifying truly circular sites have to be stringent and only well preserved sites are acceptable. In all cases the sites used for analysis are indicated in Appendix 1 (column F5).

When each class of stone circle is examined independently, significant differences are apparent in their degree of circularity. The details of this are illustrated in the discussion of the multivariate analyses (see 4:20). In summary, the majority of circle classes (fig.2B) have deviations from circularity which are consistent with the experimental data-set laid out by eye (fig.2C). However, three classes of stone circle have a high proportion of rings of higher than average accuracy (fig.2A). Two of these, the Recumbent Stone Circles (class H) and Clava Cairns (class I) are found exclusively in Grampian and around the Moray Firth. The third class, the Symmetrical Circles (class E), is found in Wessex and southwest England.

If a point of 4% deviation is taken to denote the boundary between circular and non-circular rings (essentially arbitrary but suggested by the data as being the best available choice - Barnatt and Moir 1984), it can be seen that 22 sites in these three classes, are 'circular'; there are only 9 exceptions, the majority of which are not particularly un-circular, having deviations of under 8%. In several cases explanations of these deviations are apparent and can be argued to be unavoidable errors in plan (see 4:20,5:15,5:24,5:27,Appendix 1). The 22 circular sites in these three classes represent a total of 71% of the group, which is in strong contrast with the 7% of circular sites in the experimental data-set and 10% at other stone circle classes (excluding D-see below).

A fourth class of circle, the Hybrid Circles (class D), is problematic in that architecturally these have varying degrees of affinity with Symmetrical Circles (see 5:8,5:12). The Hybrid Circles are also found predominantly in south-western England, but also in circle-henges in small numbers throughout the country. While 4 of these rings are 'circular', 8 are not (fig.2B; open squares). However, one ring in particular - the Ring of Brodgar, is so circular that it was probably carefully planned (given its particularly large diameter).

At first glance the dichotomy between rings laid out 'by eye' and those utilizing a simple peg and rope technique seems trivial. However, this may not be the case as it suggests different attitudes towards the monuments.

The fact that many sites are laid out 'by eye' does not imply that their builders were incapable of more sophisticated geometry, but that it was not relevant to them. While it may seem strange to us that the design of a monument would be perfectly satisfactory if it appeared so to the eye without the application of geometric methods of layout, this is a strongly ethnocentric viewpoint. The non-circular rings appear to be 'perfect circles' to the observer, as the experimental data illustrates. In addition, the stone-spacing and height variability of non-circular classes of site frequently appear little different from that of their circular counterparts.

The planning of 'circular' sites using a peg and rope results in the building of monuments that are more perfect than perception requires. This implies an intellectualization of the design process, an approach which is radically different from the alternative method. This can be viewed as resulting from the employment of specialist builders and/or a perceived need on the part of the communities in question to give added legitimation to the monument. These points will be explored further in Chapters 7 and 10.

Chapter Three

Orientation Preferences and Astronomical Alignment at Stone Circles.

3:1 Past Research; A Brief Review.

The Hypotheses; Changing Perspectives.

Speculations on astronomical orientations at stone circles were instigated by early antiquarians at Stonehenge and gained momentum in the late nineteenth century with the work of Lewis (1883,1892) and later Lockyer (1906) and Somerville (1912,1923). However, these scholars rarely applied techniques of assessing the statistical significance of proposed orientations; this is essential given that a plethora of foresights and potential astronomical targets exist.

The study of astronomical orientations was put on a firmer basis by the extensive fieldwork and analyses of Thom (1954.1955, 1966,1967). He carefully collected data from a variety of prehistoric sites, which when plotted as declination histograms, were argued to support orientations designed to align to the sun at calendrically significant dates, the moon at standstill positions, and first magnitude stars which would have been useful for time-keeping at night. Subsequent research (Thom 1971,1978,1982) concentrated on high-precision lunar alignments from which he concluded a high degree of understanding of the subtle apparent motions of the moon which result from its 3 inter-related cyclical variables. Thom suggested this knowledge was gained from protracted observation over many years and this enabled predictions of eclipses to be made.

Thom's data have always been controversial and specific sites have been the cause of voluminous comment because they highlight problems or vagaries in interpretation (for example; Burl 1976, 1980, Patrick 1979, Heggie 1981, Moir 1981). However, it is only recently that comprehensive re-assessment of extensive sub-sets of Thom's data has been attempted (Ruggles 1982,1983). In addition, a large data-base of independently collected data has been compiled for western Scotland (Ruggles 1984).

Another major development has been the discussion of the nature of prehistoric astronomy. Thom presented much of his data with an inherent assumption that it supported an astronomical awareness akin to our own scientific approach to the subject, higher precision equating with better astronomy. A contrasting view has been taken by various authors who regard astronomical orientation as being integral with ceremonial (Burl 1980,1981, Ellegard 1981, Thorpe 1983, Barnatt and Pierpoint 1983, Fraser 1984). In recent major re-assessments of Thom's data, these differences in approach have been explored and varied levels of accuracy of orientation have been assessed, in order to investigate the most likely directions in which positive data are to be found (Heggie 1981, Ruggles 1984a,b).

The work of Ruggles makes major contributions to this debate, in that both a review of Thom's data on high precision lunar alignments and analysis of an extensive independently collected data-set in western Scotland, have argued against highly accurate alignment.

More recent studies have concentrated on specific monument types, hence avoiding potential problems derived from using a palimpsest (as in Thom's data). The major example of such research is at Recumbent Stone Circles and the related Clava Cairns (Burl 1980,1981, Ruggles 1984c, Ruggles and Burl 1985). This is discussed in more detail below (see 3:2). Studies of stone rows in Ireland and western Scotland have also produced encouraging results (Lynch 1982, Ruggles 1985), as has experimental research into alternative methodology at stone circles on Arran (see 3:2, Barnatt and Pierpoint 1983).

Thom's Data; a Re-assessment.

The study of prehistoric astronomy has moved on from the foundations laid by Thom in several respects in the last 5 years. However, no attempt to systematically re-assess all data utilized by Thom has been presented. While data for precision alignment has been argued against, data that support lower-level orientations remains open to question. This problem was addressed by the author in 1983-4 with an assessment of the archaeological status of all

Thom's data. Much of this work is not directly pertinent to stone circles, as a variety of prehistoric monuments are involved. Hence, only a brief summary is given here and it is hoped that the details will be published elsewhere.

Thom has presented a total of 345 azimuths in support of his astronomical hypotheses. After re-assessment, 102 azimuths which utilized stone circles with outliers, stone rows or '2 stone settings' were accepted for analysis. A further 89 lines were tentatively included but their applicability is debateable, either because they incorporate small samples of site-types (such as chambered tombs or barrows) not usually considered (56 cases), or because they use stone circles as foresights (33 cases). In the latter case this is problematic in that the foresights usually span a wide arc and hence do not define azimuths unambiguously. The other azimuths in Thom's data-base were rejected. In 124 cases they incorporated non-prehistoric sites, relied solely on unindicated horizon features, or misinterpreted ruined sites in unacceptable ways (eg. treating the one surviving stone of a stone circle as an outlier). A further 30 cases relied solely on the orientation of a single slab. These are regarded as unacceptable for any primary analyses of astronomical hypotheses as they only give crude indications of orientation. It is argued that these could only be used as secondary data after a hypothesis has been successfully tested.

Interpretation of the revised data is far more ambiguous than Thom's results, primarily because the size of the data-set is drastically reduced. Many of the peaks in the histogram disappear and those that remain are of debateable interpretation. Peaks of various sizes do exist for solar orientations to both solstices, the equinoxes and one minor calendrical declination; the lunar southern major standstill and possibly 2 other lunar standstill declinations; and the stars Capella and Arcturus.

From these it must be concluded that the calendrical hypothesis is suspect as only one out of seven of the mid-year declinations, used by Thom to argue for subdivision of the year into astronomically defined units, has a prominent peak. Stellar time keeping is also untenable as only two stars are represented. The best histogram peaks at significant declinations are for solstitial alignment and perhaps lunar standstills, but even these must be questioned in the absence of convincing explanations for equally large peaks elsewhere in the histogram.

In conclusion, Thom's data only give extremely tentative support to any astronomical hypotheses. The majority of this data are consistent with low precision astronomy. The small numbers of orientations with potential for more accurate observation may well derive these characteristics coincidentally and originally could have been designed with the same motives as the bulk of the data.

These conclusions are consistent with those reached using other data-sets noted above. It is becoming increasingly clear that prehistoric astronomy in Britain was of relatively low precision. The most significant characteristic is that orientations highlight the impressiveness of astronomical events. These events were probably incorporated into monument design and/or siting to provide an appropriate backdrop to seasonal ceremonies, in addition, astronomical phenomena could be directly linked with the belief systems of the monument builders.

3:2 Astronomical Data and Stone Circles.

Thom's Hypotheses.

The nature of the design of virtually all stone circles - as open monuments suitable to contain 'participants' - suggests that any potential astronomical orientations found to be incorporated in their design or siting are likely to be only one of several factors related to their function. While astronomical considerations may perhaps have been vital to the belief systems of the builders, the design of the monuments themselves lays the emphasis on containing ceremonies. Astronomical orientations are rarely overtly indicated and it is only with such monuments as stone rows that it could be argued their design places primary emphasis on alignment.

The number of astronomical alignments appertaining to stone circles within Thom's data-base is relatively small, contrary to a common misconception. After the re-assessment of the archaeological status of the data noted in 3:1, there are 36 azimuths derived from stone circles with an outlier foresight; 23 azimuths utilizing an assortment of other monuments as either foresight or backsight; and 31 azimuths with paired stone circles acting as both foresight and backsight. The suitability of the last two categories is questionable (see below). Several sites incorporate more than one azimuth. Thus the total number of stone circles represented is only 45.

Taken in isolation these 36-90 azimuths cannot be used to make any case for significant astronomical orientation because the data-base incorporates diverse azimuths which create no strong histogram peaks (these data are a sub-set of those discussed in 3:1). In a large number of cases it is also debatable if the azimuths should be included in the data-base because of factors noted below.

While the 36 azimuths which use a circle as backsight, and outlier as foresight, have the advantage of being in one sense a coherent sub-set, the status of many of the outliers can be questioned. In some cases they may be vestiges of more complex settings. For example, at the Loupin Stanes the 2 stones are the first portion of what appears to be a meandering avenue to the Girdle Stanes. In other cases, recumbent 'outliers' may be displaced or fortuitous. At Rollright, the King Stone is closely associated with a Neolithic barrow and may never have been intended to be an orientation indicator from the circle.

Another problem with the data is the inconsistent way Thom treated outliers. For example, at Croft Moraig he only considered one of the two adjacent portal stones. In contrast, he took a line midway between the similar portals at Swinside.

When all such considerations are taken into account only 17-21 reliable azimuths remain for study.

The 23 azimuths using other backsights/foresights include a variety of combinations. In 11 cases they use circles as backsights, with chambered tombs, kerb-cairns, cairns and stone rows as foresights. In 12 cases stone circles are the foresights from stone rows, menhirs, kerb-cairns and cairns. In these 12 examples the same objections can be raised as for other stone circle foresights noted below. A particularly dubious inclusion are the 8 azimuths incorporating stone rows as these are never aligned on the backsight/foresight.

Of the 31 azimuths with stone circles as both foresight and backsight, only 8 have foresights which define an arc of under 5 degrees and hence point to one particular orientation with anything like an acceptable degree of accuracy. In addition, all these azimuths are derived from points determined from Thom's geometric hypothesis; as these are inappropriate this adds further uncertainty to the azimuths used. Re-assessment using mean circle-centres would give slightly different declinations (when both circles are close together).

In conclusion, Thom's approach to recovery of astronomical data from stone circles is fraught with problems and provides little reliable information in support of his case as it appertains to stone circles. However, this is not to say stone circles had no astronomical orientations incorporated in their design and/or siting; as illustrated by several research projects undertaken in recent years and summarized below.

Recumbent Stone Circles.

The most obvious example of an astronomical facet to circle design is provided by the Recumbent Stone Circles (class H) and Clava Cairns (class I). In both cases they have distinctive architecture, which unambiguously stresses orientations between SW and SSE in every well preserved example. In 1980 Burl published a study of Recumbent Stone Circles in which he argued that the recumbent and flankers were orientated towards the moon. He later illustrated the same is likely to be true for the Clava Cairns, although this remains to be proven as they have not received the same amount of detailed study (Burl 1981).

The data on Recumbent Stone Circles has subsequently been subjected to re-survey and detailed critical analyses. This provides the single example to date of a large body of stone circle data rigorously investigated in relation to its astronomical orientations (Ruggles 1984c, Ruggles and Burl 1985). From this study it was concluded that astronomy was undoubtedly one factor in the function of these sites. The exact nature of the astronomical orientations is in some doubt as no common pattern to major or minor lunar standstills was found.

However, the main concern seems to be with the moon near midsummer. The sites were not designed for astronomical precision but stressed the visual impact of the recumbent and flankers which framed the moon low in the sky. It may be that investigation of standstill positions is inapposite. The builders could have been ignorant or uninterested in these, their main concern being to use the recumbent and flankers to frame the full moon nearest midsummer day during its motion across the sky, rather than at its setting (or rising) positions. The observed preference for orientations towards setting positions may reflect the fact that ceremonies were designed to take place in the hours before dawn.

The idea that the builders were ignorant of the differences that the major and minor standstills made to the position of the moon, would explain the small numbers of sites orientated towards relatively low declinations. These could have been built in years near the minor standstill and then subsequently found not to work in years near the major standstill. Presumably the builders learned from their mistakes as the majority of sites orientate the recumbent towards a higher declination.

A major problem with astronomical hypotheses with this degree of imprecision is the relatively wide range of declinations involved, and resulting problems of assessing them in relation to similar alternatives. Hence proof of the hypothesis proposed here may remain unattainable.

Other Stone Circles.

The majority of other stone circle classes in Britain have no clear-cut architectural indications of orientation preference which could be tested in regard to astronomical hypotheses. Exceptions exist in the form of graded-rings, portal-stones, entrances, and outliers, but each is relatively infrequent in comparison with the two classes discussed above. While it is tempting to believe some alignments, as for example that along the avenue at Stonehenge, the small size of coherent data-sets will frequently negate any attempt to prove astronomical significance. All sub-sets incorporating the architectural features indicative of orientation will be discussed below (3:3,3:4).

While the architecture of stone circles frequently presents little to indicate prefered orientations unambiguously, this does not necessarily negate the possibility that stone-circles were carefully sited in relation to topographical features such as prominent hills, which may mark significant rising or setting points of sun or moon. Such arrangements would have created a spectacular backdrop for ceremonies and hence would be consistent with current hypotheses on the nature of prehistoric astronomy. There would be no necessity to indicate such orientations in the architecture of the ring itself (or with an outlier), as their existence would undoubtedly have been common knowledge to the participants.

Landscape orientations were studied unsystematically in the nineteenth century by Lewis (1883). They are also hinted at by research in Cornwall where 8 stone circles have major solar calendrical orientations to the three highest tors on Bodmin Moor (Barnatt 1982). The potential importance of specific hills visible from Recumbent Stone Circles have also been commented on by Ruggles and Burl (1985).

There are major problems with assessing the significance of such orientations because of the frequent high number of potential topographic foresights and astronomical targets. These problems call for fresh methodologies. Trial work on these was carried out on Machrie Moor, Arran (Barnatt and Pierpoint 1983).

The fieldwork consisted of compiling a map of the astronomical potential of the landscape in a large area surrounding the six stone circles here. This included the plotting of orientations through all prominent horizon foresights, to all major solar and lunar declinations; each calculated from a series of grid intersections superimposed on the landscape at 100m intervals. Inherent biases in the potential for good visibility to horizons within the study area were also investigated and accounted for. From the map of astronomical potential it could be shown that the stone circles were optionally placed for utilizing horizon features which incorporated inherent astronomical orientations. One orientation stood out for all circles, a prominent notch to the northeast which marked midsummer sunrise. This notch, Machrie Glen, is also of particular topographic importance, being the major pass from one side of Arran to the other.

As an adjunct to the research here, inter-site orientations were also studied along the lines adopted elsewhere by Thom and these gave negative results.

While the methodology employed on Arran may have the most potential for future research on the archaeo-astronomy of many stone circles, the major problem with this approach is that the fieldwork is inordinately time-consuming and it would take many years to build up a large data-base. While some attempt could be made to circumnavigate the problem by using similar methods but utilizing maps rather than fieldwork (see Ruggles comments; in Barnatt and Pierpoint 1983), this would be fraught with its own problems and uncertainties and would only be suitable for low-precision assessment under specific topographical conditions.

3:3 Orientation Preferences at Stone Circles (fig.3).

The only large coherent groups of data on prefered orientations highlighted by the current analyses of stone circle design are the Recumbent Stone Circles and Clava Cairns. Other potential data-sets take on a variety of forms and in the majority of cases do not display a preference for one specific orientation. This raises potentially insurmountable problems for assessing their significance as indicators of varied astronomical orientations, given that data-sets are so small.

Whenever orientations are not consistent, the data-sets cannot be assessed astronomically without extensive fieldwork to establish declinations. The present discussion will restrict itself to highlighting alternative criteria for establishing sensible sub-sets and commenting on any apparent orientation preferences.

The major problem facing any investigation is to compile a data-set of adequate size, while resisting the temptation to combine inappropriate classes of data together. Two basic approaches are illustrated here (fig.3). The first is to examine each type of orientation indicator in turn (fig.3A). One advantage of this is that each type of indicator is to a large extent found in relation to specific circle classes (see 4:21). The only data-sets of any size are the graded rings (fig.3A;4) and 'directional stones' (defined here as a single, or two adjacent, tall stones, set on the circumference of the circle) (fig. 3A;2). Only in the case of grading is there any superficial indication of an overall preferred orientation (but see 3:4). 'Portal entrances' (defined here as being marked by orthostats external or internal to the ring) found at western circle-henges are not common (fig.3A;1). Their tall stones may well have served to emphasise the entrance rather than its orientation. Outliers (fig.3A;3) are relatively rare and problematic as their relationship to the circles is frequently open to question; they are only found in small numbers at a variety of different circle types (see 3:2,6:6). The majority of stone rows directly associated with stone circles (fig.3A;5) are located on Dartmoor and are frequently crudely built with particularly low stones; they sometimes curve noticeably. These seem unsuitable astronomical indicators.

The second approach is to examine orientation indicators regionally, irrespective of type (fig.3B). Some regions have too few cases. However, sufficient data exist in eastern Scotland (fig. 3B;2-zones 5-7), and much of southern Scotland and northern/western England (fig.3B;4-6; zones 8-14). In all these regions some evidence for prefered orientations is apparent. In eastern Scotland the southwestern quadrant is emphasised and may well have a common explanation with the orientation of the Recumbent Stone Circles and Clava Cairns of the same region. In contrast the regions further south place more emphasis on south/southeast.

While this second approach looks promising it is still open to the problem of data-sets containing relatively diverse monuments. If these are sub-divided into groups according to stone circle class, each group usually contains too few examples for viable analysis (see 4:21,fig.19). However, in one case such a procedure throws further light on one of the patterns identified above. The significant peak of sites orientated to the southwestern quadrant in eastern Scotland primarily consists of small graded rings (sub-group of Small Circles-class K). While these are thus likely candidates for having astronomical orientations, a detailed study would be problematic. Their grading does not define such clear-cut orientations as a recumbent and flankers, and damage at many sites adds further uncertainty over azimuths.

In contrast to this coherent set of monuments, the orientation preferences displayed in other regions further south largely disappear when specific sub-sets are examined. Only 'directional stones' in the Western Irregular Circles and related Hybrids (classes C,D) of Wales and South West England show a preference for the southeast quadrant. However, there are only 7 such circles.

It must be stressed that lack of a common orientation preference for each sub-set does not negate the possibility of astronomical indication if a variety of astronomical targets was involved. The 'directional stones' (in classes C,D and L,N), may well be the most promising candidate for new research as they are a relatively large data-set (61 cases) and these single or paired orthostats define relatively unambiguous azimuths.

3:4 Alternative Hypotheses.

While astronomical explanations may eventually be found for some types of indicated orientations, a variety of alternative interpretations can be proposed. Ideally these need to be set against each other to see which explains the data most successfully.

In many cases hypotheses will be untestable; as in the cases of orientations to a variety of 'sacred places' which leave little archaeological trace, or those which may denote the direction from which the 'ancestors' came and other such ephemeral possibilities. However, several other hypotheses could be analysed.

It could be that several types of indicator were to be viewed as leading into the circle rather than marking a direction from it. This may well be the case with Dartmoor Stone Rows which normally lead up to the circles (see 8:6-8:12). Avenues such as those at Stonehenge and Avebury appear to define processional routes and their sinuous nature demands explanations other than an astronomical one, as they do not define one azimuth unambiguously (except in the case of the first phase of the Stonehenge avenue).

Another case appertaining to the idea of architectural features designed to be viewed from outside the circle can be proposed for the graded rings of southwestern England. The grading here is subtle, in contrast with that in eastern Scotland, and may be designed to make the circle appear more impressive when approached from the direction of the tallest stones (see 4:19). Such ideas are difficult to test because it is frequently impossible to determine from which specific direction (if any) the circle is most likely to have been approached. However, on Bodmin Moor where preservation of prehistoric sites in general is good, graded rings commonly have their tall stones facing the nearest settlements (Barnatt 1982).

While 'portal entrances', such as those found at western circle-henges, may well be orientated towards the most convenient direction of approach, this is not so obviously the case for 'directional stones'. While the latter may have an astronomical explanation, a variety of interpretations based on topography could be explored. It may be that they relate to directions from which the circle would be difficult to find without a tall stone to point the way (as may outliers such as Long Meg). Another possibility is that they denote specific landscape features given special significance by the builders. There is a small, but growing, body of data hinting that monuments were sited to have specific views of prominent/distinctive hills (Lewis 1883, Harding 1981, Barnatt 1982, Ruggles and Moir 1985).

In the Peak District there is a distinct trend to place the stone circles and ringcairns in the western as opposed to eastern half of the compass, in relation to adjacent agricultural zones (see 8:3-8:5). This is unlikely to have any direct astronomical explanation.

Communities may well have located their monuments with great care, with more subtle factors being considered than simply ease of access and avoidance (or otherwise) of arable land. Factors may have included topographic characteristics, visibility to and from the site, astronomical orientations, specific landscape features and pre-existing monuments; research into such possibilities may in the long term give insights into the motives of the builders.

Chapter Four

Regional Variation in Design of Stone Circles; an Analysis of Morphological Diversity.

4:1 Introduction.

Aims.

It was noted in chapter 1 that there is a need to develop a taxonomy for stone circles because of their great diversity in scale and design. Without subdividing the class, any analysis of stone circle distribution and/or social significance would be rendered meaningless because of the probability of widely varied dates and diversity in architectural tradition.

This chapter, and the next, formulate and describe a taxonomy of stone circles which identifies 14 classes of stone circles that were determined after multivariate analyses. The majority form discrete entities when both their design and distribution are considered (2 exceptions-see 4:24). Generally it is only in the case of very poorly preserved sites that uncertainty over classification exists.

Procedures.

While some stone circle types, such as Recumbent Stone Circles or rectangular Four Posters, stand out immediately as distinçt classes of monument, this is not true for the majority of sites. In order to analyse sites such as plain freestanding rings, a multivariate approach is necessary.

While computerized multivariate analyses and presentation in the form of dendrograms look impressive and are often assumed to be an objective approach, these are only as good as the relevance of the weighted biases that are introduced and hence the judgement of the researcher. Because visually presented pattern (ie. dendrograms etc) is often seductive (and sometimes misleading) this can promote a lack of actual thought as to whether the original choice of variables (and weighting placed on them) create self-fulfilling hypotheses. A second factor relevant in the case of stone circles is their variable state of preservation, making application of strict criteria difficult and of varied reliability.

The approach adopted here was not to abandon a mathematical approach, but to break the process down into stages. These examined each set of variables in turn and by a process of trial and error determined which sets were of most significance in formulating a meaningful taxonomy, giving sub-sets which were relative discrete entities in terms of distribution and architectural similarity, while at the same time minimizing the degree of overlap/number of borderline cases between sub-sets. Much of this work was done manually using simple dissimilarity matrices rather than computerized analyses. While this had the disadvantage of being time consuming, it presented much greater opportunity for thought about the applicability of varied biases, and increased the likelihood of identifying flaws in particular approaches which separated sites for which strong arguments exist to indicate compatibility.

When examining all the architectural and distributional variables it was finally decided to analyse them on two levels. Three variables were given primary importance - the site's diameter, its original number of stones, and its regional location. The primary analysis based on these will be discussed in sections 4:2-4:13 and 4:24. A series of secondary architectural variables are reviewed in sections 4:14-4:23,4:24.

Artefacts and burials found within stone circles were not included in the analyses. This was partly because these have rarely been adequately recorded by modern excavation. Changes in excavation technique and methodology make comparisons of early accounts with recent excavation reports problematical. However, the prime difficulty is that the majority of known deposits are of questionable chronological relationship to the monuments; many may well have been introduced after some time had elapsed and could represent divergent uses of the site, unrelated to the motives which instigated its construction.

These arguments may also apply to additional architectural features such as centre stones or internal cairns. These accordingly are given less weight than variables appertaining to the ring of orthostats itself (see 4:22,4:23,6:1-6:6).

Results.

The multivariate analyses divide stone circles into 14 distinct classes (A-N). The only significant problem lies with the majority of small sites which are not so susceptible to analysis. These are grouped into three broad classes (K,L,N) which, while having a general validity, have a degree of overlap. Further subdivisions of these small circles into groups cannot be made with the same degree of confidence (although some may be of significance). Such categories are presented as sub-classes (a proc edure also adopted within clases C-E). These distinguish between minor differences in design and/or scale, and indicate whether internal platforms or outer banks are present or absent.

The majority of classes are named for convenience from distinctive architectural characteristics or regional distributions. In the latter case, any future discovery of sites of comparable design in different regions should not negate their inclusion in the appropriate class. Each class is primarily determined on architectural grounds rather than distribution.

When all major variables in the mutivariate analysis are considered (table 2), it can be seen that each class has a 'signature', which in most cases distinguishes it from all other groups. Only between classes C/D/E and K/L/N are there any significant overlaps (see 4:27). Details of all class traits will be given in chapter 5.

Table 2: Variation between stone circle classes.

Key

1; Diameter;		Large	over 40m	A
			30-40m	B
			20-30m	C
			10-20m	D
		Small	0-10m	E
2; Average spacing;	Wide	group mean	c11,0-13,0m	A
		group mean	c7,5-8,5m	B
		group mean	c5,5-6,5m	C
		group mean	c3,0-4,0m	D
	Narrow	group mean	c1,0-2,0m	E

3: Spacing range;	Restricted	group range	0-20%	A
	Typical	group range	0-40%	B
	Variable	group range	20-70%	C
4: Circularity;	Good	group mean	under 4%	A
	Typical	group mean	7-12%	B
	Poor	group mean	over 15%	C
5: Stone Height	Tall	group range	1.0-6.0m	A
		group range	1.0-2.0m	B
		group range	0.8-1.5m	C
	Low	group range	0.0-1.0m	D
6: Circle Design:		Graded or equal height		A
		Ungraded with portal stones		B
		Ungraded		C

Note: entries in parenthesis represent only a minor component of the group

	1	2	3	4	5	6
A Northern Open Circles	A	A	B?	C	C/D	C
B Caithness Horseshoe Settings	A	D	B?	C	C?	B
C Western Irregular Circles and Western Circle-Henges	(A)B/C(D)	(D)E	C	B	(C)D	B/C
D Hybrid Circles:						
1) Portal-Stone Rings and SW Wales Hybrids	C	D	B	A?	(C)D	(A)B
2) Dartmoor Row-Complex circles and SW Scottish Centre-Stone Sites	C/D	(D)E	C	B?	D	A
3) Circle-Henges	A/B/C	A/B/C/D	B	B	A	B/C
E Symmetrical Circles:						
1) Southwestern Freestanding Circles	(A)/B	D	A	A	C	A
2) Wessex Circles and Circle-Henges	(A)/B/C/D	A/B/C/D	B	A	A	A/B
F Wessex Variant Circles	A/B	A	A?	B	A	C
G Hebridean Open Circles	A/B	C	B?	B	B	C
H Recumbent Stone Circles	C/D	C	A/B	A	B	A(B/C)
I Clava Cairns and Ringcairns	B/C(D)	B	A/B	A	B	A
J Kincardineshire Ringcairns	D	D	A/B?	?	D	(A?)
K Small Freestanding Circles; North and Scottish Platform Circles: 1) East	D/E	D	B	B	B/D	A/B(C)
2) West	(C)D/E	D	B	B	A	(A/B)C
L Small Freestanding Circles; South and Embanked Stone Circles (and Southern Scottish Platform circles)	C/D/E	D	B	B	(B)D	(A)B/C
M Dartmoor Stone-Row Circles	D/E	E	B	B	D	C
N Four Posters	E	D	B	(B)	(B)D	A/B(C)

The Primary Variables.

4:2 Diameter.

This factor is of crucial importance, given that diameter may well have direct bearing on the social role of individual monuments; diameter governs the number of people who could be contained within the site. Diameters range from about 3 metres at some Four Posters to over 300 metres at Avebury. Details of their relationship to the other two prime variables will be given below (4:5-4:13). In the case of non-circular rings a mean diameter is used in all analyses.

The analyses demonstrate that sites with similar diameters generally have other architectural traits in common and hence form coherent monument classes (see 4:24-4:27,5:1-5:45).

4:3 Original Number of Stones.

This architectural factor, on investigation, proved to be of particular significance as it distinguishes several stone circle classes which have coherent regional distributions and which stand out as having significantly greater or fewer stones than the norm (in relation to diameter). Notable is the trend in the west for closely spaced stones (Western Irregular and Dartmoor Stone-Row Circles-classes C,M) and that in the northeast for fewer stones (Northern Open Circles, Recumbent Stone Circles, Clava Cairns-classes A,H,I).

The majority of stone circles are damaged and exact assessment of the original number of stones is problematic. In order to minimize unwarranted assumptions, the approach adopted was to measure the extremes of extant original spacing, determined from every stone interval where no stone is likely to be missing. These are usually obvious (except in sites of poor preservation) because they are relatively constant, while other gaps are normally at least twice the width (where this is not the case estimates are given less weight). The two extremes of 'original spacing interval' were then applied to determine a maximum and minimum number of stones likely for each portion of the ring where gaps were significantly wider than those used initially.

While this approach cannot be fully objective it seems to be the best available and as a general rule appears to be sufficiently generous to ensure that the original total falls within the parameters given (Appendix 1; column C4). Experiments with particularly well preserved sites, where randomly chosen stones (in varying numbers) were deleted from plans and then estimates of original numbers made, confirmed the efficacy of the method. The only major assumption is that orthostats were roughly equally spaced round the full circumference of the ring, rather than having designed discrepancies which functioned as wide entrances and which would throw estimates out by a stone or two. The majority of well preserved sites have stones which are regularly spaced. In addition it could be argued that designed omission of stones is irrelevant to the analyses as there must have been conscious decisions made to omit stones, implying that the spacing was initially conceived in terms of 'equal' spacing and thus estimates using the methods employed still have a direct bearing on the design. With poorly preserved sites the data become less reliable as increasingly subjective judgements have to be made as to which gaps are original. Such data are given less weight and placed in parenthesis in all tables.

Note: For the sake of simplicity of presentation in sections 4:5-4:13, a mean number of original stones is illustrated in all figures. However, earlier plots using the full potential ranges of diameter and number of stones, illustrate that this makes no difference to the results presented here.

4:4 Regional Variation.

Distribution Zones.

Regional distribution of sites is clearly a significant factor in stone circle classification as their design frequently alters radically from area to area. While some regionally based variations in circle design were obvious from the outset, care was taken not to pre-judge the results by biasing regional units accordingly. Regional distribution zones that vary from those used here in that they incorporate the conclusions of the multivariate analyses will be presented later (7:2).

The units evolved for the initial analysis were determined on purely topographic grounds; this seemed preferable to using a county based system, the boundaries of which are sometimes topographically arbitary and frequently create subdivisions which are too small to incorporate enough sites for analysis.

15 zones were defined (fig.1), which were topographically as discrete as possible, while also designed not to bisect known high concentrations of sites (all stone circles, irrespective of their design). A further 5 zones were also established (see Appendices 4,5) which are only of relevance when examining the distribution of henges and timber circles, as these sites have a range extending into areas of central and eastern England where stone circles are absent.

The Analysis.

In presenting the analysis of the three prime variables the approach adopted is to consider diameter and number of stones for each region in turn, as this most sucessfully demonstrates the significant patterning (4:5-4:13). Inter-regional syntheses are presented when all other variables have been considered (4:24-4:27, 5:1-5:45,7:2-7:3,9:1).

Three points need brief a note here. Although it is premature, the final classifications devised after full analysis (5:1-5:45) are used to refer to specific site types when describing regional and/or site variation; this facilitates cross-referencing and unnecessary repetition of data. In some cases the types of sites found within adjoining regions were so similar that these are treated together in sections 4:4-4:13. With the illustrations used to display regional variation, it proved impossible to denote the identity of each site without making these figures so cluttered as to be unreadable. Specific identifications can be checked by refering either to the tables in chapter 5 or to appendix 1. Another limitation of these figures is they do not illustrate sites of over 60m diameter and/or with over 40 orthostats. Such sites are always distinct from other classes (see fig.21) and the illustrations focus on the majority of stone circles to highlight differences here.

Diversity within Regions.

4:5 Orkney and Shetland (zone 1) and North East Scotland (zone 2) - Fig.4.

These two zones are dealt with together for convenience, as only small numbers of sites are found in both cases.

The only two sites in zone 1 are the circle-henges (Hybrid Circles-class D;CH3) of Stenness (2 - see note 1) and Brodgar (1). While their diameter difference is great, they share architectural traits not found in zone 2. Only Stenness has prime characteristics similar to sites in the latter area.

On the mainland, the majority of circles fall into three clear-cut groups. Two of these are large; Northern Open Circles (class A: 2 examples - see note 2) have massive diameters but few orthostats, while Caithness Horseshoes (class B: 2 examples) have a large number of orthostats arranged in distinctive horseshoe-shaped settings. In contrast, the third group of 7 sites (Small Circles-class K) all have diameters of under 10 metres.

Only two sites, Achany (5) and Learable Hill South (14), are problematical (sub-class K;F17) (see note 3).

<u>Notes</u>

1; site catalogue number; presented henceforward in this fashion in 4;5-4;13.

2; Here and henceforward; these totals refer to the number of sites identified in chapter 5 as belonging to the group, rather than those that are well enough preserved to be represented on figures 2-12.

3; While the larger of these, Auchany, has prime characteristics similar to Stenness, there are strong architectural disimilarities. Both the F17 sites fall within the upper end of the overall range of Small Circles (class K) but there are again some disimilarities to comparable examples in other northern regions (see 5;34); hence they are considered here to be a separate sub-class. However, this is of debatable utility; The height of the stones at Auchany is difficult to assess due to thick peat. It may be that it is a unique diminutive example of a Northern Open Circle (class A) and could be considered as a sub-class of this group of sites. Learable Hill South could be considered as an atypically large example of the 'normal' Small Circles (class K) of the region.

4:6 The Outer Hebrides (zone 3) and Western Scotland (zone 4) - fig.5.

These two regions are considered together as there are no significant differences between the types of site found, and all such classes occur in both zones.

Three particularly clear-cut types of site are found. The first of these, the Western Irregular Circles (class C: 5 examples) are characterized by relatively large diameters and a large number of orthostats. Hebridean Open Circles (class G: 6 examples), have few stones, in rings with diameters of over 30 metres.

The majority of sites are much smaller and fall into the third category (Small Circles and Four Posters-classes K,N). The distinctions drawn here (and henceforward 5:7-5:13) between typical Small Circles (classes K,L) and Four Posters (class N) are made on the basis frequent atypical layouts of the latter; both are indistinguishable in terms of their primary traits (see 5.43).

While the majority of Small Circles (27 examples) form a class unified by having other architectural traits in common, 3 sites are problematical (sub-class K;SP5) (see note 1).

Note 1; These have primary traits similar to other class K rings except for having more orthostats, They have other distinctive architectural traits and are treated here as a separate sub-class (see 5;34),

4:7 Moray Firth (zone 5) and Grampian (zone 6) - fig.6.

These two regions are considered together as they are again essentially similar to each other.

All 5-7 types of stone circle are clearly differentiated, either by their prime characteristics or distinctive architecture. Edinkillie (79), the one possible example of a Northern Open Circle (class A), has a diameter far in excess of any other site. Another probable large site at Quarry Wood (92) may be a circle-henge (Hybrid Circle-class D;CH3) but the possible stone circle here is so ruined that its authenticity is uncertain.

The most distinctive sites are the Clava Cairns (class I: 32 examples) and Recumbent Stone Circles (class H: 85 examples). Each class has unique internal features/other architectural traits (see 5:24,5:27). Figure 6 illustrates that both classes have stone circles that are comparable with each other (except for the presence of the 'recumbent' in class H sites). These are the only two classes in Britain that do not display a general increase in the number of stones as diameters become larger. The three examples of Kincardineshire Ringcairns (class J) (and three atypical

Recumbent Stone Circles) fall outside the normal range of Recumbent Stone Circles and Clava Cairns in that they have more stones. In other respects they are similarly designed.

Smaller stone circles in the region, that do not display the distinctive architectural traits of classes H-J, form a well defined group with small diameters and few orthostats (Small Circles-class K: 14 examples, Four Posters-class N: 10 examples).

4:8 Tayside (zone 7) - fig.7.

This region is unusual in that, with 1-2 exceptions, all the stone circles form a single group with small diameters and few orthostats. (Small Circles-class K: 32 examples, Four Posters-class N: 19 examples).

The ring within the circle-henge at Balfarg (206) stands out because of its large diameter (Hybrid Circle-class D;CH3). Coilleacher (217) may have been a Recumbent Stone Circle (class H) but is so badly ruined that its authenticity (as a stone circle) is questionable.

4:9 Southern Scotland (zone 8) - fig.8.

The sites of this region are somewhat problematic due to the diversity of smaller monuments.

The Northern Open Circles (class A: 2-4 examples) stand out because of their large diameters.

The majority of the other sites fall into 2 groups also found in surrounding regions. Small sites with relatively few orthostats are common (Small Circles-class L: 11 examples, Four Posters-class N: 6 examples). The second group consists of larger sites with many orthostats (Western Irregular Circles-class C: 4 examples).

Between these two classes are 10 sites, 9 of which are problematic (see note 1). One site in south-eastern Scotland, Cairnpapple (8) is distinctive because it lies within a henge (Hybrid Circle-class D;CH3).

Note 1: Six sites in southwestern Scotland (Small Circles-class L;F24) have relatively large diameters but have fewer stones than Western Irregular Circles. These have no distinctive architectural traits and fall within the overall variability range of Small Circles (class L). However, within this region they appear to form a relatively coherent sub-group which stands out from the smaller class L rings of the area. Two other sites are particularly problematical, Torhousekie (286), has primary traits comparable with the sub-group just described, while Glenquickan (267) falls close to the lower end of the Western Irregular Circle range. However, both have atypical central features and other architectural traits which link them with Hybrid Circles (class D) normally found further south. Hence they are tentatively included here (D;F5). A rather dubious stone circle, Loch Roan (277), is also provisionally added to the group.

4:10 Cumbria (zone 9) - fig.9.

This region has a clear-cut division between small and large sites. The latter are distinctive in that diameters remain constant while numbers of orthostats vary from between about 20 to 100 (Western Irregular Circles-class C: 15 examples). The only exception to this is Long Meg and her Daughters (312) which has an atypically large diameter but otherwise has all the architectural traits of the group.

The majority of smaller circles can also be argued to form a single coherent group (Small Circles-class L: 18 examples) (see note 1).

Note 1: Three subdivisions can be made on architectural grounds. Three very small sites with close-spaced orthostats (L;SP6) could be argued to be variant kerb-cairns rather than true stone circles (see 6:10). At the other end of the range are 4 sites (L;F26) which stand out from the majority of the smaller rings because of their tall orthostats and larger diameters, these are tentatively given sub-class status.

4:11 The Cheviots/Pennines (zone 10), The North York Moors (zone 11) and the Peak District (zone 12) - fig.10.

With two exceptions, all the stone circles of these three regions are similar to each other (Small Circles-class L: 46 examples, Four Posters-class N: 4 examples). While the majority have diameters under 20 metres, several sites are somewhat larger. However, unlike other regions, there are no data to suggest that these should be separated into a distinct sub-class.

One site, the Grubstones (L1;ESC2) has significantly more orthostats and is probably a variant form, midway between an embanked stone circle and a kerbed ringcairn (see 5:37,6:10).

The large stone circle within the henge at Arbor Low (348) stands out from all others because of its size and large number of tall stones (Hybrid Circle-class D).

4:12 Wales (zone 13) - fig.11.

The sub-division of sites in Wales is problematic as boundaries between types, on the basis of primary variables, are far from clear-cut. The majority of sites have diameters of between 10 and 30 metres and relatively closely spaced stones (Western Irregular Circles-class C: 34 examples). Some sites, where there are over 40 stones (6 examples), clearly relate to the Western Irregular Circles found in other western regions. However, there are many freestanding sites with fewer stones but similar diameters (22 examples). These have many of the traits of class C, but those with fewer than 20 stones (4 examples, plus 2 western circle-henges - see below) fall outside the range of this class in other regions. Hence freestanding sites in Wales with under 40 stones (cut-off point somewhat arbitrary) are placed in a separate sub-class (C;F4) to allow for the possibility that they are related to the Hybrid Circles of south-west England (class D). This problem is compounded by the frost-fractured stones at many Welsh sites which makes identification of Hybrid Circle characteristics difficult. All the western circle-henges in Wales (6 examples) have under 40 stones; hence these are directly comparable with C;F4 rings in this respect, while their other architectural characteristics place them firmly in class C.

In southwestern Wales there are 1-2 sites whose distinctive architecture places them in class D (Hybrid Circles-D;F6,CH3). In terms of prime variables they are directly comparable with C;F4 rings (see note 1).

The small stone circles of Wales (Small Circles-class L: 10 examples, Four Posters-class N: 2 examples), could be postulated to represent the lower end of a continuum comprising of all the sites of the region. However, several of these have architectural traits found in Small Circles (class L) but not Western Irregular Circles (class C). They also have restricted distributions along the northern coast and in the southeast. This differs with the Western Irregular Circles which are found throughout Wales.

Note 1: One isolated site in the northeast, Penbedw Park (409), stands out, having a large diameter, but only a few tall stones. If this site is not a fake, these traits suggest that it relates to similar monuments in Cumbria (Small Circles-class L;F26). Alternatively, if graded, it could be argued to be a Hybrid Circle (class D) similar to those in South West England.

4:13 South West England (zone 14) and Wessex (zone 15) - fig.12.

At first glance many of the stone circles of these two regions are difficult to classify. However, although the primary variables suggest a continuum (with the exception of Wessex Variants-class F), a multivariate analysis using all variables indicates that significant divisions can be made (see 5:9-5:17). This is particularly true in South West England.

The majority of larger sites fall into two groups. Western Irregular Circles (class C: 16 examples) are characterized by a large number of orthostats in irregularly designed rings. Symmetrical Circles (class E: 36 examples), are very different as they have fewer orthostats in symmetrically designed rings. However, there are 13 sites which can be regarded as Hybrid Circles (class D).

Two of the rings at Stanton Drew (Wessex Variants-class F) stand out because of their large diameters but small numbers of stones.

The smaller rings in these regions are normally distinctive and clearly identified from the larger sites. This is particularly true for Dartmoor where the distinctive small circles have particularly closely spaced orthostats and other unique architectural traits (see 5:40) (Dartmoor Stone-Row Circles-class M: 31 examples). Other small rings, elsewhere in the southwest (Small Circles-class L: 5 examples), are much smaller than classes C-E and have none of their distinctive traits. However, a further 4 sites are problematical. Three of these appear to be diminutive class E rings and have tentatively been classified as such because of their symmetrical characteristics (see note 1).

Note 1: Two of these rings, Altarnun (422) and Wendron SE (494) are found in the southwest. The other two, the inner ring at the Sanctuary (508) and the inner bluestones at Stonehenge (509-class D?) could be argued to be diminutive because they form the inner rings of concentric settings.

Secondary Variables.

4:14 Introduction.

All the architectural variables discussed below (4:15-4:23) were treated as secondary traits in the multivariate analyses and given less weight than those discussed above. This was for a variety of reasons, ranging from inherent problems in analysis to questionable relevance; specific criteria are detailed under each section.

For purposes of presentation of this data, the approach adopted is to illustrate how each factor relates to the classes finally identified, and hence to indicate how closely they correlate. Space does not permit expanded discussion of alternative ways of subdividing the data in terms of specific variables which were finally rejected because they failed to correspond with coherent multivariate groupings.

In all figures in sections 4:15-4:23 less reliable data (due to poor site preservation) are differentiated by open rather than closed squares (following tables 5,6,8-13,16,18,20,21,23-27 and Appendix 1).

4:15 Average Stone Spacing (figs.13,14).

To a certain extent this factor is bound up with two of the prime variables - diameter and original number of stones - since their combination gives the average stone spacing. However, presentation in this form facilitates assessment of the possibility of designed standardized spacing, and allows direct comparisons to be made between monuments of different sizes.

Figures 13 and 14 illustrate, that as a general rule, spacing variability within each class is relatively broad, while at the same time most classes have defined parameters which alter from class to class. Western Irregular, Dartmoor Stone-Row and most Hybrid Circles (classes C,M,D-fig.13;1-3) consistently have relatively closely-spaced stones, which contrast with the wide spacing at Northern Open, Wessex Variants, Hebridean Open, Recumbent Stone Circles and Clava Cairns (classes A,F,G,H,I: fig.14;11-15). All circle types with closely spaced stones are found exclusively in western Britain, while the majority of widely spaced groups occur in the east and north.

The Symmetrical Circles (class E) in southwest England provide a midway stage (fig.13;5). These rings are the only class (with sufficient data) that demonstrates a more restricted range of average stone spacing variability. This suggests more careful planning, as do other facets of their design. The other two symmetrically designed classes (Recumbent Stone Circles and Clava Cairns-classes H,I) have more variable stone-spacing averages because of standardization in the numbers of orthostats. The differences between them reflect the tendency for Clava Circles to have larger diameters than Recumbent Stone Circles because of their more massive internal features (while retaining the same standardized number of stones).

The variation in average stone spacing is particularly broad at small stone circles (Small Circles-classes K,L; Four Posters-class N: fig.13;6-8). However, such sites are less susceptible to analysis because of their size (see 4:24-4:27). Variation in spacing is also great in the Wessex circles and circle-henges in general (sub-classes of E,D: fig.14;17,16). This is harder to interpret because of relatively small data sets. In the case of the Wessex circles at least, a similar explanation to that noted above for Recumbent Stone Circles and Clava Cairns seems appropriate, with diameters varying greatly while a relatively uniform number of stones is retained.

4:16 Stone Spacing Variation (fig.15).

This factor examines the degree of care with which stones were spaced at equal intervals within individual rings. The data presented here have several problems. The original number of stones may bias the results in that sites with few stones, even where relatively casually laid out, may have lower percentage deviations than sites with a large number of stones. The same trend is present at poorly preserved sites (fig.15; open squares) where there is a distinct bias towards apparent low deviation.

The majority of stone circle classes have variable ranges of spacing-deviation which overlap and do not separate the circle classes out. However, there are some exceptions. In Western Britain, the Western Irregular Circles (class C and some class D Hybrids) have consistently irregular stone spacing (fig.15;15,16), which is in accord with other traits in their design. At the other extreme, the Symmetrical Circles (class E) of southern England consistently have a restricted range of relatively carefully spaced stones (fig.15;1,2). This again is in accord with other architectural traits which are consistently symmetrical. The relatively large number of orthostats at these circles strengthens the validity of the case.

Two other classes of monuments with symmetrical traits, the Clava Cairns (class I) and Recumbent Stone Circles (class H), also have a tendency for carefully spaced stones. This is less clear cut, in that exceptions exist and lower numbers of orthostats makes assessment more tentative. However, the case is strengthened by a significant proportion of sites in these two classes (fig 15; stippled squares) that have layouts where it is apparent that care was indeed taken; spacing increases evenly round the ring in accord with the grading. The only other example of this design characteristic is at one Hybrid Circle (class D) which also has symmetrical traits.

4:17 Petrology.

To a large extent the data suggest that the builders of stone circles utilized readily available local stone. Only in the cases of Stonehenge and several Recumbent Stone Circles has it been suggested that stones were moved some distance. This must remain speculative because such stones may well be glacial erratics. The study of movement of stones over more restricted distances would frequently require detailed geological analyses which have never been undertaken. This would be of limited value over much of Britain because glacially derived deposits have been affected by millennia of clearance.

While the availability of durable stone obviously restricted the overall distribution of stone circles, it is less clear how far specific stone types affected their design. In many cases data on the type of stone utilized are not available. Little patterning is observable within that currently available.

As a general rule, sites built with smaller stones, as for example those in the Peak District, could have utilized larger stones if these had been required as they are readily available. However, a case can perhaps be made that some of the sites in lowland Tayside were built of low stones because larger stones were locally rare or unobtainable.

For the most part, stone circles are built of particularly durable stone such as granite or millstone grit. However, in Wales particularly, some circles have been built of more friable stones such as sandstone and weathering has reduced many orthostats to stumps. This factor needs to be considered when assessing the design of specific sites.

4:18 Stone Height (figs.16,17).

This factor is somewhat problematic in specific cases, as discussed above (4:17). In addition to gross distortions resulting from the use of friable stone, the degree to which specific durable stone-types have eroded must vary. However, in general comparative terms, when examining each circle class as a whole, the present state of the monuments must be a true reflection of their relative degree of monumentality.

Figures 16-17 illustrates the average stone heights of circles within each class. As a general rule, each range has relatively restricted parameters. Western Irregular, Hybrid and Dartmoor Stone-Row Circles (classes C,D,M: fig.16;1-4) are notable for their small stones, normally under 1 metre in height. The majority of Small Circles in the south (class L: fig.16;7) also have small stones. This situation is reversed in the north where Small Circles and Four Posters (class K: fig.17;12,13, class N: fig.17;11) frequently have taller stones over 1 metre high, particularly in the west (fig.17;13). The major exception is a group of sites with small stones restricted to lowland Tayside (fig.16;5) where larger stones may not have been widely available.

The Symmetrical Circles (class E) of southwest England (fig.16;9) consistently have relatively tall stones (around 1 metre high) that are higher than those at Western Irregular Circles and related Hybrids (classes C,D) found in the same region. The particularly restricted range of heights displayed by these Symmetrical Circles suggests this trait was carefully considered by the builders. The two other symmetrical classes, the Clava Cairns (class I) and the Recumbent Stone Circles (class H) have stones of greater average height (fig.17;14,15) than Symmetrical Circles (class E: fig.16;9). In addition, while the latter (E) have stones of equal height/subtle grading, the former (I,H) have markedly graded rings.

The circles of Wessex, and circle-henges in general, normally have tall stones (sub-groups of D and E: fig.17;17,18).

4:19 Grading.

The careful selection of orthostats, so that they increase in height from one side of the circle to the other, is only common in specific circle classes and is absent in most others. The most notable examples of grading are found at Clava Cairns (class I) and Recumbent Stone Circles (class H), where the stones vary from about 1 metre at one side of the ring to 2-3 metres at the other. This is a normal characteristic of both classes and only absent at a few sites around the fringes of each class distribution. However, in several cases the grading is not precise, odd stones spoiling the exact symmetry of the pattern.

The Symmetrical Circles (class E) and some of the related Hybrid Circles (class D;F7,8) of southern England, are the only other group of large-diameter graded circles (two such Hybrid Circles are also found in southwest Scotland - class D;F5). All these rings differ from those in eastern Scotland; the grading is subtle and often barely discernable on casual inspection, and only about half of rings are graded while others have carefully selected stones of equal height.

The grading of the southern rings may well have been designed for a different purpose than that in the north. The latter always emphasize the southern portion of the ring and are likely to highlight astronomical events (see 3:2,4;21). The grading orientation of the southern rings is not consistent. It may be that such circles were designed to appear larger and more impressive when approached from a specific direction (where the stones are tallest) (see 3:4). This is caused by a subtle but quantifiable decrease in height at the far side of the ring which makes them appear further away than they actually are. An optical illusion of similar sophistication exists at one atypical Symmetrical Circle (class E) - the Stonehenge sarsen ring - where uprights are tapered so to appear vertical from within the ring.

Grading is found at several small stone circles but this is only common in the Small Circles and Four Posters of eastern Scotland (sub-groups of class K and N). It is likely that their architecture influenced, or was influenced by, the Clava Cairns and Recumbent Stone Circles of the same region. The grading of these small rings is again only crude and in the Four Posters (class N) it is frequently impossible to determine if the single/paired tall orthostats are true grading, or 'directional stones' common in Western Irregular Circles (class C).

The only other examples of grading outside eastern Scotland are at one site on Arran and two in the Peak District. In the latter case at least, the variation in height is likely to be fortuitous.

4:20 Circularity (fig.18).

A limitation with the investigation of this design factor is that it can only be studied at well preserved sites. The interpretive criteria for distinguishing significant differences in degree of circularity have already been discussed (2:5) and only the relationship to the circle classes will be reviewed here.

The most clearly defined case for differentiating carefully built circles (ie under 4% deviation) is provided by the Symmetrical Circles (class E: fig 18;1). These are also carefully designed in all other aspects of their design. The other two symmetrical classes of site, the Recumbent Stone Circles (H: fig.18;2) and Clava Cairns (I: fig.18;3) may well be carefully planned as they both have group means of under 4% deviation. However, the case for this is more tentative because of smaller data-sets (particularly class I) (but also see 4:16).

A few of the Hybrid Circles (class D), which are related to the Symmetrical Circles, may also be planned sites (fig.18;4). A classic example is the Ring of Brodgar which is exceptionally circular considering its size. However, the data for this group as a whole is equivocal and it seems likely methods of layout varied from site to site.

All other circle classes have a wide variety of degree of circle deviation which is consistent with what can be predicted for 'layout by eye' (see 2:2,2:5). Although most classes have a small proportion of rings with less than 4% deviation in circularity, these are likely to be the fortuitous result of 'layout by eye', given the compatibility between histograms for these and the experimental data discussed in chapter 2. An examination of the distribution of these rings supports this hypothesis as they have no coherent geographical patterning, in strong contrast with classes E,H and I.

4:21 Indicated Orientations (fig.19).

The problem with investigating this design factor is that only a relatively small proportion of sites display clearly indicated orientations. The two notable exceptions to this are the Recumbent Stone Circles (class H: fig 19;1) and the Clava Cairns (class I: fig.19;2) which show a unambiguous preference for SSE through to SW. These orientations are unequivocally marked; in the case of class H by the recumbent, flankers and grading, and in the Clava Cairns by the orientation of the internal passage graves and/or the grading.

In all other classes of circle the interpretation of the data is difficult. While grading can be unambiguously identified in several classes, its character and interpretation may vary (see

4:19). The Small Circles in eastern Scotland (sub-groups of classes K and N) have a tendancy for grading to be orientated to the south/south-west (fig.19;3). This is suggestive of direct influence from, or to, the Recumbent Stone Circles/Clava Cairns in the same general region. However, some of the Small Circles are orientated differently.

Grading at the Symmetrical Circles and related Hybrids (classes E,D) of southwest England (fig.19;4) and a small number of variously designed rings elsewhere (fig.19;5), display no clear cut orientation preferences. While it could be suggested that some of the graded circles in the north point to a variety of astronomical targets, those in the south may well have other explanations (see 3:4,4:19). An examination of grading at Cornish circles produced no evidence for any astronomical link (cf Barnatt 1982).

Another type of orientation indicator is the tall orthostats, found singly or in pairs, in rings of lower stones - termed here 'directional stones'. Such stones are found at a number of Western Irregular Circles and related Hybrids (classes C,D) and at Smaller Circles and Four Posters (classes L,N). When the orientations of these are examined as a whole no clear pattern emerges. The only repeated azimuths occur amongst the large circles (classes C,D) of Wales and southwest England, where most examples are orientated to the southeast (while the exceptions are in the opposite direction) (fig 19;6). Unfortunately this data-set is so small that the pattern is of debateable significance. 'Directional stones' found at Small Circles from southern Scotland southwards (class L), have more varied orientations but it may be significant that the two northerly quadrants are avoided (fig.19;7). Most 'directional stone' orientations at larger circles in the north and at Four Posters in general are randomly distributed (fig.19;9), as are the 'portal entrances' at western circle-henges (sub-groups of class C) (fig.19;8). The latter are characterized by pairs of orthostats set outside the ring rather than on its circumference and more obviously mark entrances.

The third type of orientation indicator, the outlier, rarely displays any directional preference. There is a tendency for Welsh outliers to concentrate around west (fig.19;10), while outliers at Recumbent Stone Circles concentrate at southeast (fig.19;11). Both data-sets are so small that these apparent patterns may well be coincidental.

4:22 Platforms and Ringcairns.

A large number of stone circles have their stones set within enclosing banks and/or have internal ringcairns or platforms. In some cases they have been used by previous researchers as a basis for taxonomic division of stone circles, identifying specific types such as Clava Cairns or Embanked Stone Circles. While in some cases the present analysis supports such categorization, in others it does not.

The approach taken here was to exclude all such features from primary analysis. This was largely because of the possibility that any structure additional to the circle itself may have been added to the site, and hence sub-division on the basis of these features may make artificial distinctions between such sites and other examples of identical design where no later modifications took place. Two notable exceptions to these possibilities eventually emerged - the Clava Cairns (class I) and Recumbent Stone Circles (class H) - where the internal passage graves and/or distinctive ringcairns are found at all well preserved sites. In contrast, at other classes of stone circle where external ringcairns or internal platforms are occasionally found, the stone circles cannot be distinguished from freestanding examples.

The only large circles with external banks are the western circle-henges (sub-group of class C) which have close affinity to freestanding counterparts. Superficially these enclosed sites have similarities with smaller embanked stone circles. However, their contrasting distributions argue that they are not directly related. The former are widely scattered along the western seaboard, while the latter concentrate in the Peak District (with smaller numbers from southern Scotland southwards). The western circle-henges normally have closely spaced stones while the embanked stone circles are indistinguishable from small freestanding rings (Small Circles-class L).

Another phenomenon found almost exclusively at Small Circles (classes K,L), but with a predominantly northern distribution, is internal platforms (or large cairns) of various designs; termed here Scottish platform circles. These again are indistinguishable from their freestanding counterparts and recent excavations, as at Balbirnie and Temple Wood, have shown the platforms to be secondary features. At others, such as Moncrieffe and Croft Moraig, the apparently simple platforms have turned out to mask more complex multiphased structures (see 5:34,5:37,Appendix 1).

4:23 Other Features.

A wide variety of other features such as centre-stones, concentric rings and avenues are found at stone circles. In the majority of cases these are so rare and diversly distributed that they cannot be used as primary aids to identifying circle classes (each described 6:1-6:6).

There are two notable exceptions. On Dartmoor a group of small circles with distinctively designed rings (Dartmoor Stone-Row Circles-class M), also stand out because the rings are normally abutted by stone rows.

The other class of monument with some degree of discrete identity is the circle-henge. Recent excavations at these sites suggest that the stone circles are sometimes added as secondary features (see 6:8). Hence circle-henges were not separated from freestanding circles for the purpose of analysis. However, the majority of circle-henges were found to belong to the related Symmetrical and Hybrid Circle classes (D,E). Hence they can be regarded as a valid sub-class.

Discussion and Conclusions.

4:24 The Results; a Taxonomy Defined (fig. 20).

The criteria for division of stone circles into 14 classes (A-N) has been summarized in 4:1; table 2. This identifies each class 'signature' on the basis of its architectural characteristics. It was noted in 4:1 that only specific classes (C/D/E and K/L/N) had any significant degree of overlap with other groups, this is not the case with the majority of classes.

Although the stone circle classes defined here are likely to be a true reflection of significant 'variability boundaries', it should not be forgotten that they are, by definition, variations on the same architectural theme and that important cross-influences are present. Figure 20 summarizes the main interrelationships between all classes and sub-classes detailed in chapter 5. It also highlights which groups have distinctive architectural features such as platforms, banks, and recumbents (see 4:25-4:26) and identifies significant overlaps (see 4:27).

Table 3 illustrates that the majority of classes also have discrete distributions. Only the Small Circles and Four Posters (classes K,L,N) are found in significant numbers throughout much of Britain. Hybrid Circles (class D) are largely confined to the south and only a few circle-henges are found in other regions, where they occur as isolated sites which stand out from other local circles. The Western Irregular Circles (class C) are found along much of the western seaboard but not elsewhere (1 exception).

One important factor in assessing the design of stone circles is quantifying the degree of care with which they were built (table 4). Analysis illustrates that symmetrically-built sites, where great care was taken with precise layout and stone shape/size, are confined to specific large classes (fig.20; Circular Sites).

Table 3: The distribution of stone circle classes in relation to the topographical zones used in appendix 1.

Key

A Northern Open Circles	B Caithness Horseshoe Settings
C Western Irregular Circles/Western Circle-Henges	D Hybrid Circles/Circle Henges
E Symmetrical Circles/Circle Henges	F Wessex Variant Circles
G Hebridean Open Circles	H Recumbent Stone Circles
I Clava Cairns and Ringcairns	J Kincardineshire Ringcairns
K Small Freestanding Circles/Scottish Platform Circles	L Small Freestanding Circles/Embanked Stone Circles
M Dartmoor Stone Row Circles	N Four Posters

	Circle Class Large					Moderate								Small		
1 Orkney/Shetland	-	-	-	(D)	-	-	-	-	-	-	-	-	-	-	-	-
2 North East Scotland	A	B	-	-	-	-	-	-	-	-	-	-	K	K	-	-
3 Outer Hebrides	-	-	C	-	-	-	-	-	G	-	-	-	(K)	K	-	-
4 Western Scotland	-	-	C	-	-	-	-	-	G	-	-	-	(K)	K	-	N
5 Moray Firth	A?	-	-	(D?)	-	-	-	-	-	H?	I	-	-	K	-	N
6 Grampian	-	-	-	-	-	-	-	-	-	H	-	J	-	K	-	N
7 Tayside	-	-	-	(D)	-	-	-	-	-	H?	-	-	(K)	K	-	N
8 Southern Scotland	A	-	C	(D)	-	(D)	-	-	-	-	-	-	L	L	-	N
9 Cumbria	-	-	C	-	-	-	-	-	-	-	-	-	L	L	-	-
10 Pennines	A?	-	-	-	-	-	-	-	-	-	-	-	L	L	-	N
11 North York Moors	-	-	-	-	-	-	-	-	-	-	-	-	L	L	-	-
12 Peak District	-	-	-	(D)	-	-	-	-	-	-	-	-	L	L	-	N
13 Wales	-	-	C	(D)	-	D	-	-	-	-	-	-	-	L	-	N
14 South West England	-	-	C	D	E	D	E	-	-	-	-	-	-	L	M	-
15 Wessex	-	-	C	D	E	D	E	F	-	-	-	-	-	L	-	-

Table 4: An assessment of regularity of design in different stone circle classes.

Key

			Score
1; Circularity	group mean - under 4%		+1
	4-5%		0
	over 5%		-1
2; Spacing Range	restricted group range	0-20%	+1
	typical group range	0-40%	0
	variable group range	20-70%	-1
3; Circle design	graded or equal height		+1
	ungraded or with portal stones		-1
	approximately equal mixture of both types		0
4; total score			

Note; This table ignores minor variants within each group.

	1	2	3	4
E1 Southwestern Symmetrical Circles	+1	+1	+1	+3
H Recumbent Stone Circles	+1	+1	+1	+3
I Clava Cairns and Ringcairns	0	+1?	+1	+2
E2 Wessex Circles and Circle-Henges	+1	0	0	+1
J Kincardineshire Ringcairns	?	?	+1?	(+1?)
D1 Portal-Stone Rings and the SW Wales Hybrids	+1?	0	-1	0
D2 Dartmoor Row-Complex Circles and SW Scottish Centre Stone Sites	-1?	-1	+1	-1
F Wessex Variant Circles	-1	+1?	-1	-1
K1 Small Freestanding Circles and Scottish Platform Circles - East	-1	0	0	-1
N Four Posters	-1	0	0	-1
K2 Small Freestanding Circles and Scottish Platform Circles - West	-1	0	-1	-2
L Small Freestanding Circles and Embanked Stone Circles	-1	0	-1	-2
D3 Circle-Henges	-1	0	-1	-2
G Hebridean Open Circles	-1	0	-1	-2
M Dartmoor Stone-Row Circles	-1	0	-1	-2
A Northern Open Circles	-1	0?	-1	-2
B Caithness Horseshoe Settings	-1	0?	-1	-2
C Western Irregular Circles	-1	-1	-1	-3

4:25 Stone Circle Classes with Additional Design Characteristics.

Of the 14 identified classes, six are given clearer definition because of distinctive architectural features in addition to differences displayed in the design of their orthostats. The other eight classes are differentiated purely on the basis of variability in the stone circle itself (see 4:26).

Three of the former class types are architecturally related and have adjacent distributions in eastern Scotland. All are of moderate diameter and are normally impressive monuments with tall stones and internal features. The Clava Cairns (class I), found arround the Moray Firth, have tall graded rings, surrounding passage graves or atypical ringcairns. The Recumbent Stone Circles of the Grampian region (class H), have similar circles but generally surround low platform-like ringcairns. Each also has a large recumbent stone, set in the ring between the tallest of the circle stones. Both these circle types were built with care to have circular layouts and graded stones emphasising the south/southwest. They were clearly built following standardized design concepts. The three Kincardineshire Ringcairns (class J) are similar to Recumbent Stone Circles except that they lack recumbents.

In northeast Scotland a uniquely designed class is represented by only 2 sites (Caithness Horseshoes-class B). These consist of large horseshoe-shaped settings of radially placed stones, with open ends orientated to the southwest.

Two classes of small stone circle also possess unique characteristics. On Dartmoor, small circles have atypically closely-spaced orthostats and are built as integral parts of composite monuments, the other major component being a stone row which abuts the circle (Dartmoor Stone-Row Circles-class M). The other distinctive group is the Four Posters (class N). The categorization of some sites within this class is problematical. Some examples (N;FP1) clearly define a distinctive monument form as their four slabs unambiguously define a rectangle as opposed to a circle. However, others have a circular plan (N;FP2) and could alternatively be interpreted as diminutive examples of other small circle classes (K or L).

Other distinctive architectural features such as enclosing ringcairns, internal platforms and external henges do not in themselves serve to identify classes of monument (see 4:22-4:23, 6:1-6:6). However, such architectural additions are frequently confined to specific classes. Circle-henges are normally confined to the Symmetrical Circles (class E) and the closely related Hybrids (class D); with the exception of 1-2 diminutive hengiform examples which have been tentatively classified as Small Circles (class K). Large enclosing ringbanks are confined to western circle-henges, a sub-group of Western Irregular Circles (class C). Smaller embanked sites are found exclusively at Small Circles (class L).

4:26 Simple Stone Circles.

Eight classes of freestanding stone circle are differentiated purely on the basis of multivariate analyses of the differences in scale and layout of their rings of orthostats.

The Northern Open Circles (class A) stand out because of their large diameters with only a few large orthostats in the ring.

The Western Irregular Circles (class C) and Symmetrical Circles (class E) are both relatively large. The former have large numbers of closely spaced orthostats in irregular rings, while the latter have fewer stones and are generally carefully designed to be symmetrical. While these two classes contrast strongly with each other, smaller numbers of sites combine characteristics from both; they are separated here and termed Hybrid Circles (class D).

Two other classes of larger monuments also exist, each with only small numbers of sites. The two Wessex Variant Circles (class F) have very few stones for their size. Although the multivariate analysis indicated that these rings should be given a class of their own, it can be argued they are variant forms of Hybrid Circle (class D-see 5:18). The Hebridean Open Circles (class G) also have relatively few orthostats, which distinguishes them from all other classes. They could be regarded as diminutive sites within the class A tradition which have a discrete complementary distribution in western as opposed to eastern and southern Scotland.

As already noted, the majority of small circles are harder to categorize. These are divided here into two general covering classes, which distinguish sites in the north which frequently have strong similarities with each other (class K) and sites in the south which have more diverse design (class L).

4:27 The Problems of Overlap (figs.20-22).

The majority of stone circles fall neatly into the 14 defined classes (fig.20). In the previous discussion of the multivariate analysis all known sites have been included; a small proportion of these produce overlaps in trait signatures and these will be commented upon here.

Larger Circles.

At larger sites these problems are minimal as clear cut patterns are the norm (fig.21). Three main trends are apparent. At one extreme are circles with only a few widely spaced orthostats which are found exclusively in the north (Northern Open Circles-class A, and in diminutive form; Hebridean Open Circles-class G). At the other extreme are the Western Irregular Circles (class C) which all have a similar diameter range (with the exception of Long Meg) but varying numbers of closely spaced stones. A possible atypical variant within this tradition, the Caithness Horseshoe Settings (class B) is found in northeast Scotland. Here the spacing between stones is as close as the Western Irregular Circles (but displaced in figure 21 because they have one open end).

Between these two extremes are the larger circles of tall stones found in the south, and in circle-henges in general (Hybrid Circles-class D and Symmetrical Circles-class E).

It is only at the lower ends of the primary variable ranges that any significant overlap occurs (excepting classes A,G where none occurs). Overlap in primary traits is only found in the west, from Cornwall to Scotland; it is not a problem elsewhere. Even sites in the west are normally categorized unambiguously by examination of all design factors rather than just their primary traits illustrated in figure 21 (see 5:8). However 26 sites (19%) out of a total of 138 (classes C-E) have Hybrid characteristics. These rings are given a class of their own for convenience (class D). A further 22 Western Irregular Circles in Wales (class C;F4) perhaps also need to be considered here (see 5:9).

Smaller Circles.

When comparing the different classes of smaller sites to each other (classes K-N) the problem of overlap is more severe. The division of the majority of these into northern and southern groups (classes K,L) is somewhat artificial. A second problem of overlap occurs when differentiating between Small Circles (classes K,L) and some of the Four Posters (class N); the circular examples of the latter may be alternatively interpreted as diminutive examples of the other two classes (see 5:43).

The overlap of Small Circles (classes K,L) with larger circle classes is only problematical in a few cases. The extent of these overlaps is illustrated in figures 20 and 22 where it can be seen that only 62 circles are involved (11.6% of the total). This contrasts with 228 clearly differentiated small sites and 245 larger sites (only 20 sites are actual problem cases - see below; this is only 3.7% of the total). This indicates that it would be wrong to view class K and L sites purely as small versions of the larger classes.

In the north, problems of categorization rarely occur, as Small Circles (class K) generally only overlap with the Recumbent Stone Circles and Clava Cairns which are identified by their distinctive architectural traits in the form of recumbents and internal features. Only 6 larger class K sites exist (K;F17,20,K;SP4) which are problematical in that their primary traits overlap with other larger circle classes.

In the south there are 14 Small Circles (class L) that have diameters/stone numbers which are similar to the lower ends of the ranges of the larger classes (C-E and H-J).

The issue of overlap is partially resolved when the distribution of rings of moderate size is considered. The Recumbent Stone Circles and Clava Cairns (class H,I) are found exclusively in eastern Scotland, while the Symmetrical Circles (class E) occur in south west England and Hybrids (class D) and Western Irregular Circles (C;F4 type) are primarily found here and in Wales. The larger examples of classes K and L noted above as problems, are found exclusively in other regions; in northeast Scotland, southern and western Scotland, Cumbria and the Pennines. They occur in small numbers in each region and lack the distinctive architectural traits of the identified larger classes.

Many of the Small Circles and Four Posters (classes K,L,N) probably have architectural affinities with the larger site traditions (Symmetrical Circles/Hybrids-classes E/D and possibly Northern/Hebridean Open Circles-classes A/G) (but are still discrete classes -see above). However, the small sites lack the symmetrical characteristics of class E.

The only small circles with clear affinities to the Western Irregular Circle tradition (class C) are the Dartmoor Stone Row Circles (class M) which are differentiated by the latter's unique combination with stone rows as well as small size.

Chapter Five

Stone Circle Classes and Their Distribution.

5.1: Introduction.

This chapter describes each class of stone circle as derived from the analyses discussed above. In each case their characteristics, affinities, date and distribution are briefly described.

Space does not permit a detailed disscussion of the majority of sites when they conform in all respects to the class characteristics; each is tabulated. However, the small numbers of problematic sites included in each class are noted in more detail in order to explain the criteria for classification adopted. The majority of sites included as possible sites (see tables), and noted as in a poor state of preservation, are only possible stone circles rather than being open to interpretation as belonging to other stone circle classes. The rare examples of better preserved sites that are difficult to place in the taxonomy with certainty have been identified in chapter 4 (4;5-4:13,4:27). Many further details of all sites are given in the corpus (Appendix 1). Dating evidence is often of debateable utility and when this is the case these data are included as notes at the end of each relevant section.

Each class is described in turn and where appropriate, classes are subdivided using a secondary classification system (placed in parenthesis), which allows identification of major architectural differences in terms of the presence or absence of external henges, enclosing banks, ringcairns and internal platforms (following Appendix 1; column B2).

Several architectural features exist, such as centre stones and avenues, which to some degree cross-cut the typological distinctions drawn here. In addition, there are also several related monument types, such as henges and ringcairns, which have a bearing on stone circles in terms of function and/or design. These topics will be discussed in chapter six.

Large Circles in Northern Britain.

Northern Open Circles; class A (F1).

5:2 Characteristics (fig.23).

This small class of 4-8 sites stands out from all others because its members have large diameters but only small numbers of orthostats in relation to size. The best preserved are the Twelve Apostles and Guidebest. In all cases the spacing between orthostats is irregular, the stones are ungraded, and the sites are far from circular. The stones are characteristically bulky if not always particularly tall. The only additional features found at these sites are small cairns (at 2 sites) which may be later clearance cairns. The general impression is of irregular circles built to appear impressive and contain large gatherings.

The only circles of comparable dimensions are those found within henges (sub-group of class D); these normally have more orthostats.

Sites of uncertain classification.

The four uncertainly classified examples within the group are difficult to assess given the few sites in the group as a whole. Edinkillie may be upgraded when more data is available, while excavation at Hethpool would clarify if it is genuine or a fortuitous arrangement. The Grey Stanes o' Garleffan is atypically large and badly preserved. It may comprise of a series of settings never conceived as a stone circle. The virtually destroyed site of Lochmaben Stone is also too poorly documented to classify with certainty. If it originally had far more orthostats than those recorded it would fall into class C, as its one taller stone, a feature which is more characteristic of the latter class, may suggest.

Table 5: Northern Open Circles; Class A (F1).

Key; tables 5,6,8-13,16,18,20,21,23-27. (following Appendix 1 except where stated)

1: Catalogue number
2: Name
3: Zone
4: Diameter (Rectangular Four Poster orientation added in parenthesis - group N only)
5: Deviation from circularity.
6: Original number of stones
7: Mean spacing between orthostats.
8: Spacing range as a percentage deviation from a median space (R; spacing increases regularly from one side of ring to other).
9: Mean stone height.
10: Stone height range
11: Design:

U; Ungraded
G; Graded (orientation in parenthesis)
PO; Portals (orientation in parenthesis)
E; Equal height
S; Single tall orthostat - 'directional stones' (orientation in parenthesis)
ET; Entrance (orientation in parenthesis)
AV; Avenue (orientation in parenthesis)
AO; Adjacent outlier (orientation in parenthesis)
R; Recumbent (class F only)
I; Internal features (class G,H only)

P; Pair of tall stones (class N only)
T; Three tall stones (class N only)
O; Opposite tall stones (classes K,N only)

1	2	3	4	5	6	7	8	9	10	11
8	Aultan Broubster	2	c62,5x53,0	c15,2%	18-29	(c6,3)	(21%)	0,50	0,25-1,00	U?
13	Guidebest	2	c52,0x57,5	c9,6%	14-18	(c10,3)	(16%)	(c1,15)	0,85-1,45	U?
287	Twelve Apostles	8	88,4x67,0	24,2%	c13-18	(15,0)	(31%)	1,65	1,00-2,40	U
288	Whitcastles	8	56,4x44,2	21,6%	c12-17	(10,5)	(9%)	(1,20)	(0,90-1,60)	U
Possible Examples										
79	Edinkillie	5	c58,0	ID	c9-10?	ID	?	ID	ID	ID
269	Gray Stanes o' Garleffan	8	c180,0	ID	(12-13?)	ID	?	ID	? -1,60	ID
276	Lochmaben Stone	8	c45,0?	ID	(9+)	ID	?	ID	? -2,90	U?orS?
336	Hethpool	10	c62,0x56,0?	ID	(9+)	(21,5)	(16%)	(c1,0)	ID	U?

5:3 Date.

The only evidence is the C14 date of 2525bc±85(GU-1591) from charcoal in the stonehole of the Lochmaben Stone. While this is particularly interesting as an exceptionally early date it is not securly linked with this class because of the uncertainties noted above over the site's status.

5:4 Distribution (fig.24).

These sites have a restricted northern distribution. They occur in 2-5 localized groups with a complementary relationship with henges wothy of note. In all but one possible case, the Northern Open Circles occur in areas adjacent to henge concentrations. In north-eastern Scotland, Aultan Broubster and Guidebest lie on the mainland opposite the 'core zone' of Orkney with its well known complex comprising of the Ring of Brodgar and the Stones of Stenness. In Southern Scotland, the Twelve Apostles and Whitcastles lie to the north of the Solway Firth, while to the south are the henges of the fertile Eden Valley. The possible sites also lie adjacent to henge zones, with the exception of the suspect Grey Stanes o' Garleffan.

In most cases the henges in question lie in 'core zones' ideally suited to support of relatively high populations, while the open circles lie further inland in areas that may have had somewhat smaller populations (see chapter 9).

Caithness Horseshoe Settings; class B (F2).

5:5 Characteristics (fig.25).

These two unusual sites stand out from all others, comprising oval settings, over twice as long as broad, and open at one end. While not strictly stone circles, they are included in the corpus because functionally they may well be similar, being designed for large gatherings. The stones are set relatively close together and in both cases the terminal stones at the entrance are significantly taller. These 'portal' stones, in combination with the site shape, give strong emphasis to the south-western quadrant. Such design characteristics make it tempting to see these horseshoe settings as an aberrant regional variation of the Western Irregular Circles (class C) found in western Britain (see 4:1,4:15,4:27). The orthostats of both Caithness Horseshoes are set radially, a characteristic shared with several Small Circles of northeast Scotland (sub-group of class K) and unique to the region.

Table 6: Caithness Horseshoe Settings; Class B (F2)
(for a key see table 5)

1	2	3	4	5	6	7	8	9	10	11
6	Achavanich	2	69,0x33,5	c51,5%	c54	(c2,5)	?	(c1,5)	(?-1,95)	PO(SW), ET(SW)
10	Broubster	2	c80,0x27,5	c65,5%	c40?	(c4,0)	?	ID	(0,05-0,55)	PO(SSW) ET(SSW)

5:6 Date.

No data.

5:7 Distribution (fig.30).

Both sites are on the mainland of northeast Scotland and architecturally stand out from the other large circles of the region - The Northern Open Circles (class A). If they are related architecturally to the Western Irregular Circles (class C) they represent an isolated outlier of a circle type common in the west, the nearest examples of which lie on North Uist in the Outer Hebrides.

Large Circles in Southern and Western Britain (classes C-E).

5:8 Introduction.

In southern England there are many relatively large stone circles of diverse design, the opposite ends of this spectrum being very different from each other, the sites belonging to different traditions. At one extreme are very irregular circles, such as Stannon or Fernacre (Western Irregular Circles-class C), with large numbers of relatively low stones interspersed with occasional randomly placed taller orthostats, or with a taller stone or pair of adjacent stones - termed here directional stones. The range of class C sites also extends northwards over much of western Britain.

In contrast, other circles, such as Merry Maidens or the Grey Wethers, have relatively tall stones chosen with great care to be of equal or graded height. These stones are fewer in number, carefully spaced and frequently lie on a carefully planned circular ring (Symmetrical Circles-class E). These sites are restricted to southern England.

The majority of sites in the region fall clearly into one or other of these two groups. However, there are smaller numbers of Hybrid Circles which share characteristics of both groups. These are listed separately (class D).

Table 7 summarizes a multivariate analysis of all sites in question (except class C sites in the north), listing the characteristics which were used in determining their classification.

Table 7: An Analysis of Larger Circles in Southern England and Wales (classes C,D,E).

Key

		Score
1; Degree of circularity	0-3.5%	+1
	3.5-4.0%	0
	4.0%+	-1
2; Original number of orthostats	-40 stones	0
	+40 stones	-1
3; Average spacing between orthostats	5.0-3.0m	+1
	3.0-2.0m	0
	2.0-0.5m	-1

4; Spacing variability range 0-20% +1
20-30% 0
30%+ -1

5; Average Stone Height 0.8m+ 0
0.8m- -1

6; Height variability range -0.5m or Graded +1
0.5-0.8m 0
0.8m+ -1

7; Presence or absence of 'portal or directional stones'
No portal or directional stones 0
Portal or directional stones -1

8; Total score (Those in parenthesis are understated due to missing data resulting from poor preservation of the site)

Class E; Symmetrical Circles

South Western Freestanding Circles (F9)
Typical examples (maximum possible score +4)

	1	2	3	4	5	6	7	8	
474 Merry Maidens	+1	0	+1	+1	0	+1	0	+4	
466 Leaze	+1	0	+1	+1	0	+1	0	+4	
454 Grey Wethers N	+1	0	+1	+1	0	+1	0	+4	
455 Grey Wethers S	+1	0	+1	+1	0	+1	0	+4	
459 Hurlers NNE	+1	0	+1	+1	0	+1	0	+4	
460 Hurlers S	+1	0	+1?	+1?	0	+1?	0	+4?	damaged
490 Trippet Stones	+1	0	+1?	+1?	0	+1	0	+4?	damaged
467 Leskernick A	?	0	+1?	+1	0	+1?	0	(+3?)	damaged
442 Craddock Moor	?	0	+1	+1	0	+1?	0	(+3?)	damaged
443 Crowan Beacon	?	0	+1	0?	0?	+1?	0	(+2?)	damaged
453 Goodaver	?	0	+1	+1?	0	0?	0	(+2?)	damaged/restored
506 Rempstone	?	0	+1?	+1?	0	0?	0?	(+2?)	damaged
487 Tregeseal E	?	0	+1?	?	0	+1	0	(+2?)	damaged/restored
488 Tregeseal W	?	0	?	?	0?	?	0	(?)	damaged
493 Wendron NW	?	0?	?	?	0?	?	?	(?)	damaged
424 Boleigh	?	?	?	?	?	?	?	(?)	destroyed
Variants									
422 Altarnun	?	0	+1	+1?	0	+1	0	(+3?)	Small diameter, restored
494 Wendron SE	?	0	+1?	+1?	0	+1?	0	(+3?)	Small diameter, damaged
458 Hurlers Central	0	0	+1	+1	0	+1	0	+3	Slightly un-circular
425 Boscawen Un	-1	0	+1	+1	0	+1	0	+2	Not circular
495 White Moor Down	+1?	0	+1?	+1?	0	0	0	+3?	Restored-stone height variable?
465 Langstone Moor	?	0	?	?	0	-1?	0	(-1?)	Restored-stone height variable?
438 Cornridge	-1	0	+1	+1?	0	0	0	+1?	Not circular-stone height variable?
469 Louden Hill	-1	0	+1	0	0	-1	0	-1	Not circular-stone height variable?

Wessex Circles (F10, CH4)

	1	2	3	4	5	6	7	8	
509 Stonehenge Sarsens	+1	0	+1	+1	0	+1	0	+4	
508 Sanctuary inner	-1	0	+1	+1	0?	+1?	0?	+1	Slightly off-circular
outer	+1	-1	+1	-1	0?	+1?	0?	+1	more stone because of larger diameter
501 Devils Quoit's	0	0	+1	0	0	?	0?	+1	Slightly off-circular,large diameter
510 Stanton Drew Central	+1	0	+1	0	0	-1	0	+1	variable heights and spacing
499 Avebury north	?	0	+1?	+1?	0	-1	0	(0)	variable heights
Avebury south	?	0	?	?	0	?	0?	(0)	damaged
500 Coate	?	0?	?	?	0	?	?	(0)	damaged
502 Falkners Circle	?	?	?	?	0?	?	?	(0)	destroyed
514 Winterbourne Bassett	?	?	?	?	0?	?	?	(0)	destroyed
499 Avebury inner north	?	0	?	?	?	?	?	(0)	destroyed
509 Stonehenge Y ring	(-1)	0	+1	(-1)	-	?	0	(+1)	design distorted by pre-existing
Stonehenge Z ring	(-1)	0	+1	(+1)	-	?	0	(+1)	features see text,

Class D: Hybrid Circles

South West Scottish Centre-Stone Sites (F5)

	1	2	3	4	5	6	7	8
267 Glenquickan	-1	0	-1	-1	-1	+1	0	-3
286 Torhousekie	-1	0	+1	+1?	0	+1	0	+2
277 Loch Roan	?	0	?	?	?	?	?	(0)

Portal-Stone Rings (F6)

	1	2	3	4	5	6	7	8	
426 Boskednan	+1	0	0	+1?	0	+1	-1	+2?	
462 King Arthurs Down ESE	?	0	+1	?	0	0?	-1	(0?)	damaged
463 King Arthurs Down WNW	?	0	+1	0?	0	?	-1	(0?)	damaged
435 Buttern	+1	0	0	+1	0	-1	0?	+1	no portal today
468 Leskernick B	?	0	+1?	0	-1?	0?	0	(0?)	damaged-no portals today

Portal-Stone Ring within a Henge (CH2)

	1	2	3	4	5	6	7	8	
486 Stripple Stones	-1	0	+1	+1	0	-1	-1	-1	Closely related to other SW sites

Dartmoor Row-Complex Circles (F7)

	1	2	3	4	5	6	7	8	
450 Fernworthy A	0	0	-1	0	-1	+1	0	-1	
471 Merrivale A	-1	0	?	?	-1	+1	0	(-1?)	damaged

482 Shovel Down B	?	0	?	?	-1?	?	0	(-1?)	damaged
440 Corringdon Ball B	?	0	-1	+1?	-1	+1?	0	(0?)	damaged
498 Yellowmead A outer	?	0	0	-1	-1	+1?	0	(-1)	Restored
" central	?	0	-1	-1	-1	0	0	(-3)	Restored
" inner	?	0	-1	-1	-1	+1	0	(-2)	Restored

South-West Wales Hybrids (F8)

	1	2	3	4	5	6	7	8	
394 Gors Fawr	-1	0	+1	+1	-1?	+1	0	+1	
420 Y Naw Carreg	?	0	+1?	?	-1?	+1?	0	(+1?)	destroyed

Hybrid Circles within Henges (CH3)

	1	2	3	4	5	6	7	8	
1 Ring of Brodgar	+1	-1	+1	+1	0	-1	?	(+1)	Very circular, more stones because of large diameter,
2 Stones of Stenness	-1	0	+1	+1	0	-1	0?	0	
373 Bryn Celli Ddu	-1	0	+1	0	0	-1?	?	(-1)	
206 Balfarg	-1	0	+1	-1	0	?	-1	(-2)	
348 Arbor Low	-1	-1	0	0	0	-1	-1?	-4	More stones than usual
449 Avebury outer	-1	-1	+1	-1	0	-1	-1	-4	More stones because of large diameter,
509 Stonehenge Stations	?	0	+1?	0?	0	?	-1?	(0)	
258 Cairnpapple	-1	0	+1	+1	?	?	-1	(-1)	
92 Quarry Wood	?	?	?	?	0?	?	?	(0)	

Class C: Western Irregular Circles

South-West England (F3) (maximum possible score -7)

	1	2	3	4	5	6	7	8	
449 Fernacre	-1	-1	-1	-1	-1	-1	0	-6	
485 Stannon	-1	-1	-1	-1	-1	-1	0	-6	
484 Stall Moor	-1	0	-1	-1	-1	-1	0	-5	Associated stone row
478 Scorhill	+1	-1	-1	-1	0	-1	-1	-4	
475 Porlock	-1	-1	-1	+1	?	?	-1?	(-3?)	Stones damaged
480 Sherberton	?	-1	-1?	?	0	-1	0	(-3?)	damaged
470 Mardon Down	?	-1	0	?	0	-1	0	(-2?)	damaged
496 Withypool Hill	+1	-1	-1	-1	?	?	0	(-2?)	stones damaged
504 Kingston Russell	-1	0	?	?	0	-1?	0	(-2?)	damaged

Wales (F3)

	1	2	3	4	5	6	7	8	
413 Rhos Maen	?	-1	-1?	-1	-1?	-1?	0	(-5?)	damaged
418 Y Capel	-1	-1	-1	-1	-1?	+1?	0	(-4?)	stones damaged
391 Ffridd Newydd S	-1	-1	0	-1	-1?	+1?	0	-3?	
401 Llyn y Tarw	+1	-1	-1	-1	-1?	+1?	0	-2?	stones damaged
386 Cwm Mawr	?	-1?	?	?	?	?	?	(-1?)	destroyed
377 Cefn Coch	?	?	?	?	?	?	?	(?)	destroyed

Welsh Examples with Fewer Stones (F4)

	1	2	3	4	5	6	7	8	
396 Hoarstones	-1	-1	-1	-1	-1?	0?	-1	-6?	centre stone
380 Cerrig Duon	-1	0	-1	-1	-1?	0?	0	-4?	Stones damaged
408 Nant Tarw WNW	-1	0	0?	-1	-1?	-1	0	-4?	Stones damaged?
407 Nant Tarw ESE	-1	0	0	0	-1?	0?	-1	-3?	Stones damaged?
414 Rhos y Beddau	?	0	-1	-1	-1?	0?	0	(-3?)	Stones damaged?
378 Cefn Gwernffrwd	-1	0	-1?	-1	?	?	0	(-3?)	damaged
403 Mitchells Fold	-1	0	0?	0?	-1?	+1?	-1	-2?	
415 Six Stones	-1	0	0?	-1	-1?	+1?	0	-2?	Stones damaged
393 Gelli Hill	-1	0	+1	-1	-1?	0?	0	-2?	Stones damaged
385 Cors y Carneddau	?	0?	-1?	?	-1?	?	?	(-2?)	damaged
421 Ynys Hir	+1	0	-1	-1	-1	+1	0	-1	
400 Lled Croen yr Ych	-1	0	0?	0?	-1?	+1?	0	-1?	Stones damaged?
375 Bryn y Gorlan	?	0	-1?	?	-1?	+1?	0	(-1?)	damaged
389 Dyffryn	?	0	?	?	?	-1?	0?	(-1?)	damaged
416 Trecastle Mountain NE	+1	0	0	0	-1?	0?	0	0?	Stones damaged?
381 Cerrig Gaerau	?	0	0?	0?	0?	0?	0	(0?)	Stons damaged
382 Cerrig Pryfaid	-1	0	+1	0	?	0?	0	(0?)	damaged
410 Pen y Beacon	?	0?	?	?	-1?	+1?	0?	(0?)	damaged
412 Red Farm	?	0?	?	?	-1?	+1?	0?	(0?)	damaged
397 Kerry Hill	-1	0?	?	?	?	?	0?	(?)	damaged
411 Pen y Stryd	?	0?	?	?	?	?	0?	(?)	damaged
376 Capel Hiraethog	?	0	?	?	?	?	?	(?)	damaged

Western Circle-Henges (both regions)

	1	2	3	4	5	6	7	8	
398 Letterston III	-1	0	-1?	0	-1?	-1?	-1	-5?	
379 Cerrig Arthur	-1	0	-1	-1	-1?	+1?	-1	-4?	
388 Druids Circle	-1	0	?	0	0	-1	-1	(-3?)	
402 Meini Gwyr	?	0	?	?	0	-1	-1	(-2?)	damaged
428 Brisworthy	-1	0?	0?	?	0?	0?	0?	(-1?)	damaged/restored
476 Porthmeor	-1	?	?	?	-1?	?	-1	(-3?)	damaged
399 Llecheiddior	-1	0	+1?	0?	-1?	+1?	0	0?	damaged
390 Ffridd Newydd N	?	?	?	?	?	?	?	(?)	destroyed

Irregular Circles within Henges (CH 1)

	1	2	3	4	5	6	7	8	
509 Stonehenge outer bluestones	-1	-1	-1	-1?	0	-1?	0	-5	
" inner bluestones	-1	0	0	0?	0?	?	0?	(-1)	uncertain classification
" Q Ring	?	0	0	0?	?	?	-1	(-1)	Spacing rises because of relationship to R.
" R Ring	?	0	-1	+1?	?	?	-1	(-1)	

Western Irregular Circles (including Western Circle Henges); class C.

5:9 Characteristics (figs.26-9).

These 56-71 sites normally have diameters ranging from 20 to 40m and have a large number of closely spaced orthostats. Their size suggests they are communal monuments of some importance. Long Meg and her Daughters stands out from all other sites because of its extreme diameter but in all other respects is typical. Western Irregular Circles are rarely circular and no attempt appears to have been made to place stones equally round the ring, the spacing being generally erratic. Average stone height is relatively low but occasional taller stones occur at many sites. The rings are never graded but in some cases specific orientations are marked by 'portal entrances' or 'directional stones'. In northern examples these have a wide variety of orientations while in southwestern England and Wales there is a tendency (6-7 cases) for 'directional stones' to be orientated to the SE/SSE (with 3 exceptions centred round north). Only a small proportion of sites have 'directional stones' but these may well have been more common originally. In many cases large stones may have been selectively removed from gaps at damaged sites (the majority) because of their suitability for gateposts.

The sites in this class can be subdivided into 4 sub-groups. The two most important of these are freestanding circles (F3) and western circle-henges (WCH). The latter are characterized by orthostats being set at the inner edge of, or within, a low bank. In virtually all other respects they are architecturally indistinguishable from the freestanding cases. The exception is that some western circle-henges have external portal stones defining a single entrance through the bank. This characteristic is not found in freestanding cases.

Banks may also have been destroyed at many apparently freestanding sites. Where banks do occur, they are frequently only slight and hence susceptible to being ploughed out. In some cases, they are just perceptible today, as at Rollright; at Swinside the bank has been destroyed. However, not all freestanding rings had banks, as indicated by the excavated examples at Cultoon and Ynys Hir. In one case - Castlerigg - the bank may well be illusory, being a product of later ploughing (see Appendix 1). It is noteworthy that this circle has a differently designed entrance with no outer portals.

The orientation of 'portal entrances' is very variable (fig.19). Several sites with such entrances also have a 'directional stone', as at Rollright and Swinside, or two such stones as at Long Meg. This combination would suggest that the 'portal entrances' and 'directional stones' are not functional equivalents (terms defined 3:3). The former may well be orientated for convenience of access, while the latter may mark directions of ceremonial or astronomical significance.

A third sub-class distinguished here is a group of circles in Wales (F4). While these have many of the irregular characteristics of class C, they have diameters which normally range from 15 to 30m and have fewer stones. Hence in some respects they resemble the Symmetrical Circles and related Hybrids (classes E,D) found in south-western England. However, they are not as circular and the stones are not quite as regularly spaced. One significant problem with assessment of this group is uncertainty over stone height and thus its regularity. Many of the Welsh sites are built of relatively poor stone and are now severely eroded. If any of these sites originally had carefully chosen stones of equal or graded height they would be more appropriately classified as Hybrids (class D). However, in several examples, as at Ynys Hir and the Hoarstones, this is clearly not the case. The majority of the western circle-henges in Wales also have diameters similar to the F4 sites and these are more clearly categorized as Western Irregular Circles.

The fourth sub-group (CH1) is restricted to Stonehenge (see Appendix 1; 509 for discussion of phasings), where 3-4 of the stone circles have Western Irregular Circle characteristics despite being within a henge. The relatively early Q/R rings have closely spaced stones and an atypical 'portal entrance'. Concentric rings are not found elsewhere in Western Irregular Circles, and a more appropriate affinity may be with timber circles in Wessex and Hybrid (class D) circle-henges in general. Both share several design characteristics with the Q/R rings. The outer Bluestone ring is a typical Western Irregular Circle, both in its irregular shape and more significantly (given that layout may have been hampered by pre-existing features) in its closely spaced stones. Perhaps in this case the designers of the later phases of Stonehenge made a conscious attempt to combine diverse traditions by complementing the symmetry of the sarsens (Symmetrical Circle-class E) with the bluestone settings (class C).

The majority of Western Irregular Circles have no associated architectural features other than the banks and portals discussed above. One exception is a number of outliers. The majority of these are found in Wales where they have a tendency to be placed west/northwest of their circle (6-7 cases, the other examples being approximately opposite - 3 cases). In Cumbria an outlier orientated to the south-west is found at Long Meg. On Dartmoor, the Stall Moor circle - a classic Western Irregular Circle - is unusual in that it has a stone row leading from it. (The occurence of such stone rows is normally restricted to the small Dartmoor Stone-Row Circles-class M. The stone row at Stall Moor is unusual as it is of exceptional length).

Another feature found in Western Irregular Circles is centre stones - at the Hoarstones, and posibly Kerry Hill and Brats Hill. There is a unique stone setting at Castlerigg. Broomrigg A may have an associated avenue. All such features are also found at Symmetrical Circles and related Hybrids.

In most regions, Western Irregular Circles have open interiors suitable for large gatherings. Only in Cumbria are internal cairns commonly found. The small cairns within Brats Hill and Castlerigg are perhaps likely to be secondary features (Brats Hill lies within an extensive cairnfield). However, at Oddendale, Gunnerkeld, Studfold and Shapbeck only a central cairn exists. All could represent redefinitions of use, but - and particularly at the flat-topped cairns at Oddendale and Gunnerkeld - these could be part of the original design. If so, they are variations on the theme of platforms/wide ringcairns found at Scottish platform circles (sub-groups of classes K,L) and Recumbent Stone Circles (class H).

The majority of Western Irregular Circles are distinct from all other stone circles because of their large number of stones and the close spacing of these. The only classes displaying the same characteristics are the Caithness Horseshoe Settings (class B) and the Dartmoor Stone-Row Circles (class M). Both are clearly distinguished from Western Irregular Circles, the former by their distinctive architecture and the latter by their diminutive diameters.

Only at the lower end of the class range is any overlap present with other circle classes. The Hybrid Circles (class D) are the notable example of this and a discussion of these will be given below (5:12). The only other rings which are similar in some respects are a small sub-group of Small Circles (class K;SP5) which are restricted to western Scotland (see 5:34), and a handful of Small Circles with somewhat larger diameters than usual, found in eastern/central England, and classified elsewhere (class L) because they are architecturally indistinguishable from the smaller sites in the same vicinity (see 5:37). Their distribution is well outside the geographical range of Western Irregular Circles (fig.36).

Sites of uncertain classification

Only 16 of the 71 sites in this class are of uncertain classification. In the majority of such cases this is due to their poor state of preservation. However, a few sites require comment. The ruined Broomrigg A may be alternatively classified as a Northern Open Circle (class A) if some of the recorded orthostats are actually fortuitous.

Borrowston Rigg and Llyn y Tarw have exceptionally small stones and although no central mounds are visible today it is possible they are kerbs of denuded barrows. Borrowston Rigg is the only class C site in eastern Britain. In the case of Dyffryn (and possibly Capel Hiraethog III), the site contained a cairn which filled the full interior space. However, the tall orthostats suggest this was not simply a kerbed-barrow. The distinctions drawn between true stone circles and the spaced-kerbs of barrows is not clear-cut in Wales, in contrast to regions such as Dartmoor and Cumbria (see 6:10). In the latter cases, all spaced-kerbs (defined 6:10) have relatively small diameters. In Wales, rare cases of larger barrows also exist with spaced-kerbs (see 6:10). This issue can only be fully resolved by extensive excavation to search for evidence for multiphasing and/or denudation of internal mounds.

Table 8: Western Irregular Circles and Western Circle Henges; Class C

(for a key see table 5)

Large Irregular Circles - freestanding (F3)

1	2	3	4	5	6	7	8	9	10	11
22	Cringravel	3	c45-50	ID	(c30-35+)	ID	?	(1,00)	(0,70-1,20)	U?
32	Cultoon	4	40,7x35,1	13,8%	29-39?	(3,0?)	(43%)	(c2,00)	(c1,5-2,5)	U, PO(NE)
51	Strontoiller	4	c20,0	ID	31,45%	(2,1?)	(46%)	(c0,50)	(?-1,00)	U?
257	Burgh Hill	8	16,6xc13,4	c19,3%	29-34	1,5	25%	(c0,50)	(0,20-0,80)	S(SW)
259	Cauldside Burn	8	c24,7x25,9	c4,6%	30-33	(2,5)	(8%)	ID	(?-1,20)	S(SW)
292	Ash House Wood	9	c30,0	ID	ID(22+)	ID	?	(1,10)	(1,00-1,15)	ID
295	Brats Hill	9	c31,5x29,0	c7,9%	40-43	2,3	40%	0,65	0,40-1,05	U
298	Castlerigg	9	32,6x29,9	8,3%	40-63	1,3	52%	1,15	0,45-1,95	S(SE) 2S(N)
300	Elva Plain	9	c34,5	ID	24-32	(3,8)	(23%)	(0,60)	(0,40-1,00)	U?
304	Gunnerkeld	9	c29,1x31,5	c7,6%	32-42	c2,7	35%	c1,45	c1,00-2,10	U
316	Oddendale	9	c26,2x26,0	c0,8%	41-48	1,9	33%	0,50	0,30-0,85	U
318	Studfold	9	c26,0x33,7	c22,8%	20-26	(4,5)	(20%)	(0,65)	(0,40-0,95)	U?
515	Shapbeck	9	c20,5x22,0	c6,8%	31-35	c2,0	40%	ID	(?-0,90)	U
377	Cefn Coch	13	c20,0x16,5	ID	ID	ID	?	ID	ID	ID, AO(W)
386	Cwm Mawr	13	c20,0x16,5	ID	ID(38+)	ID	?	ID	ID	ID, AO(W)
391	Ffridd Newydd S	13	c52,0x55,0	c5,6%	56-86	2,1+	38%	(0,65)	(0,50-0,80)	U?
413	Rhos Maen	13	c24,0	ID	c50-65	(c1,4)	(38%)	ID	(low-1,50)	U?
418	Y Capel	13	22,8x26,3	13,3%	c67-77	1,2	65%	ID	(low)	U
449	Fernacre	14	46,0x44,0	4,3%	77-93	1,7	50%	0,55	0,30-1,35	U
470	Mardon Down A	14	c38,5	ID	51-66	(2,1)	(29%)	0,85	0,40-1,60	U
475	Porlock	14	c23,6x25,0	c5,6%	38-43	1,9	18%	(0,40+)	(0,15-0,80)	S?(SE)
478	Scorhill	14	27,0x27,4	1,5%	52-74	1,5	50%	1,05	0,80-1,60	S(NW)
480	Sherberton	14	c29,9	ID	44-54	(1,8)	(18%)	0,80	0,35-1,75	U?
484	Stall Moor	14	15,0x16,2	7,4%	35-44	1,3	33%	0,75	0,25-1,45	U
485	Stannon	14	42,7x39,0	8,7%	71-83	1,7	56%	0,70	0,30-1,15	U
496	Withypool Hill	14	c35,6x36,4	c2,2%	71-95	1,3	46%	(0,20+)	(0,05-0,60+)	U?
Possible Examples										
256	Borrowston Rigg	8	46,6x41,5	c11,0%	59-84	(1,6)	(27%)	ID	(?-0,60)	U
296	Broomrigg A	9	c50,0x40,0?	ID	ID	(6,7)	(21%)	(0,80)	(0,70-1,00)	U, AV(NW)
308	Lampluth	9	ID(large)	ID	ID	ID	?	(c1,20)	(c1,20)	ID
516	Long Meg SW	9	c15,0	ID	ID(20+)	ID	?	ID	ID	ID
401	Llyn y Tarw	13	19,1x19,7	3,0%	c66-89	0,8	50%	c0,05	0,00-0,40	U
504	Kingston Russell	15	c24,0x27,0	c11,0%	22-37	ID	?	(c1,15)	(0,85-1,65)	U

Larger Irregular Circles - within henges (CH1)

1	2	3	4	5	6	7	8	9	10	11
509	Stonehenge Q Ring	15	c24,5	ID	36	(2,1)	(22%)	ID	ID	PO(NE)
	R Ring	15	c22,0	ID	36	(1,9)	(11%)	ID	ID	PO(NE)
	Outer Bluestones	15	c25,0x23,5	c6,0%	54-64	1,3	45%	(ID)	(ID)	U?
	(Inner Bluestones	15	c11,6x15,0	c22,7%	c14-18	(c2,8)	(26%)	ID	ID	ID)

Note: this ring is included here because of its association with the outer bluestone circle but morphologically it is related to group CH 3.

Welsh Irregular Circles - fewer stones/freestanding (F4)

1	2	3	4	5	6	7	8	9	10	11
375	Bryn y Gorlan	13	c18,0	ID	c32-38	(1,7)	(18%)	(0,75)	(0,60-1,00)	U?
378	Cefn Gwernffrwd	13	c23,2x24,7	c6,1%	28-36	(1,9)	(33%)	(ID)	(ID)	U?
380	Cerrig Duon	13	19,4x18,2	6,2%	c27-29	2,0	41%	(0,25+)	(0,05-0,55	U? 2A(NNE, NNW)
381	Cerrig Gaerau	13	c22,0	ID	18-21	(3,3)	(22%)	(c1,00)	(c0,70-1,30)	U?
382	Cerrig Pryfaid	13	20,3x22,1	8,1%	13-14	4,5	23%	ID	(0,15-0,70)	ID, 2AO (W,NW)
393	Gelli Hill	13	23,0xc19,5	c13,9%	16-17	4,1	33%	0,30	0,05-0,60	U?
396	Hoarstones	13	21,6x23,2	6,9%	40-41	1,7	37%	(c0,30)	(0,10-0,75)	S(SE)
391	Kerry Hill	13	26,7x24,2	8,6%	ID(8+)	ID	?	(c0,80)	(0,70-0,90)	ID
400	Lled Croen yr Ych	13	c22,7x26,0	c12,7%	23-28	(2,9)	(21%)	(0,50)	(0,50-0,55)	ID, AO(SE)
403	Mitchells Fold	13	c28,5x26,5	c7,0%	23-31	(2,9)	(20%)	(0,60)	(0,45-0,90)	2S(SE)
407	Nant Tarw ESE	13	c20,3x22,4	c9,4%	18-19	3,2	21%	(0,40)	(0,05-0,80)	S(SE) AO (WNW)
408	Nant Tarw WNW	13	c20,7x19,7	c4,8%	c23-30	(2,4)	(40%)	0,40	0,15-0,95	U?AO (WNW)
414	Rhos y Beddau	13	c12,9	ID	21-24	1,8	39%	0,45	0,20-0,75	U?
415	Six Stones	13	c24,0x27,5	c12,7%	27-35	(c2,4)	(39%)	(0,10+)	(0,00-0,25)	U?
416	Trecastle Mountain NE	13	23,3x22,6	3,0%	34	2,1	27%	0,35	0,15-0,70	U
421	Ynys Hir	13	18,0x17,7	1,7%	32-36	1,7	48%	0,60	0,45-0,85	U
Possible Examples										
376	Capel Hiraethog III	13	c14,0	ID	c18-22?	ID	?	(c0,90)	ID	ID
385	Cors y Carneddau	13	c16,5	ID	ID(c30)	(c1,8)	?	ID	(low)	U?
389	Dyffryn	13	c22,0x19,0?	ID	c17-26	ID	?	ID	(? -1,50)	U?
410	Pen y Beacon	13	c29,5-30,0	(ID)	ID(17+)	ID	?	ID	(low)	?2S (SE)
411	Pen y Stryd	13	c17,1	ID	ID	ID	?	ID	ID	ID
412	Red Farm	13	c30,0	ID	ID(15-25?)	ID	?	(c0,40)	(0,30-0,45)	ID

Western Circle-Henges

1	2	3	4	5	6	7	8	9	10	11
23	Loch a Phobuill	3	c43,0x37,2	c13,5%	c28-55	(2,9?)	(33%)	(0,60)	(0,40-0,90)	U
26	Pobull Fhinn	3	c38,1x29,0	c23,9%	c30-52+	(2,6?)	(22%)	(1,30?)	(0,90-1,70)	U,PO(SE)
266	Girdle Stanes	8	c39,0	ID	37-47	2,9	39%	1,05	0,50-1,50	U,PO(SE)
301	Gamelands	9	c43,5x39,5	c9,2%	35-41	(c3,7)	26%	(c1,00?)	(c0,50-1,50?)	U
303	Grey Yauds	9	c47,5	ID	ID(88+)	ID	?	ID	? -c1,50	ID, EO(NE?)
312	Long Meg	9	c110,0x93,0	c15,4%	76-90	3,8	(20%)	1,40	0,85-2,10	U, 2S(E/W) PO(SW) EO(SW)
319	Swinside	9	29,1x27,7	4,8%	61-67	1,4	53%	1,20	0,40-1,90	U/S(N) PO(SE)

388 Druids Circle	13	25,6x24,5	4,3%	c21-28+	(3,6?)	(21%)	(c1,30?)	(c0,50-2,80?)	U, PO(SW) EO(ENE)
398 Letterston III	13	c13,3x11,6	12,8%	23-32?	(1,5?)	(27%)	(0,80?)	(0,50-1,30?)	U,PO(E)
402 Meini Gwyr	13	c20,0x18,0	ID	17	ID	?	(1,30)	(0,90-1,75)	U?,PO(W)
428 Brisworthy	14	c25,3x24,0	c5,1%?	33-38+	(2,1?)	(19%)	0,90	0,65-1,30?	U
507 Rollright	15	32,0x30,5	4,7%	64-90	(1,1?)	(27%)	1,20	0,70-1,80	U/S(NNW) PO(SSE)
Possible Sites									
379 Cerrig Arthur	13	c15,9x12,8	c19,5%	24-34	(1,6)	(33%)	(c0,25)	0,05-0,45	U?, PO(SE)
390 Ffridd Newydd N.	13	c33,0?	ID	ID	ID	?	ID	ID	ID
399 Llecheiddior	13	c21,0x16,4	c21,9%	c18-21	(3,1)	(25%)	ID	(? -0,60)	U?
476 Porthmeor	14	34,5x32,0	(c7,2%+)	ID	ID	?	ID	ID	U? PO?(SSE)

5:10 Date.

What little evidence exists for this group is of questionable significance. At Ffridd Newydd South early rusticated beaker sherds were found in one of the stoneholes and further sherds were found in an unstratified context at the adjacent circle. These may provide the only reliable hint at the date of a Western Irregular Circle. However, much more data would be required to apply this throughout. The class may have Neolithic origins as suggested by the axes noted below and finds made in similarly designed circles in Ireland (see 7:4).

Data of uncertain utility

A polished-axe fragment was found at the Druids Circle and two unstratified polished-axes have been found at Castlerigg. However, in both cases these could be postulated to be coincidental strays lost before the circles were built. At the Druids Circle a series of Earlier Bronze Age finds, including - an enlarged food vessel, a food vessel, an urn, and a bronze knife - all came from a badly disturbed central cairn; there was no demonstrable stratification with the orthostats.

5:11 Distribution (figs.30,36).

This group again has a distinctive distribution, restricted to areas bordering the western seaboard from the Outer Hebrides to Cornwall. The only exception is the tentatively categorized site of Borrowston Rigg in southeastern Scotland. This distribution adds another example to several prehistoric artefact and monument distributions which reflect the probable importance of communication by sea in western Britain.

In the majority of western regions the distributions of freestanding and embanked sites are interspersed. However, in Wales the pattern is more structured. Western circle-henges are restricted to the coastal fringes, whereas the smaller freestanding rings (C;F4) are predominantly found inland in the uplands. This may reflect the avoidance of less attractive zones by the western circle-henge builders; Wales being the only region in which Western Irregular Circles are found where such topographical conditions are extensive.

Hybrid Circles (including most Circle Henges); class D.

5:12 Characteristics (figs. 31-33).

The one thing all these sites have in common is their sharing of architectural characteristics from Western Irregular and Symmetrical Circles (classes C,E). These take on a variety of forms; each will be dealt with in turn.

South-West Scottish Centre-Stone Sites (F5)

These 2-3 sites with a restricted distribution have diameters, non-circular shape and stone numbers, all of identical type to the Western Irregular Circles of Wales (sub-group C;F4). However, in both well preserved sites (in F5) the stones are graded to the south-east quadrant (class E trait).

At Torhousekie the stones are also relatively widely spaced (class E trait) and care has been taken with this spacing, which increases as the stones become taller. This site has a unique setting of 3 orthostats at its centre, asociated with a 'D shaped' bank. Glenquickan has a single large centre stone. Such stones are found occasionally in both Western Irregular and Symmetrical Circles, throughout their distribution range. However, only in the vicinity of Glenquickan are Small Circles which contain large centre stones also found (sub-group of class L). Both Glenquickan and Torhousekie appear to be built on low platforms, another architectural trait common in Small Circles (classes K,L) but not found in larger sites with the possible exception of two sites in Wales discussed above (5:9 note).

Portal Stone Rings (F6,CH2).

These 5-6 sites are normally characterized by single or paired 'directional stones' (but now missing in 2 cases) (class C trait). In three cases these are orientated SE/SSE, while at Boskednan the orientation is in the opposite direction (NNW). In other respects this group has a mixture of the two sets of class traits. The majority have widely spaced orthostats (class E trait) - with the exception of Buttern. Both Boskednan and Buttern are circular with carefully spaced stones (class E trait), while the Stripple Stones is less regular. In all cases except Boskednan the range of stone heights is greater than in Symmetrical Circles.

The only relatively well preserved site with no 'directional stone' is Buttern. The stone height range is particularly large here (class C trait) and even if the site never had one significantly larger stone, this ring is clearly of Hybrid type.

At the Stripple Stones, and the possible stone circle at Leskernick B, there are centre stones. The Stripple Stones are surrounded by a henge.

Dartmoor Row-Complex Circles (F7).

These 5 sites are all found in association with stone-row complexes (see 6:12,8:7-8:8), but unlike the Dartmoor Stone-Row Circles (class M) they are not always abutted by rows but can lie adjacent to them. Only Corringdon Ball and Yellowmead have rows actually leading from their circumference and cairns in their interiors (another class M trait). Both rows are unusual because of the large number of parallel lines of stones involved. The Yellowmead circle has 3 concentric stone circles with a central kerb-cairn. These developments are also seen occasionally in Dartmoor Stone-Row Circles.

All group F7 rings are significantly larger than Dartmoor Stone-Row Circles, having diameters of c15.0-20.0m. They are uncircular and have low, relatively close, but erratically-spaced stones that are lower than those of other Hybrids and Symmetrical Circles in the region (both class C traits). They have carefully graded stones orientated to the S/SE (class E trait).

South West Wales Hybrids (F8).

These 1-2 sites are similar to the Western Irregular Circles of Wales (class C;F4) except that Gors Fawr (and possibly the destroyed site of Y Naw Carreg) has graded stones and the stones are carefully spaced, the interval increasing with the grading (class E traits).

Hybrid Circles within Henges (CH3).

This group of 6-9 sites includes the majority of circle-henges outside Wessex, the only exceptions being 1-2 hengiforms in Grampian (class K;CH5) and the Stripple Stones (class D;CH2). The rings in CH3 vary tremendously in diameter, each correlating with the diameter of its henge ditch. The spacing between orthostats also varies, generally increasing as the rings become larger. Normally the rings are uncircular (class C trait), the exception being the Ring of Brodgar, which is remarkably circular considering its size. It is hard to believe this is not carefully laid out (class E trait). The circle-henges have tall stones (class E trait).

At Balfarg, Stonehenge, Arbor Low and possibly Cairnpapple, there are portal stones associated with the henge entrances, while at Avebury, Arbor Low and possibly the Ring of Brodgar, the circle orthostats increase in height at the entrances.

Additional features are common at circle-henges; within group CH3 there are coves at Avebury, Arbor Low and Cairnpapple, and other central settings at Avebury, Stenness, and possibly Bryn Celli Ddu and Stonehenge I. The site of Cairnpapple is directly comparable to Arbor Low but is classified as a possible site because the circle may have been built in timber. Both Arbor Low and Cairnpapple have had large cairns inserted as secondary features.

Virtually all circle-henges are basically similar in design, with close affinities to Symmetrical Circles. However, their layout is less regular than that of these rings, hence the inclusion of some in class D. The Stripple Stones is treated separately (class D;CH2) because of its 'directional stones', but otherwise it is similar to the others. Only in Wessex are Symmetrical Circle traits common at henges and these will be discussed further below (5:15). There is a general architectural similarity between the stone circles in circle-henges and timber circles (see 6:9).

The only distinctly different circle-henges are some of the Stonehenge rings (class C), and the hengiform sites in Grampian with their diminutive diameters and similarity of design to other freestanding rings in the region (class K).

Sites of uncertain classification

Only 6 of the 25 sites in this class are of uncertain classification. Normally this is because of their poor state of preservation, with the exception of Cairnpapple noted above. The ruined circle within the henge at Quarry Wood and the circle at Leskernick are of debatable authenticity. The Station Stones at Stonehenge may never have formed part of a circle.

Table 9: Hybrid Circles between Irregular and Symmetrical classes; class D.

(for a key see table 5)

South-West Scottish Centre-Stone Sites (F5).

1	2	3	4	5	6	7	8	9	10	11
267	Glenquickan	8	15,4x16,5	6,7%	29	1,9	33%	(0,60)	(c0,30-0,90)	6(SSE)
286	Torhousekie	8	20,9x19,4	7,2%	19	3,3	R52%	0,85	0,60-1,30	6(ESE)
Possible site										
277	Loch Roan	8	c21,0x18,0	ID	ID(20-22)	ID	?	ID	ID	ID

Portal-Stone Rings - Freestanding (F6)

1	2	3	4	5	6	7	8	9	10	11
426	Boskednan	14	21,85	c0%	22-23	(2,9)	(14%)	1,20	1,05-1,35	2S(NNW)
435	Buttern	14	c24,6x25,1	c2,0%	34	2,2	7%	0,85	0,35-1,35	U?
462	King Arthurs Down ESE	14	c23,25	ID	c18-21	(3,5)	(11%)	(0,80)	(0,50-1,05)	S(SSE)
463	King Arthurs Down WNW	14	c23,5x23,0	ID	17-22	(3,6)	(26%)	(0,90)	(0,75-1,00)	S(SSE)
Possible site										
468	Leskernick B	14	c22,5x23,0	ID	c26-28	(3,0)	(21%)	(c0,45)	(c0,30-0,80)	U?

Portal Stone Ring - within a Henge (CH 2)

1	2	3	4	5	6	7	8	9	10	11
486	Stripple Stones	14	c46,3x43,3	c6,5%	28?	4,9	7%	1,60	1,05-2,00	2S(SE)

Dartmoor Row-Complex Circles (F7)

1	2	3	4	5	6	7	8	9	10	11
440	Corringdon Ball	14	c14,5	ID	c30-35	(1,2)	(17%)	0,40	0,35-0,50	ID
450	Fernworthy A	14	19,1x19,9	4,0%	29-33	1,9	30%	0,55	0,25-1,00	6(S)
471	Merrivale A	14	20,3x18,7	7,9%	19-20?	(3,1)	(17%)	0,45	0,25-0,65	6(SE)
483	Shovel Down B	14	c17,5	ID	ID(c15?)	(3,5?)	?	(0,65)	(0,35-0,85)	ID
498	Yellowmead A outer	14	c20,0x18,5	ID	26-27	2,4	38%	0,55	0,25-1,15	6?(SE)
	" central		c15,5x14,5	ID	c31-33	1,6	52%	0,40	0,15-0,80	
	" inner		c12,1x11,4	ID	c34-36	1,1	42%	0,25	0,10-0,45	

South-West Wales Hybrids (F8)

1	2	3	4	5	6	7	8	9	10	11
394	Gors Fawr	13	22,9x21,8	4,8%	15	4,4	21%	0,60	0,45-0,90	6(SE)
Possible site										
420	Y Naw Carreg	13	c18,0	ID	ID(12-18)	ID(5,5)	?	(0,50)	(0,45-0,60)	ID

Hybrid Circles within Henges (CH 3)

1	2	3	4	5	6	7	8	9	10	11
1	Ring of Brodgar	1	104,6x103,0	1,5%	59-66	5,3	20%	2,80	1,80-4,55	U
2	Stones of Stenness	1	30,7x32,0	4,7%	12	8,2	14%	5,25	4,80-5,70	ID
206	Balfarg	7	c57,0x51,0	c10,5%	c19-29	(6,8?)	(35%)	(1,60)	(1,60)	ID, PO(NW)
348	Arbor Low	12	c42,0x37,0	c11,9%	41-44	2,8	28%	c2,1	c1,0-2,9	U, PO(SSE)
373	Bryn Celli Ddu	13	c19,0x17,5	c7,9%	16-20	3,2?	28%	(1,65)	(1,10-2,00)	ID
499	Avebury outer	15	350,6x323,2	7,8%	98-99	10,5	31%	3,20	2,05-4,50	U
Possible sites										
92	Quarry Wood	5	c42,0x38,0	ID	ID	ID	?	(0,95)	(0,90-1,00)	ID
258	Cairnpapple	8	32,7x26,5	19,0%	24-25	3,8	18%	ID	ID	ID,2IPO
509	Stonehenge Station Stones	15	87,5x90,8	ID	ID	(16,3)	(21%)	(2,00)	(2,00)	ID, PO(NE)

also see the inner bluestone ring at Stonehenge - table 8.

5:13 Date.

The only dating evidence comes from the circle-henges. This will be discussed more fully below (6:8,7:5). Many of these sites have indications of chronological depth, and in some cases at least, the stone circles may have been built long after the initial construction of the henge. In some cases stone circles are preceded by timber structures. The number of dates from stone circles within henges are severely limited at present. At Stonehenge the trilithons and Q/R rings have produced dates of 1720bc±150(BM-46) and 1620bc±110(I-2384) while the Y/Z rings gave a later date of 1240bc±105(I-2445). The only other date (of possible relevance) is from Mount Pleasant, where the timber rings were replaced by a stone cove and outlying stones at around 1680bc±60(BM-668). At Avebury a date consistent with those from Stonehenge and Mount Pleasant is suggested; 2 beaker sherds were found in one of the stoneholes of the outer circle, and 3 beaker graves are associated with the avenue.

While the dates for stone circles within henges relate to the end of the Neolithic and the Earlier Bronze Age, it would not be surprising if earlier stone circles also exist. At Stenness, Grooved Ware sherds were found in the modified ditch terminal (and central rectangle) which can be argued to be associated with the remodelling of the site in stone (see Appendix 1). At Cairnpapple the central stone cove was superceded by a burial accompanied by 2 beakers.

Data of uncertain utility

Carbon 14 dates (fig.83) from the primary silts of henge ditches cover a wide span, the earliest being those at Llandegai - 2790bc±150(NPL-220), 2530bc±145(NPL-224), 2470bc±140(NPL-221); Stonehenge - 2460bc±60(BM-1583), 2440bc±60(BM-1617), 2180bc±105(I-2328) and Stenness - 2356bc±65(SRR-350), The larger henges in Wessex appear to be built in the period 2100-1900bc, while the henge at Condecote appears to be slightly later - 1770bc±80(Har-3064), 1720bc±100(Har-3067), as were the hengiform sites of Millfield North - 1851bc±62(BM-1150), 1824bc±39(BM-1149) and Whitton Hill II - 1650bc±45(BM-2205),

Timber circles are also of varied dates, The setting at Arminghall and main ring at North Mains are the earliest examples found so far - 2490bc±150(BM-129) and 2330bc±60(GU-1352), 2180bc±60(GU-1436), 2155bc±60(6U-1353), 2090bc±70(6U1354), 2065bc±65(6U1435), The Wessex concentric rings again span the period 2100-1900bc,

5:14 Distribution (fig.36).

With the exception of the circle-henges, the Hybrid Circles have restricted distributions. The majority are found in southwestern England in the same region as Symmetrical Circles. One group (F7) is restricted to Dartmoor alone.

Only 1-2 sites are found in southwest Wales (F8) and 2-3 sites in southwest Scotland (F5). Lying between these two groups are the atypical Western Irregular Circles of Wales (C;F4).

It seems likely that all these groups represent stages in a continuum, the circular/symmetrical elements having the strongest influence in southwest England and southwest Wales. In much of Wales their influence is reduced but emerges again in an isolated pocket in southwest Scotland. In Cumbria and southwest Scotland further circles of similar size exist which have none of the distinctive traits of classes C-E and are difficult to distinguish from smaller rings found here and in the Pennines; hence they are listed under class L (F24,26). Functionally these rings may be another variant of the moderate diameter circle found in much of Western Britain. In Eastern Scotland circles of similar size and monumentality have distinctive architectural traits (classes H-J).

The circle-henges have a much wider distribution than other Hybrid Circles, isolated examples being found scattered throughout central and eastern Britain, wherever both henges and suitable building stones are found. Only Bryn Celli Ddu and the Stripple Stones are located in the west where freestanding Western Irregular and Hybrid Circles are common. In most other regions the stone circles within circle-henges stand out architecturally from stone circles in their vicinity. This suggests that the type of stone circles found within henges are intimately connected with the henge tradition in general and normally were only built within henges. Only in Wessex is there a general similarity with freestanding circles.

Symmetrical Circles; Class E.

5:15 Characteristics (figs. 34-35).

This class is typified by 24 rings in southwest England (F9) which have diameters of between 20 and 45 metres and c20-30 relatively tall stones. All aspects of their design point to these circles having been carefully designed to be symmetrical. They are usually so circular that a peg and rope is likely to have been used for layout. The accuracy of spacing between stones is generally good, with less overall error than in most other classes. The stones are carefully chosen to be of equal height or to be subtly graded. Stone shape also appears to have been carefully considered so as to present a uniform overall appearance (within the restrictions imposed by readily available stone).

The grading at Symmetrical Circles has varied orientations, only the northeast quadrant being avoided (fig.19). This lack of a common orientation is in strong contrast with the graded rings of eastern Scotland.

One point of obscure significance is that in smaller Symmetrical Circles the number of orthostats increases with diameter. However, when a total of c30 stones is reached, diameters increase independently of stone numbers.

Symmetrical Circles represent one end of a spectrum of monuments (classes C to E) and major variants have already been discussed under Hybrid Circles (5:12). Eight sites with only minor variations are more sensibly included here, as the majority of the elements of their design are in accord with classic Symmetrical Circles (see table 7). At Boscawen Un and the Hurlers-Central, the rings are uncircular. However, in the latter case this deviation in shape is only slight and was probably due to intractable granite at surface level at one point on the 'correct' line, which forced a slight modification to the design. The Cornridge and Louden Hill circles are also slightly uncircular and appear to have stones of variable height. Unfortunately both sites are too badly preserved to indicate for certain whether they should be categorized as Symmetrical Circles or Hybrids. Two of the Dartmoor examples -

White Moor Down and Langstone Moor - appear to have stones of variable height, but both have been 'restored' hence this may be a product of careless re-erection. Altarnun and Wendron SE, are atypically small and could alternatively be categorized as Small Circles (class L). However, they are larger than the other rare examples of class L rings found in southern England and incorporate other characteristic traits of Symmetrical Circles.

Symmetrical Circles in the south-west normally do not have additional features. At Boscawen Un (and posibly Altarnun) there is a centre stone.

In Wessex, 7-13 rings display class E characteristics in terms of their symmetrical appearance (E;F10,CH4). However, they have a wider range of diameters and asociated features, and are closely related to the Hybrid circle-henges (D;CH2,3).

Only the inner ring at the Sanctuary is atypically small, but this may result from a desire to mark the site of the earlier timber monument. Stanton Drew, and some of the rings within henges, are considerably larger than their south-western counterparts. It is noteworthy that in the Wessex Symmetrical Circles, despite sometimes large increases in diameter, the number of orthostats remains relatively constant (as in the larger south-western sites). At Hybrid circle-henges (class D) this is not the case.

Several of the Wessex Symmetrical Circles stand within henges. However, at Avebury the two inner circles are in effect freestanding and it remains debatable whether they predate the henge or not. Additional features are common at these sites, with internal settings at Avebury and Stonehenge, and avenues at the Sanctuary/Avebury, Stanton Drew and Stonehenge.

At Stonehenge the unique sarsen ring takes the trend for a symmetrical appearance to its limit.

Sites of uncertain classification

Only 7 sites of the 37 in this class are of uncertain classification. This is either because of their poor state of preservation, or in the case of the Y/Z rings at Stonehenge because they were never finished.

Table 10: Symmetrical Circles; Class E.

(for a key see table 5)

South-Western Freestanding Circles (F9)

1	2	3	4	5	6	7	8	9	10	11
422	Altarnum	14	c13,7x15,2	ID	10-12?	(4,1)	(12%)	1,10	1,00-1,30	E?
425	Boscawen Un	14	24,9x21,9	12,0%	20	3,8	17%	1,05	0,85-1,30	6(W)
438	Cornridge	14	c31,5x33,5	c6,0%	29-32	(3,2)	(19%)	c1,20	c0,80-1,50	U
442	Craddock Moor	14	c39,3	ID	27	4,5	14%	c1,10	c0,85-1,50	6?(NNW)
443	Crowan Beacon	14	c25,5	ID	22-25	(3,5)	(19%)	(0,95)	(0,80-1,10)	E?
453	Goodaver	14	32,7x31,5	ID	30-32?	(3,2)	(15%)	(1,05)	(0,80-1,35)	E?
454	Grey Wethers N	14	31,8x32,2	1,2%	30	3,4	16%	1,10	0,90-1,25	EorG(W)
455	Grey Wethers S	14	33,2x34,0	2,4%	30	3,5	14%	1,15	0,95-1,40	E
458	Hurlers Central	14	41,7x43,4	3,9%	29	4,5	9%	1,40	0,95-1,70	6(S)
459	Hurlers NNE	14	34,3x35,1	2,3%	29	3,9	12%	1,25	0,90-1,55	6(SSE)
460	Hurlers S	14	32,3x33,3	3,0%	29	(3,9)	(9%)	1,40	1,05-1,65	6?(SE)
465	Langstone Moor	14	c23,0	ID	c18	ID	?	c1,10	c0,65-1,90	U?
466	Leaze	14	24,5x25,1	2,4%	22	3,4	10%	1,10	1,00-1,15	E
467	Leskernick A	14	c30,4	ID	31-33	3,0	16%	1,05	0,70-1,20	E?
469	Louden Hill	14	c45,5x43,0	c5,5%	30-35	4,6	28%	0,90	0,45-1,45	U
474	Merry Maidens	14	23,6x24,0	1,7%	20	3,8	12%	1,15	0,85-1,40	6(SSW)
487	Tregeseal E	14	c21,3x20,1?	ID	21	(3,25)	(2%)	0,95	0,75-1,40	6?(SW)
488	Tregeseal W	14	c23,2	ID	18-19?	ID	?	ID	(1,55)	ID
490	Trippet Stones	14	33,0	0%	26-27	(3,9)	(6%)	1,30	1,05-1,45	E
493	Wendron NW	14	c21,0	ID	ID	ID	?	(1,05)	(0,95-1,15)	ID
494	Wendron SE	14	c16,0	ID	14-15	(3,4)	(3%)	1,05	1,00-1,10	E?
495	White Moor Down	14	20,2x20,5	1,5%	20	3,2?	19%	0,90	0,65-1,30	U?
506	Rempstone	15	c25,0	ID	c21-23	(3,5)	(12%)	(c1,20)	(c0,90-1,50)	ID
Possible site										
424	Boleigh	14	c27,0	ID	ID	ID	?	ID	ID	ID

Wessex Circles (F 10)

1	2	3	4	5	6	7	8	9	10	11
508	Sanctuary inner	15	14,0x14,6	4,1%	16	3,0	18%	(c1,35)	(c1,20-1,50)	ID
	" outer		39,6x38,5	1,8%	42	3,0	34%	(c1,35)	(c1,20-1,50)	ID, AV(NW)
510	Stanton Drew central	15	c114,5x113,0	1,3%	32-42	(10,4)	25%	c2,20	c1,50-3,00	ID, AV(ENE)
Possible sites										
500	Coate	15	c60,0x70,0	ID	ID(c25-35)	ID	?	(large)	(? -2,50)	ID
502	Falkners Circle	15	c36,5	ID	ID	ID	?	ID	(1,30)	ID
514	Winterbourne Bassett	15	c33,0	ID	ID	ID	?	ID	ID	ID

Wessex Circle-Henges (CH 4)

1	2	3	4	5	6	7	8	9	10	11
499	Avebury south	15	c100,0x105,0	ID	c29-30	(10,9)	(8%)	c3,60	2,75-4,15	U?
	" north-outer	15	c95,0-105,0	ID	c27-30	ID	?	(3,50)	(3,35-3,75)	ID
501	Devils Quoits	15	c78,5x75,5	c3,8%	33-37	7,0	22%	(2,90)	(2,90)	ID

509 Stonehenge										
	sarsens	15	30,5x30,2	1,0%	30	3,2	5%	4,10	4,10	E, AV?(NE)
Possible sites										
499 Avebury north										
	inner	15	c41,0	ID	ID(c12?)	ID	?	ID	ID	ID
509 Stonehenge										
	Y Ring	15	51,8x54,9	5,6%	30	5,7	33%	ID	ID	ID
"	Z Ring	15	37,7x40,5	6,9%	29-30	4,1	19%	ID	ID	ID

5:16 Dating.

No dating evidence whatsoever exists for the Symmetrical Circles of the southwest. In Wessex the Stonehenge trilithons have been dated to 1720bc±150(BM-46), while the only artefacts directly associated with a Symmetrical Circle come from the Sanctuary. A grave dug against one of the stoneholes contained a relatively early beaker. This grave had been dug after the inner stone circle was built and hence acts as a *terminus ante quem* for the circle.

Data of uncertain utility

The majority of finds at the Sanctuary, including Mortlake, Fengate, Grooved Ware and Beaker sherds are not securely related to the stoneholes and may well belong to the earlier timber phases; Windmill Hill and Ebbsfleet sherds may predate the site.

5:17 Distribution (figs.24,36).

These sites are confined to southwest England and Wessex, where they are found alongside Hybrid Circles to which they are related. The only other rings with equally symmetrical characteristics, but different architecture, are found in eastern Scotland (classes H and I).

Vessex Variant Circles; class F (F11).

5:18 Characteristics (fig.37).

These two rings at Stanton Drew, lying to either side of the much larger central ring (class E), do not fit within any of the recognized classes because of the combination of their relatively large diameters and small number of orthostats. In other respects they are similar to other Symmetrical and Hybrid circles found in Wessex and within circle-henges generally (classes D,E). They have tall stones and the northeastern ring has an avenue (as does the central ring).

While the multivariate analysis suggests these 2 rings should be treated as a separate class of site, they are likely to be variant forms of the more typical larger Wessex circles of classes D and E. Perhaps in the case of Stanton Drew the architecture of the two ancillary circles was influenced by that of the central ring; with the spacing standardized, this resulted in the number of orthostats being reduced.

Table 11: Vessex Variant Circles; Class F (F 11)
(for a key see table 5)

1	2	3	4	5	6	7	8	9	10	11
511	Stanton Drew NE	15	c30,0x31,0	ID	8	11,6	8%	2,80	2,0-3,30	U?
512	" SSW	15	c43,0x40,0	ID	11?	c11,9	16%	c2,00	c0,90-2,80	U?

5:19 Dating.

No data.

5:20 Distribution (fig.24)

Both these Wessex sites fall within the distribution range of Symmetrical and Hybrid Circles to which they are related, the closest similarities being to examples found in Wessex.

Hebridean Open Circles; class G (F12).

5:21 Characteristics (fig.38).

These 4-6 freestanding rings are characterized by large diameters ranging from c35 to c45 metres and relatively few, widely-spaced orthostats. The stones are tall, ungraded and arranged in non-circular rings.

The class is distinct from all others when the above characteristics and their distribution are considered. Other large circles in the region are all of Western Irregular Circle type (class C) and hence architecturally of a very different character. The Small Circles of the region (class K), such as those around Callanish, have many similar architectural attributes, but even the largest are under half the diameter of those in class G.

Looking further afield, all classes of larger circles are distinguished by various architectural traits. However, the closest parallels are the Northern Open Circles (class A) of northeastern and southern Scotland; these consistently have much larger diameters. If these two classes (A,G) are related, the difference in scale might reflect relative population sizes. The other moderate-diameter freestanding circles in Scotland, the Clava Cairns and Recumbent Stone Circles are restricted to the east and have smaller diameters/distinctive architecture. The rings within the northern circle-henges (class D) are occasionally similar, but these are never found in western Scotland. Further south, freestanding rings of comparable character to Hebridean Open Circles are found in Wales (class C;F4) and southwest England (classes D,E) but these are differentiated from class G by having more orthostats and/or symmetrical traits.

Sites of uncertain classification

The two possible sites are ruined but their large diameters suggest they belong to this group.

Table 12: Hebridean Open Circles; Class G (F 12)
(for a key see table 5)

1	2	3	4	5	6	7	8	9	10	11
16	Achmore	3	41,4x43,0	3,7%	22-24	5,7	36%	1,35	0,70-2,00	U
18	Carinish	3	39,0x41,5	c6,0%	c16-20	(6,9)	(13%)	ID	(c1,00-1,50)	U
35	Hough NNE	4	c33,0x40,0	c17,5%	13-17	(7,2+)	(23%)	(1,80)	(1,80)	ID
36	Hough SSW	4	c44,0	ID	20-24	(6,4)	(33%)	ID	ID	ID
Possible Sites										
25	Priests Glen	3	c45,0	ID	ID	ID	?	(c1,00)	(c0,90-1,10)	ID
56	Tenga	4	33,0x40,0?	c17,5%	c11-14?	ID	?	1,35	0,95-2,20	U?

5:22 Dating.

No data.

5:23 Distribution (fig.24).

These rings have a restricted distribution, confined to the Outer Hebrides and Tiree (with a possible example on Mull). No other class of larger circles with similar architectural traits is found within this region (figs.24,36). Those elsewhere each have their own discrete distribution (see 5:21).

Larger Stone Circles in Eastern Scotland.

Recumbent Stone Circles; class H.

5:24 Characteristics (figs.39-41).

These 60-86 sites have architectural traits which distinguish them from all other classes. They consist of moderate sized circles with diameters ranging from 10 to 30 metres. The stones are tall and are normally graded to the southwest quadrant where there is a particularly large stone - the 'recumbent'. This rests on its longest edge and fills the gap between the two tallest pillars - the 'flankers'; these are often around 2.0m high. The recumbents often weigh 20 tonnes or more, and appear to have been carefully positioned so their tops were approximately horizontal. The orthostats are widely spaced, and irrespective of diameter, their number is uniformly between 8 and 13.

In the majority of these respects this class of monument is very similar to the Clava Cairns (class I) found further west in the Moray Firth region. However, the latter lack recumbents and have passage graves or massive ringcairns in their interiors. In the case of Recumbent Stone Circles, well preserved sites usually have a central ringcairn. These are of very different character to those found at the Clava sites (see 5:27), being low, wide platforms.

As with the Clava Cairns, a high proportion of the Recumbent Stone Circles are poorly preserved. Many would not be recognizable as stone circles if it were not for the survival of recumbents and/or flankers, which were often so massive that their destruction was presumably more trouble than it was worth.

The Recumbent Stone Circles also share subtle characteristics of their design with Clava Cairns. The spacing between orthostats is either relatively equal, or in at least 8 cases, carefully designed to become wider as the recumbent and flankers are approached. The rings also appear to be carefully planned, 6 out of 7 well preserved sites being particularly circular.

In all these cases the recumbent and flankers do not conform to this circular plan but lie at varying distances inside the ring.

In the cases of Dyce, Easter Aquorthies, Sunhoney and probably Castle Frazer, this deviation is only slight, while at Loanhead of Daviot, Midmar Kirk and Auchquhorthies it increases. At Garrol Wood - the only non-circular site - this trend reaches its limit and distorts the shape of the ring as a whole. In less well preserved sites - at Tomnagorn, Yonder Bognie, Coithiemuir Wood, Aikey Brae and Berrybrae - there are good indications that the recumbent and flankers are also set well inside the ring. At Easter Aquorthies and Dyce the insetting is symmetrical to the ring, while at Auchquorthies, Loanhead of Daviot, Sunhoney and Midmar Kirk, the recumbent is set so as to be nearer the site-centre at the east flanker. At Coithiemuir Wood this pattern appears to be reversed.

Ruggles and Burl (1985) have suggested that the recumbent and flankers were erected first, and the circle then 'rather casually laid out'. The degree of circularity (which implies laying out with peg and rope), together with the care taken over spacing between stones, argues strongly that the reverse is true - the circles were laid out with care and then the recumbents and flankers positioned at a later date (perhaps because recumbents often had to be brought some distance and took time arriving). The general trend for inward-placing argues that their displacement is designed rather than fortuitous. This may perhaps be explained by a desire to place the stones nearer centrally placed 'participants' and hence increase the visual impact of the stone setting. In addition, the central ringcairn could be linked more easily to the recumbent and flankers if the distance was decreased (see below). The twisting of the recumbent may be explained by 'fine-tuning' of its orientation but the reasons for this are obscure.

The consistent orientation of the recumbent to the SSE/SW (normally SW/SSW) is clearly intentional and probably has an astronomical explanation. A recent study (Ruggles 1984, Ruggles and Burl 1985) has shown that any attempt to see the recumbents as precise orientation markers is not appropriate. However, the most likely explanation is still that the recumbent and flankers are designed to frame the full moon around midsummer when it was low in the sky (but not generally at its rising or setting positions) (see 3:2).

In over 10 cases, cupmarks are found on recumbent, flankers or adjacent orthostats, but not elsewhere within these monuments. These help reinforce the idea of the ritual significance of these stones/this direction, but it does not necessarily follow that such carvings should be given an astronomical interpretation (as suggested in Ruggles and Burl 1985).

Although the majority of Recumbent Stone Circles fall comfortably within the detailed architectural parameters described above (19 cases), there are some sites which do not (while still undisputably being Recumbent Stone Circles) (see table 14). In 9 cases, variation in design is minor (somewhat variable stone spacing and southerly orientation) and probably of little significance. However, in another 9 cases the design is more deviant. These sites are found only on the geographical fringes of Recumbent Stone Circle distribution (and a discrete distribution such as this supports their validity as a sub-class). Burl, in a similar analysis (using different parameters) concluded that such variant circles were late in the sequence (Burl 1969-70). However, this does not necessarily follow; their fringe distribution could alternatively be viewed as reflecting a weakening of the design concepts over distance rather than through time. Relatively isolated communities on the fringes may have been unconversant with the subtleties, or were under less pressure to compete with neighbours to build the 'perfect' monument. There is not enough evidence to examine the relative chronology of variables within Recumbent Stone Circles (see 5:25).

To the west, 3 certain variant-circles are found. Candle Hill and Ardlair both have a somewhat irregular design and their recumbents are orientated to the SSE. At North Strone - a site with none of the 'classic' traits - the 16 small, ungraded stones have only a diminutive recumbent which is placed in the southern arc of the ring. The ruined sites of Melgum Central and perhaps Greystone may have been similar.

On the southern fringes, the 6 variant sites are all orientated to the south or SSE. Their designs are also somewhat irregular and Old Bourtreebush had more stones than usual.

The ruined sites of Tilquhillie and Harestane have small recumbents and hence may also belong to the variant group. Cairn Riv is another possible variant (see below).

The interiors of Recumbent Stone Circles have a range of structures within them. Unfortunately in the majority of sites these are likely to have been badly damaged or ploughed away, a fact which has not been fully assimilated in earlier taxonomic subdivision of the class. Three distinct forms can be identified - central cairns; banks linking the orthostats; and in the interiors, wide, flat-topped ringcairns delimited by kerbs. At these internal ringcairns, the outer kerb curves outwards to form a platform joined to the recumbent and flankers. At some sites, only this platform exists; here it seems likely the central features have been destroyed. No excavated sites have produced good evidence that 'recumbent-platforms' were designed as independent features.

Table 15 summarizes the data. In 11 cases inner ringcairns and outer banks are found in combination, while in 24 cases only the inner ringcairn exists. However, the outer banks are more prone to destruction from ploughing at the site edge, as illustrated by Castle Frazer and Loanhead of Daviot where the banks have probably been reduced, leaving only cairns round the orthostats (see Appendix 1). It may be that many further examples of outer banks once existed.

Only 5 cases exist with an outer bank but no central feature. Four of these are found at the northeastern quadrant of Recumbent Stone Circle distribution (the fifth, Greystone, is of uncertain status). The only one of these sites to be excavated is Berrybrae. It initially had both outer bank and internal ringcairn but was later remodelled; the internal features and some orthostats were demolished and the outer bank rebuilt.

Only 4 possible cases of a central cairn exist and these may also be secondary features. They are restricted to the northwestern quadrant of the Recumbent Stone Circle distribution. The only excavated example is Old Keig which unfortunately was already ruined. The excavations revealed what is likely to be a wide internal ringcairn as it was linked to the flankers. However, this may have been partially demolished in prehistory as early antiquarian accounts of the site describe a prominent central cairn.

In summary (as far as the limited data allows), it appears the classic design of Recumbent Stone Circles incorporated both a bank linking the orthostats and a wide internal ringcairn joined to the recumbent and flankers. The finds that can be related with some certainty to these primary features are minimal, being restricted to a few smashed pots and occasional token deposits of cremated bone and associated burning; all may be dedicatory/ritual deposits.

The only other documented features associated with Recumbent Stone Circles are occasional outliers. At Balquhain, Sheldon and possibly Auchquhorthies these lie in the southeast quadrant, the exception is one to the north at Druidstone.

Sites of uncertain classification

Twenty six out of eighty six sites classified here are of uncertain interpretation. There are 25 possible sites in the region at which no recumbent is documented. Burl has suggested that some of these are freestanding rings similar to those in other regions. However, this seems unlikely; all are ruined and have architecture and diameters comparable with Recumbent Stone Circles. It seems more than co-incidence that not one well preserved ring lacking a recumbent has survived. It is more reasonable to regard these as damaged Recumbent Stone Circles.

At the unique site at Cairn Riv the recumbent is massive and the flankers diminutive. This has led to doubts cast over the authenticity of this site and it is a pity no further orthostats survive to make a more positive interpretation.

Table 13: Recumbent Stone Circles; class H.

(for a key see table 5)

1	2	3	4	5	6	7	8	9	10	11
98	Aikey Brae	6	c15,2	ID	9	5,1	R20%	1,85	1,50-2,15	R,G(S)
99	Ardlair	6	c11,0	ID	10	(3,6)	20%	1,35	1,20-1,50	R,G(SSE)
100	Arnhill	6	c18,0?	ID	ID	ID	?	(1,70)	(c1,40-2,10)	R(S)
101	Auld Kirk o'Tough	6	ID	ID	10?	ID	?	ID	ID	R(SW)
102	Auchmachar	6	c15,0	ID	c8-9	ID	?	(2,40)	(2,15-2,55)	R(SSW)
103	Auchmaliddie	6	ID	ID	ID	ID	?	(1,70)	(1,70)	R(S)
104	Auchquhorthies	6	23,0x22,6	1,7%	11?	(7,0)	R33%	1,30	0,90-2,00	R,G(S) AO?(SSE)
107	Balnacraig	6	c13,5-14,0	ID	ID	ID	?	(1,40)	(1,20-1,75)	R(SW)
108	Balquhain	6	c20,5	ID	c11-12	(5,2)	(4%)	(1,80)	(1,35-2,25)	R,G(SSW) EO(SSE)
110	Berrybrae	6	c13,2	ID	9	(4,3)	(12%)	(1,55)	(1,00-2,15)	R,G(SW)
111	Binghill	6	c10,0-10,5	ID	9-10	(c4,2)	(4%)	1,15	1,00-1,30	R,U(S)

112 Braehead	6	ID	ID	ID	ID	?	ID	ID	R(SSW)
117 Cairnton	6	ID	ID	ID	ID	?	(2,30)	(2,30)	R(S)
119 The Camp	6	c20,0	ID	ID	ID	?	ID	ID	R(S)
120 Candle Hill	6	c15,0	ID	10-11	(c4,4)	(8%)	1,60	1,20-2,00	R,G(SSE)
121 Castle Frazer	6	c20,9	ID	10	6,9	7%	1,65	1,00-2,90	R,G(SSW)
123 Colmeallie	6	c15,0?	ID	10-12?	ID	?	1,20	0,50-1,80	R,G(SSW)
124 Corrstone Wood	6	c16,0	ID	ID	(6,2)	(2%)	(1,95)	(1,50-2,20)	R,U(SSW)
125 Corrydown	6	c22,0	ID	c10-11	(6,4)	?	(1,15)	(1,00-1,80)	R,G(SSW)
126 Cothiemuir Wood	6	c20,9	ID	11	6,1	R25%	1,85	1,10-2,80	R,G(SSW)
130 Druidsfield	6	ID	ID	ID	ID	?	(2,10)	(2,00-2,20)	R(S)
131 Druidstone	6	c16,5	ID	c10-11	(4,8)	(4%)	(1,25)	(0,90-1,80)	R,G(SSW) AD(N)
132 Dunnideer	6	ID	ID	ID	ID	?	(2,30)	(2,00-2,60)	R(SSW)
133 Dyce	6	18,1x17,7	2,2%	10	5,5	33%	1,85	0,95-3,00	R,G(S)
134 Easter Aquorthies	6	19,4x19,1	1,5%	11	5,3	17%	1,65	1,15-2,10	R,U(SSW)
136 Esslie the Greater	6	c23,5	ID	10-11	(7,6)	(R19%)	(1,30)	(1,10-1,40)	R,U(S)
137 Esslie the Lesser	6	c13,3	ID	8-9	(5,1)	(13%)	(1,25)	(1,15-1,40)	R,U(S)
138 Frendraught	6	c26,0	ID	ID	ID	?	(2,00)	(2,00)	R(S)
140 Garrol Wood	6	19,1x17,7	7,3%	10	5,6	R27%	1,35	1,00-1,80	R,G(SSE)
142 Gavel	6	ID	ID	ID	ID	?	(1,45)	(1,45)	ID
147 Hatton of Ardoyne	6	c24,5	ID	12	(7,4)	(9%)	1,45	1,20-2,30	R,G(SW)
149 Hill of Fiddes	6	c14,0?	ID	9	ID	?	(2,00)	(2,00)	R(SSW)
154 Inschfield	6	c22,5	ID	ID	ID	?	(2,05)	(1,50-2,60)	R(SSW)
155 Kirkton of Bourtie	6	c21,0?	ID	c9-11	(6,6)	(8%)	(2,30)	(1,80-2,70)	R,U?(SSW)
156 Loanhead of Daviot	6	20,6x20,1	2,4%	10	6,5	15%	1,60	1,15-2,00	R,G(SSW)
157 Loanend	6	ID	ID	ID	ID	?	(2,00)	(2,00)	R(SW)
158 Louden Wood	6	c17,5	ID	9-10	(6,1)	(6%)	1,80	1,50-2,20	R,U(SSW)
159 Mains of Hatton	6	c22,5	ID	c10-11	7,0?	16%	(c1,10)	(c0,80-1,40)	R,G(SSW)
161 Midmar Kirk	6	17,7x17,2	2,8%	9	6,3	16%	1,80	1,05-2,40	R,G(SW)
165 Netherton	6	c17,5	ID	c10-11	(c4,9)	?	1,40	1,10-1,70	R,G(S)
166 New Craig	6	ID	ID	ID	ID	?	(2,20)	(1,95-2,50)	R(SSW)
168 North Strone	6	c17,7x20,4?	ID	c16	3,7	25%	0,80	0,70-0,90	R,U(S)
169 Old Bourtreebush	6	c25,0	ID	c14-16	(c5,4)	(8%)	(1,90)	(1,00-2,60)	R,G?(S)
170 Old Keig	6	c30,0	ID	c12	(c6,6)	(7%)	c2,00	c1,65-2,30	R,G(SSW)
171 Old Rayne	6	c26,4	ID	11-13	7,1	R(21%)	(1,55)	(1,00-2,45)	R,G(SSW)
172 Pitglassie	6	c18,0	ID	ID	ID	?	ID	ID	ID
173 Potterton	6	ID	ID	ID	ID	?	(2,05)	(2,00-2,10)	R(S)
176 Raes of Clune	6	c17,1	ID	8	6,8	R16%	1,50	1,20-1,65	R,U(S)
179 Rothiemay	6	c28,0	ID	c13	(6,4)	(3%)	(1,80)	(1,75-1,90)	R(SW)
180 St Brandans Stanes	6	ID	ID	ID	ID	?	(1,70)	(1,65-1,80)	R(S)
184 South Ley Lodge	6	ID	ID	ID	ID	?	(1,65)	(1,60-1,70)	R(SSW)
185 Stonehead	6	ID	ID	ID	ID	?	(2,05)	(1,80-2,30)	R(SW)
187 Strichen House	6	c13,0	(ID)	10-12	(3,8)	(R39%)	ID	ID	R(SSE)
188 Sunhoney	6	25,8x25,0	3,1%	11	7,3	10%	1,75	1,35-2,25	R,G(SW)
190 Tilquhillie	6	ID	ID	ID	ID	?	(1,55)	(1,55)	R(SW)
191 Tomnagorn	6	c22,4	ID	11	6,4	26%	1,55	1,20-2,00	R,G(SSW)
192 Tomnaverie	6	c17,1	ID	12	(4,6)	(17%)	1,30	0,90-1,80	R,G(SW)
196 Wantonwells	6	ID	ID	ID	ID	?	(2,75)	(2,75)	R(SSW)
199 Whitehill	6	c22,0	ID	12	5,3	23%	1,40	0,80-2,20	R,G(SSW)
202 Yonder Bognie	6	c20,6	ID	11	6,0	R31%	1,35	1,05-1,90	R,G(S)

Possible Sites									
63 Bogton Mill	5	c25-30	ID	ID	ID	?	(1,60)	(1,50-1,75)	ID
82 Innesmill	5	c33,8	ID	c12	(8,7)	(6%)	1,40	1,00-1,80	G(S/SW)
113 Brandsbutt	6	c25,0	ID	c13	(c6,0)	(8%)	ID	ID	ID
115 Cairnfauld	6	c21,0	ID	c8-11	(7,6)	(7%)	(1,50)	(1,20-1,80)	G(S)
116 Cairn Riv	6	c29,0	ID	ID	ID	?	ID	ID	R(S)
122 Clochforbie	6	ID	ID	ID	ID	?	ID	ID	R(SW)
141 Gaul Cross S,	6	c18,0	ID	ID	ID	?	ID	ID	ID
143 Gingomyres	6	c18,0	ID	ID	ID	?	ID	ID	ID
145 Greystone	6	c12,0x11,0	ID	c7-9?	(3,9)	(13%)	(c0,80)	(0,75-0,90)	ID
146 Harestane	6	c18,0	ID	ID	ID	?	ID	ID	ID
150 Holywell	6	c24,5	ID	9	ID	?	(c1,75)	(c1,50-1,80)	ID
152 Huntley	6	c12,0-15,0	ID	ID	ID	?	(1,35)	(1,35)	ID
160 Melgum Central	6	c22,6	ID	ID	ID	?	(0,70)	(0,40-1,00)	U
162 Millplough	6	ID	ID	ID	ID	?	ID	ID	R(SSW)
163 Nether Coullie	6	c22,0-25,0	ID	ID	ID	?	(2,70)	(2,70)	ID
164 Nether Dunmeath	6	c12,0	ID	c9-10?	ID	?	ID	ID	ID
178 Rappla Wood	6	c15,0?	ID	ID	ID	?	ID	ID	ID
181 Sheldon	6	c23,8	ID	c12-13?	(6,5)	?	(1,70)	(1,50-1,80)	ID, AO(SE)
183 South Fornet	6	ID	ID	ID	ID	?	(1,80)	(1,80-1,85)	R?(S)
186 Stonyfield	6	c14,0	ID	c10-11?	(c4,7)	(12%)	(1,45)	(1,00-1,80)	ID
194 Upper Auchnagorth	6	c13,7	ID	c11-13	(3,5)	(10%)	1,45	1,20-1,75	R,G?(SSW)
195 Upper Ord	6	ID	ID	ID	ID	?	ID	ID	ID
197 Wester Echt	6	ID	ID	ID	ID	?	(2,10)	(1,80-2,45)	ID
198 West Haughs	6	c23,0?	ID	ID	ID	?	ID	ID	ID
201 Whitehill Wood South	6	ID	ID	ID	ID	?	ID	ID	R?(SSW)
217 Coilleacher	7	c15,8	ID	ID	ID	?	ID	ID	ID

Table 14: An Analysis of Recumbent Stone Circles (class H)

Key

		Score
1; Degree of Circularity	0-3,5%	+1
	3,5-4,0%	0
	4,0%+	-1
2; Original Number of Orthostats	8-13	+1
	14+	-1
3; Average Spacing between Orthostats	4,5m+	+1
	4,5m-	0
4; Spacing Variability Range	0-21%	+1
	20-30% (or gradual increase to SW)	0
	30%+	-1
5; Average Stone Height	1m+	+1
	1m-	-1
6; Grading	graded	+1
	equal height except for flankers	0
	not graded	-1

7; Orientation of Recumbent	SW/SSW	+1
	S	0
	SSE	-1
8; Design of Flankers	both tall	+1
	only 1 tall	0
	both low	-1
9; Size of Recumbent	large	+1
	moderate	0
	small	-1

10; Total Score.

Classic Recumbent Stone Circles

	1	2	3	4	5	6	7	8	9	10
188 Sunhoney	+1	+1	+1	+1	+1	+1	+1	+1	+1	+9
156 Loanhead of Daviot	+1	+1	+1	+1	+1	+1?	+1	+1?	+1	+9
161 Midmar Kirk	+1	+1	+1	+1	+1	+1?	+1	+1	+1	+9
121 Castle Frazer	?	+1	+1	+1	+1	+1	+1	+1	+1	+8
126 Cothiemuir Wood	?	+1	+1	+1	+1	+1	+1	+1	+1	+8
108 Balquhain	?	+1	+1?	?	+1	+1?	+1	+1	+1	+7
170 Old Keig	?	+1	+1?	?	+1	+1?	+1	+1	+1	+7
192 Tomnaverie	?	+1	+1?	?	+1	+1	+1	+1	+1	+7
123 Colmeallie	?	+1	?	?	+1	+1	+1	+1	+1	(+6)
124 Corrstone Wood	?	?	+1?	?	+1?	+1?	+1	+1	+1	(+6)
155 Kirkton of Bourtie	?	+1	+1?	?	+1?	+1?	+1	+1?	+1	(+6)
179 Rothiemay	?	+1	+1?	?	+1	?	+1	?	+1	(+5)

Recumbent Stone Circles with insignificant variables

	1	2	3	4	5	6	7	8	9	10
134 Easter Aquorthies	+1	+1	+1	+1	+1	0	+1	+1	+1	+8
159 Mains of Hatton	?	+1	+1	+1	+1?	+1	+1	+1?	0	+7
110 Berrybrae	?	+1	0?	?	+1?	+1?	+1	+1?	+1	+6
131 Druidstone	?	+1	+1?	?	+1?	+1?	+1	0	+1?	+6
147 Hatton of Ardoyne	?	+1	+1?	?	+1	+1	+1	+1?	0	+6
158 Louden Wood	?	+1	+1?	?	+1	0?	+1	+1	+1	+6
125 Corrydown	?	+1	+1?	?	+1	0?	+1	0?	+1	+5

Recumbent Stone Circles with minor variables

	1	2	3	4	5	6	7	8	9	10	
199 Whitehill	?	+1	+1	0	+1	+1	+1	+1	+1	+7	Variable spacing
171 Old Rayne	?	+1	+1?	0?	+1?	+1?	+1	?	+1	+6	Variable spacing
191 Tomnagorn	?	+1	+1	0	+1	+1	+1	+1?	0	+6	Variable spacing
133 Dyce	+1	+1	+1	-1	+1	+1	0	+1	+1	+6	Variable spacing, orientation south
98 Aikey Brae	?	+1	+1	0	+1	+1	0	+1	+1	+6	Variable spacing, orientation south
104 Auchquhorthies	+1	+1	+1	0	+1	+1	0	?	+1	+6	Variable spacing, orientation south

202 Yonder Bognie	?	+1	+1	0	+1	+1	0	+1?	+1	+6	Variable spacing, orientation south
165 Netherton	?	+1	?	?	+1	+1?	0	+1	+1	(+5)	orientation south
187 Strichen House	?	+1	0?	0?	?	?	-1	?	+1	(+1)	Variable spacing, orientation SSE

Variant Recumbent Stone Circles - West

	1	2	3	4	5	6	7	8	9	10	
120 Candle Hill	?	+1	0?	?	+1	+1?	-1	0?	+1	+3	Orientation SSE, irregular design
99 Ardlair	?	+1	0?	0?	+1	-1?	-1	-1?	+1	0	Orientation SSE, irregular design
168 North Strone	-1?	-1	0	0	-1	-1	0	-1	-1	-6	Orientation south, irregular design, small stones,

Variant Recumbent Stone Circles - South

	1	2	3	4	5	6	7	8	9	10	
136 Esslie the Greater	?	+1	+1	0	+1?	0?	0	0?	+1	+4	Orientation S, irregular design
176 Raes of Clune	?	+1	+1	0	+1	-1	0	+1?	+1	+4	Orientation S, irregular design
140 Garrol Wood	-1	+1	+1	0	+1	+1	-1	+1	0	+3	Orientation SSE, irregular design
137 Esslie the Lesser	?	+1	+1	?	+1?	0?	0	?	-1	+2	Orientation S, irregular design
169 Old Bourtreebush	?	-1	+1?	?	+1	?	0	?	?	(+1)	Orientation S, many stones
111 Binghill	?	+1	0?	?	+1	-1	0	-1	-1	-1	Orientation S, irregular design

Ruined Variant Recumbent Stone Circles

	1	2	3	4	5	6	7	8	9	10	
145 Greystone	?	+1?	0?	?	-1?	?	?	?	?	(0)	Western group
160 Melgum Central	?	?	?	?	-1	?	?	?	?	(-1)	Western group
190 Tilquhillie	?	?	?	?	?	?	+1	+1?	-1	(+1)	Southern group
146 Harestane	?	?	?	?	?	?	?	-1?	-1	(-2)	
116 Cairn Riv	?	?	?	?	?	?	+1	-1	+1	(+1)	

Ruined Recumbent Stone Circles with minor variables

	1	2	3	4	5	6	7	8	9	10	
100 Arnhill	?	?	?	?	+1	?	0	?	+1	(+2)	Orientation-south
103 Achmaliddie	?	?	?	?	?	?	0	+1?	+1	(+2)	Orientation-south
117 Cairnton	?	?	?	?	?	?	0	+1?	+1	(+2)	Orientation-south
119 The Camp	?	?	?	?	?	?	0	?	+1	(+1)	Orientation-south
130 Druidsfield	?	?	?	?	?	?	0	+1	+1?	(+2)	Orientation-south
180 St Brandan Stanes	?	?	?	?	?	?	0	+1	+1?	(+2)	Orientation-south
183 South Fornet	?	?	?	?	?	?	0?	+1?	+1?	(+2)	Orientation-south

Ruined Recumbent Stone Circles

	1	2	3	4	5	6	7	8	9	10
101 Auld Kirk o' Tough	?	+1	?	?	?	?	+1?	?	?	(+2)
102 Achmachar	?	+1	?	?	+1?	?	+1	+1	+1?	(+5)
107 Balnacraig	?	?	?	?	+1?	?	+1	?	+1	(+3)
113 Braehead	?	?	?	?	?	?	+1	?	+1	(+2)

132 Dunnideer	?	?	?	?	?	?	+1	+1	+1	(+3)
138 Frendraught	?	?	?	?	?	?	?	?	+1	(+1)
142 Gavel	?	?	?	?	+1?	?	?	?	+1	(+2)
149 Hill of Fiddes	?	+1	?	?	?	?	+1	+1?	+1	(+4)
154 Inshfield	?	?	?	?	+1?	?	+1	+1?	+1	(+4)
157 Loanend	?	?	?	?	+1?	?	+1	+1?	+1	(+4)
166 New Craig	?	?	?	?	?	?	+1	+1	+1	(+3)
172 Pitglassie	?	?	?	?	?	?	?	?	+1	(+1)
173 Potterton	?	?	?	?	?	?	?	+1	+1	(+2)
184 South Ley Lodge	?	?	?	?	?	?	+1	+1	+1	(+3)
185 Stonehead	?	?	?	?	?	?	+1	+1	+1	(+3)
196 Wantonwells	?	?	?	?	?	?	+1	+1?	+1	(3)
63 Bogton Mill	?	?	?	?	+1?	?	?	?	?	(+1)
82 Innesmill	?	+1	+1	?	+1	+1	?	?	?	(+4)
113 Brandsbutt	?	+1?	+1?	?	?	?	?	?	?	(+2)
115 Cairnfauld	?	+1	+1?	?	+1?	+1	?	?	?	(+4)
122 Clochforbie	?	?	?	?	?	?	+1	?	+1	(+2)
141 Gaul Cross S	?	?	?	?	?	?	?	?	?	?
143 Gingomyres	?	?	?	?	?	?	?	?	+1?	(+1)
150 Holywell	?	+1	?	?	+1?	?	?	+1?	+1?	(+4)
152 Huntley	?	?	?	?	+1?	?	?	?	+1?	(+2)
162 Millplough	?	?	?	?	?	?	+1	?	+1	(+2)
163 Nether Coullie	?	?	?	?	?	?	?	?	?	?
164 Nether Dunmeath	?	+1	?	?	?	?	?	?	?	(+1)
178 Rappla Wood	?	?	?	?	?	?	?	?	?	?
181 Sheldon	?	+1?	+1?	?	+1	?	?	?	?	(+3)
186 Stonyfield	?	+1?	+1?	?	+1?	?	?	?	?	(+3)
194 Upper Auchnagorth	?	+1	0	?	+1	+1?	?	?	?	(+3)
195 Upper Ord	?	?	?	?	?	?	?	?	?	?
197 Wester Echt	?	?	?	?	+1?	?	?	?	?	(+1)
198 Wester Haughs	?	?	?	?	?	?	?	?	?	?
217 Coilleacher	?	?	?	?	?	?	?	?	?	?
201 Whitehill Wood South	?	?	?	?	?	?	?	?	+1?	(+1)

Table 15: An analysis of ringcairns and cairns at Recumbent Stone Circles (class H).

Key

1: Bank linking the orthostats

2: Wide internal ringcairn linked to the recumbent and flankers

3: Central cairn

4: Internal features of indeterminate type

Presence: score +1

Absence ; score -1

	1	2	3	4	
<u>Outer bank and inner ringcairn</u>					
156 Loanhead of Daviot					
(phase 1)	+1	(+1)?	?	-	Probably modified - see appendix 1,
(phase 2)	+1?	+1	-1	-	
170 Old Keig (phase 1)	?	+1	-1?	-	Probably modified - see appendix 1
(phase 2?)	+1?	?	+1?	-	
110 Berrybrae (phase 1)	+1	+1	-1	-	
(phase 2)	+1	-1	-1	-	Circle part-demolished
140 Garrol Wood	+1	+1	?	-	Interior possibly remodeled
121 Castle Frazer	+1	+1	-1	-	ploughed down
134 Easter Aquorthies	+1	+1	-1?	-	Interior damaged
133 Dyce	+1?	+1?	-1	-	Interior damaged, bank modified
202 Yonder Bognie	+1?	+1?	-1?	-	Ruined
149 Hill of Fiddes	+1	+1?	-1	-	Ploughed out
143 Gingomyres	+1?	+1?	?	-	destroyed
188 Sunhoney	+1	?	?	+1	Interior disturbed
<u>Inner Ringcairn</u>					
192 Tomnaverie	-1?	+1	-1	-	
147 Hatton of Ardoyne	-1?	+1	-1	-	
199 Whitehill	-1?	+1	-1	-	
191 Tomnagorn	-1?	+1	-1	-	
104 Auchquhorthies	-1?	+1	-1	-	
99 Ardlair	-1?	+1	-1	-	
136 Esslie the Greater	-1?	+1	-1	-	
176 Raes of Clune	-1?	+1	-1	-	damaged
111 Binghill	-1?	+1	-1	-	
108 Balquhain	-1?	+1?	-1?	-	ploughed out
123 Colmeallie	-1?	+1	?	-	no clear central space
101 Auld Kirk o'Tough	?	+1	-1	-	
107 Balnacraig	?	+1	-1	-	
119 The Camp	?	+1	-1	-	
137 Esslie the Lesser	?	+1?	-1?	-	damaged
161 Midmar Kirk	?	+1	?	-	landscaped ?
155 Kirkton of Bourtie	?	+1?	?	-	ruined
179 Rothiemay	?	+1?	?	-	ruined
169 Old Bourtreebush	?	+1?	?	-	damaged, ploughed round
116 Cairn Riv	?	+1?	?	-	ruined
150 Holywell	?	+1?	?	-	destroyed
166 New Craig	?	+1?	?	-	ruined
180 St Brandans Stanes	?	+1?	?	-	ruined
194 Upper Auchnagorth	?	+1?	?	-	ruined
<u>Outer Bank</u>					
158 Louden wood	+1	-1	-1	-	
98 Aikey Brae	+1	-1	-1	-	
187 Strichen House	+1	-1	-1	-	modified - see appendix 1
145 Greystone	+1	-1	-1	-	
(see also Berrybrae phase 2)					
<u>Central Cairn</u>					
120 Candle Hill	-1?	?	+1	-	interior generally stoney
100 Arnhill	?	-1?	+1?	-	
171 Old Rayne	+1?	?	+1?	-	damaged
(see also Old Keig, phase 2)					

Ruined Sites

131 Druidstone	?	?	?	+1?	
125 Corrydown	+1?	?	?	-	ploughed out interior
168 North Strone	+1?	?	?	-	or ploughed round
160 Melgum Central	?	?	?	+1	
146 Harestane	?	?	?	+1	
183 South Fornet	?	?	?	+1?	
217 Coilleacher	+1?	?	?	+1?	
126 Cothiemuir Wood	+1?	?	?	+1?	ploughed out

5:25 Dating.

At Loanhead of Daviot, a large number of flat rimmed and beaker sherds were found, including one beaker sherd (N1/D?) under the pavement in front of the recumbent. The distribution of the other sherds, including AOC beaker, suggest that they are contemporary with, or later than, the internal ringcairn (see Appendix 1).

Not enough evidence exists to date Recumbent stone circles securely. The Earlier Bronze Age artefacts noted below can all be argued to represent *termini ante quos*. It is far from clear whether the initial construction of many of these circles took place in the Later Neolithic or early in the Bronze Age. The AOC beaker sherds at Loanhead of Daviot hint at the former possibility, as do the architectural similarities between these sites and Clava Cairns with their internal passage graves (see 5:28).

Data of uncertain utility

The only C14 dates associated with this class are two from Berrybrae of 1500bc±80(Har-1849) and 1360bc±90(Har-1893) which provide a *terminus ante quem*, coming from a pit containing beaker sherds dug when the circle was partially demolished and converted into a ringcairn. Probable Grooved Ware sherds, possibly redeposited during this phase, may relate to the initial monument. At Strichen, neolithic sherds have been found in the central area but no details have yet been published. These could relate to a possible earlier timber phase (see appendix 1). At Old Keig the ruined central area had flat rimmed ware and beaker sherds, and a piece of shale bracelet. Some of these may predate the monument and may be derived from earlier activity on site (or earlier central phases). Other sites have produced finds but it is not clear if they are primary or secondary. At Hatton of Ardoyne beaker sherds were found in a central pit. At Old Rayne a perforated stone wristguard accompanied a burial under a central cairn. At Rappla Wood a piece of bronze was found in a pit, in what appears to have been a central cairn. In the last 2 cases the central cairns may be secondary features built after demolition of central ringcairns.

5:26 Distribution (fig.36).

This class has a discrete distribution, confined to the Grampian region, with the exception of one ruined and hence tentatively categorized site in Tayside (217 Coilleacher). No other moderate-diameter rings exist in Grampian. A related class of monuments, the Clava Cairns (class I), are found exclusively further to the west around the Moray Firth. All the major architectural variants within Recumbent Stone Circles are found on the western and southern fringes of the distribution.

Clava Cairns and Ringcairns; class I.

5:27 Characteristics (fig.42).

These 29-33 distinctive sites are characterized by impressive stone circles which are all of very similar design; they surround passage graves or large ringcairns. A further 8-15 sites have been relegated to Appendix 2 because there is no documentation of a stone circle; only the inner features survive. These sites may have once had outer circles as several of the sites included in Appendix 1 have poorly preserved stone circles which would not be recognized as such if the central features did not exist.

Within the group as a whole, 11 passage graves and 16 ringcairns are known, while 21 sites are too ruined for their form to be distinguished.

The passage graves normally have a single, sub-circular chamber, which is built of contiguous orthostats with drystone walling and corbelling above. Their contents appear to be minimal, recovered finds being restricted to a handful of fragmentary cremations and decomposed organic materials. The passages are also defined by vertical stones and had horizontal capstones; they are consistantly orientated to the southwestern quadrant. Both passage and chamber were originally buried within the mound. The outer edge of this is usually defined by a massive kerb of contiguous orthostats and diameters range from 9 to 20 metres. These kerbs are normally graded in height to the passage entrance.

The ringcairns (except Gask with a diameter of 26m) are of similar dimensions to the passage graves, but have no entrance and the central area is larger (c5-8m diameter, Gask c11-12m). The massive kerbstones are again usually graded to the southwestern quadrant and the retained cairn material is up to head height where well preserved, this may originally have been normal. The central areas are too large to have ever been corbelled and it seems likely that they were left open.

In the cases of the ringcairns at Delfour and Grenish, and the passage graves of Balnuaran of Clava SSW, Corrimony and possibly Carn Daley, the mound was built on a low platform which extends up to 5.0m beyond the kerb.

The external stone circles of tall, freestanding orthostats are placed c4-8 metres beyond the kerbs and are of a distinctive uniform design. Although the diameters vary from c15.0-35.0 metres, the number of orthostats is restricted to between 9 and 13 widely spaced stones; there is little correlation between increase in stone numbers and diameter variation. Elsewhere, this pattern is only observed in the related Recumbent Stone Circles (class H) and to a lesser extent larger Symmetrical Circles (class E).

In other respects the Clava Cairns are also carefully designed; stone spacing is either relatively even (5 cases), or has a carefully planned increase in spacing-distances towards the southwest (8 cases). In 9 out of 12 sites, the gap between the circle and inner kerb also increases in this direction. These patterns occur irrespective of whether the site has a passage grave or a ringcairn. A final characteristic which emphasises this quadrant is the grading, the south-western pillars being typically massive; often standing around 2.0-3.0m high, while on the opposite side of the ring they are around 1.0 metre. The distinctive emphasis on southwest throughout the design of these sites presumably has astronomical explanations similar to those argued for the Recumbent Stone Circles.

Only 5 sites are well enough preserved to assess their degree of circularity; 3 out of 5 are particularly circular. However, arguments for careful layout (by peg and rope) should be treated as tentative as several of the internal kerbs are somewhat off-circular and sometimes do not have common centres. It may be that the circularity is not universal here (or fortuitous, given the small data set).

The majority of sites in the class fall neatly within the architectural parameters described above. Only minor variations occur as illustrated in table 17. In most cases these are insignificant, but it is noteworthy that the 2 slightly ovoid sites, Druidtemple and Culburnie, also have poor grading. At Carn Daley, Bruaich and Boblainy the stones are lower than usual and in the last two cases the grading and stone spacing is also poor. With the exception of Druidtemple, all these sites are on the western fringe of the distributional range of the class. On the eastern fringe, 2 possible sites - Lower Lagmore and Doune of Dalmore - have more closely spaced stones than is usual.

Sites of uncertain classification

Only 4 of the 33 sites in the class are of uncertain classification. All are ruined. Three of these (77,86,87) could alternatively be interpreted as ruined Recumbent Stone Circles.

Table 16: Clava Cairns and Ringcairns; Class I.

(for a key see table 5)

1	2	3	4	5	6	7	8	9	10	11
58	Aviemore	5	c23,5	ID	11-12	(6,5)	(9%)	1,10	0,60-1,45	6(SSW/SW)
59	Balnuaran of Clava central	5	c31,7	ID	11	9,1	10%	1,65	1,20-2,30	6(SW)
60	Balnuran of Clava NE	5	c31,4	ID	11	8,6	14%	1,60	1,15-2,75	I,6(SW)
61	Balnuaran of Clava SSW	5	c31,5	ID	12	8,1	R?21%	1,65	1,20-2,20	I,6(SW)
62	Boblainy	5	c13,5	ID	ID	ID	?	(0,80)	(c0,75-0,90)	ID
65	Bruaich	5	21,7x22,0	1,4%	10?	6,9	34%	0,85	0,40-1,20	6(SW)
66	Carn Daley	5	c19,5	ID	9-10	(6,4)	(9%)	(0,90)	(0,85-1,00)	I(SW)
67	Carn Urnan	5	c22,5	ID	9	8,0	R?22%	1,35	1,00-1,80	I,6(SSW)
68	Corrimony	5	c22,0x25,0?	ID	c10-12	(6,7)	(11%)	ID	(1,50-2,15)	I(SW)
69	Croftcroy	5	c19,0	ID	ID	ID	?	ID	(2,00-3,00)	I,6(SSW)
70	Culburnie	5	20,5x22,0	6,8%	9	7,4	R21%	1,25	0,85-2,15	6(SW)
71	Culchunaig	5	c30,0	ID	ID	ID	?	ID	(? -1,80)	ID
72	Culdoich	5	c31,5	ID	ID	ID	?	ID	ID	6(SW)
73	Cullearnie	5	c20,0	ID	ID	(5,7)	?	(1,20)	(1,00-1,35)	6(SW)
74	Dalcross Mains	5	c22,0	ID	ID	(7,2)	?	(1,10)	(1,00-1,20)	I,6(SW)
75	Daviot	5	c28,5	ID	ID	(8,0)	?	(1,90)	(1,30-2,50)	6(SW)
76	Delfour	5	c28,5	ID	ID	ID	?	ID	ID	6(SW)
78	Druidtemple	5	c22,5x21,0	c6,7%	10-13	(5,6)	(13%)	1,50	1,35-2,75	I,6(S)
80	Gask	5	c36,5x35	ID	11	10,8	R?22%	1,60	0,90-3,35	6(SW)
81	Grenish	5	c32	ID	10-11	9,8	22%	(1,80)	(1,60-2,10)	6(SW)
83	Kinchyle of Dores	5	c20,8x21,	c1,9%	9	7,6	R26%	1,20	0,70-1,75	I,6(SSW)
85	Little Urchany	5	c20,8	ID	ID	(6,8)	(1%)	(1,30)	(1,20-1,50)	6(SW)
88	Midlairgs	5	c14,5	ID	9-11	(5,5)	?	(1,00)	(0,85-1,20)	ID
89	Milltown of Clava-N	5	ID	ID	ID	ID	?	ID	(? -2,40)	ID
90	Moyness	5	c30,0	ID	ID	ID	?	(1,55)	(1,35-1,80)	6(S/SW)
91	Newton of Petty	5	c27,0	ID	13	6,9	11%	1,25	1,00-1,50	6(SW)
95	Tordarroch	5	33,8x34,9	3,2%	9	11,6	R21%	1,45	0,85-2,50	6(SSW)
96	Tullochgorm	5	c24,0	ID	ID	(6,7)	?	ID	ID	ID
97	Upper Lagmore	5	c18,3	ID	9	(6,9)	R?(36%)	1,85	1,30-2,30	I,6(S)

Possible Sites									
77 Doune of Dalmore	5	c15,5	ID	9-11	(4,25)	(1%)	1,55	1,40-1,90	ID
84 Leanach	5	c29,3	ID	ID	(8,1)	?	(1,70)	(1,35-2,05)	ID
86 Lower Lagmore	5	c20,0	ID	12-15	(3,8)	?	(1,65)	(1,15-2,40)	6(S)
87 Marionburgh	5	c20,0x22,7	ID	8-9	7,0	R?18%	1,60	1,00-2,75	6(SW/S)

Table 17: An analysis of Clava and Kincardineshire sites (classes I,J).

Key

		Score
1; Degree of circularity	0-3,5%	+1
	3,5-4,0%	0
	4,0%+	-1
2; Original number of orthostats	9-13	+1
	14+	-1
3; Average spacing between orthostats	5m+	+1
	5m-	-1
4; Spacing variability range	0-20%(or gradual increase to SW)	+1
	20-30%	0
	30%+	-1
5; Average stone height	1m+	+1
	1m-	-1
6; Grading - good		+1
poor		0
not graded		-1
7; Widening of space between circle and inner features to SW		
	- yes	+1
	- no	0
8; Total Score		

Clava (class 6)

	1	2	3	4	5	6	7	8
95 Tordarrock	+1	+1	+1	+1	+1	+1	+1	+7
97 Upper Lagmore	?	+1	+1	+1	+1	+1	+1	+6
59 Balnuaran of Clava -central	?	+1	+1	+1	+1	+1?	+1	+6
67 Carn Urnan	?	+1	+1	+1?	+1	+1	+1	+6
80 Gask	?	+1	+1	+1	+1	+1	+1	+6
61 Balnuaran of Clava-SSW	?	+1	+1	+1	+1	+1	0	+5
58 Aviemore	?	+1	+1	+1?	+1	+1?	?	(+5)
68 Corrimony	?	+1	+1?	+1?	+1	+1?	?	(+5)
91 Newton of Petty	?	+1	+1	+1	+1	+1	?	(+5)
87 Marionburgh	?	+1	+1	+1?	+1	+1	?	(+5)
81 Grenish	?	+1	+1	0?	+1?	+1?	?	(+4)

73 Cullearnie	?	?	+1?	?	+1?	+1?	?	(+3)
74 Dalcross Mains	?	?	+1?	?	+1?	+1?	?	(+3)
75 Daviot	?	?	+1?	?	+1?	+1?	?	(+3)
85 Little Urchany	?	?	+1	?	+1?	+1?	?	(+3)
88 Midlairgs	?	+1	+1?	?	+1?	?	?	(+3)
69 Croftcroy	?	?	?	?	+1?	+1?	?	(+2)
89 Milltown of Clava	?	?	?	?	+1?	+1?	?	(+2)
90 Moyness	?	?	?	?	+1?	+1?	?	(+2)
84 Leanach	?	?	+1?	?	+1?	?	?	(+2)
71 Culchunaig	?	?	?	?	+1?	?	?	(+1)
72 Culdoich	?	?	?	?	?	+1?	?	(+1)
76 Delfour	?	?	?	?	?	+1?	?	(+1)
96 Tullochgorm	?	?	+1?	?	?	?	?	(+1)

Minor variants

	1	2	3	4	5	6	7	8	
60 Balnuaran of Clava NE	?	+1	+1	+1	+1	0	0	+4	poor grading
83 Kinchyle of Dores	+1	+1	+1	+1	+1	0	0	+5	poor grading
78 Druidtemple	-1	+1	+1	+1?	+1	0	+1	+4	poor grading, not circular
70 Culburnie	-1	+1	+1	+1	+1	+1	+1	+5	poor grading, not circular
66 Carn Daley	?	+1	+1	+1?	-1?	+1	+1	+4	low stones
65 Bruaich	+1	+1	+1	-1?	-1	0	+1	+2	low stones, poor grading and spacing
62 Boblainy	?	?	?	?	-1?	?	?	(-1)	low stones, poor grading and spacing
86 Lower Lagmore	?	+1?	-1?	?	+1	+1	?	(+2)	close spaced stones
77 Doune of Dalmore	?	+1	-1	+1?	+1	-1	?	(+1)	close spaced stones, not graded

Kincardine (class J)

	1	2	3	4	5	6	7	8
175 Raedykes SE	?	-1	-1	+1?	-1?	-1?	?	(-3)
174 Raedykes NW	?	-1	-1	?	-1?	+1?	?	(-2)
118 Cairnwell	?	-1?	?	?	-1?	-1?	?	(-3)

5:28 Dating.

The artefactual data are minimal and not particularly useful. The presence of passage graves within circles of this class suggests these rings are Later Neolithic, if parallels with more securely dated passage graves in Orkney and Ireland are to be trusted.

Data of uncertain utility

Two vessels found in 1828 in association with calcined bone in the chamber of Balnuaran of Clava SSW may have been flat rimmed ware. At Avielochan (Appendix 2 - site 16) a piece of a jet ring was found in the passage blocking. Two early C14 dates of 2782bc±90(SRR-187) and 3033bc±130(SRR-188) from Stoneyfield A (Appendix 2 - site 36) came from pits adjacent to the site and may well have no direct association with the monument.

5:29 Distribution (fig.36).

This class has a discrete distribution, confined to the Moray Firth region. A related class of monuments, the Recumbent Stone Circles, is found exclusively further east. Virtually all the minor architectural variants at Clava Cairns are found on the eastern and western fringes of the distribution.

Kincardineshire Ringcairns; class J.

5:30 Characteristics (fig.43).

These three sites have traditionally been interpreted as Clava Ringcairns (class I). However, their location in southern Grampian, and architectural differences between the two types (see table 17), suggest that they should be treated as a separate class of site within the general group of similar monuments in this part of Scotland (classes H,I,J).

While the Kincardineshire Ringcairns are without recumbent and flankers, giving them a superficial resemblance to Clava ringcairns, their internal features have closer resemblance to the ringcairns within nearby Recumbent Stone Circles. The number of orthostats in both Recumbent Stone Circles and Clava Cairns is normally between 9 and 13 while the Kincardineshire Ringcairns have slightly more and hence they are more closely spaced. This trend is also observed in 2 out of 9-12 Variant Recumbent Stone Circles found in the western and southern fringes of the distribution of this class. These variant sites have other characteristics in common with Kincardineshire Ringcairns. Four of the former have ungraded stones; North Strone also has low stones and a very small recumbent. It therefore seems likely that the class J sites represent one end of the spectrum of deviation from the standardized design of the classic Recumbent Stone Circles. In the case of the Kincardineshire Ringcairns, the recumbent appears to have been dispensed with altogether (or small as at North Strone, but subsequently robbed).

This general hypothesis is given support at Raedykes NW where the ringcairns outer kerb has 2 particularly tall stones to the southwest with a small stone between them. These can perhaps be seen as a 'degenerate' recumbent/flankers arrangement. Raedykes SE appears to have its orthostats linked by an outer ringcairn (or a much later feature), a phenomena common at Recumbent Stone Circles but not recorded at Clava sites.

Table 18: Kincardineshire Ringcairns; Class J.

(for a key see table 5)

1	2	3	4	5	6	7	8	9	10	11
118	Cairnwell	6	c8,5	ID	c13-14?	ID	?	(0,70)	(0,70)	ID
174	Raedykes NW	6	c14,3	ID	c15	(2,9)	?	1,00	0,60-1,35	I,6?(SW)
175	Raedykes SE	6	c17,4	ID	c18-21	(2,8)	(5%)	ID	(0,45-1,05)	I?(SW)

5:31 Dating.

No data.

5:32 Distribution (fig.36).

All three sites are found near the coast, in the same restricted area of southern Grampian. They occur within the southern fringes of the distribution of Recumbent Stone Circles and have several variant recumbent sites in the general vicinity. In contrast, the other related class of monuments, the Clava Cairns, lie at a minimum of over 70km away.

Small Stone Circles in Britain.

5:33 Introduction.

It is normally difficult to make clear-cut typological distinctions between small stone circles because the diverse trends identified at larger sites tend to merge as diameter decreases. The notable exceptions to this are the Dartmoor Stone-Row Circles (class M) and Four Posters (class N), which stand out because of unique architectural traits. While drawing distinctions between some small stone circle types is sometimes problematical, this is rarely the case when distinguishing them from related monument forms such as kerb-cairns. This will be discussed in 6:10, together with current taxonomic terminology utilized for small sites in general.

With the majority of sites (classes K and L) the design is somewhat varied when the group is examined as a whole and regional differences can be perceived. However, from a geographical standpoint, variation in architectural characteristics tends to change only gradually and any postulated sub-groupings tend to be polythetic. The approach adopted here is to make minimal sub-division with one break being identified between north (class K) and south (class L). This distinguishes between the northern circles which are consistantly under 20m diameter and mostly have large orthostats, and southern sites which are more variable. Embanked sites are confined to class L while the majority of Scottish platform circles fall into class K (term defined 4:22).

Virtually all rings in the northern class are of comparable design, but even here regional differences exist. The rings in the east are predominantly graded and in Moray Firth and Grampian they are always of exceptionally small diameter. In Tayside and Western Scotland their diameter range increases and in the latter area the rings are not graded.

In the southern class the diversity in diameter is much greater. In the Pennines and the Peak District, the larger examples are indistinguishable from their smaller counterparts. Only in Southwest Scotland and Cumbria, do larger rings exist which could be argued to be coherent sub-classes.

Small Circles - North; class K.

5:34 Characteristics (figs. 44-50).

The majority of the 60-76 sites in this class are of very similar design (the only exceptions being 4-6 sites in sub-groups F17, F20, SP4 - see below). The class is characterized by rings with moderate spacing between stones and diameters of under 20m. There is no evidence that the rings were planned to be circular.

Although the rings are generally similar in the above respects, there is also regional variation which table 19 is designed to highlight. In Eastern Scotland the rings are frequently crudely graded (K;F13-16,SP1-2), while in the west this is not the case (K;F18-19,SP3). Where present there is a strong tendency for the grading to favour the southwest quadrant (24-29 examples). This is universally the case in larger classes of circle of the same region - the Recumbent Stone Circles (class H) and Clava Cairns (class I). However, 4-13 Small Circles are orientated elsewhere.

Another characteristic of eastern sites is their tendency to have six stones (6 stones; 15 cases, 7-12 stones; 13 cases) which led Burl (1976) to regard them as a distinct class of monument. This seems unjustified as in other respects they are identical to other eastern examples of class K. The frequency of 6 stone rings can be viewed as the result of a desire to build small monuments (with even numbers?-see 2:4); the size, in combination with an ideal approximate space between stones, leading more often than not to six stone monuments. This preference for small monuments in eastern Scotland reached its ultimate expression with Four Posters (class N) of which there are 29 in this region.

In Tayside (K;F13,SP1) the diameters of graded rings are sometimes larger than in Grampian, Moray Firth and Northeast Scotland, and in this respect their diameters correspond to western Scotland (K;F18).

In the majority of cases, class K sites have tall stones with an average height of over a metre. However, in Tayside there is a group, with a coherent distribution in the lowlands, where the stones are smaller (K:F16). The significance of this is debateable; it may simply reflect the unavailability of stones of larger size.

Another architectural variant occurs in northeast Scotland where 3-4 sites have their stones set radially (K;F15); in other respects they are similar to the remainder of the class.

At several circles the interiors are filled by low platforms or similar structures - these are all termed here 'Scottish platform circles'. In other respects these rings are identical to their freestanding counterparts and in some cases at least, as at Balbirnie and Temple Wood, it can be shown that the platform circles started life as freestanding rings that had the other features added later.

At 3-5 unexcavated sites there appear to be simple platforms extending across the full interior of the sites and stopping a short distance beyond. At Machrie Moor 5, the platform extends to an outer circle and at the similar site of Croft Moraig it extends beyond the outer circle. In the latter case the platform was largely natural, a slight knoll having being emphasised by a kerb placed on a low bank. At Moncrieffe, which appeared to be a typical platform site prior to excavation, it was demonstrated again that the slight platform was natural but emphasised by a probable kerb linking the orthostats. However, within the interior was a ringcairn (or cairn) which suggests an influence from Recumbent Stone Circles. A similar unexcavated site at Fullerton has its orthostats on a bank and the interior has a platform or wide ringcairn.

In the case of Balbirnie the final monument was more of a cairn than a platform (also see K;SP4 below). Excavations here revealed complex phasings; initially it was a freestanding ring which later appears to have had its orthostats linked by a ringcairn before the interior was finally filled. The unexcavated ring at Airlich has its orthostats set in a ringcairn, while at Balgarthno the interior is filled with a large cairn. At Broomend of Crichie and possibly Tuack, typical examples of 'eastern class K' stone circles are found within hengiform earthworks (K;CH5).

At a handful of the freestanding rings there are smaller cairns within the interior which could be viewed as related phenomena to those listed above. It may be of significance that internal cairns are usually found in areas where platform sites are absent. All 3-4 northeastern Scottish 'radial circles' (K;F15) have a central cairn. In the Outer Hebrides, Cnoc Ceann a' Gharaidh and Ceann Hulavig, have central cairns and Callanish atypically had a small passage grave added to its interior. The only site in eastern Scotland with internal cairns is Cullerlie where virtually the whole interior is filled by 8 small kerb-cairns.

Other architectural features are rare at class K sites but centre stone is known at Callanish (with a possible second example at Ceann Hulavig nearby). Another feature observed occasionally in western Scotland are outliers - at Ettrick Bay, Loch Buie, Lamlash and Callanish. The last example is also well known for its rows/avenue. In eastern Scotland, outliers are known at both Fowlis Wester circles. The pair of stones at Croft Moraig is on the same orientation as the portals of an earlier timber structure. An avenue existed at the hengiform site of Broomend of Crichie. No common orientations exist.

A few sites (4-6 cases) have been excluded from the above discussion as they have somewhat different architectural characteristics from the others (table 19). These have stronger affinities with southern Small Circles (class L) (and in some cases, other classes). These sites contrast to the majority of northern Small Circles (class K) which stand out as a distinct group which cannot be mistaken for any other circle type in the region.

Two of the atypical sites in question - Achany and Learable Hill South - are located in northeast Scotland (K;F17). Both are relatively large freestanding rings.

The other sites (K;F20/SP4) are found to the southwest, centred on Arran. They are again characterized by relatively large diameters and also (in 3 cases) by large numbers of orthostats than usual; hence they could be considered as diminutive forms of Western Irregular Circles (class C). However, too few of these sites exist, and they are rather too variable, to warrant designating them to a classes of their own. In the case of the freestanding circle - Machrie Moor 11, the number of stones is not unusually high and the closest parallels are with southern Small Circles (class L). In the other 3 cases, the interiors are filled by large cairns. At Temple Wood, excavation has shown that the ring began life as a freestanding structure. Later it was converted to a ringcairn (or diminutive western circle-henge) and finally its interior was filled. The status of the other two sites is more debatable. Partial excavations at Machrie Moor 10 have also shown this site to be multiphased. However, the orthostats may originally have been virtually contiguous and they could be alternatively interpreted as some form of kerb. In contrast, at Auchagallon nearby, the stones are well spaced but excavations have never taken place and hence the site's status must remain in some doubt.

Sites of uncertain classification

Only 16 of the 76 sites are of uncertain classification. With the exception of Auchagallon and Machrie Moor 10 noted above, this is because of their poor state of preservation or lack of available data, which leaves sites open to alternative interpretation as kerb-cairns or other orthostatic structures (see Appendix 1 for details).

Table 19: An Analysis of Small Circles in Northern Britain (Class K).

Key

		Score
1: Diameter	12m+	-1
	12m-	0
2: Original number of orthostats	13+	-1
	5-12	0
3: Mean stone height	1m-	+1
	1m+	0
4: Circle design	ungraded	-1
	1-2 taller stones or equal heights	0
	graded	+1
5: total score		

Eastern Scotland

Larger Circles (F13,SP1)

	1	2	3	4	5	
204 Ardblair	-1	0	0	0	-1	2 opposite tall stones
205 Balbirnie	-1	0	0	+1?	0	Scottish Platform
224 Croft Moraig (outer)	-1	0	0	+1?	0	Scottish Platform
247 Pitscandlie	-1	0	0	+1	0	Scottish Platform
215 Carse Farm II	-1	0	0	?	(-1?)	

225 Cunninghar	-1	?	0?	?	(-1?)	
241 Lundin Links	-1	0	0	?	(-1?)	
208 Balhomais	-1	?	0?	?	(-1?)	Scottish Platform?

Small Graded Circles (F14,SP2,CH5)

	1	2	3	4	5	
3 Abercross	0	0	0	+1	+1	
94 Torbreck	0	0	0	+1	+1	
105 Backhill of Drachlaw E	0	0	0	+1	+1	
106 Backhill of Drachlaw W	0	0	0?	+1	+1	
153 Image Wood	0	0	0	+1	+1	
189 Thorax	0	0	0	+1?	+1	
243 Moncrieffe	0	0	0	+1	+1	Scottish Platform
518 South Ythsie	0	0	0	+1	+1	Scottish Platform
237 Greenland	0	0	0	+1	+1	
238 Killin	0	0	0	+1	+1	
244 Murthly	0	0	0	+1	+1	
235 Fowlis Wester W	0	0	0	+1	+1	
203 Airlich	0	0	0	+1	+1	Scottish Platform
228 Faskally Cottages	0	0	0	+1?	+1?	
242 Machuin	0	0	0	+1	+1	Scottish Platform
57 Alves	0	0	0	?	(0?)	
127 Craighead	0	0	0	?	(0?)	Scottish Platform
139 Fullerton	0	0	0	?	(0?)	Scottish Platform
114 Broomend of Crichie	0	0	0	?	(0?)	hengiform
193 Tuack	0	0	0	?	(0?)	hengiform
207 Balgarthno	0	0?	0?	?	(0?)	Scottish Platform
Variants						
128 Cullerlie	0	0	0	0	0	single tall stone
200 Whitehill Wood N	0	0	0	0	0	single tall stone
253 Tigh na Ruaich	0	0	0	0	0	single tall stone
224 Croft Moraig (inner)	0	0	0	0	0	Scotish Platform, stones of equal height
9 Backlass	0	0?	+1	?	(+1?)	diminutive site
135 Ellon A	0	0	+1	?	(+1?)	diminutive site
15 River Shin NW	0	0	+1	?	(+1?)	diminutive site

Small Graded Circles with Radial Stones (F15)

	1	2	3	4	5
7 Auchinduich	0	0	0	+1	+1
12 Dailharraidd	0	0	0	+1	+1
11 Cnoc an Liath Bhaid	0	0	0	+1?	+1?

Small Graded Circles with Low Stones (F16)

	1	2	3	4	5
218 Colen	0	0	+1	+1	+2
226 Druids Seat	0	0?	+1	+1?	+2
249 Sandy Road W	0	0	+1	+1	+2
254 Wester Torrie	0	0	+1	+1	+2
212 Blackfaulds	0	0	+1	+1	+2
211 Bandirran	0	?	+1?	+1?	(+2?)
222 Corogle Burn	0	0?	+1	?	(+1?)
234 Fowlis Wester E	0	0	+1?	?	(+1?)
250 Shian Bank NW	0	0	+1	?	(+1?)
251 Shian Bank SE	0	0	+1	?	(+1?)
248 St Martins	0	?	?	+1?	(+1?)
209 Balkemback	0	0?	?	?	(0?)
219 Commonbank	0	?	?	?	(0?)
Variant					
213 Broad Moss	0	0	+1	0?	+1

Other Sites (F17,F15)

	1	2	3	4	5	
5 Achany	-1	0?	+1?	-1	-1	
14 Learable Hill South	-1	-1?	+1	?	(-1?)	
4 Achanarras Hill	-1	-1?	0	?	(-2?)	radial stones

Western Scotland

Larger Ungraded Circles (F18)

	1	2	3	4	5
17 Callanish	-1	-1	0	-1	-3
20 Cnoc Ceann a' Gharaidh	-1	-1?	0	-1	-3
21 Cnoc Fillibhir Bheag (outer)	-1	-1	0	-1	-3
24 Loch Seaforth	-1	0?	0	-1?	-2
40 Loch Buie	-1	0	0	-1	-2
42 Machrie Moor 1	-1	0	0?	-1	-2
43 Machrie Moor 2	-1	0	0	-1	-2
44 Machrie Moor 3	-1	0	0	-1	-2
33 Ettrick Bay	-1	0	0	?	(-1)
37 Kingarth	-1	0	0	?	(-1)

Small Ungraded Circles (F19,SP3)

	1	2	3	4	5	
19 Ceann Hulavig	0	0	0	-1	-1	
31 The Covenanters	0	0?	0	-1?	-1	
46 Machrie Moor S (inner)	0	0	0	-1	-1	Scottish Platform
21 Cnoc Fillibhir Bheag (inner)	0	0	0	-1	-1	

53 Temple Wood 2	0	0?	?	?	(0?)	
Variants						
38 Lamlash	0	0	+1	-1?	0	diminutive site
45 Machrie Moor 4	0	0	+1	-1?	0	diminutive site
49 Na Clachan Bhreige	0	0	0	0?	0	2 possible orientation markers

Other Sites (F20,SP4 - comparable with class L;F23,SP7)

	1	2	3	4	5	
48 Machrie Moor 11	-1	0	+1	0	0	
28 Auchagallon	-1	-1	0	+1	-1	Scottish Platform
47 Machrie Moor 10	-1	-1	+1?	?	(-1?)	Scottish Platform
52 Temple Wood 1	-1	-1	+1	0	-1	Scottish Platform
46 Machrie Moor 5 (outer)	-1	-1	+1	-1	-2	Scottish Platform

Table 20: Small Freestanding Circles - North; Class K.

(for a key see table 5)

Eastern Scottish Circles (F13)

1	2	3	4	5	6	7	8	9	10	11
204	Ardblair	7	c15,0	ID	6	(8,0)	(4%)	1,60	1,30-1,80	O(SW/NE)
215	Carse Farm II	7	c13,0-15,0	ID	ID(6-7?)	ID	?	(2,00)	(1,80-2,40)	ID
Possible Examples										
225	Cunninghar	7	c18,5	ID	ID(5+)	ID	?	(1,70?)	ID	ID
241	Lundin Links	7	c16,2	ID	c9-11	(4,6)	?	(4,60)	(4,15-5,10)	ID

Eastern Scottish Circles - Small (F14)

1	2	3	4	5	6	7	8	9	10	11
3	Abercross	2	c7,5	ID	6	3,9	13%	c1,35	c1,05-2,00	G(SE)
9	Backlass	2	c6,5	ID	ID	ID	?	0,75	0,45-1,40	ID
57	Alves	5	c7,0	(ID)	6?	ID	?	(c1,2)	ID	ID
94	Torbreck	5	c4,4x4,6	(ID)	9	1,5	20%	1,50	1,20-2,10	G(SW)
105	Backhill of Drachlaw E	6	8,7x7,5	11,8%	6	3,9	28%	1,10	0,80-1,50	G(W)
106	Backhill of Drachlaw W	6	c8,5	ID	6	ID	?	ID	ID	G?(S)
128	Cullerlie	6	10,4x10,2	1,9%	8	3,9	11%	1,25	1,10-1,35	S(NW)
135	Ellon A	6	c6,0	ID	c7-9	ID	?	(0,95)	(0,70-1,05)	ID
153	Image Wood	6	c3,4x3,9	c12,8%	6	1,8	53%	1,05	0,80-1,30	G(NNE)
189	Thorax	6	5,9x6,9	c14,5%	6	3,2	35%	1,40	1,10-1,65	G?(SW)
200	Whitehill Wood N	6	c8,2	ID	6?	4,1	10%	1,35	1,10-1,80	S(SE)
228	Faskally Cottages	7	c6,3x7,5	c16,0%	9-10	2,2	29%	1,15	0,70-1,60	G?(N)
237	Greenland	7	c9,3x8,8	c5,4%	6-9	(3,1)	(11%)	1,55	1,30-1,80	G(SW)
238	Killin	7	10,0x8,6	14,0%	6	4,6	18%	1,65	1,20-1,95	G(SSW)
244	Murthly	7	c11,0	ID	8-9	(4,0)	(11%)	1,55	1,05-2,45	G(SW)
253	Tigh na Ruaich	7	6,5x7,7	15,6%	6	3,6	18%	1,20	0,80-1,80	S?(SSE)
Possible Examples										
15	River Shin NW	2	c4,2	ID	6	2,0	10%	0,50	0,40-0,70	ID
235	Fowlis Wester W	7	c6,4x7,5	c14,7	12	1,8	41%	c1,30	c0,90-1,70	G(SW) AO(E)

North East Scottish Radial Circles (F15)

1	2	3	4	5	6	7	8	9	10	11
7	Auchinduich	2	c7,4	ID	8-9	2,5	25%	1,10	0,95-1,20	G(N)
11	Cnoc an Liath Bhaid	2	c8,7	ID	11-12	(2,4)	(17%)	1,35	0,90-2,00	G?(W)
12	Dailharraidd	2	c7,0	ID	ID	ID	?	1,70	1,10-2,45	G?(S/SE)
Possible Examples										
4	Achanarras Hill	2	c18,0	ID	11-15	ID	(18%)	(c1,20)	ID	ID

Tayside Circles - small with low stones (F16)

1	2	3	4	5	6	7	8	9	10	11
213	Broad Moss	7	c5,9x6,9	c14,5%	8-9	2,5	19%	0,55	0,40-0,80	S?(N)
218	Colen	7	c8,2x7,9	c3,6%	7-9?	2,9	R43%	(0,70)	(0,40-1,10)	G(SW)
226	Druids Seat	7	c8,5x?9,7	ID	9-13	(2,6)	(13%)	(0,75)	(0,50-1,00)	G?(SSW)
234	Fowlis Wester E	7	c7,7x8,4	c8,3%	11	2,3	32%	(low)	ID	ID, AO(NNE)
249	Sandy Road W	7	5,7x6,5	12,3%	7	2,6	13%	0,75	0,60-1,00	G(SSW)
250	Shian Bank NW	7	c8,4	ID	9-10	2,7	R33%	(0,80)	(0,45-1,20)	ID
251	Shian Bank SE	7	c7,9?x8,5	ID	10	2,6	30%	0,70	(0,60-0,90)	ID
254	Wester Torrie	7	c6,7x7,8	(ID)	6	(3,5)	(7%)	(0,80)	(0,60-1,10)	G(S/SW)
Possible Examples										
209	Balkemback	7	c8,5	ID	ID	ID	?	ID	ID	ID
211	Bandirran	7	c7,7x8,5	c9,4%	ID(9+)	ID	?	small	ID	G?(W)
212	Blackfaulds	7	c7,4x8,8	c15,9%	9	3,0	9%	c0,80	c0,60-1,20	G(S)
219	Commonbank	7	c11,5	ID	ID	ID	?	ID	ID	ID
222	Corogle Burn	7	c8,2	ID	ID	ID	?	(0,95)	(0,90-1,05)	ID
248	St Martins	7	c7,5	ID	ID	ID	?	ID	ID	G?(SW)

North East Scottish Larger Circles (F17)

1	2	3	4	5	6	7	8	9	10	11
5	Achany	2	c26,8x28,2	c5,0%+	10-13	7,3	22%	(0,90+)	(0,60-1,15+)	U
14	Learable Hill S	2	17,5x18,6	5,9%	12-17	(3,8)	(18%)	ID	(?-0,60)	ID

Western Scottish Circles (F18)

1	2	3	4	5	6	7	8	9	10	11
17	Callanish	3	13,3x12,0	9,8%	13	2,9	42%	3,00	2,40-3,50	U, AV(NNE)
20	Cnoc Ceann a' Gharaidh	3	c17,5x20,0	c12,5%	12-16	(4,0)	26%	(c2,60)	2,00-3,30	U?
21	Cnoc Fillibhir Bheag outer	3	16,8xc16,0	c4,8%	16	3,2	30%	1,40	1,00-2,00	U
	Cnoc Fillibhir Bheag Inner	3	9,2xc7,0	c24,0%	6	(3,8)	(16%)	1,75	1,40-2,15	U?
24	Loch Seaforth	3	c16,5	ID	10-11?	(4,8)	(8%)	1,30	1,20-1,70	U?
33	Ettrick Bay	4	15,3x12,0	21,5%	8	5,4	8%	1,95	1,60-2,20	ID, AO(S)
37	Kingarth	4	c20-26?	ID	ID(7-10?)	ID	?	2,4	2,20-2,80	ID
40	Loch Buie	4	13,0x13,6	4,4%	9	4,7	18%	1,55	1,20-2,00	U? AO(SW)
42	Machrie Moor 1	4	c12,6x14,4	c12,5%	12	3,7	7%	(ID)	(ID)	U

43	Machrie Moor 2	4	c16,5	ID	7-11	(5,5)	(6%)	4,60	3,70-5,50	U?
44	Machrie Moor 3	4	15,2x16,0	5,0%	9	5,5	18%	(3,40)	(2,50-4,50)	U

Western Scottish Circles - Small (F19)

1	2	3	4	5	6	7	8	9	10	11
19	Ceann Hulavig	3	12,3xc10,0	18,7%	(6or9)	(c4,6)	(11%)	2,35	2,05-2,75	U
31	The Covenanters Stone	4	c7,5	ID	ID(7+)	ID	?	(c1,10)	(c1,00-1,20)	U?
38	Lamlash	4	c5,0	ID	7-8	(2,75)	(5%)	0,85	0,50-1,15	U? AD(S)
45	Machrie Moor	4	c7,5	ID	5	5,0	12%	(0,90)	ID	U?
49	Na Clachan Bhreige	4	c6,4	ID	6	3,2	45%	1,80	1,20-2,40	U/D? (NNW/ SSE)
53	Temple Wood 2	4	c10,5x10,0	(ID)	(ID)	(ID)	?	ID	ID	ID

Western Scottish Larger Circles (F20)

1	2	3	4	5	6	7	8	9	10	11
48	Machrie Moor 11	4	12,7x13,5	5,9%	10	4,1	31%	(low)	(?-1,20)	S(W)

Table 21: Scottish platform circles - North; Class K.

(for a key see table 5)

Eastern Scottish Circles (SP1)

1	2	3	4	5	6	7	8	9	10	11
205	Balbirnie	7	14,2x14,8	4,1%	10	4,6	8%	(1,70)	(1,20-2,10)	6?(S)
208	Balhomais	7	c23,2	ID	ID	ID	?	(1,40)	(1,05-1,70)	ID
224	Croft Moraig (outer)	7	c11,5x13,4	c14,2%	9(+3)	4,4	13%	c2,00	1,75-2,15	6?(SW) PD(ESE)
	Croft Moraig (inner)		6,3x7,4	14,9%	8	2,8	36%	c1,50	1,45-1,60	E
247	Pitscandlie	7	c16,3	ID	c9	(5,5)	(3%)	(2,40)	(2,00-2,75)	6?(SW)

Eastern Scottish Circles - Small (SP2)

1	2	3	4	5	6	7	8	9	10	11
517	South Ythsie	6	8,5x7,5	11,8%	6	4,0	9%	c1,85	c1,50-2,40	6(SW)
203	Airlich	7	c7,1x7,9	c10,1%	9	2,5	R36%	1,05	0,70-1,50	6(SW)
207	Balgarthno	7	c6,0	ID	ID(9+)	ID	?	ID	(? -1,70)	ID
242	Machuin	7	c5,5x6,1	c9,8%	6	2,9	19%	1,25	1,10-1,40	6(S)
243	Moncrieffe	7	8,7x9,2	5,4%	8	3,4	32%	1,55	1,15-2,00	6(SW)
Possible Sites										
127	Craighead	6	c9,0?	ID	c6-7?	ID	?	(1,95)	(1,20-2,90)	ID
139	Fullerton	6	c8,5	ID	c6-8?	ID	?	(1,80)	(1,80)	ID

Western Scottish Circles - Small (SP3)

1	2	3	4	5	6	7	8	9	10	11
46	Machrie Moor 5 (inner)	4	11,5x11,9	3,4%	8	4,4	11%	(1,2)	ID	U
	Machrie Moor 5 (outer)		17,7x18,3	3,3%	15?	3,8	53%	(0,6)	ID	U

Western Scottish Larger Circles (SP4)

1	2	3	4	5	6	7	8	9	10	11
52	Temple Wood I	4	12,5x13,6	8,1%	21	2,0	33%	0,90	0,35-1,25	U/S(ESE)
Posible Sites										
28	Auchagallon	4	13,4x14,5	7,6%	21-22	(2,1)	(14%)	1,25	0,75-2,35	G(W)
47	Machrie Moor 10	4	c21,8	ID	ID	ID	?	ID	(? -c1,00)	ID

Eastern Scottish Circles - within Hengiforms (CH5)

1	2	3	4	5	6	7	8	9	10	11
114	Broomend of Crichie	6	c11,0	ID	6?	(6,3)	?	(c1,65)	(c1,50-1,80)	ID
Possible Sites										
193	Tuack	6	ID	ID	ID	ID	?	(1,50)	(1,50)	ID

5:35 Dating.

At Balbirnie the stoneholes contained grooved ware sherds. A very early C14 date has recently been obtained from Temple Wood 2 but details have not yet been published. At Croft Moraig sherds of western neolithic and flat rimmed ware, found in the ditch backfilled when the stones were erected, provide a <u>terminus post quem</u> for the stone phases. At Callanish the insertion of a small passage grave after the circle was built, suggests a date for the circle in the Later Neolithic. Recent excavation at the site provided a <u>terminus ante quem</u> for both features in the form of late beaker sherds asociated with ploughing during the Bronze Age.

Enough evidence exists to postulate a Neolithic beginning for this class of monument, although at Temple Wood and Croft Moraig the first circles may have been in timber rather than stone. However, the grooved ware sherds from Balbirnie and the passage grave inserted within the circle at Callanish, indicate stone monuments were being built in the Later Neolithic. It is far from clear if these stone circles continued to be built in the Earlier Bronze Age as all the relevant artefacts could be argued to be secondary deposits (see below). Some sites clearly continued in use, although in some cases, as at Balbirnie and Temple Wood, their eventual conversion to cairns suggests that their functions were radically redefined.

Data of uncertain utility

Two C14 dates are currently available for this class but both are likely to be nothing more than *termini ante quos*. At Balbirnie a date of 1330bc±90(GaK-3425) came from two wooden planks protecting a late beaker and a jet bead. This was one of a series of 5 deposits; the other 4 here in cists and accompanied by jet and bone beads, a jet button and a food vessel. These were all probably placed in the circle interior well after its errection, as their insertion disturbed the central stone setting. The site itself may have been remodelled when the cists were inserted with the addition of a ringcairn linking the orthostats. This was largely demolished when the interior was filled with a large cairn associated with cordoned and collared urns. At Sandy Road West a date of 1200bc±150(GaK-787) was obtained from a central burial accompanied by a flat rimmed ware urn. There was no clear stratigraphic relationship between this deposit and the orthostats and the possibility of later insertion needs to be considered.

Artefacts have been recovered from several sites. At Moncrieffe the significance of a single beaker sherd in the ditch backfill is obscure. Sherds of grooved ware, flat rimmed ware and cordoned urns from disturbed central contexts may well span all phases of the monument's use. At Broomend of Crichie, 3 cordoned urns were found in the 19th century accompanying burials placed in pits dug against stoneholes. It is not clear if these are contemporary with the orthostats or secondary insertions. A battle axe was found in an unstratified context. Another old excavation, at Tuack, gave similar results, pieces of bronze and a cordoned urn coming from pits by the orthostats. At Fullerton, flat rimmed ware accompanying pit deposits in the central area were found in c1850. At other sites pottery has been found associated with cist burials but it is unclear if these are contemporary with the orthostats or later insertions. At Temple Wood a satellite cairn, buried under the later ringcairn, had a central cist containing an N2/N3 beaker and 3 barbed and tanged arrowheads. At Machrie Moor, circles 2,3 and 4 had central cists containing food vessels.

5:36 Distribution (figs.36,51).

Looking at the class as a whole they are distributed throughout much of Scotland and there is no significant geographical break between these rings and those Small Circles of class L further south (fig.51). Class K sites are particularly common in Tayside (perhaps because other classes of circle are rare here - except Four Posters).

Examining the sub-divisions of the class discussed in 5:34 certain patterns are noteworthy. The distinction drawn between eastern and western sites is supported by an absence of sites in the prohibitively mountainous regions along Scotland's spine. The distribution of platform sites is patchy, the majority being found in two concentrations, one in Tayside and the other in a restricted region of Grampian. The only 'standard' platform site in the west is on Arran (Machrie Moor 5), in the same region as the atypical 'platform' sites (K;SP4). The radial stone variants (K;F15) and the two larger rings (K;F17) are restricted to northeast Scotland.

In Grampian and Moray Firth, class K rings are always small. In these regions moderate-sized rings of distinctive design exist in abundance (fig.36 - classes H,I). In other regions no moderate-sized circles with distinctive architecture exist. In Tayside and Western Scotland some of the class K rings are somewhat larger, as if moving towards provision of moderate-sized, but architecturally simple, rings. In northeast Scotland the same phenomenon is observed with the two K;F17 rings.

In the southwest the relatively large K;SP4 rings (1-3 cases) are harder to interpret. They may represent the influence of the large/moderate diameter Western Irregular Circle tradition (class C) intermixed with that of the more typical Small Circles of Scotland. A parallel situation can also be proposed a little further south in the Scottish southwestern peninsula (see 5:37-5:39).

Small Circles - South; class L.

5:37 Characteristics (figs 52-58).

These 79-95 sites have rather varied architecture and diameters ranging up to 30m, but are characterized by moderate stone spacing, uncircular plan and lack of grading. The majority have no distinctive architectural traits which isolate them as defined sub-groups, the exception being a group of 3 sites in southwest Scotland with large centre-stones (L;F22). Other differences in design have no well defined restricted geographical distribution but are intermixed polythetically.

The majority of sites are either freestanding (table 23) or embanked (table 25). A minority have internal platforms similar to those further north in class K (table 24). In all other respects these three types cross-cut other diversity in design; all should be seen as variations on the same theme and hence do not create a suitable basis for sub-division of class L sites. Embanked sites are found throughout the class L range but are only common in the Peak District. Platform sites are only found in the northwest. Freestanding rings are found everywhere in equal mixture with other types, except in the Peak District where they are relatively rare.

The most meaningful way of subdividing the class is according to stone height and arrangement (and to a lesser extent diameter). Table 22 is designed to highlight these factors and while some of the resultant sub-groups are arbitrary, others identify potentially significant variation.

The design of circle orthostats in the class as a whole can be divided into 3 major sub-types which have relevance when examining topographical factors (see chapters 8-9). Many sites are built of small ungraded orthostats (44 examples-L;F21,22,24;ESC1,2,5;SP5,6) and are commonly found in upland situations. The second type (22 examples-F23;ESC3,6;SP7) is also found in similar locations; each again has small stones with the exception of 1-2 tall 'directional stones', orientated between ESE and WNW (ie. avoiding northeast) (fig.19). The division between these two sub-types may be arbitrary in many cases, as those sites without 'directional stones' are frequently damaged. They may have had such stones removed as they make ideal gateposts. The only cases of 'normal' class L sites where this can be reliably said to not apply are: the three Scottish centre-stone rings (L;F22); White Moss NE/SW and Druids Temple in Cumbria; and the diminutive Circle 275 in North Wales. In the case of Druids Temple, its architecture has similarities with the ungraded class K circles of western Scotland (particularly Machrie Moor 5). Two atypical diminutive circles without portal stones also exist - Bamford Moor South (L;ESC4) and Doll Tor (L;SP8) - both in the Peak District. These two variants appear to be subtly graded. However, the lack of further small sites outside eastern Scotland with these characteristics could suggest that this aspect of their stone design is fortuitous. Diminuative class L sites in general may have stones of roughly equal height with no 'directional stones'.

The third orthostat type has circles with consistently tall stones (19 examples-L;F25,26;ESC7). These are frequently found in more favourable topographic locations, either in, or adjacent to, sheltered low-lying areas. This distribution may reflect a larger labour force available for their erection. The majority of these sites have small diameters and are widely distributed throughout the class L range.

A proportion of sites (c33%) have their orthostats set at the inner edge of a low, narrow bank, both edges of which are often defined by kerbs. Further north, the outer ringcairns at Recumbent Stone Circles are the only examples which are similar, but these normally have their stones set within the bank rather than at one edge. The inner ringcairns at the latter sites are of very different design. In class L, the banks are sometimes interrupted by 1 or 2 entrances and some of those in the Peak District are flanked by radially set stones - as at Stoke Flat and Stanton Moor. The embanked stone circles of class L are closely related to the ringcairn tradition (see 6:10,8:3). In many cases, simple ringcairns are delimited by contiguous kerbstones and in some examples the internal edge has relatively tall slabs - as at Banniside in Cumbria where they are up to 0.6m high. One site - the

Grubstones - is included in the corpus (L;ESC2) as it seems to represent a rare midway form, the stones being up to 0.75m high and only contiguous round part of the circumference.

A handful of sites in the northwest have Scottish platform characteristics. At the Druids Circle and Leacet Hill there are simple platforms, while at both the Loupin Stanes and possibly Casterton the orthostats are set within a bank with a lower platform filling the central area. Moel Goedog had a thin layer of soil placed in its interior in a second phase.

Several of the sites within class L have small cairns in their interiors (20 examples). While in many cases these are central and may be integral parts of the design, this is not always the case. It is noteworthy that many sites with small internal cairns are situated within cairnfields/field systems which have indications of chronological depth and this may imply secondary insertion of cairns within circles.

Few additional features are found at class L sites, the exceptions being - the three centre-stones in southwest Scotland; outliers at Nine Ladies and possibly Grey Croft; and stone rows at Trecastle Mountain SW and possibly Trehudreth Down.

The majority of sites (78 examples) are under 20m diameter and in this respect are comparable with sites of class K. However, they have smaller stones than those in the latter class. There are 17 sites (sub-groups L;F24,26;ESC5,6) with diameters of 20-30m, these sites are more difficult to assign to class L with confidence, as their diameters give them a degree of similarity to Hybrid Circles (class D) and smaller examples of Western Irregular Circles (class C).

Four out of six of the larger diameter rings with tall stones (L;F26) are found in Cumbria, while the other two are also in the west. This suggests these sites should be regarded as a sub-class, being a regional functional-equivalent to other classes of moderate-diameter circles discussed elsewhere (C,D,E,H,I). Another sub-group of larger sites which can be argued to be of significance is found in southwest Scotland. These 5 sites are similar to those in Cumbria except that their stones are smaller (L;F24). Three other sites in this group (and 3 others-L;ESC5,6) are widely scattered throughout the Pennines/North York Moors and are more likely to be larger versions of smaller, but otherwise similar, sites in their vicinity.

Sites of uncertain classification

Only 16 out of 95 sites are of uncertain classification. In the majority of cases this is because of poor preservation or lack of data, which leaves sites open to alternative interpretation as barrow kerbs or other orthostatic structures (see Appendix 1 for details). Exceptions to this are Penbedw Park which may be a fake, and Grubstones which appears to be a cross between an embanked stone circle and a ringcairn.

Four Scottish platform sites of questionable interpretation are tentatively included in the corpus (L;SP6,8) but may be better interpreted as forms of kerb-cairn. Three of these in Cumbria, have diminutive diameters but spaced orthostats, which make them somewhat similar to other small examples of class L. However, other rings exist in the region, such as that at Little Meg, that are of similar dimensions but with more closely spaced orthostats. These are more obviously kerb-cairns and rejected from the corpus. On Dartmoor, similar rings to the three in question are rejected from the corpus, as the distinction between these and true stone circles is clear-cut in this region (see 6;10). The fourth site - Doll Tor in the Peak District - has a better claim to be a true stone circle. This may have been freestanding in its first phase and the ring of orthostats is of typical class L form.

Table 22: An Analysis of Small Circles - Southern Britain (class L)

Key

		Score
1; Diameter	20m+	-1
	20m-	0
2; Mean stone height	1m+	-1
	1m-	0
3; Circle design	ungraded	-1
	1-2 taller stones	0
	graded	+1
4; total score		

Small circles with low stones (F21,22;SP5,6;ESC1,2)

	1	2	3	4	
260 Claughreid	0	0	-1	-1	centre stone
275 Lairdmannoch	0	0	-1	-1	centre stone
294 Bleaberry Haws	0	0	-1	-1	kerb-cairn variant
290 Zadlee	0	0	-1	-1	
299 Druids Temple	0	0	-1	-1	Scottish platform
310 Lacra B	0	0	-1?	-1	
314 Low Longrigg SW	0	0	-1	-1	
315 Moor Divock 4	0	0	-1	-1	kerb-cairn variant
320 White Moss ENE	0	0	-1	-1	
321 White Moss WSW	0	0	-1	-1	

330 Dumpit Hill NE	0	0	-1	-1	
331 Dumpit Hill SW	0	0	-1	-1	
333 Five Stanes	0	0	-1	-1	
335 Grubstones	0	0	-1	-1	embanked
349 Ash Cabin Flat	0	0	-1?	-1	embanked
358 Eyam Moor III	0	0	-1?	-1	
362 Nine Ladies	0	0	-1	-1	embanked
366 Seven Stones of Hordron	0	0	-1?	-1	
385 Circle 275	0	0	-1	-1	
417 Trecastle Mountain SW	0	0	-1?	-1	
265 Eldrig Loch	0	0	?	(0)	centre stone
274 Kirk Hill	0	0	?	(0)	
279 Nether Dod	0	0	?	(0)	embanked
293 Blakeley Raise	0	0	?	(0)	
297 Broomrigg B	0	0	?	(0)	kerb-cairn variant
309 Lacra A	0	0	?	(0)	
324 Casterton	0	0	?	(0)	Scottish platform
326 Delf Hill	0	0	?	(0)	
332 Eggleston	?	0	?	(0)	embanked?
338 Mudbeckside	0	0	?	(0)	
342 Twelve Apostles	0	0	?	(0)	embanked
346 Harland Moor	0	0	?	(0)	embanked
354 Brown Edge	0	0	?	(0)	embanked
357 Eyam Moor III	0	0	?	(0)	embanked
360 Gibbet Moor South	0	0?	?	(0)	embanked
361 Handsome Cross	0	?	?	(0)	
367 Smelting Hill	0	0	?	(0)	embanked
372 Bedd Gurfal	0	0	?	(0)	embanked
395 Hafoty	0	0?	?	(0)	
404 Moel Faban	0	?	?	(0)	embanked
406 Mynydd y Gelli	0	0	?	(0)	embanked
419 Y Foel Frech	0	?	?	(0)	

Small circles with 1-2 tall stones (F23;SP7;ESC3)

	1	2	3	4	
270 Harestanes	0	0	0	0	
278 Loupin Stanes	0	0	0	0	Scottish platform
280 Nine Stones	0	0	0	0	
281 Ninestone Rigg	0	0	0	0	
311 Leacet Hill	0	0	0	0	Scottish platform?
322 Appletreewick	0	0	0	0	
325 Cheetham Close	0	0	0?	0	
340 Simonburn	0	0	0	0	
343 Walshaw Dean	0	0	0	0	
351 Barbrook I	0	0	0	0	embanked
352 Barbrook II	0	0	0	0	embanked
356 Ewden Beck	0	0	0	0	embanked
364 Park Gate	0	0	0	0	embanked
365 Seven Brideron	0	0	0	0	
368 Stanton Moor I	0	0?	0	0	embanked
369 Stanton Moor IV	0	0	0	0	embanked

370 Stoke Flat	0	0	0	0	embanked
384 Circle 278	0	0	0	0	embanked
405 Moel Goedog West	0	0	0?	0	embanked
503 Hampton Down	0	?	0?	(0)	
505 Nine Stones	0	0	0	0	

Variants (SP8;ESC4 - comparable with class K;F16)

350 Bamford Moor South	0	0	+1?	+1	embanked, graded
355 Doll Tor	0	0	+1?	+1	kerb-cairn variant? -graded

Larger circles with small stones (F24;ESC5)

	1	2	3	4	
262 Drannandow	-1	0	-1	-2	
272 Holm of Daltolochan	-1	0?	-1?	-2	
313 Low Longrigg NE	-1	0	-1	-2	
347 Sleddale	-1	0	-1	-2	
371 Wet Withens	-1	0	-1?	-2	embanked
263 Drummore	-1	?	?	(-1)	
264 East Hill	-1	0	?	(-1)	
323 Carperby	-1	0	?	(-1)	embanked
337 Ilderton	-1	0?	?	(-1)	
289 Whiteholm Rigg	0	0	0?	0	slightly smaller example

Variant (ESC6)

353 Barbrook III	-1	0	0	-1	embanked, tall stone

Small circles with tall stones (F25;ESC7 - comparable with class K;F18,19)

	1	2	3	4	
329 Duddo Four Stones	0	-1	-1	-2	
448 Duloe	0	-1	-1	-2	
285 The Thieves	0	-1	?	(-1)	
307 Kopstone	0	-1?	?	(-1)	embanked
317 The Ringlen Stones	0	?	?	(0)	
327 Doddington Moor	0	-1	?	(-1)	
339 Nunwick Park	0	-1	?	(-1)	
344 Blakey Topping	0	-1	?	(-1)	
345 Danby Rigg North	0	-1	?	(-1)	embanked
363 Nine Stone Close	0	-1	?	(-1)	
374 Bryngwn Stones	0	-1	?	(-1)	
489 Trehudreth Down	0	-1	?	(-1)	embanked
513 Winterbourne Abbas	0	-1?	?	(-1)	

Larger circles with tall stones (F26)

	1	2	3	4	
302 Grey Croft	-1	-1	?	(-2)	
305 Hall Foss	-1	-1	?	(-2)	
306 Kemp Howe	-1	-1	?	(-2)	
271 High Auchenlaurie	0	-1?	?	(-1)	slightly smaller
291 Annaside	0	-1	?	(-1)	slightly smaller
409 Penbedw Park	-1	-1?	+1?	-1	graded stones?

Table 23: Small Freestanding Circles - South; Class L.

(for a key see table 5)

Small circles with low stones (F21)

1	2	3	4	5	6	7	8	9	10	11
274	Kirkhill	8	c11,6	ID	c9-10?	(3,9)	(17%)	(0,65)	(0,50-1,00)	ID
290	Zadlee	8	c8,2	ID	9	2,9	19%	(c0,15)	0,10-0,20)	U
293	Blakeley Raise	9	c16,7	ID	12-13?	ID	?	c0,80	c0,50-1,15	ID
309	Lacra A	9	c16,0	ID	8-12	(4,5)	?	(0,70)	(0,50-1,00)	ID
310	Lacra B	9	c15,0	ID	11	(4,2)	(5%)	0,65	0,50-0,90	U?
314	Low Longrigg SW	9	c14,8x15,5	c4,5%	9	5,1	14%	0,45	0,25-0,70	U
320	White Moss ENE	9	15,1x16,9	10,7%	11	4,6	29%	0,80	0,60-1,15	U
321	White Moss WSW	9	c15,8x17,2	c8,1%	13	4,0	16%	0,80	0,60-1,20	U
330	Dumpit Hill NE	10	c10,8	ID	10	3,4	12%	0,45	0,40-0,55	U
331	Dumpit Hill SW	10	c10,2	ID	9-11	(3,4)	(3%)	0,60	0,50-0,75	U
333	Five Stanes	10	c6,0	ID	8	(2,2)	(5%)	0,70	0,50-0,85	U
338	Mudbeckside	10	c18,0	(ID)	11-13	(ID)	?	(0,50)	(c0,45-0,55)	ID
358	Eyam Moor III	12	c12,3x13,0	c5,4%	8-9	(5,1)	(7%)	0,65	0,25-1,10	U?
361	Handsome Cross	12	c7,5x6,5	ID	ID(12+)	ID	?	ID	ID	ID
366	Seven Stones of Hordron	12	c15,2x15,9	c4,4%	16	3,0	28%	0,70	0,45-0,95	U?
383	Circle 275	13	4,1x3,8	7,3%	5	2,3	32%	(c0,50)	0,45-0,55	U
395	Hafoty	13	c12,2	ID	c9?	ID	?	(0,90)	(0,75-1,45)	ID
417	Trecastle Mountain SW	13	c8,0	ID	12-13?	2,0	30%	0,90	0,75-1,05	U?
Possible Sites										
326	Delf Hill	10	c4,5	(ID)	6-7?	ID	?	(c0,50)	ID	ID
419	Y Foel Frech	13	c11,0	ID	ID(10-12?)	ID	?	ID	ID	ID

Small South-West Scottish Centre-Stone Sites (F22)

1	2	3	4	5	6	7	8	9	10	11
260	Claughreid	8	9,1x10,5	13,3%	9	3,4	10%	ID	(? -0,40)	U
265	Eldrig Loch	8	c3,5-5,0	ID	ID(5+)	ID	?	(c0,35)	(0,30-0,45)	ID
275	Lairdmannock	8	6,3x6,4	1,6%	10	2,0	10%	(c0,20)	c0,10-0,30	U

Small Circles with 1-2 tall stones (F23)

1	2	3	4	5	6	7	8	9	10	11
270	Harestanes	8	c3,5x3,8	c7,9%	5	2,3	16%	0,95	0,90-1,00	S(SE)
280	Nine Stones	8	c6,4	ID	7-9	(2,4)	(29%)	0,60	0,40-0,90	S(ESE)
281	Ninestone Rigg	8	c6,5x7,0	c7,1%	9	2,3	23%	ID	(low?)	2S?(SW/S)
322	Appletreewick	10	c8,7x7,5	c13,8%	6	4,0	22%	0,55	0,45-0,70	S(S)
325	Cheetham Close	10	c15,5	ID	10-11	ID	?	(0,65?)	(0,55-0,85?)	S?(N)
340	Simonburn	10	c9,0	(ID)	c14	(ID)	?	0,30	c0,20-0,50	2S(S)
343	Walshaw Dean	10	c11,0	ID	10-12	ID	?	c0,75	ID	S(S)
365	Seven Brideron	12	c7,5	ID	8?	ID	?	(low)	ID	S(?)
503	Hampton Down	15	c6,2x8,	c23,5%	8?	2,8?	47%	ID	ID	ID(O?)
505	Nine Stones	15	8,8x7,9	10,2%	10	2,6	28%	0,70	0,55-0,90	2S(WNW/NW)

Larger Circles with Small Stones (F24)

1	2	3	4	5	6	7	8	9	10	11
262	Drannandow	8	c27,2	ID	12-14	(6,5)	15%	(0,50)	(0,45-0,80)	U?
263	Drummore	8	c26,0	ID	ID(9+)	ID	?	ID	ID	ID
264	East Hill	8	c20,0	ID	9-12	ID	?	(low)	(? -0,90)	ID
289	Whiteholm Rigg	8	c19,2	ID	9-12	(6,3)	(6%)	(c0,70)	(0,50-1,20)	S?(ESE)
313	Low Longrigg NE	9	c19,5x21,3	c8,5%	16?	(4,3?)	(17%)	0,65	0,30-1,20	U
337	Ilderton	10	c36,0x29,0	(ID)	c16-22	ID	?	ID	c0,55-1,65?	ID
347	Sleddale	11	c28,0x33,5	c16,5%	17-20	4,9	17%	ID	(? -0,70)	2S(SE)
Possible site										
272	Holm of Daltolochan	8	c19,2x26,2	c26,7%	15?	4,8	27%	(0,95)	(0,60-1,50)	S?(SSW)

Small Circles with tall stones (F25)

1	2	3	4	5	6	7	8	9	10	11
317	The Ringlen Stones	9	c15,0	ID	ID(10+)	ID	?	ID	ID	ID
329	Duddo Four Stones	10	c9,6	ID	7-8	5,0	17%	1,90	1,50-2,30	U
339	Nunwick Park	10	c8,5	ID	ID(5+)	ID	?	(c2,40)	ID	ID
344	Blakey Topping	11	c16,5	ID	ID(5+)	ID	?	(c1,80)	ID	ID
363	Nine Stone Close	12	c12,0-13,5	ID	8-9	(4,7)	(11%)	(2,05)	(1,95-2,20)	ID
448	Duloe	14	c11,7x10,2	c12,8%	8	3,5	21%	1,85	0,95-2,65	U
513	Winterbourne Abbas	15	c6,0-8,0	ID	c7?	ID	?	(large)	ID	ID
Possible Sites										
327	Doddington Moor	10	c12,2?	ID	ID	ID	?	(1,40)	(1,20-1,75)	ID
374	Bryngwn Stones	13	c12,0?	ID	8-9?	(6,4)	?	(3,50)	(3,05-3,95)	ID

Larger circles with tall stones (F26)

1	2	3	4	5	6	7	8	9	10	11
291	Annaside	9	c18,0	ID	ID(12+)	ID	?	(tall)	ID	ID
302	Grey Croft	9	c24,5x27,0	ID	12-16	(c5,2?)	(18%)	1,50	1,25-1,95	ID
305	Hall Foss	9	c23,0	ID	ID(8+)	ID	?	(tall)	ID	ID, AO?(N)
306	Kemp Howe	9	c25,0	ID	c15-17	ID	?	(tall)	(? -2,40)	ID, AV(N)
Possible Sites										
409	Penbedw Park	13	c30,0	ID	c11-12	(8,7)	15%	(1,00)	(0,40-1,60)	6?(SW)
271	High Auchenlarie	8	c19,8x14,3	ID	ID(13?)	(4,3)	?	(1,20)	(0,90-1,50)	ID

Table 24: Scottish Platform Circles - South; Class L.

(for a key see table)

Small circles with low stones (SP5)

1	2	3	4	5	6	7	8	9	10	11
299	Druids Temple	9	8,2x9,2	10,9%	10	2,7	23%	0,65	0,20-1,00	U
Possible Sites										
324	Casterton	10	18,6x19,0	2,1%	19-22?	2,9?	30%	(low)	0,05-0,50	ID

Kerb Cairn Variants (SP6)

1	2	3	4	5	6	7	8	9	10	11
294	Bleaberry Haws	9	c4,2x4,6	c8,7%	8-9	1,6	12%	0,45	0,30-0,70	U
297	Broomrigg B	9	3,0x4,2	28,6%	7	1,5	37%	0,65	0,50-1,05	ID
315	Moor Divock 4	9	c4,8x5,5	12,7%	11	1,6	23%	0,70	0,40-0,95	U

Small circles with 1-2 tall stones (SP7)

1	2	3	4	5	6	7	8	9	10	11
278	Loupin Stanes	8	c10,4-12,4	c16,1%	17-18	1,9	35%	(0,40)	(0,30-0,60)	2S(WSW)
Possible Site										
311	Leacet Hill	9	c10,2x11,3	c9,7%	9	3,6	35%	0,80	0,50-1,20	S?(SE)

Graded Kerb Cairn Variant (SP8)

1	2	3	4	5	6	7	8	9	10	11
355	Doll Tor	12	c5,9x4,5	23,7%	6	2,6	17%	0,85	0,80-1,00	6?(W)

Table 25: Embanked Stone Circles; Class L.

(for a key see table 5)

Small circles with low stones (ESC1)

1	2	3	4	5	6	7	8	9	10	11
279	Nether Dod	8	c8,5	ID	c12%	ID	?	(0,60)	(0,45-0,75)	ID, ET(SW)
332	Eggleston	10	ID	ID	ID(14+)	ID	?	(low)	ID	ID
342	Twelve Apostles	10	c15,0	ID	c16-20	ID	?	(c0,75)	(c0,60-0,90)	ID
346	Harland Moor	11	c19,0x20,0	(ID)	ID(9+)	ID	?	ID	(? -1,00)	ID
349	Ash Cabin Flat	12	c4,4x5,5	c20%	4-9?	ID	?	0,45	0,40-0,55	U?
357	Eyam Moor II	12	c7,7x8,0	ID	9	(2,5)	(12%)	(0,25)	(0,15-0,30)	ID,ET? (NNW)
362	Nine Ladies	12	c10,6x11,4	c7,0%	11	3,1	19%	0,75	0,45-0,90	U? AO(WSW)
367	Smelting Hill	12	c7,5	ID	9-10	(2,2)	?	(0,75)	(0,75)	ID, ET(NNE)
406	Mynydd y Gelli	13	10,7x9,1	c15%	15?	(c1,4)	?	(0,60)	ID	ID
Possible Sites										
354	Brown Edge	12	c7,5x6,0	c20%	ID	ID	?	(0,75)	(0,60-0,90)	ID
360	Gibbet Moor South	12	c10,5x13,0	19,2%	ID	ID	?	ID	ID	ID, ET(SSW)
372	Bedd Gurfal	13	c4,0	(ID)	ID	ID	?	ID	(? -c1,00)	ID
404	Moel Faben	13	c5,0	(ID)	ID	ID	?	ID	ID	ID

Small Circle with close-set stones (ESC2)

1	2	3	4	5	6	7	8	9	10	11
335	Grubstones	10	9,6xc10,7	c10,3%	28-32	1,0	36%	0,50	0,30-0,75	U?

Small Circles with 1-2 tall stones (ESC3)

1	2	3	4	5	6	7	8	9	10	11
351	Barbrook I	12	12,5x14,5	13,8%	13	3,3	22%	0,50	0,35-0,70	S(SW)
352	Barbrook II	12	c13,7x14,7	6,8%	9+?	(3,7?)	(64%?)	0,60	0,45-0,70	S(WSW) ET(NE)
356	Ewden Beck	12	c14,7x15,9	c7,5%	14-15?	3,0	19%	0,50	0,35-0,75	G(SSE) ET(NNW/SSE)
364	Park Gate	12	c11,8x12,4	c4,8%	20?	1,8	21%	0,55	0,30-1,00	S(S)
368	Stanton Moor I	12	10,0x9,0	ID	ID	ID	?	(0,45)	(0,40-0,50)	ET(NNE/SSW)
369	Stanton Moor IV	12	c11,8x13,3	c11,3%	11?	(3,7)	(11%)	(0,45)	(0,30-0,60)	ET(S)
370	Stoke Flat	12	c11,7	ID	c16?	(2,2)	(16%)	(0,45)	0,30-0,55	S(SSW) ET(SSW/NNE)
384	Circle 278	13	11,5x12,8	10,2%	7-8	(5,0)	24%	(0,50)	(0,40-0,70)	S(WSW)
405	Moel Goedog West	13	6,3x6,9	8,7%	12	1,8	45%	(0,65)	(0,45-1,00)	S?(WNW)

Small Circles with Graded Stones (ESC4)

1	2	3	4	5	6	7	8	9	10	11
350	Bamford Moor South	12	7,9x6,8	13,9%	6	3,7	23%	0,55	0,40-0,65	G?(E/SE)

Larger Circles with small stones (ESC5)

1	2	3	4	5	6	7	8	9	10	11
323	Carperby	10	22,8x26,4	c13,6%	18-20	(c4,7)	20%	(c0,60)	ID	ID
371	Wet Withens	12	29,7x30,9	3,9%	16-18	5,6	19%	0,50	0,25-0,70	U?

Larger Circles with 1 taller stone (ESC6)

1	2	3	4	5	6	7	8	9	10	11
353	Barbrook III	12	c23,4x26,2	10,7%	25	3,2	25%	c0,50	0,40-0,80	S(SW)

Small Circles with tall stones (ESC7)

1	2	3	4	5	6	7	8	9	10	11
345	Danby Rigg North	11	c12,8	ID	ID(4+)	ID	?	(c1,70)	(c1,65-1,80)	ID
Possible Sites										
385	The Thieves	8	c7,6x9,0	c15,5%	c7-8%	(3,2)	(16%)	(1,70)	(0,80-2,25)	ID
307	Kopstone	9	c17,5	ID	ID	ID	?	(1,65)	(1,65)	ID
489	Trehudreth Down	14	c8,0	ID	6-8	ID	?	1,35	1,20-1,55	ID

5:38 Dating.

Several C14 dates are associated with this class. At Moel Goedog a series of 7 dates derived from pits within the central area are statistically indistinguishable. Three of these (one uncertainly so) - 1495bc±70(CAR-161), 1550bc±70(CAR-160), 1660bc±70(CAR-162), and an enlarged food vessel - are from contexts which can be shown to be contemporary with the erection of the orthostats. Secondary pits containing 2 collared urns provided dates of 1685bc±70(CAR-165), 1645bc±70(CAR-163), 1515bc±70(CAR-164) and 1515bc±70(CAR-166). Dates from 3 other sites are all from central contexts and hence lack of strat graphic correlation does not allow distinctions to be drawn between primary and secondary contexts. At Barbrook II a date of 1500bc±150(BM-179) came from a burial under a small off-centre cairn and was accompanied by a collared urn. At Brown Edge 3 dates - 1530bc±150(BM-212), 1250bc±150(BM-211), and 1050bc±150(BM-177) - came from central deposits, one accompanied by a collared urn. A fourth deposit was accompanied by a collared urn and a pygmy cup. At Circle 278 in North Wales dates of 1520bc±145(NPL-11) and 1404bc±155(NPL-10) have been obtained from internal features. A collared urn was also found in an internal pit.

Similar monuments to those described above have produced comparable Earlier Bronze Age artefacts. At Stanton Moor I - 5 collared urns, 2 cordoned urns, 3 pygmy cups and a bronze awl, have been found in the interior. At the Druids Temple, a collared urn and a sandstone disc came from internal pits.

While the majority of the data could perhaps be argued to relate to later use, rather than initial construction of sites, the general impression is of an Earlier Bronze Age date. However, this data may not apply to the class as a whole. The sites which provide dating evidence are situated in upland situations which were probably first extensively utilized in the Earlier Bronze Age (with the exception of debatable evidence from Grey Croft and Duloe - see below). The date of lowland class L circles is far more uncertain. Unlike the upland sites, these frequently have tall stones and hence could be compared with Small Circles further north (class K) which can be demonstrated to have Later Neolithic origins.

Data of uncertain utility

At Duloe, a Trevisker urn was found near the base of one of the orthostats but this may have been a secondary insertion. At Danby Rigg, two collared urns were found in the interior and at Grey Croft a jet ring was found in the central cairn. A polished-axe fragment was also found at

Grey Croft but this was unstratified and hence may be a casual discard with no association with the monument. Three sites with internal platforms have produced Earlier Bronze Age finds but, because of uncertain stratigraphic relationships between orthostats and cairn, it is unclear if these are primary or secondary. At Doll Tor, a biconical urn, 3-4 biconical or cordoned urns and 3-4 pygmy cups, have been found within the circle. At Leacet Hill, a food vessel, a pygmy cup and 5 collared urns were found, and at Moor Divock a food vessel came from the interior.

5:39 Distribution (figs. 36,51).

Circles of class L are found throughout the southern half of Britain and there is no significant distributional gap between these and equivalent small monuments further north (class K). However, small circles are rare south of the Peak District/North Wales; they are confined to isolated pockets in southeast Wales, Dorset and Cornwall.

The distributions of various sub-types of class L have already been commented upon; the only discrete distributional bias in architectural form is the small group of centre stone sites in southwest Scotland (where 2-3 larger sites also have central settings-class D). Two sub-groups (L;F24,26-see 5:37) occur in Cumbria and Southwest Scotland, and these may be functional equivalents to moderate-diameter circles in other regions (classes D,E,H,I).

Dartmoor Stone-Row circles; class M.

5:40 Characteristics (figs.59-60).

These 24-31 small sites are each usually found positioned at one end of a stone row, a characteristic not normally found in other classes of stone circle. They stand out clearly from other small circles because of their large number of orthostats/narrow stone spacing, and in these respect could be seen as diminutive versions of Western Irregular Circles (class C). They are built of small ungraded stones and lie on irregularly shaped rings.

The majority of the rings surround an internal cairn which fills much of the interior space, usually with a gap of between 0.5 and 1.5m between cairn edge and circle. These cairns are often asymmetrically placed, sometimes touching the circle in one quadrant. In contrast, the stone rows are closely aligned on the circle centres. This may imply that the central cairns are secondary features but their frequency argues against this. Only at Trowlesworthy A, Shaugh Moor A, Joan Ford Newtake and Cholwichtown Waste, are no cairns present today, but in all cases it is likely that later disturbance is responsible for their absence (see Appendix 1).

The majority of sites are abutted by a single or double row of low stones. Only at Fernworthy C, Harford Moor and Joan Ford Newtake A is no row present (and groups M;DR3,4-see below). In all these cases they are near intakes and the rows may well have been removed by differential robbing of stones. Elsewhere the results of such a process can be observed at several sites where not all stones of the row have been removed.

The only triple rows abutting circles are at Cosdon Beacon and Yar Tor. In the former case it can be argued that this comprises a single row with a double row added at a later date (see 8:8). The Yar Tor row is ruined and hard to assess in respect of its phases of construction.

Not all the stone rows of Dartmoor have class M circles at one end (see Appendix 7). A smaller proportion have simple cairns without surrounding circles, other poorly preserved sites have neither. The only atypical rows with more than 3 lines occur at Corringdon Ball (7 lines) and Yellowmead (8?); both have larger Hybrid Circles attached (class D-see 5:12). The only other stone circle on Dartmoor abutted by a row is at Stall Moor; this is an atypical site in several respects (Class C-see below and 5:9,8:10).

A recent study of Dartmoor Rows (Emmett 1979) concluded that there was no overall pattern to their design. However, this study failed to account for subsequent destruction of features. When sites are assessed according to the general state of preservation of the row ends and proximity of intake walls etc, patterns emerge (see Appendix 7). The circles and cairns are usually placed at the upslope end of rows and the only major exceptions to this occur where rows are found in 'monument complexes', as for example at Shovel Down. Here the rows characteristically follow on from each other (see 8:6-8:12); the undulating topography thus leads to the 'upper' end of some rows being downslope. At Merrivale C, the circle is uniquely placed midway along a row, one half of the row possibly being added at a later date.

In many cases where preservation is good, the upper end of the row is given further emphasis by a gradual increase in stone height and/or a particularly tall menhir at the upper end. These menhirs are often over 2.0m tall and stand out in strong contrast to the circles/cairns adjacent to them (the only notable exception to this is at the Western Irregular Circle at Stall Moor which has low stones immediatly adjacent to the circle).

The 'lower' ends of the rows are characterized by less complexity; normally simple terminal menhirs exist, but occasionally there are no features whatsoever, as demonstrated by excavation at Cholwichtown Waste.

The Dartmoor stone-rows have a wide variety of orientations and no astronomical explanations can be supported.

As well preserved Dartmoor Stone-Row Circles are normally found with abutting rows the two should be viewed as integral components of the same monument (but with the circle sometimes substituted by a simple cairn). In contrast, in other classes of circle where rows are occasionally found (classes C,D,K,L), the rows are usually adjacent but not aligned on the circles and should be considered as separate elements combining to form a monument complex (see 6:12). This includes the Dartmoor row-complex circles (D;F7) (see 8:7-8:8).

Sites of uncertain classification

The majority of class M sites are of similar design but a number of variant forms also exist. In 4 cases (M;DR2/3) there is more than one ring of orthostats. However, only one of these, Shoveldown A (M;DR2), has 3 clearly defined rings (see also Yellowmead - class D; 5:12). The other three sites (M;DR3) have irregularly placed stones which may never have been designed to conform to clearly defined rings. These sites appear to be a midway stage in a continuum between true stone circles and a rare class of site recently identified on Dartmoor (Robinson and Greeves 1981). These consist of multiple, crudely-concentric rings of very low, near-contiguous stones, the overall effect being of a low continuous 'bank-like' structure. Both the M;DR3 rings and the 'multiple stone-rings' are found adjacent to stone rows, rather than abutting them.

Another class M variant form is recorded at destroyed sites at Broad Down in east Devon (M;DR4). Here 3 sites within a linear barrow group, each had a ring of low, spaced stones at the outer edge of a ditch surrounding a large barrow. These are included in the corpus because of their similarity to Dartmoor Stone-Row Circles. However, it is dubious whether these rings should be treated as true stone circles. In functional terms the stone rings are more likely to be variant forms of barrow kerbs.

One class of monument on Dartmoor sometimes refered to as a stone circle is a variant form of kerb-cairn with spaced orthostatic kerbs. These sites cannot be confused with class M rings when well preserved; they are typically smaller, have their interiors completely filled with cairn material, surround a central cist and never have abutting stone rows (see 6:10).

Table 26 Dartmoor Stone-Row Circles; Class M.
(for a key see table 5)
Simple Circles (DR 1)

1	2	3	4	5	6	7	8	9	10	11
423	Assycombe Hill	14	c8,5x8,0	ID	c22-27	(0,9)	(26%)	0,35	0,25-0,60	U
432	Brown Heath	14	9,8x9,4	4,1%	18-22	1,5	(29%)	0,85	0,50-1,55	U
433	Burford Down A	14	c9,7	ID	c14-15	(2,1)	(14%)	0,70	0,40-0,90	U
434	Butterdon Hill	14	c11,0x11,5	ID	19	1,9	14%	c1,00	c0,60-1,35	U
436	Cholwichtown Waste	14	5,6x4,4	21,4%	9	1,8	29%	0,90	0,60-1,15	U
437	Collard Tor	14	c7,8	ID	13	(1,9)	(19%)	0,75	0,60-1,00	U
439	Corringdon Ball A	14	c8,7	ID	c10	(2,5)	(20%)	0,50	0,25-0,65	U
441	Cosdon Beacon	14	c6,5x7,0	ID	c14-15?	(1,4)	(7%)	0,35	0,25-0,50	U
444	Down Tor	14	11,7x12,1	3,3%	23	1,6	35%	0,75	0,45-1,10	U
446	Drizzlecombe B	14	c8,0x8,3	ID	11	2,3	17%	0,50	0,20-0,75	U
447	Drizzlecombe C	14	c10,0x10,8	c7,4%	16-17	2,1	27%	0,40	0,25-0,60	U
451	Fernworthy B	14	c9,5	ID	c17-20	ID	?	ID	ID	ID
456	Harford Moor	14	c14,5	ID	ID	ID	?	(0,70)	(0,55-1,00)	ID
457	Hartor	14	8,5xc9,0	c5,5%	15	1,9	24%	0,75	0,40-1,05	U
461	Joan Ford Newtake A	14	c7,6	ID	18?	(1,3)	(11%)	0,85	0,30-1,45	U
464	Lakehead Hill A	14	c8,0x6,7	ID	10?	(2,1)	(14%)	0,40	0,25-0,65	U
472	Merrivale B	14	c6,5	ID	ID	ID	?	(0,50)	(0,25-1,30)	U?

473	Merrivale C	14	3,7xc4,4	c15,9%	10	1,4	14%	0,40	0,25-0,55	U
477	Ringmoor Down A	14	c12,7	ID	16?	(2,5)	(24%)	(0,85)	(0,75-0,90)	U?
479	Shaugh Moor A	14	c12,4	ID	ID	ID	?	(0,20)	(0,10-0,30)	U
491	Trowlesworthy A	14	6,6x6,9	4,3%	9-10	2,4	28%	1,00	0,65-1,40	U
492	Trowlesworthy B	14	c5,5x6,0	ID	ID	ID	?	(0,60)	(0,55-0,60)	ID
497	Yar Tor	14	c10,0	ID	c17-20	(1,8)	(24%)	(0,45)	(0,25-0,65)	U
Possible Site										
452	Fernworthy C	14	c11-15	ID	ID	ID	?	(0,40)	(0,30-0,50)	ID

(see also 484 Stall Moor)

Small Multiple Circles - regular (DR 2)

1	2	3	4	5	6	7	8	9	10	11
481	Shoveldown A	14	8,6x9,0	4,4%	15	1,8	11%	0,45	0,35-0,55	U
			c6,6	ID	10	2,2	16%	0,25	0,20-0,40	U
			c4,9x4,6	6,1%	10	1,5	24%	0,20	0,10-0,25	U

(see also 498 Yellowmead)

Small Multiple Circles - irregular (DR 3)

1	2	3	4	5	6	7	8	9	10	11
427	Brent Fore Hill	14	c13,0	ID	c35-40	ID	?	0,15	0,05-0,25	U
445	Drizzlecombe A	14	c9,75	ID	c16	(1,9)	ID	0,20	0,15-0,35	U
			c8,25	ID	c15-16	(1,6)	(15%)	0,20	0,10-0,35	U
483	Stall Down A	14	c14,4x17,0	15,3%	27-32	1,7	26%	0,50	0,15-0,75	U
			c9,6	ID	12?+	ID	?	0,35	0,25-0,50	U

Broad Down Circles (DR 4)

1	2	3	4	5	6	7	8	9	10	11
429	Broad Down Central	14	c25,0	ID	15	ID	?	ID	ID	U
430	Broad Down N	14	ID	ID	ID	ID	?	ID	ID	U
431	Broad down S	14	ID	ID	ID	ID	?	ID	ID	U

5:41 Dating.

The evidence for this class is poor. Several of the stone rows were slighted by reaves during the Later Bronze Age and Dartmoor Stone-Row Circles as a whole may have fallen out of use by the time the reaves were built (see 8:9 and Fleming 1983).

Data of uncertain utility

On Dartmoor, only the cairn within Fernworthy C has produced artefacts - a late beaker, a shale button and a fragment of bronze. The cairn is of atypical height, the circle is ruined and its status questionable. No surviving stone row running from this circle is documented. Another atypical site is Broad Down South, whose status is also questionable (see 5:40). The large internal barrow contained an Earlier Bronze Age burial under a central cairn, accompanied by fragments of a grooved bronze dagger and a handled shale cup.

5:42 Distribution (fig.51).

This class is confined to Dartmoor, with the exception of 3 possible atypical sites on Broad Down a short distance to the east. No Small Circles (class L) are found on Dartmoor while in contrast they are found in small numbers in other parts of southwestern England.

Four Posters; class N.

5:43 Characteristics (figs.61,62).

Four Posters were first identified as a distinct class of monument by Burl (1971,1976); the main criteria for this being the number of stones and distinctive architecture. However, the multivariate analysis demonstrates that the picture is not totally clear. Some Four Posters (FP1; 15-24 cases) are indeed distinctive monuments, being built of slabs which clearly define a rectangle rather than a circle (and as such they are not strictly 'stone circles'). In contrast, in 4-7 cases (FP2) the rings define a circle and as such could alternatively be viewed as diminutive examples of Small Circles (classes K,L). There is nothing in the latters' range of architectural variation to negate the possibility of these classes having examples with 4 orthostats.

A further 6-16 Four Posters (FP3) are either too ruined, or not well enough documented, for their shape to be assessed. A fourth group of 3 sites are included in the corpus for comparative purposes but are not stone circles. These are found at Temple Wood and Barbreck and consist of tall menhirs, each surrounded by 4 small slabs defining rectangles. In all three cases they are integral parts of complex linear settings with further menhirs to either side.

The average height of orthostats at Four Posters is variable but there is a general tendancy for this to decrease as the monuments get smaller. Although there is no clear-cut division, some could be regarded as diminutive examples (sites 39,41,50,93, 144,221,252,261,268,273,282,359). It is noteworthy that none of the circular rings is of this type.

In many examples, the stones are crudely graded (or have 'directional stones'?) but this takes on several forms due to the small number of stones; ranging from one to three tall stones, or two oppositely placed tall stones. Only 4 sites are clearly ungraded. Taken as a whole the direction of the grading, and/or orientation of rectangular sites, shows no orientation preference. Even when eastern Scotland is examined independantly the trend displayed in Recumbent Stone Circles and Clava Cairns (classes H, I) is not strongly apparent; 5-7 sites emphasize S to SW, while 4-9 sites are orientated elsewhere.

All three rectangular sites at Fortingall (and probably that at Woodside) have a small orthostat inserted midway along each side. However, it would be misleading to classify these as 'eight-stone rings' (as in Burl 1976) as the rectangular plan indicates they are variations on the Four Poster theme. Perhaps the side stones should be viewed as variant forms of kerbstones. At Raich, and Shethin, more typical kerbs link the orthostats, while at Templestone there are 2 small orthostats per side.

Only 14 out of the 50 sites in this class have mounds filling their interiors. While some are artificial, in the cases of Spittal of Glenshee and Glenballock these have been shown to be natural knolls. At Clach na Tiompan the site stood on a natural knoll but also had a small artificial cairn inside the orthostats.

The only other features associated with four posters are adjacent stone settings at Ferntower, Comrie Bridge and Glassel.

Sites of uncertain classification

Twenty two of the forty seven sites are of uncertain classification. This is largely due to inadequate documentation, but in some cases their poor state of preservation makes alternative interpretation as Small Circles (classes K,L) possible (see Appendix 1).

Table 27: Four Posters; Class M
(for a key see table 5)
Rectangular (FP1)

1	2	3	4	5	6	7	8	9	10	11
41	Machrie Burn	4	c3,7x2,7? (ID)	(ID)	4	(ID)	?	(0,60)	(ID)	(ID)
93	Templestone	5	3,0x2,7 (WSW/ENE)	c10%	4	1,9	13%	0,85	0,50-1,40	S(SSW)
214	Carse Farm I	7	c4,6 (WSW/ENE)	ID	4	2,9	17%	1,35	1,20-1,55	P(S)
216	Clach na Tiompan	7	3,7x4,3 (SE/NW)	14,0%	4	2,9	11%	(1,30)	(1,30)	ID
230	Fonab Moor	7	c5,0 (NNE/SSW)	ID	4	(3,7)	(8%)	(1,80)	(1,80-1,85)	ID
231	Fortingall E	7	c6,7 (SW/NE)	(ID)	4+	(4,6)	(3%)	ID	ID	U
232	" S	7	c9,0? (SSW/NNE)	ID	4+?	(6,4)	?	(1,20)	(1,20-1,25)	ID
233	" W	7	c9,0 (SSW/NNE)	(ID)	4+	(5,9)	(18%)	1,20	1,15-1,30	U

239	Lundin Farm I	7	5,5x5,8 (E/W)	5,2%	4	3,9	32%	2,25	1,75-2,70	S(NE)
246	Parkneuk	7	c5,8 (NNE/SSW)	ID	4	(4,2)	(10%)	1,05	0,90-1,20	S(SW)
268	Glentirrow	8	c3,5 (cN/S)	ID	4	(c2,5)	(6%)	0,60	0,55-0,70	?S(SW)
328	Druids Altar	10	4,1x4,2 (NNE/SSW)	c2,4%	4	2,9	10%	1,10	1,00-1,25	?S(S)
334	Goatstones	10	c4,9? (SW/NE)	(ID)	4	(ID)	?	(ID)	? -0,60	?S(SSW)
341	Three Kings	10	c4,3 (cN/S)	ID	4	(c3,0)	?	c1,25	c1,20-1,35	?S(NE)
359	Gibbet Moor N	12	c4,0 (NNE/SSW)	ID	4	(2,6)	?	0,65	0,65	U?
Possible Sites										
39	Largybeg Point	4	c4,0(ID)	ID	4?	ID	?	(0,80)	(0,80)	ID
129	Deer Park	6	c4,4?(SE/NW)	ID	4?	(3,9)	(4%)	(c1,30)	(c1,20-1,50)	S(S)
144	Glassel	6	3,6x3,8? (NNW/SSE)	5,3%?	4?	2,6	15%	0,95	0,85-1,00	?P(SSE) EO(SSE)
151	Howemill	6	c7,3x8,2? (E/W?)	ID	4?	(c5,6)	(5%)	ID	ID	ID
177	Raich	6	c4,9(NW/SE)	ID	4?	(3,9)	(10%)	c1,70	c1,20-2,20	S or,O (N/S)
221	Comrie Bridge	7	c3,9(E/W)	ID	4?	(3,0)	?	0,85	0,70-1,00	S(SE)
240	Lundin Farm II	7	c7,1(E/W)	ID	4?	ID	?	(0,80)	(0,75-0,90)	ID
252	Spittal of Glenshee	7	3,8 (WSW/ENE)	c0%	4	2,7	(11%)	0,60	0,35-0,70	U
387	Druids Castle	13	ID	ID	4?	ID	?	(c1,25)	(c1,00-1,50)	ID

Circular (FP2)

1	2	3	4	5	6	7	8	9	10	11
167	North Burreldales	6	c6,1x6,4	c4,7%	4	4,4	20%	0,90	0,55-1,00	T(SW)
210	Balmuick	7	c3,5	ID	4	2,4	14%	1,40	1,20-1,70	?S(SE)
245	Na Carraigean Edintian	7	c4,7	ID	4	3,2	6%	1,00	0,90-1,15	S(SW)
392	Four Stones	13	5,0x5,5	9,1%	4	3,5	21%	1,50	1,20-1,80	S(NE)
Possible Sites										
182	Shethin	6	c5,2	ID	4?	(4,2)	?	(1,45)	(1,35-1,60)	ID
220	Comrie	7	c5,0?	ID	4?	(3,6)	?	(1,45)	(1,40-1,50)	ID
283	Park of Tongland	8	c7,5?	ID	4?	(5,5)	?	(0,95)	(0,95-1,00)	ID

Unknown Shape (FP3)

1	2	3	4	5	6	7	8	9	10	11
27	Ardilistry	4	(ID)	(ID)	4	(ID)	?	ID	ID	ID
29	Aucheleffan	4	c5,0	(ID)	4	(ID)	?	0,90	0,75-1,05	O(cSW/NE)
34	Four Stones	4	c4,8	(ID)	4	(ID)	?	(1,25)	(1,15-1,40)	ID
50	Shiskine	4	c3,5?	ID	4	(ID)	?	(0,80)	(0,80-0,85)	ID

227	Dunmoid	7	c4,5	ID	4	(2,9)	(10%)	(1,25)	(0,90-1,60)	D(NW/ SE)
236	Glenballock	7	c7,3	ID	4	(5,3)	(10%)	1,25	1,20-1,30	U
Possible Sites										
64	The Browland	5	c3,0	ID	4?	(2,1)	?	(1,30)	(1,05-1,55)	ID
109	Bellmans Wood	6	c6,9	ID	4?	(5,0)	(9%)	(1,60)	(1,50-1,75)	S?(SW)
148	Hill of Bucharn	6	c8,0	ID	4?	ID	?	ID	ID	ID
223	Cramrar	7	c7,6?	ID	4	ID	?	ID	ID	S?(SE)
229	Ferntower	7	c7,6x6,6?	ID	4?	(4,3)	(14%)	(1,15)	(1,00-1,20)	U?
255	Woodside	7	c4,7	ID	4+?	(3,4)	(7%)	1,15	0,80-1,40	?P(E)
261	Crowstones	8	c1,5	ID	4	ID	?	ID	ID	ID
273	Kingside School	8	c3,5?	(ID)	4	ID	(20%)	(c0,35)	0,25-0,45	(ID)
282	The Packmans Grave	8	c2,8x1,4?	ID	4?	ID	?	ID	(0,45)	ID
284	Penshiel Grange	8	c8,0x6,5?	ID	4?	ID	?	(0,70)	(0,40-1,20)	S(NW)

[Small Centre-Stone Settings (FP4)

1	2	3	4	5	6	7	8	9	10	11
30	Barbreck House	4	3,5x ?	ID	4	(2,6)	?	(0,60)	0,50-0,70	U
54	Temple Wood 3	4	2,8x2,3	c18%	4	2,0	16%	(0,55)	0,40-0,70	(ID)
55	Temple Wood 4	4	5,0x ?	ID	4	(3,3)	(14%)	(0,55)	0,40-0,70	(ID)]

5:44 Dating.

The evidence for this class is poor. The Earlier Bronze Age artefacts associated with this group come from contexts which could be argued to be secondary (see below), earlier origins cannot be discounted.

Data of uncertain utility

The only relatively early find is a group of AOC beaker sherds from the mound within Lundin Farm, This also contained collared urn sherds and an unfinished perforated stone tool, All these artefacts may represent redeposited domestic debris and some of them at least may be residual, At Carse Farm I a collared urn and cremation were inserted in a pit against one of the orthostats, At Glenballock an encrusted urn was found in c1870,

5:45 Distribution (fig.63).

The main concentration of these sites is in Tayside but they are also found in relatively large numbers in Grampian and on Arran; all areas where Small Circles (class K) are also common. A further apparent concentration in Southern Scotland near the east coast may be illusory, none of these 4 sites is a certain Four Poster. Further south, a thin scatter of sites is found as far as central Wales. Both circular and rectangular sites are widely distributed and hence this offers no clues as to whether these are separate monument forms.

Chapter Six

Additional Architectural Features, Related Monument Forms and Monument Complexes.

Additional Architectural Features.

6:1 Introduction (fig.64).

The majority of stone circles consist simply of a ring of freestanding orthostats or have associated enclosing banks, internal platforms or internal cairns. However, a small proportion of sites have further components in the form of central stone settings, or external features such as portals or avenues. To some extent these rarer components cross-cut the architectural classes defined above. Hence they are described here rather than in chapter 5.

However, some overall trends are apparent (fig.64). Most free-standing rings with additional features are found in western Britain, the only notable exception being Croft Moraig in Tayside (224-see note 1). In eastern and central Britain such features are normally confined to circle-henges (and henges). The outliers found in Grampian and entrance stones in the Peak District are probably of only minor significance (see 6:5,6:6).

The majority of additional architectural components are found at large rings of the Symmetrical and Western Irregular traditions (classes C-E). This is particularly true in Wales and southern England where the only exceptions are the Dartmoor Stone-Row circles (class M) which also have additional components. From Cumbria northwards, several Small Circles (classes K,L) also have such features. However, it is noticeable that most of these are at the upper end of the classes' diameter ranges. The only notable exceptions are the small 'centre-stone rings' of southwest Scotland (sub-group of class L).

Note 1; site catalogue number - used henceforward 6:1-6:6.

6:2 Concentric Stone Circles (fig.64).

These rare phenomena are found in only 9-14 cases, located in three discrete zones. The main concentration is amongst the large circles of Wessex (classes C-E). The best known example is Stonehenge where the Q/R concentrics were later replaced by the sarsen and bluestone rings (see Appendix 1: 509 for discussion of the chronological sequence). In the latter examples, this combination may result from a conscious desire to integrate diverse traditions, the two sarsen settings being the ultimate expression of the Symmetrical Circle tradition of Wessex/the South West (class E), while the two extant bluestone rings belong to the Western Irregular Circle tradition found along the western seaboard (class C). The Q/R rings also appear to be Western Irregular Circles, but can also be paralleled by the timber rings of Hybrid type (class D related) found within henges (see 6:9). A destroyed stone setting at Winterbourne Bassett (514) may have been similar to the Q/R rings. The closest architectural parallel between a timber circle and the Q/R rings is at North Mains in Tayside. In Wessex itself the well known concentric timber rings (or buildings) at the Sanctuary, Woodhenge, Durrington Walls and Mount Pleasant may also have a bearing and could provide direct antecedents for concentric stone circles - as suggested by the sequence at the Sanctuary (508).

The inner circles at Avebury (499) and the sarsen ring at Stonehenge (509) are 'concentric' to atypical settings rather than stone circles.

The second area - Dartmoor - has concentrics of very different scale and design. There are only two definite examples in this group; Yellowmead (class D; 498) and Shovel Down A (class M; 481). A further 3 examples, Brent Fore Hill (class M; 425), Drizzlecombe A (M; 445) and Stall Down A (M; 483), have irregularly-placed stones, built in circular 'fields' of low, closely spaced uprights. These three sites may suggest this group was originally inspired by 'ringcairn-like' monuments (see 5:40).

The third group consists of 3-5 widely scattered, relatively small sites in the north (Small Circles-classes K,L). Four of these are western ungraded sites - Cnoc Fillibhir Bheag (21), Machrie

Moor 5 (46) and possibly Callanish (17) and Druids Temple (299). In all cases the inner circle has taller stones. The only site in the east is Croft Moraig (224) which is atypically designed in several respects; here the inner stones are smaller.

The origins of this last group are hard to establish; the builders may have been influenced by Wessex sites (or northern timber equivalents). Alternatively, these circles may be an indigenous development derived from a desire to denote specific sites as of special importance, as could be argued for Croft Moraig and Callanish, both particularly large examples of class K.

6:3 Centre Stones and Coves (fig.64).

Stone settings at the centres of stone circles take on a variety of forms, ranging from single tall orthostats to more complex arrangements such as coves. The majority are found in large circles of the Symmetrical and Western Irregular traditions (classes C-E) and more complex forms are particularly common in association with henges.

Coves.

This term is used here to cover a range of similar 'sub-rectangular' structures. 'Typical' examples are found within the henges at Cairnpapple (258) and Avebury (north 499), while further examples are found adjacent to the circles at Stanton Drew (510) and next to the Beckhampton avenue at Avebury. Two atypically simple examples existed within the henge at Stenness. More complex rectangular settings are found at Arbor Low (348), Mount Pleasant and possibly Mayburgh and the Comet Stone at Brodgar; and in larger form at the rectangular or 'D shaped' setting which surrounds a massive centre-stone at Avebury (south circle-499). The trilithons at Stonehenge (509) should be included here as a variant cove. A further atypical feature - the rectangular setting within Castle-rigg (298) - could also have origins in the cove tradition.

A second rare feature is the rectangular 'hearth' of low slabs, as found at the centre of the Stenness henge (2) and at Balbirnie (205 - adjacent to the two henges at Balfarg).

Centre Stones.

The majority of centre-stones are found in western Britain in large freestanding rings (3-8 cases-see note 1), and also in circle-henges (3 cases-see note 2). While freestanding rings usually have only a single centre stone, a more complex setting occurs at Torhousekie (286). Here, the line of 3 stones has been suggested by Burl (1974) to have affinity with the recumbents and flankers of the Grampian region (class H). However, given the spatial separation and the frequency of centre settings in the west it seems more likely the similarity is fortuitous.

The southwestern peninsula of Scotland is unusual in that 3 much smaller sites have centre stones (class K) (see note 3). This restricted regional development is not paralleled elsewhere and probably derives from larger sites such as Glenquickan and Torhouskie (Hybrid Circles-class D:267,286).

In north-western Scotland the only definite centre stone is at Callanish (Small Circle-class K:17). This is a particularly large class K ring and its centre stone, rows and avenue, single it out as having similarities with Hybrid Circles further south (class D). The general affinities between larger class K rings and classes D/E have been discussed above (5:36). Two other posible examples of centre stones in this region - at Cean Hulavig (19) and Temple Wood 1 (52) - are diminutive and of debatable interpretation.

It would probably be a mistake to see centre-stones and 'cove-like structures' as phenomena with independent origins, given that both are found in related monuments of similar size (classes C-E). Centre-stones may represent the simplest version of central settings of the same tradition; an impression strengthened by the Stripple Stones (486) with its single stone associated with a 'cove-like' arrangement of empty pits.

Notes 1; at Boscawen Un (425), the Hoarstones (396), Glenquickan (267), and possibly Leskernick B (468), Altarnun (422), Kerry Hill (397), Brats Hill (295) and Loch Roan (277).
2; at the Stripple Stones (486), Avebury (south 499) and possibly Bryn Celli Ddu (373).
3; at Claughreid (260), Eldrig Loch (265) and Lairdmannock (275).

6:4 Avenues and Stone Rows (fig.64).

Stone Rows.

The vast majority of stone rows found in direct association with stone circles are located on Dartmoor, where they integrate to form an atypical class of monument - the Dartmoor Stone-Row Circles (class M, see 5:40-5:42,8:7-8:8). Parallels can be drawn with the much more grandiose stone rows around Carnac in Brittany, which despite the differences in scale, have similarities in layout characteristics (see 8:7-8:8).

In Wales (4-5 cases-see note 1), and also at some Dartmoor sites (3 cases-see note 2 and 5:15), examples of stone rows are found in close proximity to Western Irregular Circles and related Hybrids (classes C;F4 and D;F8). These complexes differ from those incorporating Dartmoor Stone-Row Circles, in that the rows are not abutted to the circles, and while forming components within 'monument complexes' (see 6:12), they are not integrated as composite monuments. 'Monument complexes' incorporating stone rows are particularly common in Ireland (see 7:4).

'Monument complexes' with rows are found in the South West on Bodmin Moor as well as on Dartmoor. That at Leskernick comprises a row and two large circles of similar type to those on Dartmoor (classes D,E). A second case, at Trehudreth Down (489), has an atypical Small Circle (class L). In Wales, the only case where the row is orientated to the circles is at Trecastle Mountain (416-7). It may be significant that the row aligns with a Small Circle (class L); the larger circle lies beyond (class C;F4). This arrangement can be paralleled at Fernworthy on Dartmoor (circles of class D and M), suggesting the Small Circle at Trecastle Mountain may be a functional equivalent of the Dartmoor Stone Row Circles (class M).

In Cumbria 'monument complexes' incorporating rows have been recorded at Lacra (309-10) and Moor Divock (315) but the former existence of these rows is in some doubt.

Notes 1: at Cerrig Duon (380), Rhos y Beddau (414), Cefn Gwernffrwd (378) Trecastle Mountain (416-7) and probably Gors Fawr (394).

2: at Fernworthy (450), Merrivale A (471) and Shovel Down B (483).

Avenues.

These linear monuments found in association with stone circles are of more massive form and only compare with the rows discussed above in the most general of terms. The only concentration of avenues is found in Wessex, in association with the more important sites. They take the form of imposing approach-ways to the circles/henges. The most impressive were the two at Avebury (499). Similar but much shorter examples are found at Stanton Drew (510-11). The avenue at Stonehenge (509) is of earth rather than stone, although an earlier stone avenue has also been postulated here (Pitts 1982).

Elsewhere in Britain only 3-4 widely scattered avenues have been recorded. These may take their inspiration from the henge tradition rather than from the small rows of the South West and Wales. However, only the avenue at Broomend of Crichie in Grampian (114) is in direct association with a henge. In the west the other examples adjoin freestanding circles. The possible avenue at Broomrigg A in Cumbria (296), leads to a large irregular circle (class C?); there is a henge nearby. At Kemp Howe (306), also in Cumbria, the massive avenue - comparable in length to those at Avebury (499) - leads to a relatively small circle. While this may be an aberrant arrangement, it could be speculated that this circle is similar to the Sanctuary (508), in that a larger (destroyed and undocumented) circle once existed at the other end of the avenue (see 9:7). The fourth example of an avenue (together with comparable rows) is at Callanish (17) in the Outer Hebrides. This Small Circle (class K) has already been noted as being atypical (see 5:48,6:2,6:3).

6:5 Portal Stones (fig.64).

These stones are found either in pairs or singly, lying immediately outside or within the circumferences of stone circles. In many cases they clearly define entrances. In contrast, the majority of single tall stones found on circle circumferences - termed here 'directional stones' (see 3:3) - appear to be orientation indicators and are not discussed here.

The most distinctive portal stones are found at western circle-henges (sub-group of class C) where two orthostats are placed at the outer edge of the bank, matching two tall stones in the circle itself. Ten examples are known, found throughout the geographical range of this class (see note 1).

Futher variants occur. Amongst freestanding examples of Western Irregular Circles (sub-group of class C), an internal portal is found at Cultoon (32) and the distinctive arrangement of two of the circle orthostats at Castlerigg (298) indicates that these define an entrance (see Appendix 1). In 1-3 further examples of Western Irregular Circles and related Hybrids (classes C,D) double stones are again found (see note 2). However, in these cases it is impossible to distinguish between entrance stones and 'directional stones'. This is also true at 4 smaller sites (class L) (see note 3).

A second group of portal stones is found associated with henges or circle-henges (sub-groups of classes C,D). These are usually found in the henge entrances adjacent to bank and ditch (7 cases-see note 4). Again there are variant forms. At the Cairnpapple henge (258) there were two diametrically opposite stones/posts, set immediately within the circle in analogous positions to that at Cultoon. At the Q/R rings at Stonehenge, and the timber circle at North Mains, the portals lie immediately outside the ring in an analogous position to stone portals at western circle-henges.

The only freestanding Small Circle (class K) with external portals is Croft Moraig (224). This stone circle was preceded by a timber ring which also had portals on the same orientation; these probably provided the inspiration for the stone pair.

A third group of sites possessing 'portal stones', with superficial similarities to those in western circle-henges, is found in the Peak District. Four embanked sites have entrances lined with small radially set orthostats (see note 5). It would probably be a mistake to see these as directly comparable with the features at the sites discussed above. They are more likely to be a synchronous development built as simple entrance revetments, whereas the western circle-henge portals are 'non-functional', designed to form impressive entrance settings.

Notes 1; at Phobull Fhinn (26), the Girdle Stanes (266), Long Meg (312), Swinside (319), Cerrig Arthur (379), the Druids Circle (388), Letterston III (398), Meini Gwyr (402), Porthmeor (476) and Rollright (507).
2; at Boskednan (426) and possibly Mitchells Fold (403) and Pen y Beacon (410).
3; at, the Loupin Stanes (278), Simonburn (340), Sleddale (347) and Nine Stones (486).
4; at Balfarg (206), Arbor Low (348) and Stonehenge (509) as well as at the henges of Maumbury, Mayburgh, King Arthurs Round Table and Ffynnon Newydd.
5; at Ewden Beck (356), Stanton Moor I and IV (368,369), and Stoke Flat (370).

6:6 Outliers (fig.64).

These stones are hard features to interpret because of their diverse distribution and frequent uncertainty over their direct association with the adjacent stone circle (see 3:1-3:4). Only outliers within a few metres of the circle are as a general rule considered here.

Only in Wales do more distant stones create recognizable patterns. Here a number of Western Irregular Circles (class C) have tall outliers, sometimes set at some distance from the ring. The most informative example is Nant Tarw (407-8), where both circles have large outliers set at similar distances, indicating that their association is not fortuitous. Between 3 and 6 further examples of outliers are found in Wales (see note 1).

In England only a handful of likely outliers is found, at a variety of sites (see note 2). In Scotland, 3-4 Recumbent Stone Circles (class H) have outliers close to their circumference (see note 3); three of these are in the same quadrant. Seven other outliers in Scotland are found at Small Circles (see note 4); the origin of these may be associated with the kerb-cairn tradition as these sites are also found with adjacent menhirs.

Notes 1; at Cerrig Duon (380), Cerrig Pryfaid (382), Lled Croen yr Ych (400) and possibly the Druids Circle (388), Cefn Coch (377) and Cwm Mawr (386). In the case of the Druids Circle, the 'outlier' is so close to the ring this could be argued to be a variant form of a 'directional stone' usually found in the ring of orthostats itself.
2; class C; Long Meg (312), class E; the Sanctuary, class L; Nine Ladies (362), and possibly; class C; Grey Yauds (303), class E; Winterbourne Bassett (514), class L; Grey Croft (302) and Sleddale (347).
3; at Balquhain (108), Druidstone (131), Sheldon (181) and the possible example at Auchquhorthies (104).
4; class K; Loch Buie (40), Lamlash (38), Fowlis Wester (234-5), and possibly; Ettrick Bay (33) and Alves (57), class N; Glassel (144).

Related Monument Forms.

6:7 Introduction (fig. 65).

It was noted in chapter 1 that it would be a mistake to study stone circles in isolation from related monuments. The following sections review the major associated categories of sites in turn. Some monuments such as timber circles and henges can be argued to be functional equivalents. In other examples, specific groups of sites included in the stone circle corpus share some design traits with other monument forms (see fig.65). In a few cases, as with the Dartmoor Stone-Row Circles (class M) and the Clava Cairns (class I), stone circles are combined with other architectural elements in atypical ways, usually within discrete regions. In other cases, at the lower end of the stone circle size range, there are difficulties in a few cases distinguishing circles from related monument-forms such as ringcairns, kerb-cairns and two-stone settings.

To a certain extent smaller stone circles may be regarded as one end of a continuum of monuments, which inclues kerb-cairns and ringcairns, that in turn shade into barrows. However, the absence of many clearly identifiable 'midway' stages between stone circles and other monument-forms suggests that relatively clear cut distinctions can normally be drawn in form, if not always in function (see 6:10).

6:8 Henges (figs.66-68, Appendix 4).

Taxonomy and the Data-Base.

The classification of henges has always been controversial because of their diversity in size and form, and resulting suspicions that the class is a somewhat arbitrary one which masks and/or excludes significant variability. In the absence of excavation, sites with an internal bank similar to that built at Stonehenge, may be indistinguishable from later defensive enclosures and hence may remain unrecognized. Conversely, a few sites shown by excavation to be later defended settlements were once thought to be henges. However, the majority of the problems with classification lie at the lower end of the size-range where great difficulty exists in distinguishing between a wide range of interrupted ringditches, many of which have more in common with barrows/ringcairns than the larger henges.

Despite the caveats noted above, it does appear that the majority of larger henges can be regarded as a distinct monument type, which can be interpreted as being ceremonial sites of Later Neolithic date (However, a sub-division on the basis of the number of entrances seems facile on the strength of the current data). Only at unexcavated examples do problems of identification commonly arise, particularly at cropmark sites.

The approach adopted here is to consider all sites with internal diameters of over 25m but disregard smaller monuments (termed here hengiforms). This is primarily because of an interest in the distribution of larger monuments which are likely to reflect communal organization, but also because of the problems with interpreting smaller sites. Classification by internal diameter is primarily to enable an assessment of 'available-area' capable of holding 'participants', but also because this measurement is more commonly available than outer diameters, as many sites have had banks destroyed or badly damaged.. Bank diameter is also less useful because of wide variations in the ratio of bank diameter to internal diameter, due to presence or absence of berms and/or position of bank in relation to ditch/ditches. As the majority of henges have external banks a general assumption is made here at the unexcavated cropmarks of possible henges, that the ditch was the internal feature; this may not be the case in a few examples. The disregarding of hengiform sites is not ideal in that several of these are clearly small architectural equivalents of larger henges, as for example indicated by internal rings of orthostats (appendix 4; F,G). These sites are likely to have had an insignificant role in large scale communal organization as they could hold so few participants. However, it must be stressed that the cut-off point of 25m diameter is arbitrary and was chosen primarily because it rejected the majority of problematic sites.

Appendix 4 lists all known sites with internal diameters of over 25m. This is at variance with previously published corpora of larger henges in that several new crop-mark discoveries have been added. A handful of sites has also been rejected, due to their tenuous architectural affinities with henges proper, or because of new data which have become available which argues against interpretation as a henge.

Two groups of debatable relevance are included in the corpus. Around the Fenland edges are several sites with large diameters but only slight earthworks. The best known of these (and only certain example) is at Maxey, where excavation has revealed a complex monument built in more than one phase, each of relatively short duration. While such sites may be the functional equivalent of henges proper, it may well be better to view these as a related monument form.

The second group is found in East Anglia, another area where no large henges are known. The excavations at Arminghall illustrate that smaller henges did exist. However, at unexcavated crop-mark sites there are insurmountable difficulties in distinguishing small henges from post-mills and Later Bronze Age defended enclosures, because of close similarities in cropmark characteristics. Only the most likely candidates for henges are included in appendix 4. It must be stressed that several further cropmarks are known which are like those included in every respect except that the central cross of the post-mill supports is visible.

Circles and Henges.

The combination of henges and stone circles in circle-henges suggests a close functional equivalence between the two monument forms. In both large freestanding stone circles and larger henges their monumentality and non-utilitarian design suggests that they are designed as gathering places. An examination of diameters of larger circles and henges (fig 66) illustrates that their size ranges are closely similar, with the exception of a small number of larger henges (one of which, Avebury, also contains the only atypically large stone circle).

The choice as to whether to build a circle, a henge, or both, was probably governed by a number of interrelated factors. These would include local preference, the availability of materials and the amount of labour involved. The last two factors need to be considered before significant variables in tradition come into perspective.

In some lowland regions such as the Plain of York, stone suitable for orthostats is rare/absent and the erection of stone circles would not be practical. In other regions stones may still have had to be moved some distance if not available from the quarry ditch and this may also have proved inhibitory.

Recent excavations at North Mains and Balfarg in Tayside have illustrated that freestanding timber circles existed within larger henges and fewer limits to the distribution of such settings are to be predicted. These timber settings may well be a functional equivalent of stone circles, and may be significantly under-represented in the current data-set due to the lack of extensive excavation within henges. Of the 21 sites where large scale excavations have taken place, only King Arthur's Round Table and the two sites at Llandegai appear to have no internal stone and/or timber settings (at Maumbury, Castilly and Thwing, later remodelling may have destroyed the evidence).

In some regions, where bedrock was intractable, the effort involved in digging the ditch for a henge could also have been a problem. Clearly this was not always an inhibiting factor as illustrated by the henges on Orkney and in the Peak District. However, the complementary distribution of the Northern Open Circles (class A) and henges may be of significance here (see 5:3). At these large, freestanding circles, it may be that the lack of availability of sufficiently large workforces deterred the communities in these peripheral regions from digging henge ditches.

Another alternative monument form to the bank and ditch of a 'classic' henge, is a bank built from collected surface material. The western circle-henges are of this type (sub-group of class C). However, the two monument types are not directly related (except Mayburgh?), the stone circles (class C) at western circle-henges are normally architecturally distinct from those found within henges (classes D,E) and are a western tradition not adopted elsewhere. A potential variation of this tradition, a bank without orthostats, has not been identified unless the recently excavated site of Blackhouse Burn in Lanarkshire is of relevance (Hill 1985). Without excavation such sites will be indistinguishable from some later defensive enclosures.

In conclusion, the currently available data suggest that henges frequently have stone or timber settings and these are found throughout the distributional range of henges (see below). There is also a parallel tradition of western circle-henges found only in the west. Some large freestanding stone circles in 'peripheral' zones may be functional equivalents of circle-henges. The origins and development of these traditions - and their relation to freestanding stone circles in general - is obscure as not enough data on relative chronology is available. The present data suggest that stone circles were generally added to henges well after the banks and ditches were constructed (see 7:5). Hence, it may be that stone circles and henges have separate origins, although the possibility of stone circles deriving their inspiration from timber circles within 'circle-henges' should not be discounted.

Distribution.

Examination of the distribution of henges and their size differences, reveals significant patterning. Henges are not located randomly but are found in a series of clusters (fig.68). These lie predominantly in 'core zones' (see chapter 9) that would have supported well established populations (cf. Bradley 1984a, p41). 'Core zones' where henges are relatively common are found over much of Britain. The notable exception is southern England, east of a line from the Solent to the Humber estuary. The only sites identified here are either small and in most cases dubious, or atypical. Clearly the pattern cannot be explained away by lack of air-photographic coverage; the communities in 'core zones' here usually chose not to build large henges.

Examination of the regional variation in the range of henge diameters (fig.67) illustrates that all exceptionally large sites are confined to Wessex (see 9:6). In all other regions there is a tendency for sites to fall into 2 size groups. This is apparent in fig.66 but becomes clearer when each region is examined separately - fig. 67. To some extent the size differences probably reflect differences in population sizes, but a case can be made that a hierarchy of monuments also exists (in some regions - see 6:12, chapters 8-10).

In Wessex 3-4 distinct monument sizes can be proposed. The largest sites are well known - Avebury, Durrington Walls, Marden and the somewhat smaller Mount Pleasant. The next size down, of 150-200m diameter, comprise the Priddy Circles and the possible site of Figsbury; the former are on the periphery of the region and may represent an atypical arrangement more common in other regions (see 6:12). Henges comparable in size to those in other regions are generally found as satellites to larger henges on the Wessex Downs - as at Durrington and Woodhenge - while in the Upper Thames Valley they are the major monuments.

In other regions it is noticeable that the larger of the two henge size-groups represented are usually found where the populations are likely to have been greater as optimum soils are more extensive - as in the Plain of York and the Trent Valley (fig.68) (see chapters 8-10). In some cases smaller satellite henges are also found (see 6:12).

When the distribution of henges is examined in relation to stone circles in general, various regional patterns become apparent. These will be explored in chapters 8-9.

6:9 Timber Circles (figs.69,70, Appendix 5).

Recent excavations have increased the number of examples of timber settings to include several, which in all respects other than their building material, appear to be identical to stone circles. Classic examples of these include the rings inside henges at North Mains and Balfarg and those replaced by freestanding stone circles at Machrie Moor 1/11 and Temple Wood.

Only tentative statements can be made on the range of diversity of timber rings and their distribution at present. They are probably drastically under-represented in the archaeological record due to the difficulty in recognizing these sites. In most cases they have been found during excavation of other structures and were unsuspected at these sites prior to this. In the majority of undiscovered examples of freestanding timber rings where posts are relatively small, the postholes are going to be indistinguishable on air photographs from buildings of a variety of periods, or will not appear at all.

Stone versus Timber.

The criteria behind the builders' choice of stone or timber can only be guessed at. To some degree it must reflect the relative availability/convenience of materials, while differences in the characteristics of materials probably played their part. Timber - a more versatile medium, may be contrasted with stone - a more permanent one. The dating evidence presently available, combined with the frequency with which timber monuments were replaced by stone (but never vice-versa), also suggests that preference changed through time (see 7:5).

At the small number of stone circles and henges where extensive excavations have taken place since the last war (when archaeological methodology was sufficiently advanced to give a good chance that postholes would be detected), a high proportion of sites have first phases built of timber. Stone circles replaced timber rings in 6-7 cases - at Machrie Moor 1, Machrie Moor II, Temple Wood, Croft Moraig, Moncrieffe, Balfarg and possibly Strichen (and at the Sanctuary excavated before the war). In 2-3 other cases similar variation occurs; at Mount Pleasant the timber rings were replaced by a complex cove-like arrangement. At Stenness and possibly Stonehenge, it appears that timber structures were replaced by stone circles and other additional stone settings (see Appendix 1).

In 11-12 cases no timber structures were found. However, Barbrook II, Moel Goedog West, and Sleddale, are in peripheral zones, probably first extensively utilized in the Bronze Age, and hence may postdate the timber building phase found elsewhere. The sites of Sandy Road West and Circle 278 have produced late C14 dates, while Clach na Tiompan, Carse Farm and Circle 275 are undated. Only the sites of Cultoon, the Druids Circle, Berrybrae and Devils Quoits can be argued on architectural grounds to be early. In the last case, severe problems with subsoil anomalies (Gray 1975) may have prevented identification of postholes.

To summarize this data, about 40% of recently excavated stone circles have earlier timber structures and this may reflect similar trends in stone circles in general. At Later Neolithic stone circles the proportion could be even higher.

Design.

The known examples of timber circles are of varied design and are found associated with a variety of structures. Best known are the multiple concentrics of Wessex. Controversy still exists as to whether these were roofed or not, but irrespective of this, it is becoming increasingly clear they were not typical domestic buildings because of the unusual nature of the associated artefact debris (Richards and Thomas 1984). The only possible example outside Wessex of a similarly designed concentric is at Catholme in the Trent Valley (see Appendix 5).

Single rings of posts have been found within henges and hengiforms; the larger examples at least are clearly freestanding rings rather than buildings. Such timber rings are not confined to henges; two have now been excavated within cursus monuments (see Appendix 5) and others have been found underlying stone circles. As yet, no example has been excavated which is not associated with other monuments and/or architectural features.

All the unexcavated examples listed in appendix 5 are of debateable relevance because of viable alternative interpretations. Those within henges may consist of pits rather than postholes. Elsewhere they may be buildings, while a couple of large sites at Dorchester (Dorset) and East Stoke may be palisades comparable with those at Mount Pleasant or Meldon Bridge.

An comparison of diameters with number of posts (fig.69) illustrates that the majority of timber sites are directly comparable with stone circles in these respects. The freestanding rings found within henges are similar to their stone equivalents with the exception of 2 rather dubious examples. One of the latter is more likely to be a building (Whitton Hill 1), while the other may be a ring of pits (Milfield north-inner ring). The concentric rings within Wessex henges and the freestanding examples within cursus monuments are directly related to freestanding stone circles of Symmetrical and related Hybrid type (classes D,E), in terms of size and orthostat spacing. This argues their common origin within the henge tradition. The main difference between these stone circles and the timber rings is that the latter are also found in smaller form, perhaps comparable to Small Circles (classes K,L).

Distribution.

The distribution of known timber rings falls into two main areas; Wessex/Eastern England and Southern Scotland (fig.70). However, this pattern may well be spurious, given the small sample and biases in air-photo cover due to the unsuitable conditions of the pasture-dominated north and west. The sites of Arminghall and Springfield Cursus fall outside the normal distribution range of stone circles/henges. However, it remains a matter of speculation if timber monuments were originally relatively common in South East England, thus filling the noticeable gap in large Later Neolithic ceremonial monuments here.

6:10 Ringcairns, Kerb-Cairns and Passage Graves (figs.71,72).

Taxonomy.

The relationship of small stone circles to various 'funerary-type' monuments is difficult to disentangle as there are so many variant forms; several of these possess architectural traits with affinities to both monument types. These issues have been discussed by Lynch (1972) who devised a typology which is still widely used today. This distinguishes between embanked stone circles, complex ringcairns, ringcairns, cairn-circles and kerb-circles. While these terms are sometimes useful, some modification/redefinition seems desirable to take more account of the relative frequency of specific forms and further variability caused by subsequent disturbance of the monuménts (Leighton 1984).

While *embanked stone circles* normally fall into a discretely definable monument category, a further subdivision into embanked stone circles and *complex ringcairns*, on the basis of the size of orthostats seems inappropriate. The application of these terms by other authors has been subjective, sites where average stone height is identical often being given different classifications. An analysis of stone heights for the group as a whole shows a continuum; all its members should all be regarded as embanked stone circles.

A more appropriate distinction can be drawn on the basis of spacing of the orthostats. In embanked stone circles the stones are widely spaced (sometimes linked by much lower kerbs or drystone walls), while many *ringcairns* have orthostatic kerbs of contiguous stones. Only one example has been identified (Grubstones-335), where the orthostats are only contiguous round part of the circumference and are as high as those in the majority of embanked stone circles. Hence, as a general rule the distinction drawn between the two types is clear cut. Ringcairn banks are delimited in a number of ways, ranging from the kerbs described above, to low drystone walls and rings of low boulders. It seems inappropriate to make subdivisions here as all are essentially similar. Another category of site sometimes distinguished in the literature is the *enclosed cremation cemetery*. This too is probably a term synonymous with ringcairn.

At the barrow end of the spectrum, the term *kerb-circle* was used to describe a contiguous kerb of low orthostats with virtually no internal mound. However, to distinguish between these sites and barrows with kerbs, on the basis of the height of barrow material, may be unjustified in many unexcavated cases; it does not allow for robbing/denudation. In well preserved sites the height of internal material varies, from high barrows, through flat-topped examples, to others where the kerb reaches or exceeds the interior height. The latter have recently been termed *kerb-cairns* and are common throughout much of northern and western Britain. While any line drawn between kerb-cairns and *barrow-kerbs* will probably be arbitrary/problematical, the former term seems a useful subdivision and should be defined wherever possible on the basis of a relatively tall kerb in relation to the height of the barrow. In many well preserved kerb-cairns the kerbs are particularly massive and dominate the site when diameters are small. In contrast, many larger barrows have smaller kerbs. However, there is still a significant grey area and the problem of categorizing damaged sites often cannot be overcome.

Another term used by Lynch, the cairn-circle, was applied to spaced orthostats protruding from cairns. In many cases the outward lean of the stones, and their proximity to the present cairn edge, suggests they originally helped retain the edge of the site. While a proportion of these sites have widely-spaced orthostats set in small diameter rings, other examples have near-contiguous stones and shade into kerb-cairns proper. The term kerb-cairn variant is preferred here to cairn-circle. In occasional cases, as in Wales, such rings are found with larger diameters and hence could be viewed as crosses between kerb-cairn variants and barrow kerbs. These are termed here spaced-kerbs.

Another problem encountered with the classification of many of these site types is the possibility of multiple phases, which in many cases may have changed superficial appearances. In several excavated cases, ringcairns have been found under barrows; in many other examples, barrow enlargement has masked kerbs. Another possibility is that barrows have been added to freestanding stone circles, and when the orthostats are relatively low, these now appear to be spaced-kerb barrows (but see below). In contrast, when orthostats are high these are more obviously modified stone circles (classified here as Scottish platform circles). Equally, freestanding rings could have been converted to embanked sites. This was the case at Temple Wood and probably Balbirnie. In contrast, excavations at Barbrook II demonstrated this was clearly not the case at this site.

Function.

A major problem with interpreting the continuum of sites discussed above is definition of their functions. While larger stone circles are clearly for communal gatherings, the emphasis at barrows is more directly related to disposal of the dead and/or utilization of the ancestors. While it could be postulated that small stone circles are primarily variant forms of burial monument, this hypothesis is disputed here (see 7:6). The view taken is that they are small monuments, built for the use of local communities, and that they have many of the ceremonial functions of larger stone circles.

At the other end of the spectrum, the evidence at barrows is not as clear cut as once thought. A growing body of evidence illustrates that lowland examples frequently are preceded by open enclosures defined by rings of stakes or posts. In upland zones barrow-kerbs may have had a similar function, as they could have stood independently before the barrow fill was added. While much more data are required, the impression given is that these open structures are essentially temporary, even though in some cases they could have stood as open monuments for several years. This differentiates them from stone circles and implies that they are a separate monument type in terms of function, even though the range of activities that took place at barrows may be underestimated at present.

Two detailed studies of the distribution of stone circles and barrows - undertaken on Dartmoor and Bodmin Moor - highlight contrasting numbers and siting factors for each of the two types of monument; this reinforces their separate identities (see 8:7,8:15). The kerb-cairns and their variant forms seem more appropriately grouped with barrows, particularly as many of the examples in regions such as Dartmoor surround large cists (see below). However, ringcairns may well have close functional similarities with stone circles in some regions at least.

Ringcairns.

A detailed study of ringcairns in the Peak District, illustrates that the embanked stone circles (class L) and ringcairns of this region are closely related monuments (see 8:2-8:5,Appendix 10). They have similar architecture except for the lack of orthostats at ringcairns. Both also have similar distributions, featuring a strong spatial correlation with cairnfields and field systems. In every case, each local community built either a stone circle or ringcairn in close proximity to its agricultural focal zone. Barrows have a wider distribution. This distinctive patterning confirms that stone circles and ringcairns were functionally interchangeable. The only major problems in distinguishing between the two types (at unexcavated examples) arises from the possibility that a proportion of the ringcairns may have had orthostats removed.

The study of the distribution and frequency of ringcairns in other regions is impossible without further extensive fieldwork and hence these are omitted from the analyses in chapters 8 and 9. Presently documented examples in Sites and Monuments Records are of unknown reliability. In the Peak District and South West England, where fieldwork for the present study has been extensive, a significant number of recorded sites (up to c40%) are more viably interpreted as robbed barrows, a problem also noted by Leighton in Wales (1984).

Ringcairns similar to those in the Peak District appear to be relatively common in the Pennines but are only found in smaller numbers in southern Scotland, Cumbria and Wales, and are rare in the South West (although several are known on Dartmoor). It is noteworthy, given their functional interchangability in the Peak District, that this distribution is much the same as that of Small Circles of class L.

In eastern Scotland, ringcairns taken on different characteristics, typically being wide platforms defined by orthostatic kerbs, rather than the relatively narrow banks found further south. The majority of these are found in the interiors of the Recumbent Stone Circles of Grampian (class H) and in more grandiose form within Clava stone circles around the Moray Firth (class I). However, excavated examples without surrounding orthostats also occur, as at Sands of Forvie (Kirk 1953).

It is far from clear if the northern and southern ringcairns have common origins or functions, except in the broadest of senses. However, it is worth noting that at Recumbent Stone Circles the occasionally occuring outer banks have similarities with the southern ringcairns, while the internal ringcairns stand out as being different. It may well be that the interior ringcairns at Recumbent Stone Circles were designed as platforms on which 'participants' stood, as they fill much of the sites' interiors and the central spaces within their inner kerbs are usually very small. In contrast, southern ringcairns are the functional equivalents of rings of orthostats, in that they define the perimeter of the sites and hence contain participants (or exclude non-participants) within the central areas. At the Clava sites the ringcairns are so tall that these appear to isolate the central area from view in the same sense that chambered tombs do. Perhaps this design restricted access to a few 'initiates' (and the dead). The internal ringcairns within Recumbent Stone Circles could perhaps be viewed as symbolic versions of the same phenomenon.

Other monuments which needs a mention in the context of ringcairns, are the pond and disc barrows common in Wessex. These could be postulated to be architectural equivalents to ringcairns of the highland zone, built under different geological conditions. However, their frequent occurrence of the former as integral parts of barrow cemeteries perhaps indicates a more overtly funerary interpretation.

Passage Graves.

Many Clava Cairns (class I) comprise passage graves built within impressive stone circles, and represent a combination of monument-forms not observed elsewhere except at New Grange in Ireland and Kercado in Brittany. Passage graves normally do not have such elaborations. The small passage grave at Callanish was inserted as a secondary feature and the circle (Small Circle-class K) may have had its function redefined at this time. At Bryn Celli Ddu, the probable circle-henge (Hybrid Circle-class D) was part-demolished or already ruined when the passage grave was built. The Clava sites are best viewed as an aberrant monument-combination and passage graves elsewhere probably have no direct relationship with stone circles in either distribution or function.

The Clava ringcairns are closely related to the passage graves of the region, are architecturally distinct from ringcairns elsewhere, and functionally are probably to be seen as equivalent to Clava passage graves rather than to other ringcairns (except perhaps those in Grampian - see above).

Kerb-Cairns and Barrows.

The 'variant kerb-cairns' and 'spaced-kerbs' of Cumbria, Wales and South West England are a somewhat problematical group of sites. At first sight their architectural characteristics have strong similarities to those of small stone circles. The most obvious difference in form between the two is often the presence or absence of a mound that fills the interior and it could be postulated that unrecognised multiphasing and/or robbing could have led to artificial taxonomic distinctions having been drawn.

However, a detailed analysis of such sites on Dartmoor, where they are particularly common, suggests that relatively clear cut distinctions can be drawn between the monument types.

Figure 71 illustrates that there is considerable overlap, in terms of the ratio of diameter to number of stones, between 'kerb-cairn variants' and Dartmoor Stone-Row Circles (class M) - the only small stone circles of the region. The main difference is that over 35% of the latter have larger diameters. The diameter range of more typical 'kerb-cairns'/'barrow-kerbs' is consistent with the 'kerb-cairn variants'. Further distinctions can be drawn. The stone-row circles consistantly have an internal cairn which never fills the full interior. In contrast, where well preserved, cairn material fills the full interior at 'kerb-cairn variants'. Many of the latter have large cists at their centres, a phenomenon only observed at 2-3 examples of 'stone-row circles'. These factors could be explained away if multiphasing was postulated. However, in every well preserved example of a 'stone-row circle', the ring of orthostats is integral with a stone row. This is never the case with 'kerb-cairn variants' which are found randomly scattered, often in isolation, rather than being integral parts of monument complexes. The stone row distribution is more structured (see 8:6-8:12). These last factors provide the clearest indication that the two site types are likely to be distinct monument-forms.

In Cumbria the situation appears to be similar to that on Dartmoor, except that the 'variant kerb-cairns' are much rarer and hence less certainly identified as a coherent regional type (hence their tentative inclusion in appendix 1). Only three small rings where the orthostats are not contiguous have been identified (class L;SP6) and these are smaller and have closer spacing of orthostats than all more certain stone circles in the region. A solitary larger site at Casterton (324) may be comparable with the Welsh sites discussed below. In other northern regions no 'spaced-kerbs' with low orthostats have been identified. Sites which have cairns or platforms filling their whole interiors are more obviously stone circles; as indicated by their tall orthostats (Scottish platform circles; classes K,L). In two recent excavations at Temple Wood (52) and Balbirnie (205) the cairns have been shown to be secondary features and the circles started life as freestanding rings of orthostats.

Only in Wales does some doubt exist over the possibility of distinguishing between true stone circles and 'spaced-kerbs', primarily because many true stone circles have small orthostats due to weathering/damage. Much further fieldwork is needed before this will be fully clarified. However, provisional analysis based on data for west-central Wales (Leighton 1984), suggests that the majority of spaced-kerbs are a distinct monument class. Figure 72 illustrates that the majority have smaller diameters than Western Irregular Circles (class C) and far more closely spaced stones than the Small Circles (class L). Only in the case of Carn Wen Mynydd Bach does the ring resemble a Western Irregular Circle of 'Welsh' type (C;F4), while elsewhere in Wales other occasional examples can be quoted, such as Castell Garw in Dyfed (Thom et al 1980 W9/4). In west-central Wales the kerbs at Cefn-Cerrig and Tal y Waun both would originally have had over 40 stones (thus not illustrated in fig.72) and could be argued to be related to examples of Western Irregular Circles such as Y Capel (class C;F3). However, the former have smaller diameters than any known examples of stone circles of this type.

6:11 Stone Rows and Two-Stone Settings.

In the majority of cases, stone rows form an architecturally distinct class of monument with no direct bearing on stone circles. However, there are two exceptions to this. One - the Dartmoor Stone-Row Circles (class M) - are a unique combination of the two monument forms that are discussed elsewhere (5:40-5:42,6:4, 6:12,8:7-8:8).

The more problematic two-stone settings occur primarily in Tayside (Stewart 1966a) but are occasionally found elsewhere and comprise simple settings of two orthostats set a short distance from each other. These sites are found in the same region as many of the Four Posters (class N), the rectangular examples of which could be viewed as double two-stone settings. While a few of the two-stone settings may be robbed Four Posters, this is clearly not always the case. The class appears to be architecturally midway between Four Posters and the 'short stone rows' that are common in western Scotland (Ruggles 1984a,1985), but which are also found occasionally in other regions and usually have 3-6 stones.

Monument Complexes.

6:12 Contrasting Patterns of Monument Nucleation (figs.73-79).

Although the majority of stone circles are found singly (or in association with cairns), a number of sites exist where stone circles are found as integral parts of monument complexes which incorporate a variety of ceremonial sites. These are found scattered throughout much of Britain and can be divided into a series of basic categories (fig.73). Differences in site type and monument-combination within these ceremonial foci are of potential utility in detecting variation in social organization (see chapters 8-10).

A: Wessex Complexes.

The largest monument complexes are found in Wessex and are well known (fig.73;A). Dorchester in the Thames Valley is also included in this category of complex. Each is dominated by a particularly large henge (or stone circle at Stanton Drew) and has a diverse range of other monuments in its vicinity.

In all cases smaller henges or stone circles are found nearby. Ancillary stone circles occur at Avebury (ie the Sanctuary, Faulkners Circle), Stanton Drew and Durrington Walls (ie Stonehenge), while timber monuments (sometimes within ancillary henges) are found at Avebury, Durrington Walls, Mount Pleasant and Dorchester (Oxon). Unexcavated henges (and hence without known internal settings) are found near the large henges at Marden, Knowlton and Mount Pleasant. Linear monuments take on two forms; avenues occur at Avebury, Durrington and Stanton Drew, while cursus monuments are found near Durrington and Dorchester (Oxon). A final major architectural element are the massive circular mounds found at Avebury, Knowlton and Mount Pleasant.

There is increasing evidence that cursus monuments were probably built towards the end of the Earlier Neolithic and hence may well preceed many of the henges (cf Bradley 1984a, Bradley et al 1984a,b). However, the frequency with which their locations coincide with those of cursuses illustrates this is unlikely to be the product of chance. Hence the continuity of ceremonial foci which contain these (in several regions) is argued for, rather than these being fortuitous associations (see note 1).

Normally each of the Wessex complexes have a series of elements, only Marden has just one known ancillary feature. While each complex probably had more than one monument in use at any particular time they are clearly monument accumulations which developed over a long period. Currently the best understood complex is that at Durrington. Here, Stonehenge was built long before Durrington Walls; it was abandoned for a time as emphasis swung to the latter site, before being refurbished at the beginning of the Bronze Age (Richards 1984).

In the Thames Valley, and in other regions at the related 'northern complexes' (see below), similar developments are hinted at. At Dorchester (Oxon) and Thornborough the henges were preceeded by cursus monuments. The two Peak District henges have oval barrows close by. The two henges at Llandegai are of different dates and it is tempting to suggest similar relationships at sites such as the ring of Brodgar/Stenness and Balfarg/Balbirnie.

Note 1
These locational correspondences occur - in regions where henges are found (or Northern Open Circles in one case) - as follows;
A; Cursus monuments with henges in the same vicinity (12 cases).
  Stonehenge, Wilts (2); Dorchester, Oxon; Findern, Derbys; Rudston, Yorks (4); Thornborough, Yorks; Coupland, Northumberland; Twelve Apostles, Dumfries (2).
B; Cursus monuments with no known henge nearby (8 cases).
  Pentridge/Thickthorn, Dorset (2 halves); Lechlade, Glos; Benson, Oxon; Drayton, Berks; Sonning, Berks; Aston, Derbys; Hastings Hill, Tyne and Wear.
These lists exclude possible cursus monuments,'long enclosures' and possible bank barrows.

B: Equal Component Complexes.

This type of monument complex (fig.73;B) stands out from those in Wessex discussed above and they are found in several regions. Each consists of between 2 and 4 stone circles or henges of comparable size and design, placed in close proximity to each other. In the majority of cases their architectural similarities suggest each site was designed to function as a contemporary and integral component within the complex.

'Equal component complexes' have restricted distributions. Of particular importance, in terms of scale, are the henge complexes of Priddy and those in the Vale of York. In both cases the standardized diameters suggest careful planning. It is noteworthy that although each henge is relatively small compared with such sites as Avebury or Durrington; each 'complex' defines a total internal area comparable to each of the major Wessex henges and the amount of labour required to build them was probably similar. This would suggest that communities in the Mendips and Vale of York chose to build their monuments in radically different form to those in Wessex and divergences in social organization are the most likely explanantion (see chapters 9 and 10). The only reflection of a trend for 'equal components' in Wessex is at Avebury. Here the two inner stone circles are of comparable design and size, and these can perhaps be argued to pre-date the henge (see Appendix 1).

A second area where 'equal component complexes' are common is South West England, where Symmetrical and related Hybrid Circles (classes E,D) occur in complexes of 2 or 3 rings - as at the Hurlers, King Arthurs Hall and the Grey Wethers (fig.74A-C). All these freestanding rings are only of moderate size. However, they are still among the largest monuments in the South West. Two further complexes occur in Wales (eg. fig.75E).

A third area where this type of complex is common is in eastern Scotland amongst the Clava Cairns, Recumbent Stone Circles and Kincardineshire Ringcairns (classes H-I); the best known example being the circles at Balnuaran of Clava (fig.77A). It is noteworthy that in both this area and southwest England the majority of the circles in these complexes have symmetrical design characteristics denoting that particular care was taken over their construction. They occupy the highest levels in the monument hierarchies of their respective regions (see 10:3-10:4).

C: Northern Complexes

This type of monument complex incorporates large circles and/or henges and is found over much of northern Britain (fig.73;C). It includes monuments of diverse design and as such is comparable with the Wessex complexes, except that in the north there are fewer elements on a less grandiose scale. The sites within 'northern complexes' are still the major monuments of their respective regions - as with 'equal component complexes' - but in contrast with the latter, probably developed through time.

The range of monument variation is great. In some cases - as at Llandegai, Balfarg (fig.78A), Mayburgh/King Arthurs Round Table and Brodgar/Stenness (fig.78C) - henges of different types are found together. In addition, they are sometimes combined with other smaller monuments, such as the Balbirnie stone circle and timber settings at Balfarg (fig.78A); or Maes Howe, several barrows and menhirs at Stenness/Brodgar (fig.78C). In other cases, henges are found next to stone circles of comparable size, as at Broomrigg (fig.76A) and Broomend of Crichie (fig.77C). At Altan Broubster/Broubster (fig.78B) and Ffridd Newydd, stone circles of diverse design occur together. Elsewhere cursus monuments are found; at Rudston four occur together, with a tall menhir and small henges nearby. In the Milfield Basin an atypical cursus passes through the henge and several hengiforms occur in the vicinity. At the Twelve Apostles, two cursus monuments lie immediately north of this massive stone circle.

Other complexes of this type are probably of lesser importance as only one circle is large, while the others are ancillary - as at the Druids Circle, Brats Hill (fig.76C), the Girdle Stanes and Drannandow (and probably Long Meg and Castlerigg).

It is probably significant that 'northern complexes' are rarely found in the same regions as the 'equal component complexes', the only exceptions being in the Don Valley at Broomend of Crichie and a possible example nearby at Fullerton/Cairnhall. Here, this small area has distinctive monuments which stand out from those in the majority of the region and may be explained chronologically (see 9:6).

D: South Western Complexes.

These monument complexes (fig.73;D) are similar to the less important examples of 'northern complexes' noted above. However, they have associated stone rows (sometimes with integral stone circles) rather than ancillary stone circles. They are found in southwestern England (figs.88A,C,E,F;95A) and central and southern Wales (fig 75A-D). There is an isolated example in southwestern

Scotland at Torhousekie (fig.76B). Here, the circle itself is atypical for its region in that it has architectural affinity with those further south (see 5:12-5:14).

These monument complexes have an identical distribution to the 'equal component complexes' of the South West. However, on Dartmoor, where they are most common, they incorporate stone circles of different architecture with different siting characteristics, at a lower level in the monument hierarchy (see 8.6-8.12).

E: Dartmoor Stone-Row Complexes.

These are a variation on 'south western complexes' and have an even more restricted distribution (fig.73;E). Here stone rows (with integral small circles-class M) form complexes in the absence of associated larger circles (figs 88B,D;95B).

F: Small Complexes

These monument complexes incorporate only small sites (fig.73;F). They are found from the Peak District northwards and take on a number of forms. In some cases, as at Barbrook I and II, the proximity of sites may be fortuitous, while in others the similar architecture suggests purposeful juxtaposition. The latter type occur at - Dumpit Hill in the Pennines; Low Longrigg and White Moss (fig.76C) in Cumbria; Shian Bank, Fowlis Wester and Fortingall in Tayside; and Backhill of Drachlow and Gaul Cross in Grampian. While all these examples could be regarded as diminutive versions of 'equal component complexes' they are not the major monuments of their respective regions and were probably only of local significance. In contrast, in Western Scotland the complexes at Machrie Moor, Temple Wood and Callanish (fig 79A,B), comprise several circles of diverse architecture. These may well be a regional variation on 'northern complexes', the differences in circle size reflecting differential population sizes (see 9:1,9:3.

In summary, a significant dichotomy can be perceived in 'monument complex' types, between the majority of Britain where they incorporate structures of diverse form which probably evolved through time, and specific regions which have components of equal size and similar design. The former type reach extreme form in Wessex (type A), while in the north more typical examples are common (type C) but also occur in diminutive form in western Scotland (type F). The 'equal component' complexes are most frequent in South West England and Eastern Scotland (type B). In the former region these are contrasted by complexes of smaller monuments which place equal emphasis on stone rows (types D,E). These two monument-complex types operate on a lower level in the region's site hierarchy (as do some sites of type F) (see chapters 8-10).

Chapter Seven.

Stone Circles in Britain; Architectural Zones, Date and Function.

7:1 Introduction.

The taxonomy devised and described in chapters 4 to 6, together with data derived from excavation and fieldwork that have become available since Burl's synthesis (1976), have several implications on general interpretation of stone circles. These will be reviewed here.

The identified distributions of stone circle classes enables the overall range of stone circles to be divided into 12 regions within which trends are similar. The degree to which each circle class has polythetic or discrete distributions is also assessed (7:2). The differential density of stone circles across Britain is also examined. This study reviews biases in their survival, and argues these are pertinent to understanding regional differences in the degree of importance of stone circle traditions to prehistoric communities (7:3).

Brief comparisons are made with other stone circle data beyond the scope of the present analyses - in both Brittany and Ireland - in order to highlight similarities in design and thus identify the full geographical range of the classes of circle studied as well as further diversity (7:4).

More general interpretative considerations include, the dating of each stone circle class and the monument form as a whole (7:5), and a re-assessment of differences in burial data in the light of the new taxonomy (7:6). The final section reviews the functions of stone circles, both in general, and in regard to specific classes (7:7).

7:2 Architectural Zones in Britain (fig.80).

Chapter 5 illustrates the diverse range of stone circles in terms of architecture and differential distributions. These can be synthesized to define a series of 12 regions within which overall trends are similar; while at the same time, each region has traits that differ from adjacent regions in some or all respects (fig.80). Some regions have relatively simple patterns, in the sense that few circle types are present. Others have a diverse range of monuments; this is particularly true in the west. The defined zones differ markedly from those presented by Burl (1976; p81).

The major trends are summarized in table 28; a concordance with the geographical zones used in Chapters 1-5 is given. Details for each circle class are given in Chapters 4-5 and further aspects of stone circle distribution are discussed in Chapters 8-10.

Table 28: Architectural zones in Britain derived from differences in the distributions of stone circle classes.

Key.
1: architectural zone.
2: geographical zone as used in chapters 4 and 5 (minor parts of zones are placed in parenthesis).
3: characteristics of the zone in terms of the range of sites found.
4: larger stone circle classes present.
5: smaller stone circle classes present.
Note: in 4 and 5 site types unique to the region are underlined. Site types are placed in parenthesis when they are rare within the region.
6: notes.

1	2	3	4	5	6
North East Scotland	Zone 1	diverse range	Circle-henges (D) Northern Open Circles (A) Caithness Horseshoe Settings (B) [Henges]	Small Circles (K) radial variants (K:F15)	Strong contrasts with the adjacent Moray Firth region.
Moray Firth	Zone 5	restricted range	- *the following site types only occur on the eastern fringe of the region.* [Circle-henges (D)] [Northern Open Circles (A)]	Clava Cairns (I) [Small Circles (K)] [Four Posters (N)]	Lacks large-diameter monuments. Similar to the Grampian region except for architectural differences between classes I and H.
Grampian	Zone 6	restricted range	-	Recumbent Stone Circles (H) Kincardineshire Ringcairns (J) Small Circles (K) Four Posters (N)	Lacks large-diameter monuments. Small Circles (K) are more common than in Moray Firth.

Tayside	Zone 7 (Zone 8)	dichotomous range	Circle-henges (D) Henges	Small Circles (K) Four Posters (N)	Lacks the distinctive sites of Moray Firth and Grampian. Small Circle (K) diameter-range increases.
North Western Seaboard	Zone 3 Zone 4	diverse range	Western Irregular Circles (C) Hebridean Open Circles (G)	Small Circles (K) Four Posters (N)	Small Circles (K) with similar diameter range to Tayside. Larger Henges absent.
Western Seaboard	Zone 8 Zone 9 (Zone 13)	diverse range	Western Irregular Circles (C) Northern Open Circles (A) Circle-henges (D) Henges [Hybrid Circles (D)]	Small Circles (L) [Four Posters (N)]	Larger Henges present Some class L circles form moderate-diameter sub-groups.
Cheviots	(Zone 8) (Zone 10)	diverse range	Henges [Northern Open Circles (A)] [Western Irregular Circles (C)]	Small Circles (L) [Four Posters (N)]	Includes site types not found in Tayside to the north or in the Pennines to the south.
The Pennines	Zone 10 Zone 11	dichotomous range	Circle-henges (D) Henges	Small Circles (L) [Four Posters]	Large sites in 'core zones' and small sites in peripheral areas.
Central Wales	Zone 13	restricted range	Western Irregular Circles (C)	[Small Circles (L)]	all class C rings are free-standing, this is not the case elsewhere in Wales.
South West Wales	(Zone 13)	diverse range	Western Irregular Circles (C) Hybrid Circles (D) Henges	-	-
South West England	Zone 14 (Zone 15)	diverse range	Western Irregular Circles (C) Symmetrical Circles (E) Hybrid Circles (D) Circle-henges (D) Henges	Dartmoor Stone-Row Circles (M) [Small Circles (L)]	Larger circles of diverse form. Small circles rare except on Dartmoor.
Wessex	Zone 15	diverse range	Symmetrical Circles (E) [Western Irregular Circles (C)] Circle-henges (C-E) Henges	-	Larger circles of broader diameter range. Small circles absent. Additional architectural features common.

Syntheses of the regional differences noted in table 28 reveals various basic trends in the distribution of circle types. Most regions typically have distinctive larger monuments which can be readily distinguished from moderate and smaller circles - the exceptions being Moray Firth and Grampian where no large circles exist over large areas and moderate-sized rings of distinctive type are particularly common.

Moderate-diameter rings of less distinctive type are also found in the west - in southern Scotland, Cumbria, Wales and southwest England - and to a lesser extent along the Northwestern Seaboard and in Tayside. In some eastern regions there is a distinct dichotomy between large and small sites with few or no sites of intermediate size. This is particularly noticeable in the Pennines and Tayside, but also occurs in North East Scotland and the Cheviots. In the south, small stone circles become rare, except on Dartmoor.

Table 29 illustrates other basic regional trends in architectural variation. Group 3 can be regarded as 'typical' sites of various sizes that are found over much of Britain. Several architectural divergencies from this are apparent. With large circles there is a trend for freestanding rings with fewer orthostats to be confined to the north (classes A,G). In Wessex, large sites (class E) tend to become more symmetrical. This is also apparent in moderate-diameter circles in the South West (class E), and in distinctive form in eastern Scotland (classes H,I).

In contrast to these trends, there is a tradition in the west of irregular rings with a large number of orthostats. This is most noticeable with the large rings found throughout the western seaboard (class C), but also occurs in Wales in moderate-diameter rings (class C;F4); here the architectural differences are less pronounced. Rings with Western Irregular Circle affinity also exist in diminutive form - at the Dartmoor Stone-Row Circles (class M) and the Arran Platforms (class K;SP4). In North-East Scotland this tradition is found in atypical form with the Caithness Horseshoes (class B).

Table 29: The regional development and interrelationship of stone circle types.

Key
1: Northern tradition of large open circles with few orthostats.
2: Symmetrical rings in Wessex, South West England and Eastern Scotland.
3: Typical circles found throughout Britain.
4: Moderate-sized western sites.
5: Western Irregular Circles found along the western seaboard.
6: Atypical examples of the western tradition in North East Scotland.

```
    Large Sites                     Moderate Sites                         Small Sites
----------------------------------------------------------------------------------------------
1    Northern Open
      Circles (A)
         !
         !       Hebridean Open
         !         Circles (G)
         !              /
---------!--------------/---------------------------------------------------------------------
         !             /
2  Wessex Circles     /          Symmetrical     Eastern Scottish
    and Circle-      /           Circles (E)      Circles (H,I,J)
    Henges (E)      /                !               /
         !         /                 !              /
---------!--------/------------------!-------------/------------------------------------------
         !       /                   !            /
3  Circle-Henges (D)-------------- Hybrid Rings (D)--- (larger examples
                                     !                    of class K/L)----- Small      Four
                                     !                                       Circles---Posters
                                 Cumbrian/South West --------------------- (K,L)      (N)
                                 Scottish Circles                            /
                                  (L-F24,26)                                /
                                     !                                     /
----------------------------------------------------------------------------------------------
                                     !                                   /
4                                Welsh Irregular                    Arran
                                 Circles (C-F4)                   Platforms
                                /                                  (SP4)
------------------------------ /--------------------------------------------------------------
                              /
                             /
5       Western Irregular Rings ------------------------------------------ Dartmoor Stone-
         and Western Circle-                                              Row Circles (M)
            Henges (C)
              !
--------------!-------------------------------------------------------------------------------
              !
6       Caithness Horseshoe
           Settings (B)
----------------------------------------------------------------------------------------------
```

7:3 The Density of Stone Circles Across Britain; Differential Destruction and Underlying Trends (figs. 81-2).

The varying density of all known stone circles is illustrated in figure 81. The regional differences displayed occur for a number of reasons. In the broadest perspective the absence of sites over much of lowland England reflects either the lack of widely available building stone, or elsewhere, high levels of subsequent destruction of prehistoric sites. To a certain degree the distribution of henges and timber circles complements that of stone circles, these lowland sites occuring throughout many of the areas flanking the uplands (see 6:8,6:9). However, much of the South East - from Lincolnshire through the Fens and East Anglia to Hampshire, Sussex and Kent - has no large henges.

The paucity of stone circles in northern/western Scotland and parts of Wales is explained by the mountainous nature of these regions, large areas of which were never intensively exploited in prehistory. Small populations would have existed in sheltered locations but because of the premium placed on areas suitable for agriculture in subsequent millennia, only occasional small monuments survive.

Biases in Monument Survival and Significant Patterning.

In the areas where stone circles do survive, a complex series of interrelated factors need assessment before the original density of sites can be ascertained. Of major importance is the differential intensity and character of later agricultural activity assessed in conjunction with the degree of monumentality of sites.

The majority of sites with small stones are to be found in marginal areas where the lack of subsequent intensive agriculture has ensured their survival. In some such areas - as in the Pennines, the North York Moors and the mountain fringes of Cumbria - they are likely to have also have been areas of secondary importance in prehistory. Although climate and soils may well have been better than today, studies of the nature of prehistoric farming here (cf Barnatt 1986,1987, see also 8:2-8:5), illustrate that they probably supported relatively low populations in comparison with 'core zones' (cf Bradley 1984a,p41). In the former areas, each small community appears to have had its small cluster of fields, as opposed to the highly organized land division displayed in areas such as Dartmoor or in the lowland zone at sites such as Fengate (cf Barnatt 1986,1987, see also 8:6-8-12). These differences are reflected in the size and diversity of stone circles in the two types of region.

Some areas which are marginal today may well have been more suitable for sustaining relatively high population densities in prehistory. The major identifiable examples are in Southwest England, where large expanses of Dartmoor and Bodmin Moor have particularly good survival of monuments which display a wide range of form and size. Here stone circles exist which are comparable to those that survive in present agricultural zones elsewhere. Areas of Wales may well have been similar but here monument survival is much more fragmentary.

In northeastern Scotland and the Western Isles the situation is harder to assess because large areas suitable for exploitation in prehistory are now peat-covered.

In many agricultural zones the majority of surviving sites have large orthostats, but the degree to which other sites with smaller stones have been destroyed must remain uncertain. This is particularly true in England and Wales.

In the lowlands of eastern Scotland, large numbers of moderate and small-sized circles are known, which have survived because they are built of large stones. Sites with smaller stones appear to be generally rare in Scotland, even in presently marginal zones where destruction rates are relatively low. Hence the former existence of significant numbers of sites belonging to unrepresented monument-types seems unlikely. This hypothesis is supported by the strong contrast between Moray Firth and Grampian - with their abundance of distinctive moderate-diameter rings, and Tayside which is topographically similar - with its dichotomy between small stone circles and large henges.

In Cumbria and southwest Scotland, sites of more varied size exist, but extant small circles with low orthostats are largely restricted to marginal areas rather than the fertile coastal strip and the Eden Valley. It may be significant that several destroyed sites in the latter areas, that were documented in the eighteenth and nineteenth centuries, all had tall stones.

In Wessex and the limestone plateau of the Peak District, only large monuments are documented. This cannot easily be explained away by destruction of small sites. In West Dorset several smaller sites are known, despite the likelihood of relatively similar post-prehistoric land-use (and hence similar monument destruction rates) to Wessex, where they are absent. In the Peak District over 50% of the limestone plateau was unenclosed grassland in the late eighteenth century and there is no evidence of extensive agricultural exploitation of the majority of such zones in the medieval period. Arable during the medieval floreat was mostly confined to large discretely definable areas around each village where there is extensive evidence in the form of narrow fields with 'reverse-S' shaped boundaries and occasional survival of broad rig (Barnatt - ongoing research). It seems likely a sample of small sites would have survived, to be recorded by antiquarians such as Pegge or Rooke, if they had ever existed.

In contrast to Wessex and the Peak District, a wider range of monument types exists in lowland zones in the west and north even when henges are present.

Stone Circle Density.

Figure 81 illustrates that several regions have particularly high stone circle densities, notably Eastern Scotland and South West England. However, in the former region, many of the Recumbent Stone Circles and Clava Cairns are in a particularly poor state of preservation, and if it were not for distinctive architectural traits and internal features, these would not be recognizable as stone circles. The possibility that this, and differential biases in antiquarian activity elsewhere, significantly distort the distribution pattern needs comment.

Figure 82 plots the density of sites which have 3 or more surviving orthostats and hence can be identified as stone circles in the absence of any accounts of previous states of monuments or presence of atypical features found only in selected regions. Once these biases are removed the differences in site-density in eastern Scotland are not so acute as they superficially appeared to be. However, the number of sites is still relatively high here and can be compared with the Cumbrian lowlands, a second area which is likely to have supported relatively high population in prehistory (cf Burl 1976, p57, 64-69).

The concentration of monuments on Dartmoor and Bodmin Moor is still exceptionally high, while smaller concentrations also exist on the East Moors of the Peak District, and in Arran, Lewis, parts of Wales and West Penwith.

The factors behind these concentrations are explored in detail in chapters 8 and 9, but stated briefly, it is argued that in the upland areas of the South West the high concentrations are explained by the exceptional nature of these moorlands. They are the only extensive upland areas of Britain which, while marginal today, have a favourable topography and altitude that are likely to have had the potential for supporting relatively high populations in prehistory (in comparison with other uplands further north, where monuments survive only patchily in favourable zones; larger areas of land exist, at too high an altitude for intensive exploitation, which lower the density figures). The exception to this rule is the East Moors of the Peak District.

The other small areas noted above with higher numbers of sites, are of lesser significance as numbers are biased by the survival of specific monument complexes.

While densities of sites in many regions are similar to each other, this disguises much significant variation in terms of site size in relation to gross numbers of sites. In some regions relatively few sites were built but some of these are exceptionally large, which in terms of capacity and labour input may reflect an investment in stone circles equal to that of other regions which have large numbers of small sites. Large stone circles may have been preferred in areas of high population density and thus a region with a few large sites may actually be of greater importance to one where many small sites were built by individual groups. These factors will be discussed in chapters 8-10.

The number of stone circles which have been destroyed since prehistory can only be guessed at. In areas where overall preservation is exceptional, rough estimates can be made. On the East Moors of the Peak District an analysis of the distribution and survival of prehistoric settlement zones suggests there is something in the region of a 30-45% survival rate for stone circles and ringcairns (cf Barnatt 1987). On Dartmoor the rate may be somewhat higher as a proportion of monuments have larger orthostats which stand a better chance of survival. However, even here the survival rate is unlikely to be much in excess of 50%, given the large areas of the fringes of this upland subject to later intensive land reorganization. Dartmoor and the East Moors are likely to have higher survival than normal; elsewhere stone circles may well have once been at least 3 or 4 times more numerous than those documented. This suggests a total somewhere in the region of 1500-2500 circles (excluding Ireland).

7:4 Stone Circles in Ireland and Brittany.

Ireland.

Stone circles are a common monument form in Ireland, over 200 having been documented (Burl 1976.p213-253,336-341,365-369). However, they are not evenly distributed; the two main concentrations occur in western Ulster and in Southwestern Eire, with only occasional examples elsewhere. In some cases the design of Irish circles suggests they are further examples of some of the classes described in chapter 5, and thus the distributional range of these extends across the Irish Sea. At other Irish sites, regional variations exist that are not found elsewhere.

In Ulster, the stone circles typically have low, closely-spaced orthostats, set in small irregular rings - as at the well known examples at Beaghmore (Burl 1976,p244-248). In general terms their architecture is similar to the Western Irregular Circles (class C) found across the Irish Sea along the western seaboard. In Ulster they are usually of smaller diameter and thus should probably be seen as a distinct group of monuments with similarities to the Dartmoor Stone-Row Circles (class M) except for the lack of an integral stone row. However, these Irish circles are often found as components of monument complexes, which incorporate stone rows, 3 stone alignments and small cairns. Hence they are similar in this respect to the Hybrid Circles of southwest England (class D;F7) and the Western Irregular Circles and related Hybrids of Wales (classes C,D).

In southwestern Ireland there is a large concentration of stone circles of distinctive types not found elsewhere (O'Nuallain 1975,1984a,b). These rings of Cork and Kerry are consistantly small and have relatively close-spaced stones. The 'larger' rings frequently have portals in the northeast quadrant; they are often the highest stones and are sometimes set radially. In the southwestern quadrant is a long, low slab, probably designed to denote the axis. The rings are sometimes crudely graded with the highest stones to the northeast.

While these sites have been compared with the Recumbent Stone Circles of eastern Scotland, and some cross-influence perhaps existed in terms of orientation preference, they are a distinct class of monument with their own unique architecture. They lack the internal features, flankers, prominent grading and standardized stone-numbers of eastern Scotland, while they incorporate radial portals, occasional centre stones and 'boulder burials' not found in the latter area. They also have much smaller diameters.

A second common circle-type in southwestern Ireland are the 'five-stone rings'. These sometimes have radially set portals and normally have a low axial stone. Both traits indicate that these rings are diminutive variants of the larger sites noted above.

A third possible circle-type in this region is the Four Poster. However, the evidence for this class is debatable. Four to six examples have been found, but only at Reenkilla does the monument appear to be intact. At Robinstown in southeast Ireland, an isolated example could alternatively be interpreted as a short linear stone-setting comparable to those found on Exmoor (Grinsell 1970). The interesting possibility that Four Posters exist in Ireland, at considerable distance from the main concentrations of such sites in Scotland, needs testing by excavation; they may all prove to be robbed settings of other forms.

The stone circles of Cork and Kerry were frequently built as components in small monument-complexes and stand alongside menhirs, short stone rows and cairns. While there are many architectural differences, the placing in monument complexes could suggest functional similarities with the sites of Ulster and those of South West England noted above.

Elsewhere in Ireland, stone circles are apparently much rarer. In the northeast, in County Down, one large ring at Ballinoe is of classic Western Irregular Circle design with a portal entrance (class C). Similar rings are found further south round the Wicklow Mountains; in freestanding form at Athgreany, and of western circle-henges type, as at Castleruddery and Boleycarrigeen. To the west, in Limerick, at the Lios and other sites round Lough Gur, there are again sites of similar embanked design. Smaller rings similar to Small Circles (classes K,L) exist in the east, as at Castle Mahon.

The well known stone circle surrounding the passage grave at New Grange (O'Kelly 1982) is unusual, in that stone circles were not normally added to Irish passage graves. Although a handful of further examples have been suggested, none of these survives today; all early accounts are vague and open to alternative interpretation. The passage grave at New Grange has been dated to the begining of the Later Neolithic - 2585bc±105(UB-361), 2475bc±45 (GrN-5462C), 2465bc±40(GrN-5463) - but the chronological position of the surrounding stone circle has not been resolved. While it pre-dates features with associated beaker material, arguments that it is contemporary with, or earlier than, the central tomb are tenuous. Perhaps it was added during the Later Neolithic as an attempt to integrate the Irish passage grave tradition with that of large stone circles/henges (class D). In this, the easternmost of the major passage grave cemeteries, more diverse influences were perhaps in play than further west.

Brittany.

Stone circles (and related forms) are rare in Brittany (Burl 1985). The main group, consist of large open settings of tall orthostats and concentrate around Carnac. Only 11 of these remain, in varying states of decay and a further 5-6 destroyed sites are documented. All are characterized by large diameters and tall, closely-spaced orthostats which thus have affinities with the Western Irregular Circles rings of Britain (class C). However, although some have crudely sub-circular shapes - as at Le Menec - others differ. One of those at Kerlescan and perhaps the restored northern ring at Er Lannic are sub-rectanglar with rounded corners. Crucuno is an almost exact rectangle and Kergonan was D shaped.

The only other stone circle in Brittany is at Kercado, where a circle surrounds a passage grave, as at New Grange in Ireland.

7:5 The Dating of Stone Circles (fig.83).

As a class, stone circles are amongst the most poorly dated common prehistoric monument-forms. Only 12 sites have C14 determinations and some of these are from contexts of uncertain utility. Several others have produced dateable artefacts but their stratigraphic correlation is often equally tenuous. The details have been reviewed in chapter 5 (also see Appendix 1).

While there is a wide range of dates spanning the Later Neolithic and Earlier Bronze Age, little headway can be made defining closer chronologies for specific classes of circle. Burl argued that large circles were generally early, dating from the Neolithic, while small circles which frequently contain burials are late (Burl 1976,p46). This may well be over-simplistic and makes unwarranted assumptions. While Burl's observation that large circles are comparable with henges in terms of size and function may well be correct, it does not automatically follow they are of comparable dates, or negate the possibility that many small circles could be equally early. The diversity in size of monument could be explained in terms of relative population sizes rather than chronology. The tendency for some smaller sites to have Bronze Age dates is biased by their differential survival rates which favours presently marginal areas where Bronze Age expansion took place. Small circles in lowland situations remain undated.

An added complication is that much of the dating evidence comes from internal burials which in many cases may denote secondary use.

When the proportion of stone circles of different sizes and types is re-examined this fails to support Burl's hypothesis that there is a dichotomy between small stone circles containing burials and large rings which do not (Burl 1976,p40) (see 7:6). Hence, the case that distinctions can be made in terms of changes in tradition (and hence date) is weakened. In addition, Burl's supporting arguments based on geometric shapes become untenable if the hypotheses on the nature of planning given here are accepted (see 2:2-2:5). The taxonomy evolved above (chapters 4,5) indicates that planning standards relate to relative size and monumentality within specific regions, that may be explained by relative social importance of certain monument types rather than chronological factors.

Carbon14 Dates.

If C14 dates are examined independently of other data, intresting patterns are suggested (fig.83). The available dates for henges are more numerous than for stone circles. Those which relate to primary phases of henge construction (fig.83;group 1) reveal a sequence that spans the Later Neolithic. The earliest are from diverse regions - Llandegai 2790bc±150(NPL-220), 2530bc±145(NPL-224), 2470bc±140(NPL-221); Stonehenge 2460bc±60(BM-1583), 2440bc±60(BM-1617), 2180bc±105(I-2328); and Stenness 2356bc±65(SRR-350). The internal timber setting at Arminghall is equally early - 2490bc±150 (BM-129).

The larger henges of Wessex are all of similar date to each other (c2100-1900bc), while Condecote in Oxfordshire, and particularly small sites in the Milfield Basin of Northumberland are somewhat later. Condecote is a large henge and the C14 dates - 1770bc±80 (Har-3064), 1720bc±100(Har-3067) - may be indicative of continued primary construction of such sites around the advent of the Bronze Age. However, the possibility that the dates relate to a subsequent remodelling of the site should be borne in mind (see 9:12). Some henge ditches can be shown to have been periodically recut. The two dates from the Devils Quoits - 2060bc±120(Har-1887), 1640bc±70(Har-1888) - are both from lower silts, but this site is likely to have had extensive ditch recutting which may explain the mismatch in dates (see Appendix 1). At Avebury, the final remodelling, indicated by phases of bank construction, removed traces of an earlier ditch. Further data are needed to clarify the frequency and interpretation of late dates.

Dates derived from assorted features within henges (fig.83; group 2) have a similar range to those from primary contexts. Only at North Mains, and the avenue extension at Stonehenge, are there are indications of particularly late activity. The continued use of henges elsewhere is debateable (see 7:7). Once a site such as a henge or stone circle was built it could continue to be used indefinitely for meetings or ceremonies without leaving any trace in the archaeological record. It is only in the rare cases where substantial collapse, drastic remodelling or undergrowth regeneration can be documented, that this is argued against.

At timber settings within henges (fig.83;group 3 - 11 sites), usually in the form of rings of posts concentric to the henge ditch, the range of dates is consistent with those from primary silts discussed above. This argues that they may often be primary features. Early sites again have a diverse distribution - Arminghall 2490bc±150(BM-129), North Mains 2180bc±60-2065bc±65(GU-1352-4,1435-6) and Stenness 2238bc±70(SRR-351). The dates for the later concentric settings within or adjacent to the large Wessex henges are consistant with the construction dates of these sites (c2100-1900bc).

In contrast with these data, the few dates from stone settings within henges are relatively late (fig.83;group 4). Unfortunately these all derive from Wessex sites. However, the argument that stone features at henges are normally secondary is strengthened by other examples where stratigraphic relationships support the case (see 6:8).

When the evidence for circles of timber and stone in general is reviewed (fig.83;groups 3-5), it appears to give strong support to the idea that timber circles are typically earlier monuments than their stone equivalents. Only one exception is currently known - Lochmaben Stone - where the probable stone circle is exceptionally early - 2525bc±85(GU-1591). The majority of dated stone circles span the period c1800-1000bc. However, this pattern may well be misleadingly simplistic in relation to freestanding stone circles. All such C14 dates came from sites that are either in presently marginal zones where Neolithic settlement is not recorded, or from secondary features, as in the cases of Berrybrae and Balbirnie. Many undated sites in areas settled in the Neolithic may be substantially earlier than the presently inadequate data suggest.

There is an increasing body of data that freestanding timber circles were replaced by stone equivalents in northern Britain - as at Machrie Moor, Temple Wood and Croft Moraig. In the last two examples at least, a case can be made that these sites have origins relatively early in the Later Neolithic (see 5:35). At Machrie Moor 11 and Croft Moraig the stone circles were clearly built while detailed knowledge of the design of the timber rings was current as they have comparable diameters and/or respect the positions of specific posts. These relationships indicate a relatively short time interval between the monument phases. The only known early henge where stone settings display continuity of plan from a timber phase is Stenness, (a long interval between phases can be argued for Balfarg - see Appendix 1). The insertion of a passage grave at Callanish, and passage graves integral with stone circles at Clava Cairns, are probably indicative of a Neolithic date for these sites if it is accepted that passage graves were generally built in the third rather than second millennium.

These data contrast with southern Britain. Stonehenge was remodelled over a long period, it may well have stood deserted while emphasis swung to nearby monuments at Durrington (Richards 1984), before it was furbished with stone circles around the beginning of the Bronze Age. Although several further Wessex henges have timber settings that were superceded by stone structures, initial monument construction was relatively late.

The likelihood that stone circles commonly have much earlier origins in highland zones than those within lowland henges is suggested by the data noted above but needs further elucidation. A much expanded series of C14 dates is required.

Artefacts.

The details of datable artefacts from individual stone circle classes have been reviewed in chapter 5. While no specific class is dated with certainty because reliable data-sets are so small, there are several sites where neolithic artefacts have been recovered which complement the single C14 date from Lochmaben Stone. Grooved ware has been recovered from Berrybrae and Balbirnie while other neolithic sherds and polished axes have come from several sites from contexts of less certain utility. Bronze Age data are more frequent but are often from contexts of uncertain stratigraphy or are from sites in specific topographic zones (see above).

Ireland and Brittany.

The minimal dating evidence for sites in Ireland and Brittany does little to ellucidate the problems for the dating of stone circles in general, although it is useful in that it provides examples of relatively early dates for certain class types.

A Bronze Age date for the small rings in southwest Ireland has been postulated (O'Nuillain 1984a), but direct evidence is minimal. The Ulster circles are equally poorly dated. Soils under features associated with the stone circles in the Beaghmore complex have been dated to 1605bc±45(UB-23)and 1535bc±55(UB-11), while one of the cairns contained a group IX porcellanite axe (Pilcher 1969).

Elsewhere in Ireland two sites with strong affinities to Western Irregular Circles (class C) have produced Later Neolithic artefacts. At the Lios, sherds of grooved ware, beaker and Ebbsfleet-like pottery were abundant (O'Riordain 1951, Burl 1976, p230). At Ballynoe sherds of Carrowkeel ware were found inside the ring associated with a cremation.

At Castle Mahon, a much smaller site with Small Circle (class K,L) affinities, sherds of western neolithic ware came from a stonehole. The atypical circle at New Grange is also likely to be Neolithic as it pre-dates beaker activity.

In Brittany the circles at Er Lannic, with their Western Irregular Circle affinities, have also produced neolithic pottery and axes from various contexts.

Stone Circle Classes.

Table 30 summarizes the evidence available for each stone circle class. This is sadly inadequate, some classes having no good data whatsoever. It illustrates that the only large sites firmly established to be of Later Neolithic date are the circle-henges (sub-group of Hybrid Circles-class D) and even here the circles may have been of timber in many cases. Data from Ireland may suggest Western Irregular Circles (class C) are also likely to have Later Neolithic origins. Contrary to Burl's hypothesis, one of the two main classes of small site (northern Small Circles-class K) is the only other group where a case can be made for an early date. Some Hybrid Circles and southern Small Circles (classes D,L) can be dated to the Earlier Bronze Age. While it remains unproven it may be that many stone circles of all sizes are Later Neolithic in date.

Table 30: The dating of stone circle classes.

	Class													
	A	B	C	D	E	F	G	H	I	J	K	L	M	N
Later Neolithic	X?	?	X?	X	?	?	?	X?	X?	?	X	?	?	?
Earlier Bronze Age	?	?	?	X	?	?	?	?	?	?	X?	X	?	?

Major questions are left unanswered at present. Notable is the date of Symmetrical Circles (class E); while the stone circles within Stonehenge suggests a date at the beginning of the Bronze Age, the architectural similarities with the Recumbent Stone Circles (class H) and Clava Cairns (class I) could indicate earlier origins. This lack of data is particularly unfortunate in regard to distributional studies, as Symmetrical Circles and the equally poorly dated Dartmoor Stone-Row Circles (class M), form major components in the complex hierarchical patterns observed in most complete form on Dartmoor (see 8:6-8:12).

The complementary distribution of Northern Open Circles (class A) and henges/circle-henges (subgroup of Hybrid Circles-class D) presents another problem. The lack of dates for Northern Open Circles prevents determination of whether these rings are contemporary with the henges themselves, or whether they date from the period when many henge interiors were remodelled in stone.

While many of the distributional patterns documented in chapters 8 and 9 may relate to differences in social organization, it is normally the case that these trends can only be dated in the crudest of senses. Chronological relationships and hence significant changes through time can only be guessed at.

7:6 Stone Circles and Human Burial.

Burl has argued that a dichotomy of 'fundamental' importance exists between large open circles and small sites, the latter placing more emphasis on human burials within them (Burl 1976,p40). He viewed this as having a chronological explanation with ceremonial customs changing in the Earlier Bronze Age (Burl 1976,p92-97). However, the comparisons between diameter of site and presence or absence of human burial made by Burl (1976,p39-41,49-50) when reaching these conclusions, may well be untenable because they fail to allow for significant bias in the data.

When re-examining data on site diameter in relation to burial, it seems appropriate to follow the taxonomy devised in chapters 4 and 5 (but hence excluding Irish data).

In large circles (classes A-F) only 33 sites have recorded excavations (see Appendix 1 - identified in column B4) of which 30% contained human burials. In moderate and small diameter circles (classes H-N), 68% of the 106 excavated sites contained human remains (or bone of unspecified type in early excavations). Burl suggested the best data for his hypotheses came from Cumbria and Southern England (1976,p39-41). Only Brats Hill, the Sanctuary and Stonehenge have human burials within them, in comparison with 16 other large sites where none has been found. Only 13 small rings (classes L,N) have been excavated; four of these failed to produce burials.

While these figures appear at first sight to be reasonably convincing, the fact that the majority of excavations are nineteenth century in date and were typically only partial, needs bearing in mind. In small sites a greater proportion of the site interior was generally explored, significantly increasing the likelihood of any deposits that were present being found. In addition many early excavators probably assumed that recovered cremated material was human or made no comment as to its character. In other cases the lack of finds may result from the incompetence or inexperience of early excavators.

When these problems and uncertainties are redressed by examining only twentieth century excavations where an extensive area of the site has been examined (see Appendix 1), the following totals are found; 16 large sites (classes A-F) have been excavated of which 56% contained burials. The 9 Recumbent Stone Circles and Clava Cairns (classes H,I) all produced burials. At 30 small circles (classes K-N), 77% contained burials. These figures are not statistically distinguishable. When Cumbria and southern England are examined independently of other regions, only 4 large circles have failed to produce excavated human remains. Of these the Hurlers and the Devils Quoits have had over 50% of their interiors excavated, but at Avebury and Swinside this was less. In contrast, at small sites everywhere the trend has been for total excavation.

A second way of examing the issue, that has the advantage of giving a larger data-base which thus may clarify the issues discussed above, is to examine the number of sites which contain visible traces of internal ringcairns, cairns or platforms; all of which may relate directly to placing of burials within stone circles. Table 31 illustrates the totals for each circle class. From this it can be seen that the percentages of sites with such internal features for the majority of both large and small circle classes are relatively small (classes A-G: 14%, classes K,L,N: 30%). In contrast, specific site types frequently have such features. At Clava Cairns, Recumbent Stone Circles and Kincardineshire Ringcairns (classes H-J), 65% of sites have large internal ringcairns or passage graves and the remainder are damaged sites where it can be argued such features have been destroyed (see 5:24,5:27). The Dartmoor Stone-Row Circles (class M) normally have a central cairn which fills much of the interior (see 5:40).

Table 31: The proportion of sites in each class of stone circle which contain internal ringcairns, cairns or platforms.

	Class													
	A	B	C	D	E	F	G	H	I	J	K	L	M	N
Number of sites in class	8	2	71	25	33	2	6	86	33	3	76	95	31	50
Number with internal features	2	0	10	7	0	0	1	44	32	3	24	28	27	14
Percentage with internal features	25	0	14	28	0	0	17	51	97	100	31	29	87	28

	A-G	H-J	K,L,N	M
Number of sites in class	147	122	221	31
Number with internal features	20	79	66	27
Percentage with internal features	14	65	30	87

From these data it can be concluded that at the majority of stone circles of all sizes there was a common desire to retain an open interior suitable for containing participants in communal ceremonies. While human burial is relatively common in all these site types it is frequently unobtrusive, being placed in sub-surface pits or cists. At 'normal' stone circles (classes A-G,K,L, N) the small percentages of sites with internal cairns fall into 2 basic categories (with a grey area between). In some cases the cairns are small and occupy only a small proportion of the interior. In the majority of these there is little to indicate whether they are primary features or not; they would not have inhibited communal activity within the site. At a minority of sites the whole or majority of the circle interior is filled with a cairn or platform. At recent excavations at Cairnpapple, Letterston III, Balbirnie and Temple Wood these have been shown to be secondary features and may well represent radical redefinition of site function.

7:7 The Ceremonial and Social Functions of Stone Circles.

Excavations of stone circles have presented few positive clues to the function of these sites. Their design indicates that they are non-utilitarian (in our frame of reference) and they are ideal monuments for formal gatherings of varying size. The deposits occasionally found within them of buried objects, and human or animal bones, is suggestive of a similar range of diversity to that found within contemporary barrows. It is frequently impossible to determine if finds within stone circles represent dedicatory deposits, propitiation offerings buried during or after ceremonies at the site, or indicate use of the site once its initial functions had been abandoned or redefined to some extent. The occasional burial of human remains places emphasis on death, either in regard to purification/propitiation ceremonies, or in a funerary context. However, the archaeological record is biased in this direction and many ceremonies of radically different aspect, concerned with other events in the life cycle, or with the dynamics of social organization, may well have taken place and left no permanent trace. The data for astronomical orientation from stone circles to the sun and moon at seasonally significant points, are suggestive that ceremonies took place at defined intervals throughout the year. This may imply a naturalistic belief system, which in basic terms is similar to many documented examples in simple societies (and in British folklore) which place emphasis on purification or propitiation of the community and/or the natural world. This may have included fertility ceremonies and included rites which utilized sympathetic magic and dancing. However, all details of such activities must remain conjectural because of the present limitations of the archaeological record at stone circles.

While investigation of the specifics of ceremonies that took place within stone circles may be of limited potential, their function as meeting places may lead to stone circles incorporating invaluable data on the dynamics of the social organization of the communities that built them. This will often be displayed by their patterns of distribution in relation to monument size and design.

Even though the prime motives of the people that erected stone circles may have been to build containers for ceremonies, the act of coming together for such meetings served several underlying social functions. This is particularly significant in the context of societies such as those in prehistoric Britain where communities were predominantly non-nucleated; living in small units scattered across the countryside, perhaps on an extended family basis. Seasonal/intermittent gatherings of scattered populations allows necessary communal interaction to take place. It allows discussion of information on farming strategies and future planning. Exchange of surplus produce/raw materials could take place or be arranged. Young people could meet prospective marriage partners, and such marriages (whether by choice or arrangement) would maintain group structure and interrelationships. The establishment of formal meeting places and/or their continued use would strengthen group identity and cement the bonds of segmented and/or scattered communities.

Stone circles and henges are the most common large communal monuments known to have been constructed in the Later Neolithic and Earlier Bronze Age over much of Britain, and they probably fulfilled many of the functions discussed above.

The design of stone circles and henges is indicative in itself of broad trends within prehistoric society. The essentially formal characteristics of their design, with emphasis placed on a regular shape, is indicative of increased structuring of social order and regulatory codes. It is noteworthy that specific stone circle classes are particularly well built, and these were probably designed by 'specialist builders' (see 2:5). These sites occupy high levels in the monument hierarchies of their respective regions (see Chapters 8-10).

The dichotomy in the final centuries of the Earlier Neolithic between formally designed monuments such as cursus monuments and bank barrows, and the less symmetrical design of causewayed enclosures, appears to have been radically re-aligned/resolved in the Later Neolithic with the building of circles and henges. This may imply an increased consolidation of belief systems at the core of the mechanisms of social organization which regulated society at inter-community levels. These trends appear to have become more formalized and probably more binding as a response to the need for increased self regulation in now long established agricultural/ pastoral communities whose population levels had probably reached a point where increased contact between groups had led to greater competition and thus conflict (the latter suggested by the data from causewayed enclosures).

The building of monuments in circular, as opposed to other form, is probably indicative of sites which place emphasis on community rather than the individual. If the latter were the case more architectural highlighting would be expected on specific focal points, rectangular structures are better at creating this (eg - medieval churches).

To what extent stone circles and henges are a true reflection of a degree of egalitarianism in Neolithic society remains debatable. Certainly in the Earlier Bronze Age the increased evidence for conspicuous wealth indicates an increase in the importance of elite groups and a prestige goods economy. While the majority of larger stone circles and henges built in the Later Neolithic may have been expressions of the traditional social order, this could equally disguise new trends. Changes in social organization probably took place episodically during the Later Neolithic as social complexity developed and became more hierarchical. New monuments, or re-furbishment of old ones, probably reflect times of realignment where acknowledgement of traditional forms was used to legitimate new socio-political developments (cf Bradley 1984a). However, it is in the early centuries of the Earlier Bronze Age, in Wessex at least, that these processes probably reached a climax and competition between conflicting regulatory systems was at a maximum; as indicated by increased display of disposable wealth in barrows used as a means of signifying newly aquired levels of authority gained by the elite (and their insecurity). This took place soon after the construction of monuments in stone at such sites as Stonehenge, Mount Pleasant and The Sanctuary. These refurbishments probably signify the final surplanting of the traditional order.

It seems likely that a percentage of large stone circles and henges continued in use for some time after the final floreat of construction or refurbishment at the begining of the Bronze Age, even though the socio-political climate has changed as indicated by the radical increase in numbers of barrows being built (or refurbished) and found almost universally across Britain.

Small stone circles are known to have been built in newly exploited peripheral zones in the Earlier Bronze Age. While their size is indicative they were primarily 'family monuments', and as such did not have the additional underlying social functions of larger sites, it does indicate the belief systems which led to stone circle construction were still current (rather than monument form being used purely to evoke traditional authority). There is little at present to suggest that the new settlers in peripheral zones were social outcasts who clung to traditional ways (see 8:2-8:5,10:3). The lack of small Bronze Age circles in adjacent 'core' areas (which could have replaced larger sites to serve as equivalent foci to those in the peripheral zones) (see 7:3) may suggest some of the large henges also continued in use.

Continued (or episodic) use throughout the Earlier Bronze Age is also demonstrable at Stonehenge which had modifications made to its avenue at around 1000 bc when Earlier Bronze Age society was breaking down. In other regions many monuments may have been abandoned somewhat earlier, as suggested for example by the evidence from Dartmoor where the reave building episode at around 1300 bc slights several of the stone rows (see 8:9, Fleming 1983).

While continuity of site can be argued for, not all stone circles and henges display the same unchanging emphasis on traditional form as found at Stonehenge or Avebury. At Arbor Low the superimposition of a large barrow on its bank may reflect the socio-political changes; the barrow can perhaps be seen as a visible stamping of elite authority on a site which was still in use. In contrast, at Cairnpapple a large barrow of Earlier Bronze Age date was superimposed on the interior and effectively removed much of the interior space. At Mount Pleasant the large henge had a massive palisade built within it, suggesting a change in functional emphasis which may result from an elite take-over. However, the inner henge was refurbished in stone indicating its continued role as a ceremonial centre and the site as a whole was not abandoned till around 1300 bc (Wainwright 1979).

The cairns filling the interiors of several small stone circles could also be taken in some cases to imply abandonment as meeting places. However, it should not be assumed that these events were synchronous as small sites are inherently more likely to fall out of use at any period due to fluctuations in localized land use and resulting population changes. Hence these redefinitions of function need have no direct association with regional episodes of socio-political change.

At other atypical sites, such as Clava Cairns, Recumbent Stone Circles and the Dartmoor Stone-Row Circles, the internal features can be argued to be integral components of the monuments and clearly such sites were designed to function with the restrictions these cairns imposed on usable interior space. Thus they warn against simplistic overgeneralized interpretation in terms of redefinition of use on the basis of internal features.

The diversity of stone circle types documented in chapters 4 and 5 suggest complex shades of interpretation are likely within the frames of reference discussed above - with each circles social status and degree to which it acted as a focal point for community or inter-community activity, varying according to scale and monumentality. These factors will be explored in chapters 8-10.

Chapter Eight.

Stone Circles in Their Landscape; Patterned Distributions in Relation to Topography and Prehistoric Settlement; the Test Cases.

8:1 Introduction.

The Model.

Chapters 8 to 10 put forward, and examine the utility of, a model that may help explain the spatial distribution of stone circles and henges within their landscapes, and provide data on socio-political organization in the Later Neolithic and Earlier Bronze Age. The hypothesis presented is that monuments in areas where a high proportion of sites survive, often form recognizable networks of regularly spaced, architecturally similar sites. Changes from network to network in spacing-interval between monuments, are predicted to differ according to site type and their diameter range. Large monuments tend to be spaced at wide intervals, while at smaller sites the spacing interval decreases.

Monument networks are superimposed within some regions in hierarchical relationship to each other. It is postulated that each level in the monument hierarchy may have functioned differently in the sense that they relate to varying levels of organization within regional communities, ranging from monuments for local use by individual farming units, to regional centres which may have been gathering places for the majority of factions of society within a region.

A second distributional trend can be identified which is relevant to assessment of the model; there is a common tendency at larger sites for nucleation into discrete monument complexes (see 6:12). Where investigated these normally contain sites of varied design and dates, sometimes spanning much of the Later Neolithic and Earlier Bronze Age.

However, the majority of sites (and monument complexes) are undated. It is argued below that lack of established contemporaneity of sites within each identified monument network does not negate interpretation as pattern with socio-political significance. Architecturally similar sites may well, to all intents and purposes, be contemporary; whenever spatial patterning also exists between these, this cannot easily be explained away. Patterned site networks may reflect orderings in population distribution and the sites themselves could have been built at a variety of dates due to converging evolution (see chapter 10). Only at a developed stage are the patterns recognizable (cf. Bradley 1984b,p7).

Lack of chronological definition prevents assessment of whether different levels of monument hierarchies functioned contemporaneously. While it would not be surprising if this was the case in some examples, each level should be regarded as an independent entity and inferences that could be drawn on interelationships should be treated with caution.

Monument network type varies fron region to region and this is argued below to reflect both communal preferences and the influence of terrain. The latter affects both the carrying capacity of regions and the way in which communities were distributed within each area. Such differences may have influenced the way communities organized themselves and this is suggested to be reflected in the regional characteristics of monument networks (see 10:1,10:6).

Chapters 8 and 9 restrict themselves to presentation of data that can be used to support the model, describing recognized monument patterns. Most discussion on socio-political inference is deferred to chapter 10.

Test Cases.

Chapters 8 and 9 describe an exercise in pattern recognition which was designed to explore differences in the distribution of stone circles and henges according to both type and region. This was undertaken in detail in three test areas - the East Moors of the Peak District, Dartmoor and Bodmin Moor - all uplands where survival of monuments is exceptionally good. In addition, in chapter 9 all other regions are reviewed to examine their potential and to identify differences in pattern not observed in the test areas. Britain is divided into regions according to the zones identified in 7:2 which were established from geographical differences in stone circle distributions.

Pattern Recognition.

The distributions of monuments can be subdivided, if simplistically, into three basic types - nucleated, regularly spaced or random. When each stone circle class is examined, independently varying regional patterns are identifiable, some of which are complementary, while others are not and imply chronological depth.

Nucleation of sites has already been explored on one level in the discussion of 'monument complexes' (6:12). Much more broadly based nucleations, from a inter-regional rather than local perspective, relate directly to topographical factors which influence both prehistoric population distribution and subsequent destruction levels. Thus for example, large sites may concentrate in some lowland regions but are absent from adjacent uplands, or in other instances, sites may survive in peripheral zones but have been destroyed in areas more attractive to subsequent agriculture.

Distinguishing between 'regularly spaced' and random distribution can only be achieved where survival rates are high; the latter pattern may often be the product of chance survival of a low proportion of the original number of monuments. Where regular spacing does occur this is unlikely to be exact due to topographic variation. Each community had a choice of locations for its monuments within its 'territory', and factors such as ease of access (ie - for example, a site at a confluence of valleys) may well have displaced siting from a point at the exact centre of a 'territory'. However, despite such factors, regularity within definable parameters can be identified with a frequency which argues strongly that observed patternings are not a product of chance.

The variation in spacing-interval within the defined parameters for any particular site network is often sufficiently large to give the superficial impression that territory size could vary cosiderably (eg. sites spaced 10km apart have territories of c78.5 square Km, while sites at 15km apart have areas of c176.5 square Km). However, in cases where 'territorial boundaries' can be postulated - as in Wessex, Dartmoor and the Peak District (East Moors) - this impression can be argued to be illusory (see 8:5,8:9-8:10,9:12). Each 'territory' can be postulated to be of similar size, and spacing variation is governed by other factors - as noted above.

Gross changes in regional terrain also need to be carefully assessed to identify topographic 'buffers' which distort monument spacing to a point where the pattern breaks down. This is particularly the case with large regional foci which only occur in favourable zones, while intervening uplands lack such sites.

Landscape.

The assessment of topography and soils, for different zones within the broad regions identified in chapter 7, is important in understanding differences in monument type and pattern. While such factors are not deterministic they influence carrying capacity and subsistence bases. As topography becomes more adverse, population and choices and/or intensiveness of agriculture are increasingly restricted. Another important factor is the degree to which communities were isolated, or in the absence of buffer zones, in direct competition with neighbours of equal status. This may well have a direct bearing on varying developments in social organization and/or intensity in overt expression of these. Given the contrasting topographies in Britain it would not be surprising if topography had significant influence on the ways in which communities organised themselves and how this changed through time.

The categorization of landscape variation has been approached on two levels according to detail required. In the three test cases the landscape has been analysed according to specific topographic and altitudinal changes within the uplands studied. Each test case has the advantage of consistent geology which creates a coherent unit for analysis. Unfortunately no detailed studies of difference in prehistoric soil types are available at a level suitable to determine criteria for the siting of all specific monuments or settlements. However, given the consistant topographic patterning in each case, broad predictions based on factors such as altitude and slope can be made that allow analysis to proceed.

In the regional reviews in chapter 9, substantial simplifications have to be made in landscape classification in order to identify significant variation at this level of analysis. The approach adopted here is based primarily on topographic and altitudinal factors but account is also taken of major differences in soil type due to underlying geology or glacial deposits. Each factor in isolation is inadequate as a basis for analysis.

In categorizing the landscape at this level of analysis the identification and application of four basic land types seems appropriate. Further subdivisions are applicable in specific regions and will be described under relevant sections.

The first of these classes is that of '<u>core areas</u>' which are defined as zones where soils were ideally suited for prehistoric agriculture and thus were capable of supporting relatively dense, well established populations (cf Bradley 1984a,p.41). These include extensive well drained alluvial terraces and chalk downs/limestone uplands which are known to have had loess deposits in prehistory (Avery 1973, Curtis et al 1976, Catt 1978, Shotton 1977, Geological Survey; ten mile maps-solid and quaternary, Soil Survey of Great Britain; maps. - These sources are used henceforward for all references to assessment of relative land potential in prehistory).

The second class is termed '<u>other lowlands</u>' and includes varied topographies ranging from plains with heavy soils, to rolling hilly landscapes. Many of these lowlands contain zones with small, dispersed areas of advantageous soils (in a prehistoric context), that were as good as those in 'core areas'.

The British uplands are divided into two categories according to altitude. Those that have significant areas at low enough altitudes to have been cultivated, and to have supported permanent settlement in prehistory, are termed '<u>upland regions</u>'. Areas that are substantially higher are termed '<u>mountain regions</u>'.

Definition of boundaries between each of these land classes varies. 'Core areas' are often clearly defined by geology or soils. The prime factor in distinguishing between uplands and lowlands is topographical. In the majority of regions, upland boundaries are clearly defined by relatively sudden alteration in altitude and steepness of slope, caused by changes in underlying geology. Occasionally these factors are less pronounced and the exact boundary is somewhat arbitrary. The 'upland regions' usually contain areas of slight to moderate slopes, shelves and plateau-like land, all of which are suitable for settlement but which are frequently separated from lowland areas by relatively steep slopes. While the majority of these 'upland regions' are marginal today many were not so in prehistory, although their relative fertility varied significantly. Specific cases where data is available are noted under relevant sections. The distinction between 'upland' and 'mountain regions' is harder to define with precision. In several areas the available data suggests an upland limit for prehistoric settlement at around 400m OD. and this has been used as a general rule of thumb, unless specific data suggests that a higher limit is appropriate. In some regions the 400m division may well be too high but a frequent lack of available detailed data leads to significant uncertainty, particularly as the earliest houses may have been built purely of timber and field boundaries (if any) could have been in the form of fences or hedges. The approach adopted here is to be over-generous with categorization of areas as 'uplands' rather than 'mountainous'. Where mountains rise steeply from valleys in the absence of extensive shelves, steep slopes below 400m OD. have been categorized for simplicity as mountainous.

While the simple approach adopted here fails to recognize many local variations in topography and suitability for settlement, it has the advantage of enabling regional overviews to be achieved. Established criteria for soils, in terms of their suitability for prehistoric agriculture, can also be applied to many regions - as for example, preference for lightly drained alluvial terraces and extensive loess deposits. It is hoped such a broad perspective will avoid problems caused by unquantifiable localized changes in soil fertility since prehistory, in regions that have not been extensively studied in this respect. The addopted approach seems appropriate given the scale at which many larger monuments seem to operate (see below).

Although many smaller 'local monuments' would require a more detailed topographical analyses to examine their exact siting criteria, such sites frequently have a low rate of survival and thus only regions with exceptional topographic characteristics are suitable for study. Examples of these have been addressed in two out of three of the test cases.

Pattern Types.

As analysis of spatial patterning of sites progressed it became necessary to establish a terminology to describe basic variation in the nature of these patterns. As far as possible terms have been utilized which are neutral with regard to implied specific forms of social organization.

Table 32: The characteristics of types of monument distribution pattern.

	monument classes	normal spacing range (Km)	topographic zones	topographic characteristics
Regional foci	Northern Open Circles (class A)	c15-25	core zones	'central places'
	Caithness Horseshoes (class B)		other lowlands	
	Wessex Variant Circles (class F)			
	Circle-Henges (class D; CH3)			
	Henges			
	?Western Circle-Henges (class C; WCH)			
Inter-group foci	Symmetrical Circles (class E)	c2,0-8,0	?other lowlands	watersheds
	some Hybrid Circles (class D)		upland regions	
Group foci	Western Irregular Circles (class C)	c2,0-7,0	?other lowlands	'central places'
	some Hybrid Circles (class D)		upland regions	
Shared foci	Small Circles (class K)	large	other lowlands	'central places'
	?Hebridean Open Circles (class G)			
	?Western Irregular Circles (class C)			
Local foci	Recumbent Stone Circles (class H)	c1,0-5,0	other lowlands	varied
	Clava Cairns (class I)			
	Kincardineshire Ringcairns (class J)			
	Small Circles (classes K,L)	c0,5-3,0	all zones	varied
	Dartmoor Stone-Row Circles (class M)			
	Four Posters (class N)			

The most common form of identified pattern is regular spacing within defined parameters between comparable sites. These patterns can be divided into 5 types according to the design and size of site and corresponding differences in spacing interval (table 32). At the highest level of this hierarchy are large monuments (frequently henges) which are normally spaced between 15 and 25km apart and termed here '<u>regional foci</u>'.

In some areas, particularly where regional foci are undetectable or only a minor component in the overall pattern, the major sites are spaced at only c2-7km apart (Cumbria 6-14km?-see 9:7) and these are termed '<u>group foci</u>'.

Both types of pattern are characterized by monuments (or nucleated monument complexes) located in topographical 'central-places', at the heart of the most advantageous settlement areas. These are often sited in locations with additional topographic 'advantage', such as at the confluence of valleys/rivers, which suggest a carefully chosen location in terms of ease of access from a hinterland.

A further type of pattern exists with monument-spacing at between c2 and c8km. These sites are distinguished from 'group foci' both on architectural grounds and by their distinctive locations. They are sited high on watersheds away from settlement zones (see 8:6-8:12) and are termed here '<u>inter-group foci</u>'.

The fourth type of pattern usually involves small monuments, which when survival rates are good and topography not inimical to settlement, are spaced at between c0.5 and 5.0km apart. Analysis in the test cases suggests these are spatially related to specific local settlement zones and are termed here '<u>local foci</u>'. Those in eastern Scotland contain more impressive monuments and can be regarded as having different socio-political explanations from those elsewhere (see chapter 10).

A fifth pattern is found in Western Scotland and its sites are termed here '<u>shared foci</u>'. These are harder to fit in the schema described above. Each consists of a nucleated complex of relatively small monuments which may have acted as a focal location for a large, sparsely populated area, comparable in size to those for regional rather than group or local foci. 'Shared foci' lack the large monuments found at 'regional foci'.

Terminology for various nucleated patternings - the monument complexes - have been described previously (see 6:12).

Site Survival.

One problem with assessing data on patterned distributions is that monument networks are rarely likely to be complete. Where a site is suspected to be missing it would be misleading to formulate 'territories' for adjacent sites that absorb the postulated intervening 'territory'. Such problems make it necessary to assess the reliability of analysis according to monument survival rates. This process is unavoidably subjective and it is only when regularity in patterning across broad areas occurs that relative completeness can be argued with some confidence.

In comparing data from different regions, varying levels of reliability have to be used and these are commented upon below in each relevant section. Site patterns which incorporate only one class of comparable sites are given greatest weight. As a general rule the taxonomy devised in chapters 4 and 5 is strictly adhered to when identifying individual patterns. One exception is applied; no distinction is drawn between circle-henges (class D;CH3) and henges. This seems appropriate given their similarity in architecture and the frequency with which stone circles within henges were added as secondary features (see 6:8). Occasionally - but notably in Cumbria - regular spacings between larger monuments occur which incorporate several stone circle classes. These are described but should be treated with caution. However, one example which could be given more weight is the relationship of Northern Open Circles (class A) and henges, given their complementary distributions (see 5:4,6:8). In other rare cases, single monuments are commented upon which fit with patterns identified using another class. However, in no case does the pattern rely on the atypical site.

No identified pattern can be argued to survive in its entirety and occasional cases always occur within each, where spacing between nearest neighbours is approximately double the norm. The lack of comparable monuments within any given region which fail to conform to the pattern, or multiples of the average spacing interval, is a strong argument in favour of the model.

Tests of the utility of the model are provided in areas where survival of specific monument types is relatively good (see note 1). Where patterns are less complete, specific pattern types are postulated, for comparative purposes, by analogy between the identified pattern characteristics for specific site types in the test areas mentioned above and monuments of the same classes elsewhere. While this procedure may make unwarranted assumptions on functional compatibility, it highlights one set of possibilities.

One property of the type of model proposed here is its potential for predicting the locations of unrecognized monuments. In the long term the applicability of the model can be tested by discovery of further sites in predicted locations. Some of the more obvious possibilities have been included in the text as notes at the end of each sub-section, in order to facilitate future assessment. However, it must be stressed that, in the test cases (ie. those in note 1), the identification of patterns does not rely on these postulated sites.

Note 1: Areas where monument patterns for some or all site types can be identified (and section in which each is described) are as follows (following tables 33,34): Peak District-East Moors 8:2-8:6; Dartmoor 8:7-8:12, Bodmin Moor 8:13-8:16, Moray Firth 9:4, Grampian 9:5, North West Tayside 9:6, Cumbria 9:7, The Plain of York 9:9 and Wessex/Upper Thames valley 9:12.

Other Terms.

Throughout the subsequent text, terms such as territory, group, boundary, central place and community, have often been used for convenience. These should be taken in a general abstract sense rather than implying specific socio-political function or organization. The term 'territory' should be treated as synonymous with 'sphere of influence' rather than necessarily implying political boundaries. A discussion of such matters in relation to the observed patterning will be returned to in chapter ten.

The Peak District – East Moors.

8:2 Introduction (fig. 84).

The East Moors of the Peak District are in many respects typical of the marginal uplands of the Pennines. However, they are unusual in that topographic factors lead to exceptional survival of prehistoric sites. The area consists of a plateau-like upland, of similar altitude throughout, the majority of which is under 400m OD. (fig.84). The western edge is defined by lower and upper escarpments with a high shelf between them which was extensively utilized in prehistory. Further east, the upper moors are higher and thus on a local scale are less attractive propositions for exploitation than the adjacent areas of shelf. Their eastern edge is defined by steep sided valleys which dissect the foothills around Sheffield and Chesterfield. To the west, on the other side of the Derwent, four smaller blocks of moorland of similar topography are also included in the study.

Destruction of prehistoric remains by subsequent agricultural activity has largely been confined to the most favourable locations on the western shelf and to the eastern fringes. A strip of over 20km length, containing 65 square kilometres of near-continuous moorland survives for study (fig.85). Details of description and analysis of the remains on these moors have been presented elsewhere (Barnatt 1986,1987,forthcoming). Only a brief summary is given here.

A series of field systems and cairnfields is found which concentrates on the western shelf and on favourable shelves west of the Derwent (fig.84). Preservation is particularly good in the central portion of the main moorland strip, where two stream valleys make inroads into the upper moor and create shelves at similar altitude to the main western shelf. Here later intakes are less frequent.

A strong case can be made that the cairnfields as well as the field systems are primarily agricultural in nature, and that both represent stages in exploitation of long duration rather than transitory farming. Even in simple cairnfields there is evidence that hedge or fence boundaries existed and that these areas represent zones of 'permanent' farming. The field systems evolved gradually as increasing amounts of stone were cleared from the fields and piled against boundaries, which in final form fossilized a near continuous field pattern. Such field systems are located in the most favourable locations in terms of altitude, aspect and soils and there is growing evidence that they were farmed for over a millennium (cf Barnatt 1986,1987). On Big Moor, at the most extensive of these systems, a detailed survey (Barnatt, in progress) has revealed extensive data for complex chronological depth which illustrates gradual evolution and changes in field layout over time. Re-examination of artefacts from the Swine Sty excavation within the system, also supports an extended chronology in comparison to the restricted Earlier Bronze Age date originally suggested for the site (D.Garton and P.Beswick, pers.comm).

The identification of house sites on the East Moors is somewhat problematic in the absence of excavation, as structures built of timber appear to have been the norm. However, the majority of field systems contain small 'yards' which are morphologically distinct from surrounding fields. Platforms also exist which are likely to be house sites (P. Everson, S. Ainsworth pers. comm, Barnatt ongoing research). These features indicate settlement within the cairnfields/field systems rather than the latter being 'outfields'.

In total there are 346 hectares of extant field systems and cairnfields on the East Moors whose distribution can be compared to that of the ceremonial monuments here.

8:3 Stone Circles and Ringcairns in Relation to Field Systems and Cairnfields (fig.85).

Figure 85 illustrates that there is a strong correlation between stone circles/ringcairns and the extant prehistoric agricultural zones. Large areas of open moorland exist where the only identified sites are occasional barrows. Close proximity of field systems/ cairnfields to stone circles/ringcairns occurs in 30 cases. The 6 exceptions to this all lie within, or adjacent to, later intakes.

In 4 of the latter cases, data on destroyed cairnfields has been documented.

The majority of the stone circles in this region are of similar design (Small Circles-class L), being relatively small diameter sites with low orthostats easily erected by small communities. Two exceptions exist; Gibbet Moor North (fig.85;1) is a small rectangular Four Poster (class N), a diminutive site type found sporadically throughout the Pennines. Nine Stone Close (fig.85;2) is a small diameter ring which has tall orthostats (class L). It may well be significant that this is located on a gritstone shelf that is lower than usual, which, together with surrounding valleys, may well have supported a higher population and could have been exploited from Neolithic times onwards. The East Moors stone circles are typically embanked and an analysis of the ringcairns of the region illustrates that they are monuments of identical form except for their lack of orthostats (see Appendix 10).

Although not all the field systems and cairnfields are necessarily chronologically synchronous in a precise sense, a comparison of their distribution in relation to ceremonial monuments seems justified given the frequency with which correlations exist. All cairnfields lacking a stone circle or ringcairn can be shown to have been either truncated by later intake, or can be regarded as components of larger but discontinuous systems with minor interruption where soils or land surface conditions are unsuitable for agriculture. Several instances of small cairns which overlie the banks of stone circles or ringcairns suggest that the latter are relatively early in the monument sequence.

The height of exploitation of the East Moors is likely to have been in the Earlier Bronze Age (Hicks 1972, Bradley and Hart 1983, Barnatt 1986,1987). It can be postulated, given indications of 'permanent farming', that the majority of cairnfields (and thus the stone circles) were in use during this period. In later centuries some continued to be farmed and the slighting by cairns suggest that these ceremonial monuments had fallen out of use.

A detailed examination of the location of the ceremonial sites indicates they were normally placed on the fringes of areas of agricultural activity, either just within the cairnfield or adjacent to it. Each cairnfield usually has only a single stone circle or ringcairn. However, 3-4 cases of pairs exist and there are a further 4 sites in close proximity on Stanton Moor (fig.85;3). It is far from clear if these duplicate sites functioned contemporaneously and reflect 'segmentation' within the communities that built them, or whether they were erected sequentially. Unfortunately in 2 cases the paired sites lie adjacent to later intake and full details of the cairnfield layout cannot be assessed. In a third case the two ringcairns are small and open to alternative interpretation; one may be a hut while the other could be a robbed cairn. At Stanton Moor (fig.85;3) the atypical topography - a restricted moorland area surrounded by relatively fertile shelves and valleys - may explain the high concentration of ceremonial sites. It is likely that this was a communal pasture, shared by several communities because of the scarcity of such land in this vicinity. In contrast, at Big Moor East (fig.85;4), the two stone circles (Barbrook I and II) are of similar design and the intact cairnfield here has no indication that it was farmed by two distinct groups. Apart from this one exception, it seems that the norm was for each local community to have a single ceremonial focal site (of stone circle type).

8:4 Prestige Barrows (fig.85).

Sixty nine barrows can be identified in the area which stand out from those in the cairnfields because of their larger dimensions, and are termed here 'prestige barrows' (see note 1). Normally these are between 10 and 30m in diameter and, although often poorly excavated, have a range of artefacts not found within the small cairns of the cairnfields. These includes prestige items such as food vessels and bronze axes.

The locations of prestige barrows can be divided into three categories. Those within or adjacent to destruction zones of later intake cannot be analysed (19 cases). Elsewhere the barrows are found either in close proximity to the cairnfields (within 500m - 41 cases) or in isolation (9 cases) (see note 2). While analogy with other regions could suggest the latter may have occupied significant boundary positions (see 8:15), the topography of the East Moors is unsuitable for readily identifying subdivisions of the landscape in such terms, and thus this factor is difficult to assess.

The majority of prestige barrows are in proximity to cairnfields and are normally sited in similar ways to stone circles; they occupy non-random locations, often at the agricultural fringes. Their visibility from the farmed area was often maximized by siting on ridges or false crests. Where preservation is good, each discretely defined cairnfield has between 1 and 4 prestige barrows. In at least 4 instances the prestige barrows can be regarded as forming a pair with an adjacent stone circle or ringcairn. In other cases two or three barrows occur together. Where cairnfields occupy narrow ridges, barrows and/or stone circles occupy opposite ends of the linear agricultural zone. All these patterns indicate careful placing of monuments.

The relationships between circles and prestige barrows may be of some importance. The former are argued below to be local communal monuments while prestige barrows are normally interpreted as containing the burials of a local elite. The siting of many of these barrows in locations comparable to those of stone circles suggests that the two site types are directly related. The burials may represent rites appertaining to local-group leaders, perhaps complementing or surplanting communal rituals and ceremonies at the stone circles. No chronological distinctions are currently detectable between the two site types.

'Central places' of Earlier Bronze Age date at a higher hierarchical level cannot be identified on the East Moors and the patterned correlation of monuments and cairnfields suggests that each farming unit had its own prestige barrows as well as a circle. This pattern raises questions about the status of these barrows and their supposed reflection of 'elite groups'. As each small community farmed comparable agricultural zones of small size, and built similar small numbers of barrows, this suggests that each group was of similar status and hence the sphere of influence of the individuals buried within each barrow must have been severely limited.

While the prestige barrows on the East Moors may reflect group leaders' periodic need to reinforce or realign their position at times of increased conflict or change, it seems equally possible that such barrows were built to cater for ceremonies appertaining to the group as a whole, given the likely small population size that can be postulated for each cairnfield, many of which may have been farmed on an extended family basis (cf Barnatt 1987). In some cases the barrows may contain founders (and selected descendants) who established the local community and thus the barrow lays claim to the land via ancestors in similar ways to Neolithic barrows (cf Bradley 1984a). The prestige items buried within them may reflect the aspirations to wealth of the small communities, who invested in burial of specific individuals chosen to symbolize the groups status.

Note 1: An arbitary division of 10m was used previously to distinguish such sites (Barnatt 1986). However, a slightly more flexible approach is adopted here to include a handful of slightly smaller sites which stand out as being similar in character.

Note 2: These totals vary from those given in Barnatt 1986,1987 because of the changes in parameters noted above and utilization of a different cut-off point for definition of 'isolation'. That used here is more pertinent for examining spacial association, whereas the cut-off point used previously was closer and was designed to examine other issues.

8:5 Prehistoric Exploitation on the East Moors.

All the evidence for the East Moors points to exploitation by 'local' communities, each with its own focal area where settlement and farming took place. Each group had its own small stone circle, and also one or more prestige barrows. Where survival of sites is good the 'local' circles are spaced 0.7-2.4km apart. There is no evidence from either settlements or monuments for higher levels in a hierarchy.

Although the origins of the exploitation of this region may have lain in the Later Neolithic, the bulk of the data points to a floreat in the Earlier Bronze Age, with continued, but more restricted, activity in later periods. A strong topographical correlation exists between the extant cairnfields and later intake, the prehistoric remains concentrating in similar zones just beyond the limits of later agriculture, in areas which are only slightly more marginal than those utilized in subsequent periods. Because of topographical homogeneity throughout the region it is possible to reconstruct the original extent and distribution of prehistoric exploitation (cf Barnatt 1986,1987). The bulk of occupation centred on the western shelf (and shelves west of the Derwent) with a virtually continuous band of settlements/fields, each separated by narrow areas of unsuitable land which were poorly drained, boulder strewn, or dissected by steep sided valleys.

The western shelf becomes higher to the north (fig.84) and the presence of cairnfields here illustrates that exploitation at similar altitudes would have been viable on the upper moors further south. This did not take place. While it is possible that this reflects a lack of need for expansion into these areas in the Bronze Age, it seems more likely that the farmers of the region used the whole upland for pasture as such a subsistence strategy was a more profitable way of utilizing this landscape than arable farming. Thus mixed farming was restricted to the most suitable zones in the immediate vicinity of the settlements. There is a conspicuous lack of boundary banks away from the settlement zones, which contrasts with areas such as Dartmoor. This suggests either that these areas were used communally as open pasture by all groups, or that populations were sufficiently small for adequate policing of territories without defined boundaries. A crucial distinction here is that the Dartmoor pasture was probably utilized by groups from surrounding areas. Dartmoor and its fringes being a relatively highly populated region of equal or greater importance than surrounding lowlands. Competition for 'desirable' land would have created pressure that eventually led to the radical ordering of the landscape displayed by the reave systems found here. The East Moors of the Peak District lie adjacent to the more fertile limestone plateau to the west which was a well established 'core zone' by the advent of the second millennium bc (Hawke-Smith 1979, Bradley and Hart 1983). The gritstone moors are a peripheral area of secondary importance whose pastures were hence probably only utilized by local groups. There is no evidence that the East Moors were exploited by communities with 'home bases' on the limestone plateau, although economic and/or political dependence cannot be discounted.

On Dartmoor and Bodmin Moor there is evidence that ceremonial monuments were placed in 'reserved ceremonial areas' set apart from settlements and associated fields (see 8:7-8:10,8:16). The proximity of monuments to settlement on the East Moors argues for less ordered division of the landscape, the 'open' areas being communal while 'owned land' was confined to agricultural zones where individual group effort was invested in bounded fields and/or areas of improved pasture cleared of stone. Stone circles were thus placed here for 'private' use.

On the adjacent limestone plateau the situation may have been very different. No small stone circles exist in this area and 'regional foci' at Arbor Low and the Bull Ring may have been the prime centres for larger communal groups with greater socio-political cohesion (cf Barnatt 1987, see 9:9,10:3).

Dartmoor.

8:6 Introduction (fig. 86).

Dartmoor is the largest and most easterly of the granite uplands of the South West. Topographically it consists of large expanses of upper moorland to north and south (fig.86;A,B) with the broad Dart Basin (C) between them. The upper moors reach a height of 620m OD. and surrounding these are a series of rounded shelves and upper valleys at various altitudes. Figure 86 makes simplified distinctions between these on the basis of altitude in combination with more obvious topographic changes. Dartmoor is tilted upwards to the northwest and hence the North Moor is higher, has large expanses of blanket bog and was generally unsuited for settlement in later prehistory. The South Moor is smaller, more dissected and reaches a height of 515m OD. Here the upper moor and its margins (fig. 86; upper shelf) are only gently undulating and again poorly drained.

The shelves and valleys which surround these upper moors can be divided into 5 topographic zones (fig.86;C-E,F-G,H,I-O,P-R). At the centre, the Dart Basin (fig.86;C) has large expanses of gently undulating shelves, many of which are badly drained today. The lack of extensive settlement-remains suggests that the westerly upper reaches were unattractive in later prehistory. The sheltered Postbridge Basin (fig.86;D) would have formed a minor focus for settlement. The upper Swincombe valley (fig.86;E) is poorly drained and has little evidence for habitation.

North of the Dart Basin, the upper moors are flanked to the east by a broad shelf drained by the North and South Teign (fig.86;F,G). Here there are extensive prehistoric remains above the steep edge to the eastern valleys. To the north and northwest (fig.86;H), the shelves are much narrower and rivers have made little topographic impression. This region is thus the least attractive for extensive settlement, which must have been largely confined to now enclosed land, peripheral to the upland.

Much of the west and south is characterized by a deeply dissected landscape, with the rivers Tavy (fig.86;I), Walkham (J), Meavy (K), Plym (L), Yealm (M), Erme (N) and Avon (O) creating attractive land for settlement in their upper valleys and on adjacent shelves. Each normally forms a well defined 'settlement zone' with tors and ridges of less suitable land to either side.

The fifth topographic zone lies to the east, where a large block of moorland exists of similar character to the North and South Moors but is of predominently lower altitude. The Hamel Down ridge (fig.86;P) reaches 530m OD. The larger portion of the zone, centred on Rippon Tor (fig.86;Q), is lower and was largely covered by a parallel reave system in the Bronze Age. These two eastern moors are separated by the deeply dissecting valleys of the East and West Webburn (fig.86;R,S).

To the northeast, the granite landscape is largely denuded to lower altitudes by the rivers Bovey and Teign (fig.86;T); few prehistoric sites survive, even on the northeastern ridge centred on Mardon Down (fig.86;U). The majority of this area is improved farmland today and is likely to have supported prehistoric populations comparable to the moorland areas where monument survival is better.

8:7 Stone Circles and Stone Rows on Dartmoor (figs. 86-87).

Ceremonial monuments are predominantly distributed around the fringes of the two upper moors, their frequency correlating with the amount of available land at suitable altitude for settlement (fig.86). Only the Symmetrical Circles (class E) (and prestige barrows-fig.90) normally encroach on the higher moors. At lower altitudes the frequency of sites decreases dramatically and this relates directly to zones of destruction within later field systems and intakes (fig.87). Undoubtedly further sites originally existed in these more favourable areas. On unenclosed moorlands above later farming zones, there is a correlation between ceremonial monuments and known settlement concentrations. Figure 87 illustrates all such large house groups and enclosures. Small pounds and/or enclosures frequently occur in close proximity to each other and in figure 87 the cluster as a whole is denoted by a single symbol. These settlements display a wide variety of form and probably span a broad time spectrum. Insufficient data are available to identify individual settlements which are likely to be contemporary with the ceremonial monuments. However, it is suggested here that the broad patterns displayed for each topographical unit (see 8:6) are likely to relate to the period in question (henceforward termed 'settlement zones').

Stone Circles.

The various types of stone circle on Dartmoor can be considered in two basic groups. The majority of the larger sites fall into the first of these (classes C/E/D;F6), while the second consists of monuments associated with stone-rows (classes M/D;F7).

The large circles of the first group are of two architecturally contrasting types, and strong differences in siting characteristics add weight to the importance of the taxomomic distinctions drawn. The 5 Symmetrical Circles (class E) are found at relatively high altitudes placed on major watersheds, usually on ridge crests with views in both directions. In the case of the Grey Wethers (fig.86;1) the pairing of circles probably relates to a choice of a site at the head of three major valleys rather than the more normal siting at a boundary between two. Only Langstone Moor (fig.86;8) has less certain siting characteristics.

In 4 out of 5 of the Western Irregular Circles (class C) the siting criteria contrast with those of the Symmetrical Circles, involving 'central locations' within major valleys. Scorhill (fig.86;2) lies at the centre of the upper North Teign valley, midway between 'settlement zones' to the north, southwest and on lower shelves over the ridge to the east. Sherberton (fig.86;3) lies at the heart of the upper Dart Basin. Stall Moor (fig.86;4) is centrally placed in the upper Erme valley, midway between the valley head and Higher Piles where the river passes through a gorge-like valley which separates upper and lower stretches of the Erme. Brisworthy (fig.86;5), in the Plym Valley, is midway between the valley head and the Dewerstone Gorge at the boundary of the moor. The only exception to this pattern is Mardon Down (fig.86;6) which lies on a high portion of the peripheral northeastern ridge. Here contrasting topography at lower altitudes probably demanded a different selection. The site lies in a 'central' position for the ridge as a whole.

Only the circle at Buttern (fig.86;7) is problematical; architecturally this is a Hybrid of the two types (class D;F6), and its location is also equivocal. It lies in the upper North Teign Basin at a similar topographical site to Scorhill. However, this location could equally be viewed as on the boundary between the North Teign Basin and shelves further north. The latter interpretation is supported by later boundary reaves which make an identical division. Hence Buttern is tentatively treated below as comparable with the Symmetrical Circles.

Stone Rows and Associated Stone Circles.

The second basic type of site is the more frequent stone-row circle. These circles are typically small (Dartmoor Stone-Row Circles-class M) and should be examined in conjunction with stone rows as a whole. Separation of Dartmoor stone rows into two distinct monument types on the basis of presence or absence of a stone circle is an artificial distinction; while the rows have varied terminal features they are otherwise similar to each other (see 6:4, Appendices 7,8). A few larger circles (5 cases; Hybrid Circles-class D;F7) are also found in conjunction with stone rows. These are architecturally distinct from other larger rings and are found exclusively in stone row complexes (see 8:8).

The 74 extant stone rows on Dartmoor are frequently found in close proximity to each other (49 rows in 16 groups), forming the most prominent components in monument complexes. These complexes, together with 25 further rows found singly (plus 1 destroyed example of uncertain status) (42 cases in total), are spaced at intervals of 1.1-2.7km in areas of good preservation (see fig.91; 28 cases - a further 3 cases are somewhat wider because of restrictive topography and reach a maximum of 3.5km. These 31 cases are derived from 27 row complexes/solitary rows). Only in two instances in the south are these dual trends for 'nucleation' and 'regular spacing' less apparent as sites occur at intermediate distances (see 8:10).

The siting of stone rows is more varied than that of the larger circles. This is probably a result of their function. It is postulated here that each 'local' community had its own row/row complex (see 8:9) and hence siting options were restricted to the immediate landscape.

8:8 Monument Complexes on Dartmoor (figs. 88-89,91).

Stone rows are commonly sited in close proximity to each other, arranged in complexes containing various numbers of ceremonial monuments (see Appendix 8). This occurs in 16 out of 42 locations where rows are found. In addition, in 14 of the 25-6 cases where solitary rows occur, the rows are of complex design and it could be argued that, some of these monuments at least, are multiphased and thus comparable with the complexes in that they have more than one component (see below).

The most common type of complex consists of a simple cluster of monuments, usually with only 2 stone rows (and terminal features), and these probably functioned on a purely 'local' level, given the frequency with which they occur (in combination with singly occuring rows) (see 8:9-8:10). However, 5-7 cases can be identified with more elements, which include a broader spectrum of monuments. These may well be foci which functioned at similar levels to the larger circles (see 8:9-8:10).

Turning now to the morphology of the rows themselves, they can be divided into three basic types according to the number of lines of orthostats each contains. There are 28 single rows, 32 double rows and a further 14 which are more complex (fig.91). At monument complexes, single and double rows are usually found in combination and only 2-4 cases are known where only single or double rows are found.

The 14 complex rows are of two types. There are 4 cases where individual rows change from being single to double along their length, which may suggest multiphasing. In the other 10 cases there are between 3 and 8 parallel lines of orthostats. In the best preserved examples - as at Cosdon and perhaps Challacombe and Holne Moor - their design suggests that they started life as single or double rows which subsequently had further parallel lines added. Only at Corringdon Ball and Yellowmead are there more than 4 parallel lines (7 and 8 respectively). These are also atypical in that they align on larger stone circles (Hybrid Circles-class D) and thus may initially have been designed in their present form.

The 5-7 larger monument complexes take on a variety of forms, all giving the impression that they evolved gradually as individual features were added (fig.88). Those at Merrivale, Drizzlecombe, Shovel Down and Corringdon Ball are relatively well preserved, while Fernworthy may be severely truncated to the south and Yellowmead and Ringhill are ruined. That Yellowmead was probably of comparable size is suggested by its large circle and multiple rows lying immediately outside a field boundary with improved pasture beyond. Little survives at Ringhill and hence its status is uncertain. However, its location at the heart of the Postbridge basin, combined with problems in fitting the surviving orthostats into a coherant simple monument form, suggest that the structures here were once relatively complex.

All four intact complexes have between 3 and 7 stone rows. Merrivale, Shoveldown, Fernworthy, Corringdon Ball, Yellowmead and perhaps Ringhill (as the name may suggest) had larger stone circles (Hybrid Circles-class D;F7). At Merrivale and Drizzlecombe there are particularly large adjacent barrows. At Corringdon Ball the rows align on the only large chambered long cairn of the region and 2-3 atypical large-diameter stone settings of tiny orthostats also occur (see 5:40). Figure 88 illustrates five of these complexes and compares one more typical small example of 'local' type at Trowlesworthy. Only the central portion of Corringdon Ball is shown. This continues to the northeast on the other side of a small stream, where there is a double stone row, the chambered cairn and other barrows (fig.89A). The similar orientation of two rows located to the southwest suggests that these were also part of the complex. A further 6 rows on the ridge crest and beyond, are located closer than the normal 1.1km minimum spacing between complexes but are unlikely to have had a direct relationship with the Corringdon Ball group. Alternative explanations are explored below (8:10). Similar alternative explanations may also be relevant at Harter/Sharpitor (fig.89B) and Penn Beacon, the only other cases where more than 2 rows are found in close proximity (see 8:10). These two complexes are likely to have been of lesser importance than those discussed above, given the small scale of sites, and/or wide spacing between them, at these two complexes.

One characteristic of the larger complexes - most developed at Shovel Down and Corringdon Ball - is the laying out of rows to follow on from each other irrespective of topography. This unusual arrangement has close parallels with the stone settings of Brittany despite the latter's difference of scale.

In the northeastern half of Dartmoor, wherever rows lie in close proximity, they follow similar orientations irrespective of their design. The majority of the complex forms with more than two stone lines are also found within this region. In southwestern Dartmoor, at over half the complexes there is an orientation clash between single and double rows. This is well illustrated at Merrivale where 2-3 double rows have consistent orientations, while the 1-2 single rows deviate significantly (fig.88A). Such arrangements may imply that chronological distinctions can be drawn between the two types. A change in fashion between single and double rows would explain the frequency with which they are paired in different ways throughout Dartmoor.

Atypical developments in row design are found only in the Erme valley (at three cases). There are two particularly long sinuous rows. One lies in the upper valley, running north from the Stall Moor circle at the centre of the valley, to its head. The second, to the east, is at Butterdon (fig.89A) high above the lower valley. To the west on Stall Down, in a comparable location to Butterdon, is the only row on Dartmoor with tall orthostats throughout its length.

8:9 Monuments and Territories on Dartmoor (figs.90-91).

The Monument Hierarchy.

The wide spacing between both Symmetrical and Western Irregular Circles (classes E,C), in combination with the dichotomy in design and siting between the two types, are clear indicators that they represent major focal sites of contrasting types. The 4 Western Irregular Circles on the Moor proper occupy central locations within river valleys (fig.90). These circles are therefore likely to have been designed to serve the populations of each valley as 'group-foci' and to have boundaries to their spheres of influence which roughly correspond with the watersheds. The Symmetrical Circles lie on these watersheds and thus define a pattern at a higher hierarchical level that represents 'inter-group' meeting places. The case for these patterned distributions is given added weight by the examination of similarly designed monuments on Bodmin Moor where they display the same locational preferences (see 8:16).

While these patterns are so distinctive that they are unlikely to be fortuitous, they are unfortunately far from complete. If, as seems likely, the group foci had 'territories' with boundaries corresponding with major watershed zones, a hypothetical total of approximately 18 sites is to be predicted for Dartmoor. In addition to the 4 Western Irregular Circles, a case can be made that a further 6-7 of the 'group foci' locations are occupied by the 'major' stone row complexes (fig.90;E,F,H,L-O) rather than Western Irregular Circles (see 8:10). All but one of these has a relatively large Hybrid Circle (class D;F7) of a type found exclusively in these contexts. With one exception (Shovel Down), the 'major' stone row complexes are also sited in locations 'central' to major valleys. These complexes could thus be viewed as taking the place of Western Irregular Circles, indicating divergent local preferences in ceremonial monument construction at this level in the hierarchy (see 8:10). The remainder of predicted 'central places' for 'group foci' (8 cases) lie in areas of the moor or its periphery which have been heavily utilized in subsequent periods.

In the case of the Symmetrical Circles on watersheds, their absence - especially on the South Moor - cannot be explained in this way. On watersheds, there are a number of atypical stone row complexes (fig.90;I,P-S) which may have served similar functions (see 8:10). If this is so, only a further 2-4 sites need postulating to complete the pattern for the moor as a whole (given the poor state of many Dartmoor monuments before 19th century 'restoration', it may be that further sites await discovery).

The 'group foci' that survive are spaced round the upper moors at between 2.0 and 7.2km apart, the variation being dependant upon topographical factors (9 cases; based on 10 sites - excluding Shovel Down which is of equivocal interpretation, see 8:10). The postulated 'territory' sizes (fig. 90) are more uniform, each being around 20-35 square Km (with the possible exception of that centred on Sherberton which may have been larger). The 'inter group' foci are similarly spaced at between about 2.5-7.5km apart (5 cases; based on 9 sites).

A third hierarchical level is provided by the stone rows, which are normally more closely spaced than the sites discussed above, normally with several rows occuring within each 'watershed territory'. The frequency with which spacing between rows and row complexes is between 1.1 and 2.7km, in areas of the moor where later enclosure is minimized and hence survival rates can be argued to be good (see fig.91), is again indicative that their distribution is far from random and hence that they were 'local monuments' serving sub-groups within each valley. The regularity in spacing is particularly noticeable in the southwestern portion of the moor (see 8:10) and this would be difficult to explain away as the coincidental result of casual use of these areas for pasture and random accumulation of such sites over time.

Although the patterned distribution of stone rows indicate sub-groups are likely to have utilized discrete areas within each valley, for which the rows were focal monuments, the establishment of boundaries for these zones remains subjective and hence is not attempted here. In many cases the distribution and locations of stone rows hints at the landscape having been exploited 'territorially' by sub-groups, on a basis that has a topographical logic; each monument being a focal site for a local group whose utilized land was bounded by topographical features such as minor watersheds or rivers. There is potential here for further detailed locational analysis (if an objective methodology can be devised) that may lead to greater elucidation.

Barrows.

Figure 90 illustrates the distribution of prestige barrows (defined in Grinsell 1978 as over 15m diameter). These are predominantly located on the watersheds and complement the 'territorial' divisions discussed above. Their function as highly visible indicators that the area was fully settled when viewed from beyond the moor, has been discussed recently by Fleming (1983). Their frequency and distribution clearly indicates that they functioned differently from circles and stone rows.

Small barrows and kerb-cairns are very common (Grinsell 1978), and most frequent on lower land. They are randomly distributed in the same zones as settlements and are likely to be primarily funerary (see Smith; in Balaam et al 1982). Lack of space prevents an extended discussion of barrows here (for architectural differences from small stone circles - see 6:10).

Chronology.

A basic problem with understanding the three levels in monument hierarchy discussed above, is a lack of chronological definition for Dartmoor monuments. It would not be surprising if each level developed at a different date and was modified through time and/or varied from area to area. The intensity of Neolithic occupation is currently poorly understood. Recent discovery of long cairns on the moor proper as well as round its fringes indicate settlement from Earlier Neolithic times onwards (A.Fleming, R.Robinson-pers.comm). It would not be surprising if exploitation was relatively extensive (if not intensive?) by Later Neolithic times and that some of the circles and/or rows date from this period. The Corringdon Ball stone row complex is orientated to a neolithic long cairn, and while the rows could have been built at any subsequent date to the cairn, their orientation hints at continuity at, or respect of, this focal site with early origins. The frequent hints of the gradual growth of major stone row complexes and the diversity of monuments they contain, could again hint at the long duration (if episodic use?) of these centres. Little can be said of the Western Irregular circles other than it would not be surprising if they had Later Neolithic origins as suggested by data for similarly designed sites elsewhere (see 5:11,7:5). The Symmetrical Circles remain undated.

The complex hierarchical monument palimpsest on Dartmoor must have taken on its present form at a developed stage in the socio-political/territorial organization of the landscape. However, although each level in the hierarchy may have chronological overlap (as indicated by monument diversity at 'group' and 'inter group' foci) they must be treated as independent entities until further chronological definition becomes available.

The Dartmoor reaves built around 1300bc (Fleming 1983,p196) provide a terminus ante quem for most monument forms. This is most clearly seen with stone rows, several of which are either slighted or respected by reaves (Fleming 1983,p239). One Western Irregular Circle, that at Scorhill, predates an adjacent reave which curves round the site. The Symmetrical Rings are sited too high on the upper moor to observe direct relationship to reaves. However, the boundary displacement between the White Moor Down circle and the Taw Marsh 'boundary reave' suggests the circle had fallen out of use before the latter was built (see 8:11-fig.93;C).

8:10 The Inter-Relationship of Monument Territories in North-Eastern and South-Western Dartmoor (figs.90,91,93).

This section explores in further detail two portions of the moor where the monument patterns are most intact, in order to illustrate the complexity of monument networks on Dartmoor. Even though Dartmoor provides the best available example of the complex monument palimpsests found over much of western Britain (see chapter 9), the well preserved areas where remnants of the original distributional pattern appears to be complete are too small (given the scale at which most monument networks opperate) to draw strongly argued conclusions on the details of interrelationships between sites and landscape. The following sections extend the site pattern model to its limit in terms of site relationship to 'landscape territories'. While points of interpretation are sometimes unprovable, the value is in highlighting the potential complexity and variation in monument patterning that may have existed in prehistory in such regions as Dartmoor and thus illustrate the difficulties that would arrise in interpreting monument distributions if too rigid a set of criteria were applied in terms of use of specific site types at the exclusion of others.

The North Moor.

The most complete and consistent distribution of sites in the northeastern portion of the moor, occurs on the shelves around the North and South Teign. The distribution of 'inter-group' circles appears to be intact (Symmetrical Circles-class E). The Grey Wethers (fig.90:A) are sited at an ideal 'boundary' position between the North Teign, South Teign and the East Dart Valleys. White Moor Down (fig.90;B) lies on a high ridge between the North Teign and Taw valleys. Buttern (fig.90;C) is sited between the North Teign and shelves further north. This circle can be speculated to be an 'inter-group' site built between the same two 'territories' as those served by the White Moor Down circle and thus may indicate chronological depth between these two sites as functionally they appear to duplicate each other. A difference in date is suggested by the architectural differences between the two sites.

The Western Irregular Circle at Scorhill (fig.90;D) lies by the most obvious choice for a 'central place' for the North Teign Basin, once drainage-factors have been taken into account. It is placed near the confluence of streams immediately above the point where the river drops down a steep gorge to the lower valley to the east. This circle has no evidence of settlement in its immediate vicinity, but lies midway between several topographically separate zones of well drained land which contain settlement data (mostly undated). This could suggest that the circle was built in a 'central reserved area' which lay at the heart of the 'local' farming/settlement zones. This 'reserved area' may have been used jointly by all surrounding communities for pasture and ceremonial activities. Similar patterns can be postulated at the other Western Irregular Circles - at Brisworthy and perhaps Sherberton - but unfortunately higher levels of destruction of prehistoric data in their vicinities make reconstruction more tentative. At a fourth example - at Stall Moor on the South Moor - the topography restricts settlement to a linear band following the Erme. The circle lies on a broad shelf above the river, midway along the upper valley. This again can be viewed as a 'reserved area', which varies from those noted above because of different topographic conditions. 'Reserved ceremonial zones' are more clearly identified at similarly designed circles on Bodmin Moor and thus by analogy support the case for the observations made above (see 8:16).

The density (and hence survival rate?) of stone rows in the northeast is inconsistent. The spacing of sites within the South Teign watershed - at Fernworthy (fig.91;A), Assycombe (B) and Watern Down (C) - is similar to that on the South Moor suggesting a complete complement of stone rows around the South Teign. Further north, the shelves by the upland boundary have been extensively utilized for parallel reave systems. Only one site, that at Cosdon (fig.91;E), escaped destruction as it lies just beyond the terminal reave (see note A). In the upper Teign basin only the Shovel Down complex (fig.91;F) survives (see note B).

The main indicators of potential mismatch with simple application of the postulated model in the northwest are provided by the siting of the two major stone row complexes at Shovel Down (fig.90;E) and Fernworthy (fig.90;F) and the Scorhill circle (fig.90;D). The Fernworthy complex lies at the heart of the South Teign valley and thus could have acted as a focal site for this catchment as a whole. However, the relatively close proximity of the Shovel Down complex to the Scorhill circle indicates that these are unlikely to have functioned contemporaneously as 'group foci'. Two hypotheses could apply. Although the Shovel Down rows straddle the watershed ridge, the division between the North and South Teign territories was later defined by reaves at a position south of the watershed. If this was a boundary of long standing, it places the complex firmly within the North Teign territory. Thus it may be that the row complex functioned at a different period from that of the Scorhill circle. The alternative hypothesis (and that prefered here) is suggested by evidence on the South Moor for stone row complexes acting as equivalent watershed sites to the 'inter-group' circles of the North Moor (see below). It may be that Shovel Down is one such example of a watershed complex and that it superseded (or was superseded by) Grey Wethers. If this is so, it matches the duplication of 'inter group' sites postulated above at Buttern and White Moor Down.

South of the South Teign Valley, in the Dart Basin/Postbridge Basin, the survival of larger monuments is less complete and hence the original distribution pattern is harder to assess. The Sherberton circle (fig.90;G) is a focal site above the Dart and Swincombe confluence. A second probable example at Ringhill in the Postbridge Basin is unfortunately ruined. The present remains here suggest stone rows and perhaps other structures, while the placename implies that a stone circle may once have existed.

Along the north-eastern fringes of the Dart Basin, stone rows at Challacombe (fig.91;I) Soussons Down (J) and Stannon (K) complement those in the South Teign valley and reinforce the postulated regular spacing interval. The ruined sites at Yar Tor (fig.90;i), which comprised two triple rows (at a minimum appraisal bearing in mind extensive destruction in the vicinity), may be a second example of an 'inter group' complex.

The South Moor.

The extensive ceremonial sites of the South Moor present a somewhat more complex picture than in the north. Only two Western Irregular Circles (class C) exist - Stall Moor (fig.90;J) and Brisworthy (K). Both lie within 'focal zones' at valley centres. Elsewhere in the south, analogous topographical positions are occupied by stone row complexes - at Corringdon Ball (fig.90;L), Drizzlecombe (M), Yellowmead (N) and Merrivale (O). Normally one such focal site per valley is found. However, there are 1-2 exceptions. In the Plym Valley the proximity of the Drizzlecombe and Brisworthy sites could be taken to suggest architecturally dissimilar foci of different dates, one of which replaced the other. Alternatively (and prefered here), the Plym may have consisted of two 'territories', a hypothesis given some support by topography, with the line joining Trowlesworthy Tor, Legis Tor and Gutter Tor giving some definition to a division of the valley into upper and lower portions (However, this leaves Brisworthy somewhat displaced from the centre of the lower zone). Such a division has clearer topographical justification in the Erme Valley. Here the Stall Moor circle lies at the centre of the upper valley (see note C).

If Western Irregular Circles and major stone row complexes are chronologically distinct, then several destroyed stone circles need postulating to complete the pattern. However, it is perhaps more likely that communities here preferred stone row complexes (3 out of 4 of which also having Hybrid Circles) and few Western Irregular Circles were built. If so the pattern of 'group foci' is substantially complete (see note D). The differences in 'group foci' monument-form postulated here between the North and South Moors are can also be observed in atypical architectural traits at the two known Western Irregular Circles in the south. Brisworthy is unusual (in the context of Dartmoor) in that it is embanked, while the Stall Moor circle is hybrid with row-complexes, having a stone row of exceptional length leading from it.

Another indicator of differences between the North and South Moors is the lack of Symmetrical Circles on the watersheds in the latter area. In their place there are several atypical stone-row complexes which may have served as 'inter-group foci'. Such a pattern is most clearly seen in the Erme valley. On Stall Down (fig.90;P) there is the only row with large orthostats throughout, a monument which must have had a larger labour input than the larger circles and which contrasts with all other stone rows in these terms. This site straddles the high ridge between the upper and lower Erme valleys. On the crest of Butterdon Hill (fig.90;Q) there are two rows which follow the watershed and which interupt the normally regular spacing of stone rows on the South Moor (see below). One of these is of exceptional length (see fig. 91). Further examples of rows on watersheds at Penn Beacon (fig.90;R) and Sharpitor (S) are less obviously of different design to 'normal' stone row complexes (see below) but could also perhaps be interpreted in terms of 'inter group' foci.

The stone-row spacing in the south generally forms a coherent pattern, with rows spaced at regular intervals of 1.1-2.7km in a broad band round the southwestern fringe of the upper moor (fig.91; 16 cases). Only in the extreme southeast arround Butterdon Hill (fig.91;L) and to the northwest at Sharpitor/Harter (fig.91;M) is this pattern broken by sites at smaller intervals. Various explanations can be postulated for this. In the Butterdon Hill area the spacing is 'normal' if the two rows on the ridge crest are omitted. This may be a justified proceedure if these are 'inter group' monuments as suggested above (see also 8:11). The same may be true at Sharpitor (but also see below).

The only other problematic sites are the Stall Down row (fig.91;N) and perhaps those at Penn Beacon (fig.91;O). While the Stall Down row could be seen as fitting with the 'normal' spacing between rows, it is excluded from determination of the spacing interval because of its unusual design (and siting) which suggests it is an 'inter group' monument (see above). The sites at Penn Beacon are well located between the rivers Plym and Yealm to also function as an 'inter group' site. However, the small scale of the monuments here argue against this interpretation, suggesting it is a purely 'local' site.

The stone row complexes of the south sometimes display clashes of orientation between 'single' and 'double rows' which may imply reorganization if orientation relates to direction of approach from changing local settlement foci. While in most cases the same locations were retained indicating only minor changes, this hypothesis could offer an alternative to that given above for the plethora of sites arround Harter/Sharpitor; with a shift in monument locations disrupting the spacing interval seen elsewhere.

Postulated sites

A; A comparable interval between sites to that in the South Teign catchment would suggest 3 missing sites (fig.91;D).

B; Two further sites can be tentatively proposed. The most likely site of the row for the area to the southwest (fig.91;G) is within Fernworthy Forest and hence its site cannot now be checked. No stone row has as yet been identified on Kennon Hill (fig.91;H) (or possibly Rippator). Further fieldwork may identify new sites in this area of the moor and this will provide a useful test of the utility of the suggestion that stone rows were once equally dense across on Dartmoor (excluding the upper moors). In the last few years several rows have been discovered despite extensive earlier fieldwork by Worth and it would not be surprising if a few still await discovery.

C; Presumably the largely enclosed lower valley had a further focal site which has now been destroyed.

O; The only gaps are in the Lower Erme and Tavy valleys.

8:11 Reaves and Territories (figs. 92-93).

'The Reave Landscape'.

The distribution of reaves across Dartmoor and the extent to which the landscape was divided in the Later Bronze Age into well defined territories has been extensively researched by Fleming (1978,1979,1982,1983). Detailed studies of specific sites have supplemented this (notably; Wainwright et al 1979, Smith et al 1981, Balam et al 1982, Fleming - Holne Moor/Dartmeet project - pers comm). Only the briefest of summaries is given here.

Reaves divide the landscape into three basic components. Two of these are repeated across the moor to define a series of territories, each comprising, parallel reave systems which represent highly organized division of the best available land into fields, and secondly large areas of bounded pasture in the upper reaches of the territory. The third component is the upper moors which remained undefined by boundaries and were probably used communally as summer pasture by all surrounding groups on the moorland fringes (and perhaps beyond). A further subdivision of the landscape can be made, which Fleming has termed Block Systems. These essentially appear to be rudimentary parallel systems which were never subdivided into smaller fields. Between several parallel systems in the northeast are narrow areas which Fleming has termed 'buffer zones'. Similar areas are also apparent in the south. Buffer zones may also have allowed access to upper pastures for groups based beyond the moor. Figure 92 illustrates a hypothetical reconstruction of all reave-defined territories (A-O). A number of minor alternative interpretations to Fleming's have been made (see note 1).

The boundaries defined by reaves were not totally static through time. Block systems above terminal reaves in the northeast represent periods of expansion and contraction of field systems (Fleming 1983). Infilling within more developed parallel systems indicate zones where activity was differentially intense. In the east two atypically large parallel-reave layouts exist, the

Dartmeet and Rippon Tor systems. In the latter case, earlier boundary reaves around Haytor Down - where parallel reaves are also found - suggest the parallel system gradually expanded northwards to eventually supersede the boundary reaves. The Dartmeet system may have expanded westwards. However, despite these postulated expansions, it appears on the strength of present evidence that both these systems reflect cohesive socio-political units, with field layouts planned from the outset to be larger than usual. The difference between these two systems and those in other territories may be explained by the less constraining topography in the former areas.

'Reaves and Monuments'.

Figure 93 illustrates that where data is good there is a strong correlation between the reave territories and earlier ones postulated here for the larger monuments. This is perhaps not surprising given the topographical constraints in many zones, which while not deterministic, did offer a limited choice of sensible boundary zones. However, while the topography influenced the distribution of population concentrations and their units of organization, in some cases the reaves themselves do not follow watersheds exactly indicating that minor adjustments were made to the boundaries themselves according to criteria other than rigidly topographic considerations.

Within several reave-defined territories (fig.92;B,C,D,F,I, J,K,M) there are indications of sub-groups, each with their own parallel systems. Where stone rows survive there is some evidence for correlation between their distributions and the later sub-groups in terms of them occupying the same topographically based blocks of land, often with the rows placed in the area immediately above each parallel system (fig. 92;B,D and possibly C,I).

The correspondance between the size and position of postulated 'monument territories' and those defined by reaves could well indicate the long duration of these boundaries, which were well established by the time reaves were built; the latter thus representing definition of pre-existing socio-political units rather than a radical restructuring at this level of organization.

Between 2 and 4 cases can be identified where noteworthy boundary mismatches occur between the reaves and earlier boundaries. On Ugborough Moor (fig.93;A) the displacement of the reave boundary east of the watershed perhaps indicates the decreasing importance of the 'Corringdon Ball community'. The plethora of stone rows between (and including) Butterdon Hill and Corringdon Ball could reflect periods of conflict/competition over this area of land. The apparent mismatch in boundaries in the Meavy valley (fig.93;B) may be illusory as the topographical divisions postulated for the earlier period are far from clear in the lower valley. An alternative to that illustrated which matches the boundary reaves is that a second focal site could be proposed in the lower half of the valley (as in the Plym valley immediately to the south). The mismatch between the Taw Marsh reave and White Moor Down circle (fig.93;C) may suggest a boundary shift similar to that on Ugborough Moor, as the Taw Valley decreased in importance as an area for settlement. In the Postbridge Basin, boundary reaves appear to cross-cut earlier monument territories (fig.93;D). If the postulated boundaries for this region are correct this is likely to reflect major changes of emphasis in the Dart Basin as the lower zone of the valley increased in importance, a change which finally resulted in the building of the massive Dartmeet parallel system. That the upper valleys were declining is suggested by the under-developed Stannon Block System, perhaps built by a community whose territory has decreased as influence swung to the southeast, and was perhaps eventually totally absorbed.

Although there is a strong correlation between territories of both periods there may have been radical reorganization within each when the reaves were built. While in some cases sub-groups within reave-defined territories can be identified by parallel reave systems of different orientation which correspond with stone row distributions (fig.93;3), there are further stone rows which lie well beyond the terminal reaves in the bounded pasture zones of the later landscape (fig.93;4). This could imply population shifts associated with increased socio-political cohesion, made in order to farm the more advantageous areas. However, it may well be that many of the pastoral areas continued to be occupied (within pounds and enclosures) and while each of these communities probably had its share of the parallel system, they retained a traditional 'home base'.

Several stone-rows lie well outside the bounded pastures, within the upper moor zone (fig.93;5). In the cases of the northwest Dart Basin and upper Meavy Valley, these areas may already have decreased in importance by the Later Bronze Age and permanent settlements perhaps abandoned. However, the upper Erme, upper Plym and perhaps upper Avon valleys, all of which are relatively sheltered and topographically self-contained, may well have continued to support permanent populations. In the case of the Erme and the Plym, these communities had their own 'group foci' monuments in the earlier period, and it may be that the people here retained their autonomous status after reaves were built elsewhere. The topography of these valleys suggests subsistance would have been largely pastoral and hence they may have chosen not to build parallel reave systems but to continue using traditional farming methods. Boundary reaves would be unnecessary because of the topographical isolation of these valleys.

Issues such as those discussed above will only be resolved when a firmer chronology is established for the varied pounds and enclosures on the moor as a whole.

Note 1: In the Plym valley an unfinished reave (fig.92;1) could suggest a further territorial division and hence that the Willing Walls Reave (fig.92;2) is also a boundary rather than the upper limit of bounded pasture. This boundary, which divides the Plym valley proper from land further east, may have become redundant at an early date. The area immediately to the north (fig.92;3) could have been a buffer zone rather than being incorporated in the Plym bounded pasture. The Langstone Moor Reave (fig.92;4), on the watershed between the Walkham and Tavy may also be a boundary reave rather than a contour reave. In the Dart Basin the course of the boundary between the Dartmeet System and the Stannon block system is uncertain due to later enclosure and an alternative to Fleming's suggestion is given here (fig.92;5). In the Erme valley the area east of the river may originally have been a buffer zone/access route to the upper moor which was abortively bounded by an unfinished reave well up the valley (fig.92;6). The reave further down the valley (fig.92;7) may represent the boundary of territorial pasture for a group south of Butterdon Hill rather than that to the west of the river.

8:12 Conclusions.

Dartmoor contrasts with the East Moors of the Peak District in that a complex hierarchical palimpsest of monuments can be identified which vary in scale, design and distributional characteristics. The frequency and spacing of stone rows on Dartmoor indicate they are functionally comparable (in socio-political terms) to the East Moor embanked stone circle/ringcairns, both being 'local monuments' built by individual communities/territorial sub-groups. Larger monuments of greater importance take on various forms on Dartmoor but are absent on the East Moors. Western Irregular Circles (class C) act as 'group foci', sited at the centres of 'territories' delimited by watersheds, each monument perhaps placed in its own small 'reserved ceremonial zone'. The boundaries of the 'territories' are later defined by boundary reaves indicating the chronological depth of such divisions. More importantly, because reave territories can be identified unambiguously by banks, this indicates that the postulated 'monument territories' are likely to reflect some form of socio-political reality rather than being artifical constructs determined purely on topographical grounds.

The presence of a second category of large stone circles of different design (Symmetrical Circles-class E), placed on watersheds well away from settlement zones, is strongly indicative that 'inter-group foci' were necessary for interactive purposes and hence that the 'territories' defined by the watersheds had a degree of socio-political autonomy. This was retained into the Later Bronze Age.

Examination on Dartmoor of various ceremonial monument types rather than just the stone circles at 'group' and 'inter-group foci', suggests that not all communities chose to build large stone circles. Some appear to have preferred stone row complexes as an alternative option, particularly to the south. This illustrates the dangers of studying too rigid a category of sites in isolation.

While chronological distinctions may exist between the levels in the hierarchy and/or monument preference, these cannot be assessed at present due to lack of data. It may well be that as the hierarchy developed in complexity, the varying options in form reflect individual communities preference for traditional or innovative monument designs.

Bodmin Moor.

8:13 Introduction (fig.94).

Aspects of the interpretation of sites on Bodmin Moor has been discussed previously (Barnatt 1982) and only a summary is given here. Two developments have taken place since 1982. The discovery of a series of stone rows on the moor complement the stone circles (P.Herring pers.comm). Long cairns have also started to be recognized indicating exploitation of the region from Earlier Neolithic times onwards (Herring 1983).

Topographically the granite upland of Bodmin Moor differs from Dartmoor in several important respects. It is much lower (even the highest tor reaches only 420m OD), hence all land is at an altitude potentially suitable for exploitation in later prehistory. The highest land lies to the north and east, while wide lower-shelves exist to the west and south. As with Dartmoor the rolling, flat topped shelves can be categorized according to altitude (fig.94). However, the landscape differs in that on Bodmin Moor, the steep-sided valleys have flat bases frequently filled with clay deposits which are infertile and poorly drained. The majority of prehistoric settlements and associated fields lie on valley sides and the most attractive zones of the moor in later prehistory appear to have been where these are more frequent. To the south, the valley sides are often prohibitively steep, while the flat shelves above are relatively poorly drained. However, nineteenth century intake is more frequent here than at higher altitudes and this may have destroyed a higher proportion of sites.

8:14 Stone Circles and Stone Rows (figs. 94-6).

The stone circles of the moor have survived in the north and east where intake is less prevelant. Symmetrical Circles (class E) are common and are generally found in buffer positions on watersheds as on Dartmoor. The one exception is Leaze (fig 94;A); this can also be argued to lie on an 'inter-group' boundary (see 8:16). Two Western Irregular Circles (class C) exist to the northwest, both in analogous locations to Dartmoor examples, placed in lowlying situations between adjacent major settlements (see 8:16). Four

Hybrid Circles (class D) also exist in the northern half of the moor. These lie in more ambiguous locations. Leskernick B (fig.94;B) and the two circles at King Arthurs Down (fig.94;C) lie close to Symmetrical Circles (see note A), the Stripple Stones (fig.94;D) is also sited at a relatively high altitude. Despite these siting characteristics, arguments can be proposed to suggest some at least are 'group foci', and thus functionally equivalent to the Western Irregular Circles (see 8:16).

Several stone rows have been identified on the moor (Appendix 9). Those at Trehudreth Down (fig.94;E/fig.95B) form a complex similar to those on Dartmoor. The presence of additional monuments - an atypical stone circle with small diameter but tall orthostats (class L), and a concentration of large barrows - suggests this could have had 'group' or 'inter-group' rather than 'local' status. However, topographical uncertainties (see 8:16) and poor monument survival rates in this portion of the moor does not allow distinctions between the two to be drawn. Rows also lie adjacent to stone circles at Leskernick (fig.94;B/ fig.95A) and Stannon (fig.94;F). The row at Colvannick Tor (fig.94;G) has tall orthostats comparable to that on Stall Down on Dartmoor. The latter has been argued to be an 'inter-group' watershed site and the Bodmin Moor example also lies in a watershed zone. This suggests the possibility that alternative monument options were adopted on an 'inter-group' level, as argued for Dartmoor. The interpretation of stone rows on Bodmin Moor is problematical as so few sites have as yet been documented. With the possible exceptions noted above, the others could be interpreted as 'local foci' by analogy with Dartmoor.

The bulk of visible prehistoric settlement on Bodmin Moor consists of circular houses in nucleated groups of varying size; with associated enclosures and fields, together with occasional pounds and cairnfields. These concentrations lie in analogous locations to present settlements, taking advantage of well drained slopes at altitudes up to 320m.OD. Although the majority are undated except in a general sense, a strong case can be made that there is overall continuity of location (if only episodic use) through to the present day (in reduced form, with some atypical developments in the 19th century). Although specifics may change through time, a general pattern of favourable zones that are restricted in number and distribution are identifiable (fig.98), which can thus be compared with ceremonial monument distribution (see 8:16).

Note A.

One unique site of possible relevance is King Arthurs Hall (fig.94;H), sited near the King Arthurs Down and Leaze circles. This large rectangular setting of tall orthostats placed on the inner edge of a high bank is undated. However, it could be argued to have affinities to western circle-henges (cf Barnatt 1982) and thus may be an anomolous Neolithic monument of equal or greater importance than the larger stone circles.

8:15 Barrows (figs. 95,98).

A statistical study of barrows on Bodmin Moor (Barnatt 1982) illustrates that the small sites (under 10m diameter) - which are probably built purely in a funerary context - are located within close proximity to settlements (usually within 500m; of statistical significance at the 0.5% level). In contrast larger barrows show no such bias and, as on Dartmoor, there is a strong trend for prestige barrows of over 15m diameter to occur along watersheds (fig.98). This again suggests functions in addition to burial, related to 'land ownership'. The tendancy for these large monuments to be placed around the edges of the moor rather than its heart indicates that their visibility from surrounding regions may often have been important.

8:16 Monument Territories and Site Hierarchy on Bodmin Moor. (figs.97-98).

The differences in topography between Dartmoor and Bodmin Moor partially obscure some of the patterns observed in the former region, although the same trends are apparent. However, the predictable criteria for settlement location on Bodmin Moor noted above (also see below), allow examination of ceremonial monument distribution on a more detailed level, thus adding further data on siting criteria which are only occasionally glimpsed on Dartmoor.

The most suitable area for study is the north-western portion of the moor, due to good survival of all sites here. Figure 96 illustrates the distribution of known sites (SMR to 1981 and more recently P.Herring pers.comm). This demonstrates the relatively small extent of later farming zones where widespread destruction is likely to have taken place. Such areas can be divided into two types. 'Traditional farming zones' occupy the most favourable locations and have distinctive small fields, often of medieval or prehistoric type. They frequently have fragmentary prehistoric remains amongst them, or in immediate proximity, illustrating the continuity of choice of location for farming and habitation. Small areas of intake which are of 'nineteenth century type' have few of these characteristics, and often occupy localities with different topographies.

Discrete prehistoric settlement zones can thus be identified (which frequently correspond to later farming zones, except in the least favourable of these zones which were not exploited in medieval and 19th century floreats). Between these zones the intervening areas have little except monuments of a predominantly ceremonial nature. However, such settlement-free areas were also utilized for pasture as indicated by several 'reave-like' boundaries (Johnson 1980). These display signs of complex chronological depth and until the results of detailed study by the RCHAM is published it is unclear which, if any, are contemporary with the monuments. Some probably date from as late as the medieval period (P. Herring. pers.comm).

Figure 97 illustrates the settlement and ceremonial zones. The circle and row at Stannon (fig.97;A) lie between two adjacent settlements (B). The Fernacre circle (C) is located to the west of an extensive settlement (D) and may also have served that on the north-western flank of Rough Tor (E). The sites at King Arthurs Down/Leaze (F) lie between three settlement zones (G). While small barrows are found in small numbers in various locations, two notable concentrations occur, both placed in topographically similar areas to the circles, between settlement zones (H,I). The topography of the majority of these 'reserved ceremonial areas' (fig.97;A,C,H,I) is similar to that of the adjacent settlement zones and hence likely to have been equally suited for agriculture.

This suggests careful landscape subdivision rather than placement of ceremonial monuments on less useful land.

The identification of boundaries of monument 'territories' is problematical in this sector of Bodmin Moor as it is not as readily subdivided along prominent watersheds. However, in the eastern half of the Moor, watershed boundaries are more pronounced and all Symmetrical Circles (class E) lie in such locations (fig.98). They are spaced at 4-6km apart (except Craddock Moor which lies close to the Hurlers), in comparable 'inter-group' locations to those on Dartmoor. The three circles at the Hurlers (fig.98;A) lie at the head of 3 valleys and near a fourth. The grouping of similarly designed circles can be paralleled at the double circles at the Grey Wethers on northeast Dartmoor, where similar topographical conditions also exist.

Analogy from one side of Bodmin Moor to the other, suggests that the Symmetrical Circles in the northwest are also likely to be 'inter-group' foci and can thus be postulated to lie on boundaries. That at Louden Hill (fig.97;J) lies on a relatively high ridge (as with sites in the southeastern zone of the Moor). If this boundary extended northwards it is likely to have run through the extensive cemetery on Stannon Down (fig.97;H). The other cemetery - on the west flank of Butters Tor - is also likely to be adjacent to a boundary, as the ridge above (to the east) provides the most obvious topographical buffer between settlement zones (see fig.98). The siting of these cemeteries therefore appears to contrast with that of the Western Irregular Circles despite similar topographic locations, the latter being placed at 'central places' between adjacent settlement zones, while the cemeteries are on boundaries.

The monuments on King Arthurs Down, c2.0km south of Louden Hill (fig.97;F), are atypical because of their number and diverse design. The presence of a classic Symmetrical Circle (Leaze) suggests the possibility of an 'inter-group' boundary here (which contradicts the normal siting of such sites), while less regularly designed sites, in analogous relationship to settlement to the Stannon and Fernacre circles, suggest 'group foci'. It is postulated that the topography of this area, which has no high watershed ridges creating natural landscape divisions, made it preferable for this one location to serve for both types of foci. The combination at one location perhaps explains the plethora of irregular sites here (2 Hybrid Circles-Class D, and King Arthurs Hall); one for each large settlement zone. A similar situation can also be proposed for the sites at Leskernick (fig.98;B). Here only one settlement zone lies in close proximity, hence only one Hybrid Circle exists.

The circle-henge at the Stripple Stones (fig.98C) is particularly problematical. It lies near a watershed which could suggest an 'inter-group' role. Alternatively, it could perhaps be a 'group' focus, utilized by settlements to the south. However, the distance from the settlement zone argues against this (as does the postulated interpretation of Menecrin Downs - see below). The architecture of the Stripple Stones (ie the henge) suggests a place high in the monument hierarchy (see 9:1,9:11), but there is little in its siting or scale to suggest any greater importance than other circles such as those on King Arthurs Down or the Hurlers. Hence any role as a 'regional focus' must remain in doubt.

Taking Bodmin Moor as a whole, the 'group foci' are spaced at 1.9-4.0km intervals (4 cases - excluding the Stripple Stones). The 'inter-group foci' are at 2.3-6.2km intervals (6 cases). Both sets of parameters are comparable with those from Dartmoor.

If the postulated monument boundaries are correct for the northwestern sector of the moor, a third element in landscape organization can be suggested. At the major confluence of the hypothetical boundaries is a large lowlying area which is relatively poorly drained (fig.97;K/fig.98;D). This may well have been used as a communal pasture by all the settlements that surround it. Further communal pastures probably existed on Bodmin Moor; if the postulated 'watershed' boundaries are correct (fig.98), then the most likely candidates are: High Moor (fig.98;E), East Moor (F) Smallacoombe Downs (G) and Menacrin Downs (H).

Chapter Nine.

Regional Patterning in Britain; a Review.

9:1 Summary.

This chapter reviews Britain as a whole, to identify which areas have sufficiently good monument survival to recognize distributional patterning and to explore regional differences between these. Examination of monuments at different levels in the site hierarchy can be executed with varying degrees of success, due to differential destruction which changes according to region and monumentality of site. However, enough good examples survive to make analogies from region to region - summarized in table 33. Where data are poor these are omitted from the descriptions given in 9:2-9:12 to save space. Criteria for such exclusions are given in table 34. Distributions of all sites, irrespective of inclusion or otherwise in 9:2-9:12, are given in figures 99-102,104,106,108, 110,112,114,116,118-120 to facilitate assessment of the relative strength of each case.

The distributional patterns of 'regional foci' are often more readily identified because of the size of these sites and thus the relative difficulty with which they can be totally destroyed. They are best studied in the 'core areas' of Wessex and the Plain of York. However, vestiges of similar patterns can be identified in other lowland zones, in some cases associated with 'core areas', as in the Peak District and perhaps the Yorkshire Wolds and Trent Valley. Elsewhere differentially favourable zones exist created by intermittent patches of well drained sands and gravels, as in Tayside/Lowland Scotland, Tweeddale and the Solway Firth Lowlands. Minor 'core areas' with relatively good soils occur in Orkney/ Caithness and Wensleydale/Wharfedale. Elsewhere minor examples of similar patterns of 'regional foci' are found in lowlands where differential factors that favour specific zones are not apparent, as at the Lossie Valley near Elgin, the North Wales coast, Southwest Wales and Southwest England.

In all cases 'regional foci' avoid less favourable peripheral zones adjacent to 'core' areas. The foci are normally placed

Table 33: Regional variation in monument distribution pattern.

Region	Spacing Range (km)				
	Regional foci	Inter-group foci	Group foci	Local foci	Shared foci
Orkney	present	-	-	-	-
Caithness	16-25?	-	-	present	-
Sutherland	-	-?	present?	present	-
Northwestern Seaboard	-	-?	?	present	present
Moray Firth	-	-	-	c2-5	-
Elgin/Lossie valley	present	-	-	present	-
Grampian	-	-	-	c1-4	-
Northwest Tayside	-	-	-	5-13	present
Tayside/Scottish Lowlands	16-19	-	-	present	-
Scottish Southwestern Penisula	-	-?	present?	present	-
Solway Firth/Cumbria	(15-19?)	-?	(6-14?)	present	-
Cheviots/Lammeimuir Hills	-	-?	present?	present	-
Tweeddale	present	-	-	present	-
The Pennines - limestone	present	-	-	present	-
- gritstone	-	-	-	present	-
The Plain of York	(9-)20-22	-	-	-	-
The Peak District - limestone	17	-	-	-	-
- gritstone	-	-	-	0.7-2.4	-
North York Moors	-	-	-	present	-
The Yorkshire Wolds	present	-	-	-	-
The Trent Valley	16-19	-	-	-	-
North Wales	present	-?	present?	present	-
Central Wales	-	?	?	?	-
Southwestern Wales	present?	?	?	?	-
Southwestern England					
- Dartmoor	-?	c2.5-7.5	2.0-7.2	1.1-2.7	-
- Bodmin Moor	present?	c2.3-6.2	c1.9-4.0	present	-
- other uplands	-?	present	present	-?	-
- lowlands	(c20)	-	-	present?	-
The Upper Thames Valley	10-20	-	-	-	-
Wessex	11-17(-39)	-	-	-	-
Wessex - western periphery	12-22	present?	present?	present	-

Key - quality of data

0-20	Good; coherent pattern of architecturally similar sites.
0-20	Some good data; pattern incomplete or too few sites due to small size of region.
0-20?	Problematical; incorporates numbers of sites with architectural disimilarities.
(20)	Atypical or problematic spacings - see text.
present	Poor; areas where appropriate monuments exist, but where the pattern is fragmentary, or where spacing interval is inappropriate because only one focal site exists due to small region size (at regional foci in Orkney and the Pennines).
present?	some uncertainty over the identification of the pattern type - only isolated examples of 'appropriate' sites exist.
?	significant uncertainty due to difficulty in distinguishing between pattern types.
-?	not present, but possibly evidence lost (or unrecognizable), as suggested by analogy with adjacent and topographically similar regions.
-	not present.

Table 34: Criteria for exclusion from sections 9:2-9:12.

Region	Exclusion Criteria				
	Regional foci	Inter-group foci	Group foci	Local foci	Shared foci
Orkney	[9;2]	-	-	-	-
Caithness	[9;2]	-	-	PC	-
Sutherland	-	-	IS	PC/ED	-
Northwestern Seaboard	-	-	IS	PC/ED	[9;3]
Moray Firth	-	-	-	[9;4]	-
Elgin/Lossie valley	[9;4]	-	-	ED	-
Grampian	-	-	-	[9;5]	-
Northwest Tayside	-	-	-	[9;6]	[9;6]
Tayside/Scottish Lowlands	[9;6]	-	-	ED	-
Scottish Southwestern Penisula	-	-	ED	ED	-
Solway Firth/Cumbria	[9;7]	-	[9;7]	ED	-
Cheviots/Lammeimuir Hills	-	-	IS	ED	-
Tweeddale	ED	-	-	IS	-
The Pennines - limestone	[9;9]	-	-	ED	-
- gritstone	-	-	-	ED	-
The Plain of York	[9;9]	-	-	-	-
The Peak District - limestone	[0;9]	-	-	-	-
- gritstone	-	-	-	[8;2-8;5]	-
North York Moors	-	-	-	[9;9]	-
The Yorkshire Wolds	[9;9]	-	-	-	-
The Trent Valley	[9;9]	-	-	-	-
North Wales	IS	-	ED	ED	-
Central Wales	-	ED	ED	IS	-
Southwestern Wales	IS	ED	ED	IS	-
Southwestern England					
- Dartmoor	-	[8;6-8;12]	[8;6-8;12]	[8;6-8;12]	-
- Bodmin Moor	[8;16,9;11]	[8;13-8;16]	[8;13-8;16]	ED	-
- other uplands	-	ED	ED	-	-
- lowlands	[9;11]	-	-	IS	-
The Upper Thames Valley	[9;12]	-	-	-	-
Wessex	[9;12]	-	-	-	-
Wessex - western periphery	[9;12]	IS	IS	ED	-

Key

ED	Extensive destruction of sites suggested by intensive agricultural activity in subsequent periods.
IS	Pattern type suggested on the basis of only isolated examples of sites in 'appropriate' stone circle classes (see 8;1).
PC	Extensive peat cover may mask further data.
[9;2]	Description given in stated section.
-	Not applicable.

between 15 and 25km apart where no major topographical buffers exist and only rarely have closer spacing - the exceptions being in the particularly advantageous regions of the Plain of York and Wessex where spacing occasionally drops to 10km.

'Regional foci' are noticeably absent in some lowland areas, as in Moray Firth, Grampian, Lincolnshire, the Midlands and much of South-eastern England.

In upland zones of the north and west, 'regional foci' are largely missing, but their place is taken by smaller monuments with different distributional characteristics. Western Scotland and the Grampian mountains are topographically unsuited for supporting large nucleated populations and 'shared foci', comprising nucleations of small sites, may be the local equivalent to the regional centres in the lowlands. In other areas - notably along the Western Seaboard from Southwestern Scotland to North Wales, and in Central Wales and Southwest England - large zones occur of moderate carrying capacity (as opposed to being marginal in prehistory) but where no adjacent 'core areas' are known that were capable of sustaining relatively dense populations. Here the pattern of monuments is particularly complex although this is only sufficiently intact for study on Dartmoor, Bodmin Moor and in parts of Cumbria. While small henges with patterned distributions consistent with being 'regional foci' are a minor component in some of these regions, the typical sites are 'group' and 'inter-group' monuments which are spaced at between 2 and 8km (up to 14km if Cumbrian data are accepted-see 8:1,9:7). These are absent from the rest of Britain.

'Local' monuments take on two radically different forms. In Moray Firth and Grampian they are highly monumental rings of moderate diameter, with random distributions but with spacing to nearest neighbours often at between 1 and 5km. Here no higher levels in the monument hierarchy are apparent.

Elsewhere, local sites are normally small-diameter circles and these are found in most northern regions, either in hierarchical inter-relationship with 'regional' or 'group foci', or in adjacent peripheral zones. They can only rarely be studied in any detail because of high levels of destruction. Exceptions are Dartmoor, Northwest Tayside, the Peak District East Moors and the North York Moors. Normally they are spaced at between c0.5-3.0km, but in Tayside the spacing between sites increases because of the restricted amounts of utilisable land which occurs in narrow linear bands.

In some northern regions there are no small stone circles, notably in Orkney, the limestone plateau of the Peak District and also perhaps the Yorkshire Wolds. Here such monuments can be argued to have always been absent. All are regions where large Later Neolithic round barrows or passage graves are common and these may have fulfilled similar socio-political functions to smaller stone circles elsewhere (see chapter 10).

In Southern Britain, small stone circles are generally rare. In Wessex, central Wales and areas of Southwest England they are totally absent. On Dartmoor, Exmoor and probably Bodmin Moor their place was taken by stone rows (with small atypical stone circles attached at Dartmoor sites). The same may originally have been true in Wales although few sites survive. Further north, examples of similar phenomena occur in parts of western and north-eastern Scotland where stone rows predominate while small stone circles are uncommon. Stone rows are also found in small numbers in areas such as Tayside where circles predominate.

In Wessex small circles (and rows) may have been rare or absent and any general patterning to the forms of Later Neolithic 'local' monuments (timber circles, hen iforms?) is presently poorly understood.

9:2 North East Scotland (fig. 99).

This region is of only minor importance in the present context but has interesting relationships between sites which warrant description.

Although large areas of this region are relatively low-lying, over 50% of it is covered by peat deposits which potentially mask sites except where they have particularly tall stones. The peat is prevalent in the central region (fig.99;A) and only Orkney (B) and the adjacent mainland between Thurso and Wick (C) have extensive peat-free areas; these are predominantly covered in boulder clay. Areas of Orkney are relatively fertile (Frazer 1983).

Smaller stone circles are present on the mainland but absent in Orkney. This may be explained by the continuance into the Later Neolithic of the chambered-tomb tradition in the latter area, the distribution of developed passage-graves and other tombs suggest they took the place of stone circles as 'local' and/or 'group foci' (cf Fraser 1983). Multiple stone rows are a characteristic of Sutherland (RCAHM-S 1911b) and may well be 'local' or 'group foci' which complement smaller stone circles here and functionally may be comparable with the stone row complexes on Dartmoor.

The contrast between Orkney and the mainland is reinforced by the differences in larger monument types found in the two areas. The circle-henge complex of Ring of Brodgar/Stones of Stenness (fig.99;a) is likely to have formed the major regional focal point for the islands as a whole (Renfrew 1979, Fraser 1983). On the mainland four major monuments are known. These are of two contrasting types, the Northern Open Circles (class A) and the Caithness Horseshoe Settings (class B). In both cases (fig.99;b,c), sites of classes A and B are paired. At Broubster/Aultan Broubster (fig.99;b) the sites are under a kilometre from each other and may be regarded as a 'monument complex'. However, at Auchavanich and Guidebest (fig.99;c) the two sites are 6.6km apart with the prominent hill of Ben a Chielt between them. Distinctive hills are rare in this landscape and it may be significant that a second hill, Ben Dorrery, lies a short distance south of Broubster. Both may have acted as natural, readily identifiable, focal points. The pairing of contrasting site types may be explained chronologically, one replacing the other within each regional focal area denoted by its prominent hill.

The two foci are c25km apart; at a similar distance to the northwest (c16 and c22km) is the possible henge of Nipster (fig.99;d). This may indicate a third 'regional focal point' and if so the hypothesized foci subdivide the lowlying portion of Caithness into three units of comparable size. However, architectural differences between Nipster and the other two foci add uncertainty to the case (but see 5:4,8:1).

9:3 The North Western Seaboard (figs.100-101).

The mainland of Western Scotland is predominantly mountainous with the only suitable areas for settlement being the glens and a narrow, intermittant coastal strip. Because such land has always been at a premium few sites have survived. In contrast some of the islands have larger areas of lowlying land, much of which is now relatively marginal. This is particularly true of the Outer Hebrides, Coll, Tiree, Islay and Bute. Other large islands such as Skye, Rhum, Jura and Arran are more mountainous and thus similar to the mainland.

The hypothesized destruction over much of this region makes the study of monument distributions problematical. However, one patterns is noteworthy as it provides the best available example of 'shared foci'. In North Uist there is a loose concentration of 4 relatively large sites (fig.100;A) which are well sited to have acted as a 'focal zone' for the southern half of the Outer Hebrides. This monument cluster includes two contrasting site types, the Hebridean Open Circles (class G) and Western Irregular Circles (class C). Lewis is harder to interpret, particularly as much of northern Lewis is peat-covered. However, badly damaged sites near Stornoway (fig.100;B) could suggest a similar concentration to that in North Uist existed here. In contrast, on the western coast, the well known Callanish complex (fig.100;C) comprises Small Circles (class K). Architectural differences suggest this 'shared focus' may be chronologically distinct from the sites to the east. The Callanish complex could have been used by people from Lewis as a whole.

Two further notable concentrations of Small Circles (class K) are found in western Scotland. At Machrie Moor on Arran (fig.101;D), the large number of small sites of diverse architecture suggest that this was a 'shared focal complex' of long standing for the island as a whole. The other concentration of small sites is at Temple Wood (fig.101;E), which again has diverse monuments including stone circles, stone settings and a hengiform. This general location is particularly important as the valleys provided an overland route which avoided a long sea journey round the Mull of Kintyre.

Elsewhere in northwestern Scotland, in the majority of areas where lowlying land is relatively extensive, larger stone circles of similar design to those in the Outer Hebrides are found. It is unclear if these should be considered as 'shared' or 'group foci'. Some of the Small Circles (class K) may be 'local' monuments, stone rows are relatively common here and these should also be considered in this context.

9:4 Moray Firth (figs.102-103).

This region, and Grampian, warrant description as moderate-diameter circles are particularly plentiful and have distribution patterns which differ from all other regions.

The Moray Firth region has a coastal plain covered with extensive areas of glacial sands and gravels, interspersed with alluvium in the valley bottoms and raised beaches along the coast. There are high mountains inland, dissected by two major valleys. Strathspey provides relatively large areas suitable for settlement, with extensive areas of alluvium and glacial sands/gravels. Glen Mor is largely taken up by Loch Ness, leaving only side valleys and upper shelves covered in boulder clay, available for agriculture.

The stone circles can be placed in 4 distinct zones. On the western coastal plain (fig.103;A) and Strathspey (B) the Clava Cairns (class I) predominate, while in the eastern coastal regions (C,D) they are absent and a more diverse range of monuments exists.

The Clava Cairns have standardized architecture and occur with a density only paralleled for similar sized circles in adjacent Grampian. The sites have a distinct tendency to occupy the more favourable zones, only 11 out of 42 sites occuring in higher areas (land type 3-fig.103). Even here the majority of the 11 are on the fringes of more favourable land. Higher marginal areas were avoided, as was the coastal strip where raised beaches and blown sand predominate.

The only non-Clava site in zones A and B is Torbreck (fig 102;A). This Small Circle (class K) - at the entrance to Glen Mor - can be compared with similar sites in the Grampian region which also occupy prime valley locations and may be chronologically distinct from the larger circles (see 8:20).

The lack of large monuments such as circle-henges leaves the Clava Cairns in zones A and B as the major ceremonial centres in this region. Their spacing is rather erratic, but in the Nairn Valley (fig;103:1) and at the mouth of Glen Mor (2) - both areas where survival appears to be particularly good - there is a tendency for consistent spacing between nearest neighbours of c2-5km, rather than at significantly greater distances as normally found in other regions for circles with this degree of monumentality. The close spacing suggests that each monument was built by a 'local' group. Other areas such as Strathspey can be postulated to accord with such a pattern, once allowance is made for the possibility of only partial survival of sites. In some cases, particularly around Balnuaran of Clava (fig.103;3), there is an additional trend for similarly designed sites to occur in nucleated clusters of two or three.

The relatively large amount of labour involved in building Clava Cairns (which exceeds that for 'local monuments' in other regions), together with the lack of any 'regional foci' such as circle-henges, suggests society was organized radically differently from many regions of Britain (see chapter 10).

In contrast to the monument pattern displayed in zones A and B, the areas further east have no Clava Cairns. Centred on the River Lossie, is a small area (zone C) where the monuments are radically different from any other zone in the Moray Firth or Grampian regions. They compare with North East Scotland and Tayside rather than areas immediately to east and west. Near Elgin is the henge of Quarry Wood (fig.103;4) which (by analogy with other regions) probably acted as a 'regional focal site' for this part of the coastal plain. Further inland, in the heart of a now marginal upland valley zone, is the probable Northern Open Circle (class A) of Edinkillie (fig.103;5). This may well have been a second 'regional focal site'.

In the lower reaches of the Spey (zone D) there is evidence that Recumbent Stone Circles (class H) once existed and this area should be regarded as the northwestern edge of the distributional patterns of the Grampian region (see 9:5).

9:5 Grampian (figs.104-105).

The Grampian region is characterized by low, rolling hills covered in boulder clay, with narrow strips of alluvium and fertile glacial sands along river valleys (Glentworth and Muir 1963) (fig.105;A). Only the west is mountainous, with clear cut topographical distinction from the low hills below. Broad valleys dissect the mountains in the central areas of Garioch, Strathdon and Deeside (fig.105;B). Further south the Grampian mountains are more continuous (fig.105;C), acting as a major barrier between this region and Tayside to the south.

As with Moray Firth, the majority of sites are impressive rings of only moderate diameter; no larger sites are known. These Recumbent Stone Circles (class H) have architectural affinities with the Clava Cairns (class I) and again have a predominantly lowland distribution. Only 12 out of 87 sites are found on higher land (land type 3-fig. 105). The density of sites today is greatest to the west but this may in part be a product of differential destruction. Examination of the distribution of destroyed sites of unknown design - many of which are likely to have been Recumbent Stone Circles given the relative frequency of this circle type - illustrates similar densities of sites in some northern and eastern areas.

Although the overall spacing pattern for Recumbent Stone Circles is relatively random, in areas of good preservation nearest neighbours are frequently spaced at only between 1 and 4km apart, suggesting that each monument was built by a 'local' group. Occasionally paired sites are also found, but this trend is not as common as in Moray Firth. Detailed topographic analysis of site distribution in selected areas of zone B has great potential for throwing further light on specific 'local territories', all of which are likely to have been of similar size and may have apportioned the fertile linear bands of sands and gravel of the river valleys (cf Burl 1976,p174). Such a study may also be useful for predicting where specific sites are missing.

As the region is predominantly agricultural it would not be surprising if many small circles have been destroyed. Hence, present distributional patterns noted below should be regarded as tentative as these rings would have been much easier to remove than their larger counterparts, the Recumbent Stone Circles.

Small Circles (class K) are largely confined to two lowland areas to the north and east, both at the fringes of the known distribution of Recumbent Stone Circles (fig.105;D,E). The only exception is Image Wood in the Dee Valley (fig.105;a). In zone E the largest concentration of these small sites lies on glacial sands beside the river Don, just south of Inverurie (fig.105;b). Those at Broomend of Crichie and Tuach are atypical as they lie within small henges; the former also had an impressive avenue. The location of this small concentration of sites, at a topographical focal point at the confluence of the Don and Urie, in an ideal location for early settlement, could suggest that these are particularly early sites whose location contrasts with Recumbent Stone Circles placed 'randomly' around the lowland hills. Burl has suggested that the Small Circles of Grampian post-date the Recumbent Stone Circles (Burl 1976,p187-8). However, there is no strong evidence for this; both classes have origins in the Later Neolithic (see chapter 5). The small rings at Ellon (fig.105;c), Whitehill Wood (d) and Backhill of Drachlaw (e) also occupy sites near major rivers.

Unlike the Small Circles (class K), the Four Posters (class N) are randomly distributed to the north and west (fig.104). Too few survive in this region to investigate their spatial relationships to other sites.

9:6 Tayside/Scottish Lowlands (figs. 106-109).

This region is a classic example of intermixing of large and small sites. Unfortunately the patterns these form are often fragmented. However the distribution of small sites is well preserved in the northwestern glens.

Tayside and adjacent areas to the south comprise several contrasting landscapes. To either side of the Firth of Forth is a lowland plain which has relatively large areas of alluvial and glacial sands/gravels in valley bottoms, interspersed with boulder clays elsewhere (fig.107;A). North of the Forth is a dissected range of hills which rise steeply from the plain (fig.107;B). Some parts of this range of hills are sufficiently low to have been suitable for exploitation in later prehistory. South of the Forth the watershed areas (fig.107;C) rise gradually from the plain below, with no clear cut topographical boundary. These are now partially covered by peat deposits which may mask sites, and although settled in prehistory, their altitude would have made them less favourable than the plains below.

To either side of this central area (fig.107;zones A-C) are mountainous regions, the topography of which would have inhibited dense settlement (zones D-G). The Grampian mountains can be subdivided into three. Along the southern fringe (fig.107;D) there are upland shelves above the glens which were sufficiently low for exploitation. Further north and west (fig.107;E) there are habitable glens, while the mountains above are too high for settlement. The heart of the mountains to the north (fig.107;F) is generally unsuitable for settlement. South of the Forth the mountainous Southern Uplands (fig.107;G) are similar to zone E, with habitable valleys dissecting high uplands. Only to the east in the Lammermuir Hills (fig.107;H) are the latter sufficiently low for settlement.

A dichotomy exists in the region as a whole, between small stone circles and large henges/circle-henges. The size and distribution of the latter indicate they are 'regional foci', while the frequency of the former suggests that they were monuments built for 'local' use. The majority of small sites are found either in the north-western glens or in the lowlands fringing these (fig.106). However, occasional sites are known further south in the heart of the lowlands and it may well be that differential destruction, combined with relative availability of stone, explain these biases.

Only 4-5 henge complexes are known on the lowland plains - Balfarg (fig.107;a) North Mains (b), Cairnpapple (c), Weston (d) and possibly Huntingtower (e). Further south, the henge at Normangill (f) and the possible example at Rachan Slack (g) lie within valleys dissecting the Southern Uplands. In the lowland examples, all lie on, or close to, areas of glacial sands. In every case except Cairnpapple, these are particularly extensive and were capable of supporting differentially dense populations within close proximity of the site (from a regional perspective). Where no topographical buffer zones exist (3 cases) the spacing between sites is 16-19km (see note A).

The presence of both henges and small stone circles in Fife and Strathearn suggests that these represent a monument hierarchy of 'regional foci' and 'local sites'.

In the north-western glens, small sites survive with sufficient frequency for analysis. Figures 108 and 109 illustrate that Four Posters (class N) are found both in the glens and on upland shelves, while the larger circles (Small Circles-class K) are restricted to the glens. These valleys undoubtedly formed the local 'prime areas' for settlement; Neolithic presence in the glens is indicated by such sites as Croft Moraig. The upper shelves may not have been intensively exploited until the Earlier Bronze Age.

While the distribution of Four Posters is relatively random, the larger circles occupy specific valley locations which are regularly spaced down the glens. These valleys have clearly defined but restricted areas that are suitable for settlement and agricultural exploitation, often with natural divisions between them in the form of lochs filling their full width or the narrowing of valleys. The distribution of documented circles (fig.109: 9 cases) suggests that each local zone had its own monument. Only 4 further sites need to be postulated to complete the pattern in the major valleys. Sites are spaced at between 5 and 13km apart (with distance increase correlated to more restrictive topography). Only the narrow or prohibitively high upper reaches of glens appear to have had no circles.

An added element to the pattern occurs at the confluence of the Tay and Lyon (fig.109;A). Here the circles of Croft Moraig, Carse Farm II and Balhomais lie within the same portion of valley. All three have somewhat larger diameters than usual. Croft Moraig and probably Balhomais have complex architecture indicative of a long period of use and modification. This particular zone is a natural focal point, being the only area with easy access to all the major upland valleys of the region (along the valleys and across higher passes). Hence these sites probably represent a 'shared monument complex' similar to those in Western Scotland at Callanish, Temple Wood and Machrie Moor.

Postulated sites

A; Similarity between these spacings and the spacing range for henges in other regions, suggests that further henges may once have existed in Lowland Scotland. Each would have been a focal monument for a 'core territory' where topography and soils created differential biases in population density that favoured particular locations. The distribution of relatively large areas of well drained sandy soils suggests population concentrations (and hence henges?) in the vicinity of Couper Angus (fig.107;h), Stirling (i), Alloa (j), Glasgow (k), Motherwell (l) and Edinburgh (m). In most cases the correspondance with large conurbations may imply the easily detectable evidence for such sites has already been destroyed.

9:7 The Western Seaboard (figs.110-113,118).

This area is of unequal suitability for study of monument patterns, only in parts of Cumbria do they appear to be relatively intact. These are described because of their complexity and somewhat problematic nature.

The western seaboard has a range of diverse topographies. In the south-western peninsula of Scotland (figs.110-111) the fringes of the Southern Uplands are characterised by relatively poor soils at moderate to low altitudes. Further east, on the plain surrounding the Solway Firth, the valleys of the rivers Nith, Annan, Esk and Eden have large expanses of well drained glacial gravels and alluvial terraces, interspersed with boulder clays.

The Cumbrian mountains (figs.112-113) are predominantly too high for settlment but the sheltered valleys here were suitable for support of moderate populations. Around the mountain fringes are dissected shelves, where increasing data is being found for Earlier Bronze Age exploitation. This is particularly true to the north and southwest. The extensive southern fells, while at appropriately low altitudes, are only intermittently suitable because of the rocky nature of the landscape. To the east the shelves are relatively advantageous due to carboniferous limestone bedrock, but prehistoric settlement data have largely been destroyed by later farming.

The predominantly boulder clay covered Lancashire plain is devoid of henges and stone circles. Only the unusual timber circle at Bleasdale is known (see note A). The coastal strip of North Wales (fig.118) is narrow and backed by the high mountains of Snowdonia. Much of the lowland is covered in boulder clay. Too few sites of any given type exist for analysis.

Southwestern Scotland.

In southwestern Scotland there is a dichotomy between the western peninsula where soils are relatively poor even at low altitudes (fig.111;A), and the lowlands further east which have large well drained areas (fig.111;B). In the latter region there are several large sites which may be 'regional foci' (see note B). However, they are of diverse designs and similar uncertainties exist as for Cumbria described below, where there is a comparable but better preserved pattern of sites.

Explanations of the distribution of moderate-diameter circles are also problematic, as they appear to have suffered badly from differential destruction. Eight out of the nine such sites occur in the less advantageous western half of the region (fig.111). They have a diverse range of designs which hint at a complex palimpsest of monuments of different dates and positions within the site hierarchy.

Cumbria.

In northeast Cumbria the patterned distribution of henges and large circles was first commented upon by Burl (1976,p69). It extends southwards from Carlisle (fig.113;a) through the Eden Valley - the most advantageous zone of the region. This pattern comprises monuments of different forms. At Broomrigg/Grey Yauds (fig.113;b), on eastern shelves above the Eden, the architectural differences suggest chronological depth with changes of form and specific location through time. At Broomrigg a small probable henge lies adjacent to a ruined circle tentatively interpreted here as a freestanding Western Irregular Circle (class C - but which alternatively may be a Northern Open Circle-class A). About 1.7km to the north, the destroyed circle of Grey Yauds appears to have been comparable to Long Meg (class C). The latter site is particularly massive and once had a second adjacent circle (smaller and not embanked?). This monument complex (fig.113;c) lies 10km south of Broomrigg and forms a second focal point on shelves east of the Eden. At a similar distance further to the southwest is a third major complex at the confluence of the Eamont and Lowther, comprising 2-3 henges of diverse design - Mayburgh, King Arthur's Round Table and probably Little Round Table (fig.113;d).

The upper reaches of the Eden Valley are harder to interpret; sites may have been destroyed to the east. To the west, at first glance the pattern of regular spacing appears to break down. The three Western Irregular Circles (fig.113;e,g) are freestanding and smaller than Long Meg or Grey Yauds. It may be that such sites functioned on a more local level (see below). The true regional focal site here may have been at Shap (fig.113;f) with its massive avenue but only relatively small surviving circle (Kemp Howe).

Across the watershed in the upper Lune catchment the western circle-henge of Gamelands (fig.113;h) is located in a focal position for this self-contained valley and the limestone shelves above to the north.

The regular spacing of sites in northeastern Cumbria may also have continued west of Penrith to the destroyed site of Motherby (fig.113;i) and to Castlerigg (j). The latter, despite apparently being freestanding (see Appendix 1), is particularly grandiose and occupies a focal point for the northern valleys of the Cumbrian Mountains.

The foci are spaced 9-15km apart. However, this pattern is of debatable significance as it contains a palimpsest of variously designed sites and may disguise radical chronological changes. If sites which incorporate characteristics common in 'regional foci' elsewhere (ie henges and impressive avenues) are examined independently, then a spacing of between 15 and 19km could be proposed (fig.113;sites b,d,f). This alternative hypothesis also offers a potential explanation for the mismatch of sites in the upper Eden Valley, with the Shap complex (fig.113;f) acting as the 'regional focal site' for the Upper Lune and Eden valleys. The rings at Gunnerkeld/Shapbeck (fig.113;e), Oddendale (g) and Gamelands (h) thus form a second (chronologically distinct?) pattern, with the sites (fig.113;b,c,e.g,h,i) spaced at 6-14km intervals (see note C). The latter pattern is perhaps comparable with that for the 'group foci' of southwest England.

The coastal plain of Cumbria is less advantageous than the Eden Valley and contains a mixture of smaller circles of varying designs. These can be suggested to occupy focal locations spaced between 6 and 14km apart, but again this pattern incorporates a palimpsest of diverse monuments and hence is of uncertain interpretation.

Postulated sites

A; Focal zones could be postulated for alluvial terraces around Salford and perhaps Preston and Lancaster. If henges or comparable monuments ever existed here it is likely the extensive modern conurbations have masked the data.

B; These sites include Northern Open Circles at the Twelve Apostles (fig.111;a) and Whitcastles (g), and possibly Lochmaben Stone (c) and the Grey Stanes o' Garleffan (l); henges at Broadlea (b), Normangill (i), Weston (j) and possibly Rachan Slack (k); and the western circle-henge at the Girdle Stanes (h). Comparison between spacing of henges in other regions and the monuments that survive here, suggest further regional foci may once existed associated with the largest areas of well-drained land. Three such zones exist; in the Annan Valley near Lockerbie (fig.111;d), by the Esk north of Longtown (e), and by the Eden near Carlisle (f). If these postulated sites existed, the spacing between 'regional foci' in this plain would have consistantly been from 15 to 20km.

C; To complete this pattern one of the henges at Penrith (fig.113;d) - or a destroyed site somewhere in the vicinity - must be included.

9:8 The Cheviots, the Lammeimuir Hills and Tweeddale (figs.114-115).

This small region is of minor value for study of monument patterning, brief notes are included for the sake of completeness.

There are four main topographical components. At the centre is the Tweed Valley (fig.115;A) which is largely boulder clay covered, except for narrow alluvium bands in valley bottoms and occasional small areas of glacial sand. In contrast, the Milfield Basin (fig.115;B) has a larger expanse of alluvial terrace. The Cheviots (fig.115;C) to the south are a dissected upland much of which was low enough for upland exploitation in later prehistory. To the north, the less extensive Lammeimuir Hills (fig.115;D) are similar.

The larger monuments are of diverse form and too few survive to be sure of their distributional patterns. The henges at Coupland (fig.115;a) and Over Howden (b) indicate that 'regional foci' existed, the former example being particularly important because of the exceptional soils of the Milfield Basin. This is reflected by the additional sites here in the form of an atypical cursus and several hengiforms (Harding 1981) (see note A).

Larger stone circles are restricted to the uplands and too few survive for analysis. The only circle of a type usually denoting a 'regional focal point' is the ruined and tenuously interpreted site at Hethpool (class A-fig.115;g). This lies a short distance west of the Milfield Basin in a narrow upland valley. The atypical location, and the proximity of the focal sites in the Milfield Basin, suggest this may indeed be a fortuitous arrangement of stones (see Appendix 1).

Postulated sites

A; Comparison with surrounding regions suggests further sites once existed in the lowlands of this area. On topographic and soil distribution grounds, the most likely sites are in the vicinity of Melrose (fig. 115;c) and perhaps Coldstream (d), Duns (e) and Rothbury (f).

9:9 The Pennines, North York Moors and Adjacent Lowlands (figs.114-117).

These regions have varied topographies with strong differences in terms of the levels of population they were capable of supporting. The northernmost portions of the Pennines around the Tyne Gap (fig.115;E) are lowlying uplands which are intermittently attractive due to zones of limestone based soils (interspersed with boulder clays). Further south (fig.115;F) the Pennines are inhibitively high and only relatively small dissected areas of shelves to the east, and valleys, are low enough for exploitation. However, there are two major exceptions to this. In the Yorkshire Dales, both Wensleydale (fig.117;A) and Craven/Wharfedale (B) have frequent shelves and valley sides of Carboniferous limestone as opposed to millstone grit. These were probably capable of supporting somewhat higher populations. At the southern end of the Pennines, the Peak District has a large central plateau of limestone (fig.117;C) with extensive loess, which was an important 'core area' in prehistory (Hawke-Smith 1979, Bradley and Hart 1983). To the east of this, the millstone grit upland (fig.117;D) is less dissected than usual and low enough for extensive Earlier Bronze Age exploitation. The North York Moors (fig.117;E) provide a second example of an upland that is marginal today but which again has large areas of land at a suitable altitude for prehistoric farming.

To the east of the Pennines the lowlands vary in character from north to south. In Northumberland and Durham (fig.115;G) the landscape consists primarily of undulating, boulder clay covered, hills with only occasional patches of glacial sands in valley bottoms. In the flatter landscape of the Plain of York the northern portion (fig.117;F) has a large expanse of glacial sands forming an important 'core area'. Further south these sands are replaced by heavier clays, but a smaller zone of glacial sand occurs around York. In the Trent Valley alluvial terraces are extensive (fig.117;G). Between these two regions a broad ridge of Magnesian limestone (fig.117;H) also supported a high prehistoric population, as indicated by high lithic concentrations here, not found in areas to either side (Barnatt unpublished fieldwork, Bob Sydes pers.comm). The Yorkshire Wolds (fig.117;I) are a fourth 'core area' with large areas of attractive soils overlying the chalk.

Small Sites.

In all these regions there is a clear dichotomy between small stone circles - found exclusively in uplands which are marginal today - and larger henges found in 'core areas'. In most zones little can be said about the distribution of small sites because of extensive destruction; only isolated patches of unenclosed moorland exist today at suitable altitudes. However, there are two notable exceptions, the East Moors of the Peak District (see 8:2-8:5) and the North York Moors. In the latter case, although there are few stone circles, ringcairns are plentiful. Provisional investigation based on the extensive work of Spratt (1982), suggests the nature of their of distribution is identical to that of the Peak District, the ringcairns being 'local monuments' located in close proximity to individual cairnfields and field systems. Similar relationships can be glimpsed elsewhere - as on Rombalds Moor near Ilkley.

Regional Foci.

In the southern half of this region, the henges provide the best example after Wessex of a discernible pattern of regional foci. The Plain of York has several large henges. There are two sets of three by the River Ure. Those at Thornborough (fig.117;a) form an integrated complex with standardized designs and diameters; one overlies a cursus. The other three sites (fig.117;b) are more widely spaced and of slightly different designs. Only Hutton Moor is identical to those at Thornborough, while the other two are of similar size but lack outer ditches. There is a third possible focal location, by the river Swale at Scorton (fig.117;c). Here an atypical cursus or bank barrow exists but no henges have as yet been identified. Further south two henges exist on the Magnesian limestone ridge at the two points where this is broken by major rivers. The more northerly - at Newton Kyme by the Wharfe (fig.117;d) - is of similar design and size to those at Thornborough. That by the Aire at Ferrybridge (fig.117;e) is of similar size but lacks an outer ditch (see note A).

In the more advantageous areas of the Pennines, smaller henges are found which probably acted as 'regional foci'. The Castledykes henge (fig.117;i) is well sited at a central location within Wensleydale. The particularly small, possible site at Yarnbury (fig.117;j) is a far less certain focal site. In the Peak District, the Bull Ring (fig.117;k) and Arbor Low (l) are 17km apart and divide the limestone plateau in two, the Wye Valley gorge providing an ideal natural boundary between them. Both have probable oval barrows nearby which could suggest that these sites were traditional centres of long standing, given the evidence for Earlier Bronze Age activity here and that oval barrows are likely to be a relatively early monument form (Radley 1968, Barnatt; Bull Ring excavation report - in prep).

Examining this group as a whole, it seems likely the regional foci were normally placed between 17 and 22km apart (where no topographical buffers exist). However, the plethora of sites on the northern plain requires further comment. While the general similarity in size of monuments here, and on the Magnesian limestone ridge, could be taken to reflect similar population sizes irrespective of date, the distinctive standardization of design of several monuments suggests contemporaneity. It could be postulated that the Thornborough henges (and including the three henges immediately to the south?) had particular importance and functioned as an 'inter-regional' centre. However, evidence for such centres is absent elsewhere in Britain. Even in Wessex the largest Late Neolithic henges are regularly spaced (at similar intervals to those noted above for the henges of the Plain of York) and appear to have been of equal importance to each other. This suggests that the two sets of three henges on the Yorkshire Plain, spaced 9km apart (central site to central site), also served only their two specific catchments. The number of sites may reflect particularly high density of population here as well as a trend to express overt segmentation not found in areas such as Wessex.

In the Trent Valley, henges may never have played an important role. The only certain focal location comprises the probable henge at Round Hill and the Findern cursus nearby (fig.117;m). The possible henges at Berryfields (o) and Barton in Fabis (p), the Aston cursus (n), and timber circles at Catholme (q), suggest that further Later Neolithic foci existed - each spaced c16-19km apart (excluding n). Further east in the lower Trent valley no sites are known, unless the large timber double-circle or palisade at East Stoke is of relevance (fig.117;r).

In the Yorkshire Wolds several small henges exist but identifying 'territories' is problematical. The only definite major focal site is Rudston (fig.117;s), which consists of several large cursus monuments built in more than one phase, that converge on or near the Rudston Monolith. The small henge at Paddock Hill and the probable one at Kilham lie near the 'outer' ends of these cursus monuments, in peripheral positions which suggest that they were of secondary importance. A third small henge at Thwing, remodelled in the Later Bronze Age (Manby 1983), lies some distance to the west and has no certain relationship to the Rudston sites. There is also a possible small henge at Walkington (fig.117;t) near the southern end of the Wolds.

Henges may again have played only a minor role in this region. The multiphased nature of Rudston, and the concentration of high status Later Neolithic and Earlier Bronze Age artefacts (Pierpoint 1980), suggest the continued importance of this centre at a date when cursus monuments may well have largely fallen out of use in areas such as Wessex. The cursus monuments may have maintained their role as the major monument form at this 'regional focus', explaining the lack of large henges. At the centre of the Wolds is the large Later Neolithic round barrow of Duggleby Howe, lying within a probable causewayed enclosure (or possibly an atypical henge), with a possible cursus nearby. This could represent a further focal centre emphasising site types other than henges (see note B).

Postulated sites

A; The regular spacing between these sites, in combination with their relationship to rivers, suggests that another henge once existed further south by the River Don somewhere near Conisborough (fig.117;f). Further sites could be postulated in smaller well drained areas at York (g) and Darlington (h) but these are likely to have now been built over.

B; In the lowlands to the east of the northern Pennines, no henges have been documented and the only hint at a focal point is the Hastings Hill cursus between Sunderland and Durham (fig.115; h). Although particlarly advantageous soils are rare, locations near Hexham (fig.115;i), Morpeth (j) and Darlington (k) are natural focal points and could once have had major monuments.

9:10 Central and South Western Wales (fig.118).

These regions have little value for study of monument patterns, brief notes are included for the sake of completeness.

Central Wales is predominantly mountainous with large but dissected regions of upland - and valleys - at a low enough altitudes for later prehistoric exploitation. Although this settlement may well have been quite extensive in some areas, later agricultural activity has destroyed much of the data. The small orthostats common at many circles suggest such sites are not good candidates for survival in enclosed areas. The extant moderate-diameter stone circles are widely scattered, usually on the likely upper fringes of prehistoric activity, in areas which are marginal today. The evidence for patterned distributions is now so severely disrupted that analysis is impossible.

South-western Wales is characterized by a low rolling landscape with only occasional uplands such as the Preseli Mountains. Surviving stone circles concentrate here but this again may be a product of differential destruction.

9:11 South West England (fig.119).

Much of this region is of limited value for study of patterning, brief notes are included to illustrate the context of Dartmoor and Bodmin Moor described in chapter 8.

South West England has a similar distinctive topography throughout, being predominantly a rolling and dissected lowland with no extensive areas of particularly advantageous light soils. Rising from this landscape is a series of granite uplands, the major ones being Dartmoor (fig.119;A), Bodmin Moor (B), Carnmenellis (C) and West Penwith (D). All four had large areas suitable for prehistoric settlement, which despite higher altitude were probably no less favourable than much of the surrounding lowlands (increased rainfall makes them more marginal today). To the north, Exmoor is predominantly more exposed, and thus may have been less attractive in prehistory. Extensive settlement was probably largely restricted to the western half of this upland which is now largely enclosed, and to the fringes of the upper moor in the east.

The distribution of stone circles in the two largest granite uplands, Dartmoor and Bodmin Moor, has been presented above (8;6-8;16). Further west, the granite outcrops are lower and have largely been enclosed, hence survival is not as good. However, monuments of similar architecture to those further east, exist around Carnmenellis and in West Penwith. Their locations suggest that they functioned in similar ways to those on Bodmin Moor. On Exmoor, few circles survive and hence little can be said of their distribution. Others have presumably been destroyed, while further sites have probably eroded beyond recognition as the local stone is often prone to frost fracture. However, a number of small stone rows exist, as well as stone settings unique to Exmoor (Grinsell 1970). Their distribution, often at between 0.5 and 1.0km apart, suggests that they are functional equivalents to the Dartmoor stone rows.

In the lowlands the henge at Castlewich (fig.119;a) lies midway between Bodmin Moor and Dartmoor. Those at Castilly (fig.119;b) and Bow (c) lie at similar distances from these two uplands as at Castlewich. Bodmin Moor has a single circle-henge at the Stripple Stones. The regular spacing of these sites at arround 20km suggests they were 'regional foci'.

It is perhaps curious that no true henge has been recognized on Dartmoor. It may be that one or more of the main 'group' or 'inter-group foci' - such as Brisworthy or Grey Wethers (see note A) - doubled as regional centres (as may the Hurlers on Bodmin Moor). In this context it is noteworthy that the Stripple Stones henge is only slightly larger than its freestanding counterparts and its location has no topographical indication that it is a 'central place' of special importance. However, the regular distribution of lowland henges in the South West argues that these are more than occasional survivals of 'group' or 'inter-group' sites.

Note A.
An atypical henge adjacent to Grey Wethers postulated by Turner (1984) is of dubious interpretation.

9:12 Wessex and the Upper Thames Valley (figs. 120-121).

The geology and soils of these regions have diverse characteristics and 'core areas' can be readily identified which were differentially suitable for sustaining relatively dense populations in prehistory. These fall into two broad topographic categories; the linear bands of hills with favourable soils, and the valley bottoms with terraces of alluvium. The former consist of large expanses of Chalk Downland (fig.121;A,F) together with two smaller zones; the

Cotswolds (fig.121;B) comprising predominantly Oolitic limestones, and the Mendip plateau (fig.121;C) of Carboniferous limestone. The largest areas of alluvial terrace occur in the Thames (fig.121;D) and Severn (E) Valleys. Although differences in carrying capacity and likely land use strategies occur between different 'core zones', this is by a matter of degree in comparison with the 'non-core areas'. For the purposes of analysis of major monuments all core zones are treated as comparable in broad terms.

The Pattern.

In Wessex, 'territories' were identified by Fleming (1971) on the basis of barrow concentrations, and the patterned distribution of the major Wessex monuments was discussed by Renfrew (1973) in his paper on developing social organization in the region. If a broader spectrum of large Later Neolithic monuments is included, these patterns can be expanded northwards into the Thames Valley and westwards to Avon and Somerset (fig.121). Recent localized studies have highlighted differences between each 'core area', in terms of monument types, their development, and their relationship to settlement (Whittle 1981, Pryor 1983, Bradley et al 1984a,b. Thomas 1984). However, far from negating the patterned distributions detailed below, they strengthen the identities of each 'territory', highlighting discrete socio-political evolution.

In some cases at least, each 'territory' retained its monument complex for many centuries without radical changes of location (from a regional perspective). A classic example is provided by Stonehenge/Durrington. Recent intensive fieldwork (Richards 1984) has revealed periodic fluctuation in ceremonial activity between different elements of the monument complex. Stonehenge and the two adjacent cursus monuments provided the early focus. Later these were abandoned and attention swung to Durrington. In the final phase, at the begining of the Earlier Bronze Age, Stonehenge was refurbished. At this period the site was central to a 'reserved ceremonial zone' fringed by barrow cemeteries. This is the first example to be explored at a 'regional focal site' level of this type of landscape zoning (which can be compared with similar land division argued for 'group foci' on Bodmin Moor and Dartmoor).

In Wessex the patterned distribution of the major centres at Avebury (fig.121;a), Marden (b), Durrington (c), Knowlton (d) and Mount Pleasant (e) is well known. To these can be added the recently identified Figsbury (f). Each centre is between 11 and 17km apart, with the exceptions of Figsbury/Knowlton at 27km and Knowlton/Mount Pleasant at 39km. Differences between spacings disguise likely regularities in postulated 'territory' sizes (see below).

Each of these regional foci is generally characterized by an accumulation of monuments of different designs and dates in close proximity (from a regional perspective). Some are precursors of the larger henges noted above, while others were built as ancillary structures. Only Figsbury is deficient in such sites.

In the Thames Valley the henges at Dorchester (fig.121;g), Devils Quoits (h), Langford (i), Westwell (j) and Condecote (k) are spaced between 10 and 20km apart. Dorchester resembles the Wessex sites in that it is associated with further monuments, here in the form of hengiforms and of major cursus monuments both adjacent to the henge and nearby at Drayton and Benson. All the henges in this zone are of comparable size with the exception of Langford and it may be this was a subsidiary site and a more major henge remains unidentified nearby to the west (as perhaps suggested by the cursus at Lechlade). The only site which spoils the spacing pattern is Cutsdean (fig.121;l) in the Cotswolds. This aerial photographic discovery remains untested by excavation and may prove to be fortuitous soil variation, as found elsewhere in the region as for example at Deadmans Burial (G. Lee pers. comm).

The pattern of sites could be extended eastwards to include Rollright (fig.121;m) but this is of uncertain validity because of the strong architectural differences here (see note A).

Beyond the western edge of the Downs several henges exist. Marden (fig.121;b) lies at the centre of the Vale of Pewsey, a major break between the Marlborough Downs and Salisbury Plain. The smaller Vale of Wardour and Wylye Valley respectively contain Tisbury (fig.121;p) and Sutton Common (q) (see note B). On the hills west of Mount Pleasant is the small henge of Eggardon (fig.121;t), placed in the boundary region between the chalklands and Jurassic rocks to the west. All are again between c14 and 22km from their nearest neighbours.

To the west, on the 'Wessex periphery', are two major complexes of unusual design. At the centre of the Mendips at Priddy (fig.121;u), are four large atypical henges which provide a classic example of 'segmented planning', where each site is of standardized design and scale. About 12km to the north are the stone circles at Stanton Drew (fig.121;v). The lack of henges here, the construction of which is labour-intensive, may reflect a smaller population in this 'non-core area'.

Discussion.

The 'territories' centred on large henges, as identified by Fleming and Renfrew, were based on too few focal sites to test the validity of geographical models with any certainty. However, the extensions described above strengthen the case. Of prime importance is the fact that each focal site makes sense, both in terms of a logical territory which can be ascribed to it, and the topographical 'central place' each occupies. Definition of 'territories' is unavoidably subjective. While Thiessen polygons have the advantage of systematically demonstrating the relative size of hypothetical territories, they ignore topography and thus obvious natural divisions of the landscape, some of which may well have been acknowledged by past communities because they create buffers where population was sparse. The approach adopted here is to take a more realistic (but subjective) view which acknowledges topography. Modified Thiessen polygons which account for topographical boundaries are illustrated in figure 121. These demonstrate that territories can still be argued to be of relatively equal size, each of about 500-700 square km. Each exploits a logical division of 'prime land' and hinterland. In the case of Avebury and Durrington these 'territories' are wholly downland, while at Figsbury, Knowlton and Mount Pleasant, in addition to extensive downlands, small areas of alluvium and zones of sandy heathlands were available to the southeast. In the Thames Valley each territory is centred on the largest areas of alluvium, while less favourable surrounding areas are also incorporated. To the west sites occupy topographically defined zones, each at the centre of its particular valley (or upland in the case of the Mendips).

The position of each site within its 'territory' is far from random, factors suggesting the choice of logical 'central places' being apparent in most cases. In Wessex, Avebury lies at the head of the Kennet Valley where it opens out onto large expanses of lowlying downland to the west and north. Durrington and Figsbury lay next to the rivers Avon and Bourne respectively, although criteria for the choice of exact site along each valley are less clear. Marden and Tisbury lie central to major valleys that interrupt the Downs. Knowlton lies by the river Allen in a lowlying situation near the edge of Cranbourne Chase in a suitable position for equal access to downland which was thus at similar distances to both the northwest and northeast. Mount Pleasant has a similar location, placed in a 'central position' by the river Frome with easy access to downland to south, west and north.

Both the two westernmost cases just noted are atypical in that recent studies (Bradley et al 1984a, Thomas 1984, Thorpe 1984) suggest a displacement from highly populated zones on the higher Downs. However, while study of artefact quality on Cranbourne Chase reveals significant differences between Earlier Neolithic settlement zones and the area in the vicinity of the Dorset Cursus, the settlement density arround Knowlton is obscure because relatively little fieldwalking has taken place. Until potentially large biases in fieldwork quality and quantity have been systematically assessed and corrected, conclusions on spatial differences in settlement density at this level of detail should be treated with caution. It could be that a second settlement concentration exists arround Knowlton and the cursus lies between the two. However, the distance between the Dorset cursus and the Knowlton henges indicates a movement of regional centre to lower land sometime in the Later Neolithic. A similar pattern occurs in the relationship between the bank barrow at Maiden Castle and the henges in the valley below.

These trends may imply significant differences between these two areas and the rest of Wessex, either in terms of population expansion into lower areas, or in the later monuments' relative isolation - placed in peripheral positions. If the latter is true, it suggests the monuments display a degree of 'overt segmentation' that is perhaps of similar degree to that suggested for the sites at Priddy, but with a radically different solution being adopted; the foci being placed on 'neutral ground' in order to avoid conflict over choice of site. Such discontinuities in site do not occur in the heart of Wessex or the Thames valley where the focal areas for cursus monuments, henges and settlements are more consistent (Bradley et al 1984b).

In the Thames Valley the 'regional foci' again occupy 'central places', Dorchester lies at the confluence of the Thames and Thame, Devils Quoit at the confluence of the Thames and Windrush, and Lechlade (with Langford nearby) at the confluence of the Thames, Coln and Leach. Westwell is approximately central to the Windrush valley and Condecote lies near its head on a particularly large undisected portion of the Cotswolds. To the west, Priddy is central to the Mendip plateau, while Stanton Drew lies by the River Chew with good access to similar lowland areas to east and west.

The differences in monument size between Wessex and surrounding regions may well reflect the relative size of 'prime land' (fig.121-stippled areas) and thus carrying capacity, as opposed to the relative size of the 'territory' as a whole. In Wessex such land predominates, while in the Thames Valley and the Mendips it is reduced. The smallest henges, such as at Sutton Common, have little prime land. However, the trend for particularly large monuments developed over time, as indicated by the relatively late dates for sites such as Mount Pleasant and Durrington. Monument size differences also need examination in this context (see below).

The extent to which the 'territorial' patterns described above remained constant through the Later Neolithic needs further comment. The correlation between causewayed enclosures and henges pointed out by Renfrew (1973) may indicate a long duration for these patterns but can be argued against (see 10.6). Durrington was preceeded by Stonehenge which dates from early in the Later Neolithic, and several of the major regional foci have adjacent monuments which could be their forerunners. However, the extent to which these correlations reflect true continuity, or alternatively the effect of topography influencing socio-political geography, remains debatable (see 10:1,10:6). The nature of socio-political organization may well have been modified considerably through time but the majority of focal areas remained constant as they contained monuments symbolic of traditional authority (see 10:6).

The pattern of 'equal-sized' territories (fig 121) superficially appears to reflect a relatively early stage in Later Neolithic socio-political development - when henges of relatively small size were the major monuments (given that these occur in more cases than larger monuments). However, it need not follow that all such sites were built contemporaneously or at as early a date as Stonehenge. Some communities may have continued to use or acknowledge structures such as cursus monuments. In other cases, particularly beyond the major 'core areas', extensive settlement and/or socio-political cohesion may not have been chronologically synchronous. The identified pattern is thus likely to reflect a developed stage in evolution rather than its formative stages.

Another related but not necessarily opposed possibility (given the lack of chronological definition), is that some foci may have been abandoned as major centres developed in importance. It could be postulated that the Durrington and Mount Pleasant territories expanded westwards to take over the peripheral 'non-core' areas with only small henges.

Whatever the date of smaller centres beyond the 'core areas', their failure to have multiple monuments of diverse form suggests either a relatively short episode of use or social entrenchment.

The differences between Marden, Figsbury and perhaps Knowlton, and the other larger henges in Wessex, in terms of their relative lack of ancillary monuments and/or stone structures, may indicate that these centres fell out of use and their territories were absorbed. It may well be that radical expansion of the territories of Stonehenge/Durrington, Avebury and Mount Pleasant took place at the beginning of the Earlier Bronze Age under the auspices of powerful elite groups who legitimized their authority by remodelling the traditional centres, using three very different architectural solutions.

In the Thames Valley the building of henges may be a relatively late phenomenon. It has recently been suggested that these were built at a date contemporary with refurbishment in stone of Wessex henges at the beginning of the Earlier Bronze Age, on the strength of the C14 dates from Condicote and Devils Quoits and mid to late beaker sherds from the lower silts at Big Rings (Bradley et al 1984b). However, this may be simplistic as two phases of building can be postulated for at least one of these sites. The Devils Quoits may well have been in use in the later period as indicated by its stone circle, but given the evidence for ditch recutting and the disparity between the two C14 dates from its lower fills (see 6:8,7:5), it seems likely to have been initially constructed at a somewhat earlier date, perhaps at around the time the larger Wessex henges were built. The henges at Big Rings and Condecote stand out because of their double ditches, which again could suggest they were remodelled.

Although all the relatively large Thames Valley henges appear to be relatively late in comparison with Stonehenge, the continuity of site at Dorchester - as indicated by much earlier hengiforms and a cursus - indicate adoption of a traditional site (for the Big Rings henge) as with several of the Wessex foci. A timber circle built around 1900bc on the axis of the cursus demonstrates the latter was still respected as a monument at this late date.

The postulated phase of henge modification at the begining of the Earlier Bronze Age could be speculated to denote marked expansion of territory size in the Thames Valley (as on the Downlands), with Condecote, Big Rings and Devils Quoits rising to dominance.

Small Circles.

In Wessex as a whole, the relatively intensive agricultural exploitation in subsequent periods has perhaps removed evidence for many smaller focal monuments such as freestanding stone circles or timber equivalents. Few have been identified away from the major focal complexes, the only examples being Rollright, Coate, Winterbourne Bassett and five rings in Dorset. Too few exist to do more than speculate on their status as indicators of social organization.

The majority of those that survive lie on the fringes of the area. Rollright in Oxfordshire, and both Rempstone and Kingston Russell in Dorset may be minor 'regional' or 'group foci' more typical of other regions (and reflecting the relatively small populations of these specific areas?). The small rings in Dorset such as Nine Stones indicate 'local' monuments were also being built here. However, it is perhaps more than coincidence that comparable monuments are not found elsewhere in Wessex, given that the Dorset sites had bulky orthostats (that were thus inconvenient to remove). Occasional examples elsewhere would be expected to survive as sarsen is locally common and ideal for building such circles.

There is no certain evidence that stone or timber circles other than those at major focal complexes ever existed other than on the region's fringes. In the Wessex heartland only Winterbourne Bassett and Coate are known. The former appears to have been of similar design to the Sanctuary and may be a second peripheral site related to Avebury (although it stands at a greater distance). The Coate circle lies below the chalk escarpment on poorer land, and may be a focal-monument placed midway between major 'regional foci'. Alternatively this site may be a fortuitous arrangement of stones.

Postulated sites

A; On the Berkshire Downs/Chilterns no henges are currently known but only two foci need be postulated to fill the gap between Wessex and the upper Thames Valley. One may well have been located around Newbury (fig.121;n), while further east the cursus at Sonning (o) hints at a centre in this vicinity, perhaps overlain by present day Reading. There is currently no evidence that henges ever existed on the Hampshire Downs (fig.121;F) or any of the chalklands further east.

B; The pattern could perhaps be extended by postulating a missing site to the north, associated with small areas of alluvium in the Avon valley (fig.121;s).

Chapter Ten

Stone Circles and Regional Variation in Social Organization in the Later Neolithic and Earlier Bronze Age.

10:1 Introduction.

In the Later Neolithic and Earlier Bronze Age, stone circles and henges are the most common and often only expression of communal gathering on scales above the strictly local level. The regular placing of such sites at topographical focal points indicates they were often central to social interaction rather than being an expression of only a minor element in social organization. While this does not negate the possibility of other, unrepresented options and aspects of organizational hierarchies, it suggests that these reflect major trends in regions where large circles and henges are common. If so, regional variations in monument hierarchies are important identifiers of significant differences between communities.

This chapter identifies regional variation in monument hierarchies; distinguishing between - regions with dominant '<u>core zone</u>' characteristics (together with <u>peripheral</u> hinterlands) that have major monument foci; <u>topographically constrained</u> regions with complex monument hierarchies; and regions with <u>non-centralized</u> characteristics and under-developed hierarchies. These three regional types are argued to reflect significant socio-political differences (10:2-10:5).

Interpretations of these patterns in socio-political terms are discussed, and explanations which stress the influence of topography on development of social organization are explored (10:6).

The Patterns.

Chapters 8 and 9 illustrate that there are trends in many regions for comparable sites to have non-random distributions. They frequently occur at intervals with definable parameters (where no major topographical buffers disrupt the pattern) and can thus be regarded as forming networks of 'regularly spaced' monuments. These spacings vary in scale according to monument type and there is a general correlation between site-size and distance, the latter increasing with diameter. The only common interruptions in pattern (where relatively intact) are when distances between sites increase to approximately double the norm, rather than being at random intervals; this is probably indicative that further monuments have been destroyed or await discovery.

Many of the 'regularly spaced' monument foci contain several sites in a closely nucleated group - termed here 'monument complexes'.

Sites of comparable architecture and scale are rarely found at intermediate distances between the two spacing extremes of 'nucleated monument complex' and 'regular spacing-interval'. In addition, sites have non-random topographical locations, often being placed at optimum points at the centres of zones of higher carrying capacity. Occasionally monuments of architecturally distinct form occur in networks at 'topographic boundary' positions. All these factors argue that such patterns have real socio-political and/or socio-economic significance rather than being products of chance.

Landscape and Community.

One major issue which must be addressed is the inter-relationship of landscape and monument patterning; this affects the inferences that may be properly drawn on socio-political geography.

Landscape variability is deterministic at gross levels in that, for example, large labour-intensive monuments are unlikely to have been built in regions with only sparse population. Within any region of comparable characteristics, the degree of interplay between topographic biases and choices open to communities, is harder to assess.

In many areas relatively few topographic buffers of any magnitude exist and distributional patterns are characterised by regularity of spacing between monuments; this could suggest this is a socio-politically determined pattern. The creation of focal monuments may have played an important role in the initial formation and subsequent maintenance of socio-political 'territories' (see 7:7,10:6), large monuments being powerful symbols of group identity which encouraged a deep conservatism in landscape organization over long periods. This may have been the case throughout much of the Later Neolithic, which together with a process of convergent evolution in monument form (cf Bradley 1984b,p7), led to the distributional patterns of monuments identified here.

However, a detailed examination of topography and soils suggests that there is frequent inherent regularity to the distribution of areas which are the most favourable for supporting relatively high populations within each regional context. The frequency with which natural biases create topographic 'central places' is often similar to that for the spacing intervals for monument foci. Topographic 'central places' can be graded by degree of importance in similar ways to monuments, in terms of the size of their likely sphere of influence and their frequency.

For example, on a local level - as on the East Moors in the Peak District - the distribution and extent of patches of well drained soils is determined by the relatively constant interval with which streams in rock-strewn valleys or poorly drained basins (both of which are unsuitable for agriculture) dissect the landscape. They divide the land into blocks of similar size, each of which has its own cairnfield/field system and ceremonial monuments (see 8:2-8:5). These 'local' variations in topography perhaps do not merit the term 'central place' but they illustrate that landscapes rarely have unbiased potential, even at this low level there is a preponderance for certain regularly placed zones to favour settlement.

At a higher level, as in many 'core areas', the intervals at which confluences of major valleys/rivers occur, and resulting maximum concentrations of well drained soils, has regularity which is consistant with 'regional foci' which are placed at such points. It is frequently the case that there is a correlation between monument size (and place in the monument hierarchy) and the importance/relative frequency of the 'topographical central place'.

When all factors are accounted for it is impossible to establish if it is topography which determined differential population densities (and thus monument patterning), or whether alternative choices open to communities within the parameters of topographical biases are of prime importance. It is suggested here that it is counter-productive (and ethnocentric) to attempt to establish whether landscape or society were the most important determinants in the identified monument patterns. It is the inter-relationship of the two which should be stressed. Often it is assessment of the degree of the importance of utilized central places - in terms of the scale of their likely sphere of influence - that is important, giving insights into the levels to which communities formed socio-political affiliation. Topographical biases inherent in monument distribution should not be viewed as negating the significance of the observed patterning, but as illuminating the complex interaction between communities and their landscape (and displayed this via their monuments).

Irrespective of which of the factors discussed above were dominant in any given monument pattern, it is postulated here that topographical biases influenced general patterns of population distribution within regions to the extent that socio-political boundaries had a propensity to remain relatively static, in a way that perhaps would not have taken place if carrying capacity had been equal over broad areas of landscape, due to equal topography and soils. Thus, because of topographical biases, traditional monument sites often retained their focal importance for long periods irrespective of social change (within parameters - see 9:6).

Chronology.

A major problem with detailed interpretation of the identified patterning is the lack of chronological definition for most relevant monument types. This often prevents detailed examination of initial evolution and later redefinitions. Only in Wessex can some headway be made. It may well be that the detectable patterning reflects a relatively developed stage in monument evolution. Bradley has argued that Neolithic monuments in different regions took on increasingly similar forms through a process of converging evolution as regional interaction increased (Bradley 1984b, p7). Conversely it is equally likely that inter-regional similarity in adopted monument form sometimes disguises significant differences in social organization. Some communities, while using innovative monuments, may often have continued along diverse traditional lines (see below).

While the building of stone circles and henges may not be inter-regionally synchronous except in a broad sense, it remains debatable to what extent each coherent regional network of sites contains contemporary monuments. It may well be that building was episodic in response to times of instability and/or new social orderings (Bradley 1984a, b, c). Although it cannot be proven, due to the present lack of data, it would not be surprising if adjacent communities built monuments at similar dates to each other in order to account for changing fashions/beliefs, or because common impetus arose and competition between communities stimulated similar building projects. Evidence for episodic compatibility of date currently exists in Wessex, as for example at Durrington, Mount Pleasant and Marden. Similar correspondences may prove common elsewhere as further dating evidence becomes available.

Many of the major regional foci have conspicuous indicators of chronological depth in the form of monument refurbishment and/or accumulation of structures in nucleated complexes. This argues for the lasting importance of these focal centres; changes or additions are again probably episodic. However, the degree to which sites were in continual use is unresolved. The rare unambiguous evidence for periodic abandonment of major centres is presently confined to such sites as Stonehenge and Mount Pleasant; these are integral parts of monument complexes (Richards 1984, Wainwright 1979). It may well be that emphasis swung from site to site within the complex as fashions changed, but that at least one component within the complex was always in use. Recent work around Stonehenge/Durrington implies such a pattern here (Richards 1984).

While renewed building or refurbishment may reflect episodic social instability or change, long periods of 'normal use' may frequently be invisible in the archaeological record. Postulated Later Neolithic hiatus episodes in major communal monument building are likely to be ones of social stability and this in itself suggests continued respect for communal sites (cf Bradley 1984a-c). Many of the monuments are built in permanent materials at such a scale that even if not in continual use they would remain conspicuous symbols of traditional authority (cf Bradley 1984a-c).

10:2 Monument Hierarchies and Regional Variation (fig.122).

A summary of the distribution of each type of monument pattern was given in 9:1. Synthesis of these illustrates they have polythetic distributions, sometimes with wide gaps between areas of similar pattern type (fig.122), a phenomenon discussed recently by Bradley who has illustrated comparable trends in artefact distribution as well as monument types.

Regional Variation.

The most widespread patterns identified involve 'regional foci'. These are found in the majority of lowlands with advantageous soils, west of a line from the Solent to the Humber. Two sub-types can be recognized. In much of the north and west the 'regional foci' are the upper stratum of a monument hierarchy which includes stone circles of 'group' and/or 'local foci' type (fig.122;B). In Wessex, the Peak District, the Yorkshire Wolds and Orkney this is not the case (fig.122;A). In Wessex and Orkney smaller stone-circle foci do not appear to exist, while in the Pennines and East Yorkshire local monuments are confined to peripheral zones of Earlier Bronze Age expansion rather than 'core areas'. Later Neolithic round barrows/chambered cairns may play a significant role in lower levels of the monument hierarchy in most 'core areas' of these four regions (see 10:3).

In much of western Britain the landscape does not favour extensive zones of dense population even though some regions at least were capable of supporting well established lesser concentrations. Here 'regional foci' are absent or under-represented and their place is taken by complex monument hierarchies with 'inter-group', 'group' and 'local foci' (fig.

122C). In Western Scotland a variant on this is the combination of 'shared' and 'local foci' (fig.122;D).

The most radical antithesis to the trends noted above occurs in the lowlands of Moray Firth and Grampian. Here there is no hierarchy but atypical attention was paid to the 'local foci' - the impressive Clava Cairns and Recumbent Stone Circles (fig.122;E).

Each of these zones will be discussed in more detail in sections 10:3-10:5.

Interpretation.

A basic question that must be asked of the differences in monument patterning noted above - is whether the less favourable northern and western regions of Britain that lack 'regional foci', are zones which display nothing more than weak reflections of the socio-political organization of their better endowed neighbours? In some cases, do the differences reflect only topographical constraints on carrying capacity? This is clearly not the case in Moray Firth and Grampian where these relatively advantageous lowlands are not substantially different from those in adjacent Tayside, despite the monument patterns being radically different (see 10:4).

Elsewhere, in western regions where 'group foci' occur, a more dissected topography has a significant influence, in that it frequently governs locations of settlement foci more strictly. These foci are more clearly delimited by intervening zones of less favourable land and consist of smaller units, set relatively close together. In contrast, in the lowlands with 'regional foci', there are frequent large expanses (or continuous strips) of favourable land with no strong topographic buffers to deter amalgamation of communities into larger units (within socio-political constraints). However, despite this caveat, pattern characteristics occur in the west which suggest significant differences in social organization rather than just 'territory size'.

The clearest of these indicators are the 'inter-group' monuments identified in South West England, placed high on watersheds away from settlement concentrations. There are no data that suggest that group-interaction at such buffers/boundaries played a significant role in 'core' areas such as Wessex, where all regional foci occupy 'topographical central places'. At the interface between these two regions, the 'equal component complex' (see 6:12) at Priddy on the Mendips displays an intermediate solution. Despite being sited at a 'topographical central place' the four 'identical' henges suggest 'overt segmentation', where each 'social unit' required its own monument rather than cooperating in (or being coerced into?) the building of a single monument, as in areas like Wessex. Here monuments such as Avebury were probably also built by several groups (as suggested by the evidence for 'work-gang' construction of the ditch) but the monuments symbolize integration. The siting of Mount Pleasant and Knowlton may also be explained in similar terms to Priddy (in one sense-see 9:12). A comparable localized development of major 'equal component complexes' took place at Thornborough in the Plain of York.

To what extent the social differences apparent in the South West are applicable to the rest of the western seaboard is uncertain, due to poorer survival of data elsewhere. In western Scotland the segmented nature of 'shared foci', each with no one large monument, again may suggest similar trends.

A second question to be asked is; when hierarchies of monument patterns occur, to what extent did the strata function synchronously? In most regions there is a general lack of conflicting patterns (except Cumbria and possibly southwestern Scotland); usually they appear to complement each other. However, chronological definition is so poor for all data-sets that little can be said beyond general speculative comment.

Architectural differences between stone circles at the 'group' and 'inter-group' foci of the South West may suggest that the two monument types are built at different times. However, there is no way of telling if one monument system became redundant as the other came into operation; they may eventually have co-existed. The 'local foci' on Dartmoor - the stone rows - may also have been used over a long period as suggested by likely additions and modifications to stone row complexes (see 8:8).

Elsewhere, an early date for 'local foci' need not always be the case, as indicated by the building in the Earlier Bronze Age of 'local foci' in peripheral zones such as the East Moors of the Peak District. However, these may be special cases as they represent piecemeal colonization of new areas as suggested by the small, irregularly planned field systems here (see 9:3). The 'regional foci' in the adjacent 'core areas' are likely to have been built well before the 'local foci' of the Peak District and North York Moors, as suggested by the presence of early monument forms at these foci (ie oval barrows and cursus monuments). Unfortunately, in other regions, differences in date (or otherwise) between 'local' and 'regional foci' cannot as yet be determined.

10:3 Core and Peripheral Zones (fig.122;A,B).

In zones where 'regional foci' occur, their average spacing interval can be argued to be consistent across Britain despite differences in local landscape (see 9:1-table 33). However, the scale and complexity of each focal point varies significantly between regions.

The most extreme instance is Wessex where both proliferation of the number of sites in complexes and increases in monument scale occurs. This may be explained by the relatively large continuous stretches of land with 'core zone' characteristics in Wessex; the lack of buffer zones throwing communities into more direct competition (and potential conflict) than was usually the case, and thus leading to increased impetus for monument building. The trend for an increased emphasis on symmetrical characteristics in circle design (class E circles) is also relevant; the stress of increased competition leading to a desire to build monuments which have added legitimation and prestige value via their 'careful' design (see 2:5).

Other 'core' zones are either surrounded by large expanses of peripheral land - as in the Peak District - or have linear characteristics - following rivers as in the Upper Thames or Trent valleys - or ridges, as at the Magnesian limestone ridge of South and West Yorkshire. The linearity of such 'core' zones in itself limits the number of nearest neighbours. Where individual areas of particularly advantageous soils are relatively small - as in

Southern Scotland - this presumably constrained population levels and thus monument size (relative to Wessex). In areas where factors limiting the number of neighbours are less pronounced - as in the northern portion of the Plain of York - proliferation of monuments occurs or monument size increases.

In the upper Thames Valley the 'regional foci' are noticeably less developed than those in adjacent Wessex. This could be explained by smaller areas of 'core zone' land and slightly more separation between each. However, the differences may also reflect different regional traditions. Monument and artefactual divergencies are apparent from the end of the Earlier Neolithic onwards, notable examples being variation in causewayed enclosure type, burial practices and artefact complexity (Kinnes 1979, Bradley 1984a, Bradley et al 1984b). It may be that henges and stone circles had a shorter period of use in the Thames Valley. Such explanations cannot be explored elsewhere until a more complete chronological framework is established.

The differences between zones where 'regional foci' co-exist with lower strata of a stone-circle/henge hierarchy, and others which do not (see 10:2), appears to correlate with variation in Later Neolithic burial practices. Regions where no smaller stone circles are found normally have a proliferation of monumental burial structures. While the latter may have no direct functional equivalence with the stone circles they demonstrate socio-political divergences which may be important to understanding differences in the patterns under discussion here.

Large Later Neolithic round mounds occur only sporadically across Britain and take on two basic forms; passage graves and unchambered mounds. In Orkney the overtly monumental passage graves appear to form the next hierarchical level down from the 'regional centre' at Brodgar/Stenness (cf Fraser 1983). Perhaps these mounds are a local equivalent to stone circles classed here as 'group foci' (in terms of their place in the monument hierarchy rather than other functions). Smaller stone circles are found over many regions of the north and west, but are absent in Orkney.

In Moray Firth, the neolithic communities' solution to resolving the differences between stone circle and chambered tomb traditions was radically different and will be discussed in 10:4.

In the Peak District (limestone plateau) and Yorkshire Wolds no small stone circles are found; the evidence for later Neolithic single burial in round barrows, of individuals with complex artefact suites, is much more extensive than elsewhere in Britain (Kinnes 1979, Barnatt; Liffs Low excavation report-in prep). In addition, large circular mounds are found, as at Duggleby Howe in the Wolds and at several probable examples in the Peak District. At Minning Low a chambered long cairn was remodelled in circular form (Marsden 1982); further circular mounds at Tideslow, Stoney Low, Wind Low and Ward Low may date from this period (Barnatt - Liffs Low report).

In all these 'core' regions, the lack of smaller stone circles may result from a continuance (in modified form) of Earlier Neolithic traditions of legitimisation which placed emphasis on ancestors and/or land ownership by the use of mounds. 'Group' and/or 'local foci' may have stressed this traditional architectural form rather than the stone circle, even though in many cases the barrows now placed greater emphasis on elite groups rather than communal solidarity (cf Bradley 1984a).

Wessex and the Thames Valley are less certainly interpreted. The large circular mounds at Silbury, Marden, Knowlton and perhaps Marlborough, combined with the lack of small stone circles, may suggest a parallel situation to that in the Peak District and Yorkshire Wolds, the traditional mode of expression being acknowledged by monument form while the emphasis on burial had been lost. However, smaller neolithic barrows are apparently rare and single burial is only common in the Thames Valley (Kinnes 1979, Bradley 1984a, Bradley et al 1984b). Hengiforms and timber circles occur and if originally common they may have fulfilled 'local' and/or 'group focal' roles.

A second monument type relevant to the present discussion is the cursus. These appear to have been built in the centuries arround the beginnings of the Later Neolithic (in Wessex at least -

cf Bradley 1984a,c; Bradley et al 1984a,b). While they ultimately derive their origins from long barrows, they appear to have lost direct association with the burial and/or celebration of ancestors, and in this sense, their scale/labour input invites comparisons with circles and henges. There is evidence in Wessex that cursus monuments predate many of the henges of the region. In southern Britain it may be that such monuments provide the most common early expression of the socio-political geography recognized for the Later Neolithic (in a formative stage), while most large henges are later monuments built alongside them during episodes of reaffirmation or redefinition (see 10:6). However, some henges (of only moderate diameter) are equally early as indicated by the dates from Stonehenge, Stenness, Llandegai and Arminghall. Bradley has suggested that cursus monuments are absent in some northern 'core areas', as in Orkney and the Peak District (Bradley 1984a,p41). However, this must be treated with caution as aerial photographic coverage is minimal in such regions.

The length of time over which cursus monuments continued to be respected as focal centres remains open to question (Hedges and Buckley 1981, Pryor 1983, Bradley 1984a, Bradley et al 1984a,b). Differences can be detected that suggest significant variability from community to community. In the Thames Valley the Dorchester cursus retained its importance as indicated by much later structures, one built on its axis at a time contemporary with the likely construction date of the adjacent henge. On Cranbourne Chase the displacement between the Dorset Cursus and Knowlton henges probably suggests the opposite. Again in Yorkshire, the Rudston complex is the focus for grooved ware and other later artefacts indicating continuing use (Pierpoint 1980), while at Thornborough the cursus is overlain by the central henge.

In the Pennines and East Yorkshire a dichotomy exists between 'core areas' with 'regional foci', and peripheral zones with small stone circles. The latter are probably predominantly Earlier Bronze Age in date as these areas were intensively utilized for the first time at this period (cf Hawke-Smith 1981, Spratt 1982, Bradley and Hart 1983, Barnatt 1986, 1987). The building of such sites could be explained by the inconvenience of access to pre-existing regional foci in the 'core zones' in peripheral (and socially less cohesive) areas. The general lack of small stone circles of any date in the latter areas (see 7:3) could alternatively be taken to imply divergent trends in socio-political organization. The possibility exists that these new peripheral communities could represent 'social outcasts' who reacted against new developments in the 'core zones' (perhaps associated with abandonment of the 'regional foci'). However, further data would be required before postulating this with any confidence. In the Peak District at least the contents and size of prestige barrows in both zones argue against the hypothesis as they are similar rather than displaying marked differences in status or character (cf Barnatt 1987).

10:4 Non-Centralized Zones (fig.122;E).

In Moray Firth and Grampian the lack of 'regional' or 'group foci' is particularly distinctive. In the former area the atypical design of the predominant monument form - the Clava Cairns - links the chambered tomb tradition with more typical Later Neolithic architectural practise, by the building of stone circles surrounding passage graves. However, despite this acknowledgement of the stone circle, site distribution contrasts with other areas where both monument types are found (Orkney and Wales), in such a way as to indicate adoption of the new architectural form by communities who were organized along different lines.

Although no passage graves are known in Grampian, the Recumbent Stone Circles have close architectural and distributional affinity with the Clava Cairns. In Grampian, society probably developed along similar lines in an area where chambered tombs had never played a significant role in legitamation of traditional authority.

The failure to build large 'regional foci' in Moray Firth and Grampian in the Later Neolithic can be interpreted as indicating entrenchment of older patterns of social organization, with communities at this time failing to forge the strong hierarchical socio-political links postulated for other regions. This hypothesis is given added weight by the atypical effort involved in building these sites which are far more grandiose than local monuments in other regions. Normally labour, surplus to subsistence requirements, was directed towards 'regional centres', while here it went into these 'local' monuments. In addition, the absence of prestige artefacts and general lack of emphasis on individual status burial within the Clava Cairns argue for a relatively 'egalitarian' ideology. The care taken with symmetrical characteristics in the design of these monuments also suggests each community's desire to strengthen legitimation (and this may reflect the stresses involved in regulating such a society - see 2:5).

The only hints at higher levels of organization are occasional complexes such as Balnuaran of Clava. Even here, repetition of similar monument forms suggests overt segmentation rather than the stressing of symbols of integration.

There are 12 small stone circles in Grampian (and one isolated example in Moray Firth) that are similar to those in Tayside (Small Circles-class K). These sites may be particularly early, built by local communities at the advent of the stone circle tradition, before radical departures in expression of social organization took place; with overt (and perhaps reactionary) emphasis on the 'local' in Grampian and the building of 'regional foci' in Tayside.

10:5 Topographically Constrained Zones (fig.122; C,D).

Significant social differences probably existed between areas of the west and north (fig.122;C,D) and those with 'regional foci' (fig.122;A,B). While both display evidence that monuments were built as symbols, expressions, or instigators, of developing social integration, the lack of major topographical buffers in fertile lowland zones enabled large 'regional foci' to develop; the landscape was less conducive elsewhere. In South West England the presence of 'inter-group' monuments suggests attempts at furthering interaction between autonomous communities, whose expansion/amalgamation was inhibited by topographical buffers. This trend for building 'inter-group' monuments in itself argues for difficulties in achieving amalgamation into larger units, as does the need to incorporate symmetrical characteristics in monument design to increase their legitimation (see 2:5). The distribution of boundary reaves on Dartmoor indicates these communities still retained their identities in the Later Bronze Age.

The presence of occasional henges (ie 'regional foci'?) in areas of the southwestern and northwestern England - and also the 'shared foci' of northwestern Scotland - suggest that varying degrees of amalgamation into larger socio-political units did develop in specific zones. However, it may well be that this was tentative and that relatively small communities retained their socio-political identities, forming only fluid sets of allegiances to each other (relative to postulated movements towards greater integration in 'core zones').

A trend implied by the differences in pattern characteristics between western/northern regions and the lowland 'core zones', is that the landscape of the latter areas had an increased inherent suitability for providing impetus for social change because they increased potential for competition (and potential conflict) between large adjacent populations.

These differences between 'progressive' core zones and more 'entrenched' areas of the north and west are also apparent in the Earlier Bronze Age. Barrows in the former regions contain frequent prestige items, while elsewhere these are uncommon and treatment of the dead has a higher propensity to resemble Neolithic practices rather than respectful burial of members of an elite (cf Barnatt 1982,p80; Barnatt - Liffs Low excavation report - forthcoming). In later periods in prehistory, divergences between lowland and upland Britain become even more pronounced.

10:6 Social Organization in Later Neolithic and Earlier Bronze Age Britain.

As noted in chapter 1, general interpretation of the character of social organization during British prehistory has been reviewed and revised recently (Pryor 1983, Bradley 1984a, Bradley and Gardiner 1984). These explanations highlight regional diversity and interaction. The present work on stone circles is used here to highlight specific aspects of interpretation in relation to the framework established by Bradley and thus comment will be restricted to these topics rather than providing more general explanations.

Bradley has confined much of his discussion to specific 'core areas' where data is well documented. The main aim of the current study is to expand the data on regional differences to a national level for one major sub-set of information. This in itself is inadequate for eventual interpretation of the developing and varied social organizations of each region, in that the interplay with data on artefactual, settlement and other monument forms needs to be assimilated. However, the study identifies regional boundaries which may well be the most appropriate geographical subdivisions for future research. It also offers brief explanation in terms of factors underlying regional differences, which highlights topographic variability as well as socio-political options. It is argued here the importance of topographic variation has been understated in recent explanations due to their concentration on major 'core zones'. On an inter-regional level, topography is a major variable that needs careful examination when explanation of the dynamics of social interaction are sought.

Monument Functions.

The hierarchical monument patterns identified above undoubtedly reflect various social functions and these would change in emphasis according to the scale of 'site territory' (ie sphere of influence'). Although belief systems/ceremonialism was probably a prime determinant in stone circle and henge design, there were a series of underlying functions which would increase in importance as status in the monument hierarchy rose (see 7:7). Small 'local' monuments would perhaps serve as little more than places for ceremonies appertaining to each local community. However, with 'group', 'inter-group' and 'regional foci', the monuments would serve increasingly as places for social interaction and regulation. This probably took on two basic forms, as foci that defined, reinforced or symbolized group identity, and as exchange centres.

Monuments at higher levels in the site hierarchy commonly display non-random siting at 'central' or 'boundary' positions (in a topographic sense). Both positions could be argued to be equally appropriate for either of the basic functions noted above; the data does not allow distinctions to be drawn between them. Even 'inter-group' monuments at topographic boundaries could be operating in a socio-political sphere rather than as exchange centres. The more usual siting of monuments 'central' to areas of high carrying capacity, argues that even allowing for the possibility that factors for initial building may have some relation to exchange, their locations at the heart of specific population concentrations, would over time lead to them being stimuli for forging group identities in a socio-political sense. While the 'regional foci' may have functioned as exchange centres for local produce and played an important role in regulation of prestige goods exchange, it is the socio-political aspect of their function which will be concentrated on here.

In any event, it is likely that primary impetus for construction was from the outset an expression of the ritual authority structure and distinctions drawn between exchange and socio-political mechanisms are of limited value in that the two were probably inextricably linked.

Interpretation of Monument Pattern.

Although stone circles and henges can be used to document general patterns of communal organization, it is far more difficult to extend this to determination of the exact nature of socio-political structure that led to the formation of these patterns, given the wide number of potential variations illustrated by anthropological data and the diverse regional patterns documented here. To postulate sets of specific models for Britain as a whole is inappropriate until the monument data is synthesized with variability in other data spheres in regional contexts, a project which is beyond the scope of the present work. Recent regional studies have highlighted some of the possibilities (Renfrew 1973, Pierpoint 1980, Thorpe and Richards 1984, Thomas 1984). However, applicability to other regions can be nothing more than speculative at present. Even in the regions studied by these authors, the proposed hypotheses remain equivocal until comparative methods of testing the archaeological evidence against varied potential models are refined to a point where all viable alternatives can be set against the data. At present little more can be said with certainty beyond general statements common to much present interpretation, which contrast the ritual authority structure of the Neolithic with the emergence of a prestige goods economy concomitant with elite authority, the latter finally rising to dominance in the Bronze Age.

Despite these caveats, the monument data does highlight certain trends. In some regions there are overt indications of segmentation in cases where identically designed monuments are placed together in 'equal component complexes' (see 6:12). This may also be reflected elsewhere in large monuments such as Avebury, where these appear to cater for diverse traditions by combining features such as coves, avenues and circles. The extent to which 'overt segmentation' reflects the geographically discrete identities of sub-groups, or alternatively clan-type structuring with little spatial separation, remains obscure. The identification of 'reserved ceremonial zones' in South West England for 'group foci' (see 8:16), with each monument placed centrally between settlement zones, suggests geographic sub-groups with close cooperative links. In contrast - at a higher hierarchical level - the 'inter-group' sites of this region (where 'equal component complexes' occur-see 6:12) are likely to reflect the relative autonomy of each valley community (see 8:6-8:12).

At the majority of 'regional foci' of 'monument complex' form, the indications are of chronological depth rather than 'overt segmentation' (Wessex complexes, Northern complexes-see 6:12). It seems likely that such foci initially provided the stimulus for social change, their existence increasing social integration and cementing power relations through ceremonial mechanisms (but still within the context of a 'segmented' society). This is seen in extreme form in Wessex where massive henges such as Durrington Walls are the culmination of the process, reflecting huge cooperative effort. Here the henge provides a symbol of sublimation of conflicts between segmented elements of society (or at least provides a statement on what the architects would have liked people to think). As Bradley has pointed out (1984a,b,c), such new monuments within long established focal zones also disguise radical social changes and are built to legitimize these by redefining links with traditional authority.

The extent to which these processes took effect and the date at which this happened probably varied regionally. In zones with more constraining topographies, integration was probably less complete and communities here were inherently more likely to become entrenched (see 10:5). In Moray Firth and Grampian communities appear to have turned their backs on these changes and retained small semi-autonomous units which may well thus have remained relatively 'egalitarian' (given the absence of a recognizible regional monument hierarchy-see 10:4).

One important factor in the understanding of the social changes of the Later Neolithic is the varying regional interplay between the new modes of social expression (the stone circles and henges) and monuments reflecting more traditional methods of social regulation (the chambered tombs and barrows). These two elements were integrated in a variety of regional forms (see 10:3) and the general impression in most 'core areas' is not one of replacement with new monument types, so much as demotion of traditional monument forms. As social complexity increased, the highest place in monument hierarchies is taken by henges and large circles, while passage graves and other Later Neolithic barrows are confined to lower strata. The only major 'regional foci' (which contain henges) where large Later Neolithic mounds feature prominently are in Wessex. Elsewhere, as in Orkney (Fraser 1983) and probably the Peak District (Barnatt in prep.-Liffs Low report), mounds are used as 'group foci'. In some regions the importance of ancestors, in the context of social regulation, probably survived only in 'local' contexts. This last trend in barrow function was eventually transmuted to denote the status of elites rather than society as a whole.

In most western regions, superficially there appears to be a decreased emphasis on Later Neolithic burial as stone circle hierarchies become more complex. However, this apparent trend may be illusory. In some regions pre-existing chambered tombs may have continued to be used, as there are several documented instances of final blocking associated with beakers. Elsewhere, Later Neolithic barrows are perhaps not readily identified as smaller western communities probably had less access to prestige items for use in burial contexts. Many unaccompanied single burials assumed to belong to the Bronze Age may be earlier, given the growing evidence for multi-phasing of barrows (cf Barnatt - Liffs Low excavation report - forthcoming).

Core 'Territories'.

One distributional factor observed in the monument patterning which may well be central to understanding the socio-political geography of the Later Neolithic is that even the highest level of the hierarchy, the 'regional foci' are spaced at constant intervals (15-25km) which are in equilibrium with (but not determined by - see below) specific topographical factors irrespective of region. In the majority of cases 'core areas' are subdivided into several monument 'territories', and although logical boundaries to the latter can be proposed (based on topography or differential occurrence of soil types), they are not sufficiently pronounced to have been likely to suppress population density to the extent that communities to either side of the boundary were isolated from each other. However, it is argued here that topographic biasing led to specific zones (henceforward termed 'focal zones') within the 'core areas' having a natural tendency to become focal points because of increased suitability for support of high populations in this vicinity and ease of access from all local settlement. These 'focal zones' would have influenced socio-political nucleation (see 10:1).

As population levels rose (episodically?) from Earlier Neolithic beginnings these 'focal zones' and their hinterlands (henceforward termed 'core territories') would eventually have needed boundaries drawing between them once local gaps in habitation had been filled. The establishment of focal monuments was probably of major importance in stabilizing these boundaries, by cementing allegiances of all local groups in the catchment of selected 'focal zones' which rose to dominance due to their more favourable locations (see below). Once established these 'core territories' were inherently likely to remain stable because of topographic biases, as long as all other factors remained equal.

There are signs that 'core territories' first came into strong focus in a socio-political sense towards the end of the Earlier Neolithic; as for example suggested by the distribution of cursus monuments in Wessex. By this time population levels were probably sufficiently high to encourage trends towards socio-political nucleation at this geographical level. At earlier dates the distribution of long barrows implies more local emphasis, even though their differential distributions already indicates population biases which often concentrate in the 'focal zones' of the later 'core territories' (ie - in the Later Neolithic; more important 'focal zones' appear to have absorbed ones of lesser potential).

Radical changes in monument form and scale (ie cursus monuments and causewayed enclosures) towards the end of the Earlier Neolithic are at present poorly understood in terms of changes in socio-political organization in relation to socio-political geography. The defensive nature of some causewayed enclosures reflects the growing instability of the period and their distribution is currently problematical. Superficial examination suggests a dichotomy between central and peripheral siting in relation to the 'core territories'. For example, Windmill Hill is 'centrally placed' and close to the later Avebury complex, while Hambledon Hill lies at the edge of Cranbourne Chase and has no known Later Neolithic monument complex in its vicinity. The spatial and chronological relationships of causewayed enclosures to cursus monuments also needs assimilation. Detailed locational and morphological analyses are required to examine potential chronological and functional differences before the socio-political geography of this period is given resolution.

In the Later Neolithic, the continuity of site for the majority of regional foci with indications of chronological depth, argues for the resolution of the earlier conflict and relative stasis in socio-political geography. There is no evidence that the socio-political boundaries defined by 'core territories' were ever superceded during this period; there are no monuments which reflect political territories which amalgamated widely separate population foci which had topographical buffers or sparcely populated zones between them (for contrary evidence in later periods - see below). Thus the monument distribution should be viewed as suggesting the limits to which Later Neolithic populations could amalgamate socio-politically due to their methods of social regulation.

While the Later Neolithic can be viewed as a period when society was in relative equilibrium with its environment in terms of territory size versus topography, this disguises significant trends that eventually led to the later changes. The gradual emergence to dominance of elite groups probably took place at this time; perhaps the inherent result of the increased socio-political integration instigated by regional monument foci (cf Bradley 1984a). This integration led to more complex social stratification, as reflected both in the monument hierarchies and status burials. These increasing complexities (and thus inherent stresses) led to new (and necessary?) methods of social regulation.

Response to the stresses caused by increased competition and/or socio-political change, can take on two basic forms - expansion or intensification. Both can be documented in the Bronze Age. The expansion into many peripheral landscapes in the Earlier Bronze Age and also radical land re-organization - as with the Later Bronze Age agrarian intensification of the parallel reave systems on Dartmoor - are probably products of these stresses. In both cases, these developments would perhaps not have been possible without (or at least would have been facilitated by) changes in social order which are concomitant with rise to dominance of elite groups and a prestige goods economy.

The concept of 'core territories' is also useful in understanding the social changes which took place in the Bronze Age. The

Later Neolithic settlement patterns were probably entrenched in the sense that communities were contained within their 'core territories' by traditional methods of social regulation which stressed inward-looking communal foci. One important aspect of the new power gained by elites (which can be viewed as a form of social intensification with greater organizational capacity) is that it allowed new areas to be exploited (and/or traditional peripheral areas to be used intensively), as more flexible bonds between communities could be forged on a personal level through intermarriage between elite groups which thus facilitated manipulation of land ownership. Thus for the first time boundaries between 'core territories' could be successfully transcended. Although these larger and probably more flexible 'territories' or alliances are hard to identify in the archaeological record, they are occasionally reflected, as for example with the refurbishment of Stonehenge, Mount Pleasant and probably Avebury (but not intermediate foci, as at Marden, Figsbury and perhaps Knowlton) (see 9:12).

Although these changes had repercussions throughout Britain they may well not have been regionally synchronous or equally effective, except in a broad sense. Also their impact will have taken on various forms. In some cases, traditional 'core' areas eventually lost their dominant roles; some regions suffered from soil deterioration. Increasing contact with continental Europe re-aligned settlement patterns. In western and northern regions of Britain, where the landscape inhibited communal amalgamation due to topographical buffers, elite groups probably had more limited success at forging lasting large scale inter-community bonds. This eventually led to the strong contrasts in Iron Age Britain between highland and lowland zones that were accentuated by environmental deterioration in uplands.

Summary

It is suggested that regional differences in terrain had fundamental influence on the nature of prehistoric society within each area. These have been understated in current archaeological interpretation. When Britain is studied inter-regionally, significant variability in social order is apparent. As Bradley has illustrated, the study of archaeological patterning at this scale may do more to further the understanding of the dynamics of prehistoric societies, than past studies which take a wider overview and hence assume that developments everywhere are directly comparable (Bradley 1984a). Recent discussions of these factors has largely confined itself to major 'core areas' (Bradley 1984a, Bradley and Gardiner 1984). The stone circle and henge data suggest that the communities of the west and north are equally important to understanding the interplay of communities and their development. They appear to differ from those in 'core zones' rather than being weak reflections of lowland society. Identified inherent biases suggest a preponderance for unequal social change, and regional contrasts between progressive and entrenched communities are apparent.

Similarity in monument and artefact form not only change functional context through time (cf Bradley 1984a,b,c) but also through space. Hence for example, stone rows on Dartmoor are the functional equivalent (in socio-political terms) to stone circles in the Peak District, while stone circles on Dartmoor reflect a totally different social order from those in Grampian.

Variation in the identified hierarchical monument patterns indicate that regional communities in the Later Neolithic each had discrete identities. These were influenced by differing levels of topographic constraint that led to significant variability in the way each society developed. Topographic factors had a strong influence on the size of socio-political territories in the Later Neolithic. Only in the Bronze Age was it necessary for society to break the constraints imposed by these traditional 'core territories' and by this time new social mechanisms had evolved to make this possible.