An Archaeology of Group Dynamics

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ABSTRACT

Individual people act and make decisions, yet the outcome viewed archaeologically is the aggregate of their myriad choices. This work provides a coherent and illustrated method for interpreting the observed outcome by deriving causal models based upon the dynamics of the individual behaviour in the context of the group. Drawing on multi-disciplinary theoretical and empirical input, an understanding of the expression of sociality and the social patterns which compound to the cultural environment within which people act is presented. From that understanding, the foundation of group dynamics theory is built, providing a model of social structure which defines the interaction between individual influence on cultural behaviour in the aggregate and the influence of cultural heritage on the individual's perceived range of choices. That model can be linked to an archaeological dataset, providing a 'freeze frame' view of social structure over time, at a resolution of chronological periods allowed by current understanding of the data. Given the model of social structure, predictions may be made about the individual's experience, viewpoint and biases as a result of the constraining and permitting effects of the cultural environment, thus broadening the range of what may be 'known' about a particular period. Finally, the 'freeze frame' view is extended by models of the dynamics of individual action and its consequences, providing a method for deriving causal models for change vested in the inter-relationship of individual behaviour and an evolving environment (cultural, natural and manufactured). Thus, group dynamics theory provides the potential for adding to the interpretative value of an archaeological dataset by presenting a wholly new way of understanding the motives and mechanisms for change, as well as explaining stasis. All facets of group dynamics theory are applied to a substantial case study of the first millennium BC in two counties in southern Britain (Hampshire and Sussex), demonstrating utility, practicability and relevance in the current archaeological climate.

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Preparation of the final thesis document required a high standard of illustration and the free-drawn element of that was prepared by Ruth Prior. All other documentation has been prepared by me, and the editorial responsibility for any errors or omissions in either illustrations or text is mine.

Turning to the intellectual content and project management of the work, I have been supervised by Professor Stephen Shennan throughout, assisted by Dr. Sue Hamilton, at University College London, for years two and three. Dr. Hamilton's enthusiastic involvement in the Case Study elements particularly, has been more than sustaining. As I was a newcomer both to the University and to the subject matter of the Case Study, her input proved invaluable not only as an intellectual stimulus but also in making me feel confident and at home. As an advocate for the interest value and untapped potential of the first millennium BC period in southern Britain she is unsurpassed and has inspired me, and many others, to continue work in that area to a level beyond the immediate concerns of this research project.

Finally, I turn to Professor Stephen Shennan without whom this work would never have begun. The concept was inspired by his suggestion to an undergraduate group that Professor Mary Douglas' (1978) 'Cultural Theory' would be amenable to archaeological application and so it will be shown to have proven in the following work, albeit with some transformation and extension. Professor Shennan's generosity with ideas, with time and with patience has been endless. His guidance has been firm but light, never constraining but always involved and interested, showing an understanding which allows one to grow as a researcher, ready to proceed with the confidence of knowing that one's work and ideas have been understood and appreciated. I am indebted to him for much more than supervision. He has been not only my mentor but also a supportive ally throughout this challenging exercise.

CHAPTER ONE - INTRODUCTION

Patterns of culture

All human action is the result of choice made by reference to a personal perception of possibilities and subjective assessment of their relative values. Individuals are born, live and die yet their choices contribute to the development and the furtherance of cultural ideas of what is acceptable and desirable. To varying degrees, we act by reference to what is expected of us by our peers and by former generations and our conformance or idiosyncrasy frame the perception of what is possible in the next generation. Berger (1995, 3) neatly encapsulates this view of 'culture' or 'cultural influence' as *'the forces to which we are historically subject by virtue of our social placement'*. Social placement and its influence may be categorised by an indeterminable number of variables and situational factors frame decision-making incidents, creating an extremely complex pattern of events in any one case. Predicting one individual's choice in a particular situation may seem impossible on the face of it, yet we are often able to do just that with relative ease. Whilst there is the possibility that humans are endowed with psychic foresight, this is not necessary to explain everyday prediction of action; a more mundane answer presents itself. Where a history is shared, empathetic judgement is possible; our experience is our subject's experience and the subject is very likely to respond to an event as we think we would. That is not to say that inter-individual difference in personality and disposition counts for nothing, but rather that human thought processes are able to take into account observation of others' personality and history of response. Of course, there may be a number of occasions when the informed guess proves wrong but a significant number will prove right.

Pattern may be discerned in forecasting accuracy; one viable hypothesis might be that the more personally-oriented the action, then the more weight must be placed upon personal idiosyncrasies i.e. it may be more difficult to predict behaviour between two intimates meeting privately than between two strangers meeting in a formal context. Similarly, to forecast the behaviour of a large number of people seen in the aggregate (e.g. a nation's people as an entirety) requires that the analyst understands the complexities of the political environment before being able to frame appropriate questions, let alone find answers. However, at levels in-between the extreme micro- and macro- we are likely to be able to predict the actions of those with whom we share a history albeit that the level of detail may be accumulated. For example, personal experience of a film will often allow confident assessment of whether it will be a box office 'hit' in one's community, or not, without recourse to a need to identify exactly which people are likely to go and see it or, indeed, whether they will like it or not; it will be enough to say that people will go and see it in numbers.

Modern Western society values 'freedom', an ethos which results in comparative unpredictability of others' action when contrasted with a society which prescribes the range of action of its people to a greater extent (e.g. a caste system); whilst any individual could act outside of the expected range of behaviour in the latter case, we might predict that the cultural weight of importance placed upon prescribed roles would render it much less likely. That would be a pattern; an effect which varies depending upon the social structure underlying culturally-based action and which provides the base for some prediction of the way in which people will behave even though the actual manifestation of the behaviour is not predicted. The aim of developing a theory of group dynamics is to identify and formalise those patterns - those structural elements of groups of people which influence their behaviour. The archaeological project is concerned with identifying and explaining change in the human past. Its raw data is an outcome and the archaeological analyst must retrofit the outcome to events which could have led to it. There is a paradox here in that the events leading to an observed outcome were myriad actions by an indeterminable number of people yet the archaeologist can rarely, if ever, track the history of any one individual let alone every one. What the archaeologist can do, however, is to consider patterns underlying how people behave today, identify the outcomes which ensue and look for 'best fit' equivalence in the past for an observed outcome. That *retrodiction* is the extent of the Archaeology of Group Dynamics.

To assert that culture (whether material or symbolic) amounts to a normative repertoire of strategies which are accessible and in which patterns may be discerned seems to cause discomfort among many archaeologists today, showing itself in pejorative labelling (e.g. 'positivist', 'deterministic', 'anti-relativist' and 'processualist') and often resulting in dismissal out of hand. To ignore that response and to continue regardless of opprobrium from some quarters not only avoids the issue but also misses the opportunity to argue for resolution of the polarisation which threatens to bury practical recommendation for how archaeology may proceed (Shennan, 1995, 614). In the modern Western world (the intellectual climate from which this work has grown), the high value placed on the cultural idea of 'freedom' means that any suggestion that actions are less than freely elected is anathema (Berger, 1995, 7-9). However, ethos is not practice; to be free requires agreement to the social contract and that is tantamount to agreement to constraint. Particular behaviours are valued and others are denigrated by practice which bolsters and inculcates those values in ourselves and our children verbally, physically and socially. Treating dearly-held values as problematical and as being as amenable to analysis as any other set of social facts can be considered as sacrilege (Berger, 1995, 9). To explain freedom is to reduce it, revealing that we are not free. In consequence, considering culture in a secular way challenges the deeply-held convictions which are our own cultural bias, but it need not undermine them. This may require some explanation in order to appease the culturally-natural discomfort experienced in recognising that 'freedom' is patterned and constrained. Because the aims, motives and applicability of this project are not self-evident and in an attempt to provide some hope for resolution of the polarised post-modern debate, a few words placing the theoretical position in perspective at this point seem justifiable.

Theoretical perspective

With a practical project in mind this work is unashamedly directed, following a middle course and arguing that there is a fallacy in the tacit post-processual argument that *' if something isn't anchored everywhere [then] nothing can be anchored anywhere'* (Geertz, 1984, 265). No compromise is intended, but rather a defined position which recognises a need to provide anchors for a chain of inference whilst acknowledging (indeed, problematising) the observation that there may be no universal regularities. Useful work can continue whilst intellectual debate plays out.

Separating the perspective of the goal and the method

On close examination, it is apparent that the debate is multi-faceted. Considerable attention is given to the question of whether, or not, the interpreter can break free of culturally-influenced cognition to an extent great enough to allow a bridge between her/his own mindset and that of an alien past. That hermeneutic attempt is to understand meaning in the past by deciphering the hidden meaning in the apparent, to understand not only how that meaning was and is constructed but also to feel how it felt to be living in that past world. That *'fusion of horizons'* (Gadamer's *oeuvre*) requires empathetic understanding of the past by complete immersion.

Whilst the interest-value of a realistic approach to that fusion of horizons (should that prove possible) cannot be denied, the Theory of Group Dynamics is not concerned with meaning. This is where confusion in the debate shows itself, in that this intellectual and philosophical possibility can be taken as an agenda for what we *should* be striving to study. The Group Dynamics Theory perspective on change in the past is one of present-day, Western interest and is 'distanced' from everyday life and meaning in that no-one living in a world being studied is likely to have seen their world in this way; it is best viewed from temporal distance and to that extent the perspective is objective. Given the subjective nature of reality, there is a pressure to apologise for adopting an objective stance, yet it could be argued that whilst the hermeneutic ideal may be to understand the past in its own terms, the successful 'reader' is likely to be the only person able to comprehend what that means; should s/he attempt to speak of that understanding then no-one else would be able to understand the 'explanation'. Thus, a pragmatically objective goal is retained without apology.

It is obvious that the method must suit the goal and vice versa but, at a deeper level, the two can be divorced in that the objective goal may be reached by a method which incorporates an understanding and interpretation of the past as being an environment in which people live in the world by interpreting everything around them wholly subjectively. The phenomenological understanding of the world as a structure of intelligibility does not require empathetic understanding of past meaning as a goal, but it does encourage a method which recognises that individual behaviour decisions are influenced by, form part of, and may change the environment. That perspective is at the very heart of the model of group dynamics developed for this project and, to that extent, an approach sensitive to subjective interpretation of the environment is balanced with an objective goal.

The goal

The aim of this work is to provide a model for explaining observed changes in social structure through time. That project has been inspired by the archaeological potential in Douglas' (1978) 'Cultural Theory' that structure derives from the inter-play of the extent to which the individual is subsumed by the group and the degree of formal prescription of individual behaviour, and that those elements underlie observable patterning in social behaviour (i.e. cultural behaviour). Explanation is from the vantage point of causal models based on individual decision-making behaviour, thus avoiding any assumption of stasis as a norm and concomitant understanding of individual action as solely responding to external triggers; stasis is regarded as problematic, as is change. Building aggregate outcome predictions from a base of individual decision-making is an approach concerned with key micro-level processes including motivation, interaction between individuals and individual structuring of the world, the three elements identified by Turner (1991, 592-606) as being essential to an integrated theory of social behaviour at the micro-level. However, the focus on social structure, seen as arising from the aggregation of individual action, looks very much like a macro-level perspective. This Theory seeks to identify and explain how populations assemble and maintain their common idea of co-involvement in a wider 'group' from generation to generation, how they differentiate between people as social units or categories and the factors which sustain integration of the population as a whole, over time.

In practice, Group Dynamics Theory is not so much pitched at the macro-level as what Turner (1991, 588-591) terms the *meso-level* of theorising, which is to say that it attempts to articulate how individual interaction can be understood in terms of the conjuncture of circumscription by aggregate populations and individual contribution to that aggregate; it is the nature of the relationship between the entities which is the valued point of emphasis, rather than the nature of the entities themselves.

The theory-building method

This work uses two important 'bridges' to cross from observation of archaeological data to interpretation of change in social structure in a space-time continuum. The first is a model of social structure over time with potential correlates at each identifiable period in the archaeological dataset. The second is based on that 'freeze frame' series of views of social structure and constitutes formal theory to explain the maintenance of stasis and to provide causal models for change. Explanation of stasis is couched in terms of normative group dynamics and broadens interpretation of any particular period by adding a substantially new theoretical commentary to the existing repertoire. Causal explanation for observed change over time is expressed in evolutionary terms and can comprise a number of working hypotheses which may be amenable to further refinement by assessment of the probability of the alternatives, informed by further detail of the archaeological record when available. The resulting interpretation is likely to remain multivariate and probabilistic whilst also adding a greater depth to explanation of change, both in the sense of time-depth vested in a common understanding of the cultural past and in the sense that a stance which begins with individual worldview and action provides a deeper, more fundamental understanding of the dynamics of change than one which deals primarily with the group as a unit.

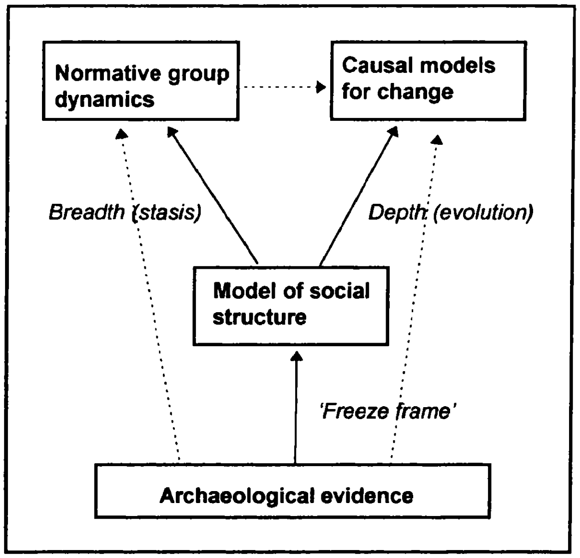


Figure 1.1 - The chain of inference

The whole amounts to a documented two-step chain of inference.

Trigger (1995, 449) has commented that *'a judicious combination of processual and post-processual approaches can significantly enhance the analytical power of archaeology'* and his enumeration of the post-processual trends which appear to show promise in this direction reads rather like a manifesto for this project. It is convenient to analyse aspects of the method perspective in terms of his recommendations (Trigger, 1995, 449-450) for absorbing post-modern approaches in a rethought, extended 'Middle Range Theory'.

Firstly, it is clear that the near-monopoly of empiricist and positivist approaches to interpretation has been broken and that a useful interpretation may call on a much wider range of theoretical positions. Derivation of the full method over the group dynamics models has used a range of techniques and theoretical positions including empirical ideas, a certain cognitive orientation (in that models and simulations are individual-oriented), recognition of inter-individual variation and understanding of action as culturally variant. Similarly, the work is characterised by its interest in a whole range of archaeological concerns. Although the social and political are predominant in the second levels of interpretation, seeing cultural dispositions as outcomes means that the project extends into the realms of dispositions for ideology, sense of self and beliefs and values.

Awareness of cultural diversity has been the key argument in discrediting social-evolutionist views of change and it is inherent in both the goals and the models of the project, albeit that regularities are not ignored. The call to see cultures as *'cognitive heritages that provide guidance for everyday life, constitute the basis for coping with changing conditions . . .* ' (Trigger, 1995, 449) is inherent in the assertion of social structure patterning in cultural behaviour. A special strength of Group Dynamics Theory is its identification of 'internally-generated' and unintended catalysts for change.

The Outcome

The approach offers insights to change based on explanation as opposed to descriptive deduction alone, extending the scope of 'processual' Middle Range Theory by adding an integrated *meso*-theory which identifies correlations between aspects of behaviour and social structure and between social structure and material culture. That theory allows some assessment of probability (or 'confidence factor') to alternative hypotheses, but the outcome in a particular case may not be reducible to a single explanation. Nevertheless, the structured chain of inference is clearly defined, avoiding the weakness of 'tell any story' extreme relativism. Use of analogy and argument obviously leave the chain open to bias but that is tempered by specification of the basis of analogy, by quantification where that is possible, by explicit development of argument and by detailing of the testing of generalisations where that has occurred (e.g. social psychological experiment; sociological observation).

Development of the Theory

The thesis argued in this work is that the information value of archaeological data is improved by an interpretation of both social stasis and change which is extended by understanding the dynamics of the inter-dependency of the individual and the group in decision-making and action choices ('group dynamics'). Development of a theoretical base is presented in three parts, each building on the previous and each of which is immediately illustrated by application to a substantial case study. In this way, the important facets of how interpretative value is added are separated and directly demonstrated, making final assessment of utility and practicability simple and clear.

The archaeological case built through the work is a prehistoric study, centred on the area defined by the modern counties of Hampshire and Sussex in Southern Britain and covering the whole of the first millennium BC. It will be argued that the relevance of the approach to modern archaeological interpretation is clear and wide-ranging and that is demonstrated by addressing two diverse and topical problems. Firstly, the case study is directed at explaining both how and why the regional variation clearly indicated in proto-historical evidence from the turn of the millennium could have developed and secondly it spans a long period crossing traditional archaeological period specialisms (i.e. Bronze Age, Iron Age and Roman) with their different emphases, traditions and datasets and shows how interpretative explanation can be melded seamlessly.

The first part of the exposition of a theory of group dynamics necessarily requires the greatest amount of theoretical development to underpin an archaeology. Starting by seeking explanation for the phenomenon of marked sociality in humans and building on that by considering the conditions under which the atomistic co-operative behaviour necessary for sustenance of social life may thrive, the base is laid for considering cultural behavioural variation. Experiment and observation have extended the theoretical understanding and have formally proved what we all recognise, namely that there is a cultural element to differences in social behaviour. Nevertheless, there is no culture independent of individual choice of action and the decision-making process and its inter-play with the cultural environment lies at the very core of the theory of group dynamics. Chapter Two (Sociality and Culture) documents that groundwork and the first stage of the archaeology of group dynamics is developed and demonstrated over the next four. Models of entities of interest, the definition of terms used and the pertinent elements of social network theory are detailed in Chapter Three (Society) and Chapter Four (Modelling Social Structure) proposes a view of social structure and its key dimensions which expresses the ways in which individual behaviour choice processes are framed and which is amenable to derivation from the archaeological dataset; the generalised method for archaeological analysis of social structure is spelled out in full. A brief diversion from the main thread of argument is necessary in Chapter Five (The Case Study) to detail general points about the case study environment (in the broadest sense) for the non-specialist reader. The main flow is picked up again by Chapter Six (The GDM[1] of Sussex) which demonstrates the practicability of the method by application to the Sussex dataset; the Hampshire equivalent is essential to further stages but is placed outside the main flow of the text, in an Appendix (I - The GDM of Hampshire), to maintain pace and clarity in advancing the argument. Thus, Chapters Two to Six provide a complete and substantial illustrated 'block' of theory for presenting social structure in a 'freeze frame' view over time which proves useful in itself (in ways which are argued in the final analysis) but which is also the foundation for interpretative analysis of group dynamics.

The next 'level' of group dynamics theory explains the normative aggregate cultural behaviour patterns expected and the dynamics for maintenance of overall stasis of a particular pattern despite (and, in a sense, because of) inter-individual difference. That builds on the 'freeze frame' view of social structure by adding in the 'motion' of people and behaviours, with the effect of adding a new dimension to the breadth of interpretation of society at any point in time; dynamic action is added to the picture, complementing and enhancing any established way of looking at a particular period. The theoretical argument for the normative group dynamics is presented as Chapter Seven (Normative Group Dynamics) and illustrated both by the Sussex case in Chapter Eight and the Hampshire case in Chapter Nine; not only do they differ, but also the differences are essential to the causal argument for the evolution of regional variation which follows, so they are both placed directly in the flow of the text.

The case study reveals a changing social structure in the terms of the model used in this work, as well as variation between the regions analysed and that provides a base for a powerful demonstration of the third element of group dynamics theory, namely as causal explanation for change. The theoretical position is developed from an evolutionary standpoint presented in

[1] 'GDM' stands for 'Group Dynamics Matrix', a concept introduced in Chapter Four (below).

Chapter Ten (Evolving Group Dynamics) and is applied on the basis of a method outlined in that Chapter. To complete the archaeology of group dynamics as applied to the case study, that method is used to derive a range of causal models based on important catalysts for change selected to illuminate the question of regional variation. The work is detailed in Chapter Eleven (Regional Variation).

Finally, the whole is reviewed (Chapter Twelve - Evaluation) to consider the success of the argument and to identify how the thesis has been satisfied by the work by demonstrating the ways in which applying the theory has enhanced the interpretative value of the case study dataset.

Summary

The Theory of Group Dynamics posits an underlying pattern to observed inter-cultural behaviour differences based in social structure and provides a prediction of the normative behaviour for maintenance of social structure as well as a method for identification, measurement and explanation of change. That pattern may be discernible archaeologically and a method for analysis of group dynamics in the past is offered for the circumstances where sufficient evidence is available; those which do not have sufficient evidence are easily identified. The theory and method are applied to a substantial case study to demonstrate practicability and utility. It will be argued that the whole represents a robust and systematic interpretative method which can be transferred to other cases and to other times allowing (indeed encouraging) cross-cultural comparison, replication, renewal, enhancement and improvement.

The approach unashamedly aims at objectivity; belief that complete objectivity is possible is not necessary to justify striving to maximise the strength of lines of logical progression of thought by reference to evidence. The theory as presented amounts to a plausible story, but therein lies the strength; this story is grounded in logically developed argument and where that leads to the complication of multiple hypotheses they have not been 'glossed over'. Assumption and impressionistic, unsupported generalisations are hunted out and eradicated. Every step is spelled out, positively inviting critical, evaluative analysis. The aim has been to offer plausible explanation couched in current, Western terms for understanding by a modern, Western audience and which can justifiably claim the label 'archaeology' as opposed to 'fantasy'.

CHAPTER TWO - SOCIALITY AND CULTURE

It has been suggested that it is meaningless to think of culture as independent of individual choice of action (p. 31) and the area of interest to this work is the way in which individual choices are made in social environments. Humans are reflective, having a self-sense which is constructed by self-identification with groups of others (Tajfel, 1990b, 443) and people who do not share socially are likely to fail to thrive, both in terms of mental and physical health (Argyle, 1988, 239-243; Stephenson, 1988, 420-429). Although the psyche and behaviour of the non-social is a matter of importance to individual-focused disciplines interested in non-normative behaviour (especially psychology), the non-social population is obviously a comparatively small proportion of society at large and it is the material remains of the aggregate culture of society which archaeologists view in normal circumstances, so it is of rather less interest to the archaeological project. Thus, sociality is at the heart of an understanding of choice and action and the essence of that sociality is the maintenance and influence of relationships. Those key points are explored to establish a base for extending investigation to a consideration of behavioural variation, preparing the groundwork for development of new theory (Chapter Four - Modelling Social Structure, below).

This exercise is usefully informed by a considerable body of empirical work on the part of social psychologists, sociologists, political scientists and economists *inter alia*. Those disciplines have been concerned more with understanding the dynamics of interactions between people with a view to developing techniques for gaining co-operative responses in negotiation and conflict situations than with providing explanation and theory for how and why that variation exists. Elucidation has been the remit of the cultural anthropology discipline and that contribution may be regarded as an important input to this work. Finally, the key principles involved in decision-making by an individual are reviewed, together with the ways in which those decisions may be influenced by the behaviour of others.

The essence of sociality

Perpetuating relationships

To understand how people live together in groups it is crucial to consider how people learn who others are and how they can be said to 'know' each other and maintain relationships. Amongst other animals, primates maintain social networks by grooming each other on a one-to-one basis. In this way, they are able to recognise others as well as check their physical condition and, in return, receive grooming and the recognition of themselves by the other. Dunbar (1993, 1996) has been interested in the observation that physical grooming of this type is largely absent in modern humans, suggesting that social gossip (conversation concerning our own behaviour and that of others) serves the same purpose, and more, terming it *'social grooming'* (Dunbar, 1996, 381). In an informal study, Dunbar observed that undergraduate students in a college refectory spent in the order of 65% of their conversation time on social gossip topics (Dunbar, 1996, 382). Grooming by use of language allows maintenance of relationships with more than one other at any one time, does not exclude other activities whilst doing that (e.g. walking and talking) (Dunbar, 1996, 385) and allows a limited maintenance of relationships with absent others who are, in turn, mutual acquaintances of those who are present at a social gossip occasion. The facility of language to enable naming is an important (if not the key-) facilitator of 'third party' relationship maintenance and Dunbar argues that language may have evolved precisely for the purpose of facilitating maintenance of larger social networks than would otherwise be possible given the time available in a day (Dunbar, 1996, 382-383).

The selfish individual

Approaches to examining behaviour widely agree with the broadest view of the 'economic' approach to the question of motivation and goals, which starts from the premise that the individual will choose to act in the way which will serve her/his own needs optimally (Becker, 1986, 109-110). Those needs may vary widely and include, for example, health, prestige, sensual pleasure, fertility, child-rearing success, self-esteem and longevity *inter alia* as well as the market goods and services which are often regarded as the main interest in a study of economics (Becker, 1986, 110). The relative importance placed on each requirement will vary inter-individually and, indeed, on the principle of marginal utility for one person over time and depending upon situational factors. To those ends, we invest in obtaining a degree of information which we subjectively (and often unconsciously) consider to be commensurate with the potential costs and benefits of making that optimal decision (Becker, 1986, 111-112). In theory, then, personal motives are always selfish, being aimed at maximising own gain even though a self-serving action may result in cost to others. Thus, even 'generous' acts of giving to others (e.g. charitable donations) can be seen as self-serving in that personal prestige in the eyes of others and self-esteem affect could be bolstered by such an act (Elster, 1989, 52-60). There is some debate surrounding the question of whether anyone ever acts wholly altruistically, belying the assertion of selfish motive, and popular citations for altruism might include documented instances of anonymous charitable donation for the benefit of anonymous others or the stranger who risks (and often loses) own life and limb to save a person from drowning (Elster, 1989, 52-60). A possible explanation for apparently altruistic action of that kind can still be proffered and is discussed in more detail below (pp. 41-43). Suffice to say, at this juncture, that an individual's choice will generally and most often be geared toward optimising personal gain (if not maximising it) and, in that sense, can be said to be *selfish*.

The social relationships paradox

Selfishness is a comparative and requires a subject and an object; a person can only be said to be selfish when maximising personal benefit takes no account of the cost to another. However, a situation arises whereby optimisation of two people's interests depends upon both acting unselfishly on the information available to them at the point of making a decision. The paradox can be best illustrated by offering a fictional example. If two people who know each other, Alex and Bertie, each foresee prospective personal advantage in getting to know a third, Charlie, and they want to prepare to meet Charlie by getting to know what the other knows of her/him they may meet for a chat with the potential prize being an increased stock of 'Charlie information'. If Alex opens the conversation, s/he will not be keen to divulge Charlie information as s/he cannot know if Bertie will reciprocate; indeed, if s/he does make the 'mistake' of doing so then selfish Bertie will be happy to accept the information and keep her/his own knowledge to herself, thus gaining a potentially useful advantage in the Charlie information stakes. The same is true in reverse, should Bertie speak first. The reticence in speaking about Charlie would be a disadvantage to both, because if each did divulge what they know of Charlie, both would be in a better position to judge whether a relationship with Charlie would be useful albeit that neither would have the advantage of the other in establishing that contact.

If both tell then each would be better off but have no advantage over the other but neither could risk telling what they know without being certain of reciprocation; thus, if they are both strictly selfish, both will be worse off. However, it is patently obvious that that is not the way that life is; 'social grooming' is ubiquitous and most people can be trusted on most occasions to reciprocate. Clearly we co-operate in even the most common, time-consuming facet of maintaining every single relationship that we have and co-operation extends much further, into the realms of pooling risk by sharing, sometimes (but not always) looking after those who cannot fend for themselves and in dividing the tasks of work and recreation in everyday life *inter alia*.

In the attempt to resolve the 'non-correspondent interests' paradox outlined above, the problem in its many guises has been mathematically modelled as 'games' or 'social dilemmas' which have subsequently been taken up for empirical investigation by sociologists and social psychologists. The most commonly cited form of the game is the 'Prisoner's Dilemma' and its formal expression is outlined here as it proves of considerable importance to the group dynamics theory:-

	Co-operate	***Defect***
Co-operate	R = 3, R = 3 Reward for mutual co-operation	S = 0, T = 5 Sucker's payoff, Temptation to defect
Defect	T = 5, S = 0 Temptation to defect, Sucker's payoff	P = 1, P = 1 Punishment for mutual defection

Figure 2.1 - The Prisoner's Dilemma

(source: Axelrod, 1990, fig. 1)

The situation involves a binary choice for two people, made simultaneously, which is formally described as follows:- (Schelling, 1978, 216-217)

'1. Each has an unconditional preference: the same choice is preferred, irrespective of which choice the other person makes.

2. Each has an unconditional preference with respect to the other's choice: this preference for the other's action is unaffected by the choice one makes for oneself.

3. These two preferences go in opposite directions: the choice that each prefers to make is not the choice he prefers the other to make.

4. The strengths of these preferences are such that both are better off making their unpreferred choices than if both make their preferred choices.'

i.e. T (emptation) > R(eward) > P(unishment) > S(ucker's payoff)

A breakthrough in the understanding of how reciprocal co-operation could evolve was engineered and facilitated by Axelrod who staged a computer 'tournament' with a view to learning *'how to play the game well'* (Axelrod and Hamilton, 1981, 1390-1394; Axelrod, 1990, 29). To that end, the leading experts in game theory were invited to submit computerprogrammed strategies to 'play' each other in an iterated, two-player, two-choice Prisoner's Dilemma game in which the optimal aggregate outcome is not the maximal outcome for the individual; to do well, each participant needed to sacrifice the chance of a potentially greater personal gain for the surety of a joint gain, if that could be engineered without exploitation. In the first round of the tournament the simplest, longest-standing and, indeed, the shortest strategy *TIT FOR TAT* was submitted by Anatol Rapaport and proved the most successful. This is a 'nice' strategy in that the player co-operates on the first exchange and thereafter reciprocates the partner's previous move. Reciprocity allows 'forgiveness'; thus, multiple rounds of damaging retaliatory defection can be avoided, faced with the majority of opposing strategies. (Axelrod, 1990, 31-39). Despite widening the field for a second tournament which allowed all contestants the benefit of the results from the first, TIT FOR TAT proved to be robust and sustainable against all newcomers (Axelrod, 1990, 40-54).

If a strategy of reciprocation is conducted in circumstances when the length of the relationship is finite and known, then there is the temptation to gain more personally by defecting at the end (Axelrod, 1990, 56-61) and if the relationship is not important enough (e.g. because the likelihood of meeting the party on a future occasion is slight) then there is the temptation to gain more personally by giving nothing at the beginning. It is clear that 'simple' strategies of reciprocity can have the effect of resolving the 'Prisoner's Dilemma' paradox as long as each person's behaviour relative to the other in a relationship is called upon an indefinite number of times and the perceived benefits of the relationship are sufficiently important to sustain (the 'shadow of the future' is long).

The success of TIT FOR TAT in those circumstances need not mean that no more successful theoretical strategy will materialise and, indeed, there has been a subsequent challenge to the supremacy of TIT FOR TAT in the guise of PAVLOV which is a similar win-stay / lose-shift strategy but which also corrects occasional mistakes on others' part and which is also less 'pleasant' in that it can exploit unconditional co-operators (Nowak and Sigmund, 1993, 56-58). However, discovery of a more successful, co-operation based strategy does not inherently challenge Axelrod's finding that co-operative strategies can become established and become collectively stable as long as they expect to meet often enough in the future (Axelrod, 1990, 55-67) and that is sufficient an understanding to act as a foundation for group dynamics theory work.

Trustworthiness

For selfishly motivated individuals to co-operate with others, it has been argued that a degree of trust is required and that need is fulfilled by sociality in humans in at least three ways. Firstly, maintaining a relatively stable social network allows a growing child to learn about and utilise her/his cultural parents' proven experience of the trustworthiness of others. Conversely, the growing children of those others learn about the trustworthiness of ego's cultural parents and ego, her/himself. Language and its social gossip benefits may be considered a strategy for maintaining collective co-operation in that larger network, especially as the 'third party' potential of a conversation using language allows one to check immediate, personal assessments of trustworthiness of another gained at face-to-face meetings with others' experience of the record of that other; potential errors of judgement are lessened by this process and the costs associated with defection are escalated in that, if detected, the news will spread. The benefit of 'social grooming' behaviour makes membership of a group a valuable resource in its own right. Defection carries the risk of discovery resulting in ostracism, necessitating the infiltration of another network disadvantaged by ignorance of the trustworthiness of the new group and by having no demonstrable record of personal worth.

Secondly, and arising from the first point, once co-operation is established as a collectively stable strategy in a population, the 'shadow of the future' (i.e. the duration of relationships) lengthens, reducing the risk of 'final defection' by virtue of the fact that the social network in which one is involved is more than just the sum of the actors participating today. Whether it is based on kin, exchange relationships, age grades or simply by virtue of where one lives, relationships tend to be transmitted from one person to another by cultural inheritance and do not, in that sense, always cease with the physical death of a party to the relationship. Thus, trust is perpetuated by social networks.

Thirdly, trust is tested and measured regularly against the norm of reciprocation within society (the reciprocal inter-individual behaviour) and it is instructive to construct an argument for that tenet. Bourdieu (1977, 5-9) examines the nature of gift exchange and suggests that there is a universal principle that a gift-giving action must be reciprocated, or insult will be assumed; the counter-gift must be both deferred in the giving and different, or refusal to exchange will be assumed (Bourdieu, 1977, 5). Therefore, gift-giving establishes a temporary but irreversible obligation and the act adds to the donor's social capital, building a personal right to deferential conduct from another, requiring regard and esteem (Bourdieu, 1977, 6-7). Thus, it builds one's personal stock of influence - a form of power. Gift exchange also ensures the continuity of a relationship, even if face-to-face encounters are few and far between (Bourdieu, 1977, 6-7); it renews a relationship, neutralising the action of time. The gift can be considered a metaphor for any individual action which 'benefits' another (i.e. which gives the other a resource that s/he values); the value may be economic, social or cultural (e.g. a consumable product, burnishing of self-esteem, enhancing another's reputation in society). The time-delay factor in the exchange depends upon the longevity and strength of the relationship (i.e. whether there has been sufficient co-operative behaviour in the past to sustain trust), the need for the resource (i.e. immediate return of the resource proffered if it is not required, which cannot cause great offence if the relationship is nascent) and the prognosis for the relationship (i.e. the 'shadow of the future'). Thus, the norm of reciprocation is no less than the mutual co-operation equilibrium of game theory and a universal norm of reciprocation such that the more people have exchanged resources in the past, the more likely are reciprocal obligations to emerge and guide subsequent exchanges between those people (Turner, 1991, 331). That is a societal equilibrium conducted in varying 'currencies' and usually providing the benefit of insurance of sources for personal needs maintenance should there be a shortfall.

Despite all three social mechanisms for establishing, 'advertising', maintaining and monitoring reputations for trustworthiness, some may still cheat when they feel that the chance of detection is low. Simply stating that one is honest or, indeed, having a reputation for honest behaviour in the past is easily faked (Frank, 1988, 109-110) and the person deciding whether trust is warranted, or not, can only be confident that s/he has not heard that the supplicant has ever been caught in a dishonest act. However, Frank (1988, 134-135) argues that humankind has developed techniques for judging whether others can be trusted in advance of committing to them and that the judgement is based upon behavioural and physical signals. In a controlled series of experiments, Frank and his colleagues at Cornell University established that subjects were able to predict whether strangers could be trusted in a 'Prisoner's Dilemma' game, on the strength of only 30 minutes acquaintance, with an accuracy of 75% for co-operators and 60% for defectors; there is less than 1% probability of this happening by chance (Frank, 1988, 137-141). The tell-tale clues to attempted deception are likely to be unconsciously generated and include facial expression and 'microexpression' (fleeting facial movement), the eyes and eye contact, skin colour (especially blushing), voice pitch and body language. They are not consistently predictable in all people and in all circumstances and can be controlled by self-deceivers (e.g. liars who believe that they are doing the right thing). (Frank, 1988, 120-133). Interestingly, certain personalities correlate with skill in detecting dishonesty in others and those are gregarious people, those who are socially anxious and those who are high 'self-monitors' but, rather counter-intuitively perhaps, not those who are adept liars themselves (Frank, 1988, 136 citing DePaulo and Rosenthal, 1979).

Of course, to be able to judge trustworthiness from a signal tacitly suggests some selective advantage in evolving (or exapting) the signal in the first place. Frank (1988, 109-111) suggests that signals of moral sentiments (e.g. guilt, shame) are clear examples of communication between potential adversaries valued because they are costly to fake. Simply saying "I am honest" or tattooing a big 'C' on one's forehead to indicate 'Co-operator' is meaningless as faking a reputation for honesty in that way would cost the perpetrator next to nothing. The true co-operator has had to resist opportunities to cheat in the past, at personal cost of lost opportunities, but consciously stating one's own reputation does not prove that in any way. However, evolution of moral sentiments and physical signalling of one's emotional predisposition means that honesty cannot readily be faked. Thus, the selfish individual who is prepared to co-operate in order to make optimal joint gain on every occasion can avoid dealing with potential defectors by watching their signals and has a real personal advantage in wearing 'their heart on their sleeve' or their sincerity in their eyes, so to speak. Whilst physiological signals may be imperfect, they cannot be faked easily. (Frank, 1988, 109-112).

Co-operative nature or nurture?

If humankind has evolved sophisticated social behaviours for their selective advantage in sponsoring relationships of trust and, therefore, co-operation, then a search for cultural patterning in behaviours must examine the key question of the extent to which a disposition to co-operate has become encoded in our genetic inheritance. If it were wholly attributable to genetic factors than there could be no cultural influence and, therefore, no cultural pattern to be observed. Conversely, if it were not inherited at all then it could be a learned behaviour, explicable as an individual's response to a particular circumstance, uninfluenced by any cultural inclinations. Finally, a cultural element could influence the individual's 'natural' proclivity to co-operate or defect, irrespective of whether that inclination were genetically inherited or solely situationally dependent. Fortunately, game theory has been extensively and empirically tested by both experiment and observation using social dilemma models and that body of work is invaluable in examining the comparative influences of individual disposition and culturally variant proclivity.

The evidence for inter-individual difference

Social dilemma models have been developed into forms amenable for testing how people behave in practice, in controlled environments. Each person's motivation comprises two elements, namely the gain to self and the gain to partner and the range of goals which participants could aim for in a binary-choice dilemma is limited to nine, which Grzelak (1988, 297-298) terms *'social orientations'*, reproduced as figure 2.2:

Individualism	Maximise own gain only *(selfishness)*
Altruism	Maximise partner's gain only
Co-operation	Maximise joint profit
Competition	Maximise relative gain
Aggression	Maximise partner's losses
Masochism	Maximise own losses
Martyrdom	Maximise partner's predominance over self
Sadomasochism	Minimise joint gain
Equity	Minimise absolute difference

Figure 2.2 - Range of social orientations

Before the substantive experiment, the participants are 'screened' in a series of similar, 'decomposed' dilemma games which reveal their personal social orientations and these are compared with their performance in the full binary-choice dilemma situation.

Trials reveal, unequivocally, that people have marked differences in orientation and that these do affect behaviour (Grzelak, 1988, 298-301). For example, in the much-cited study conducted by Kuhlman and Marshello in 1976, subjects with individualistic, co-operative and competitive orientations were pre-selected and then invited to play Prisoner's Dilemma games with three (confederate) partners who deliberately played 100% co-operation, 100% competition and TIT FOR TAT games, respectively. Results are reproduced as figure 2.3:

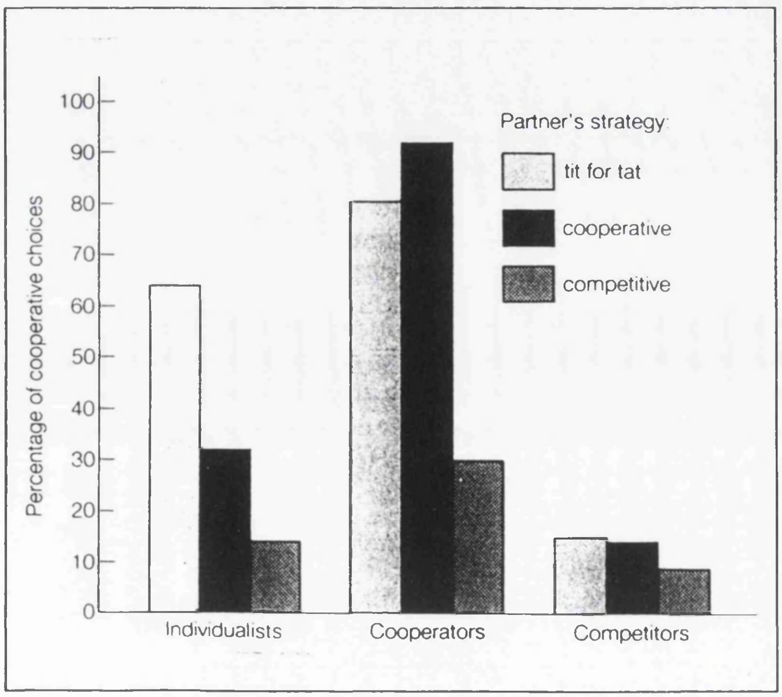


Figure 2.3 - The Kuhlman and Marshello results (source: Grzelak, 1988, fig. 13.4)

The study revealed an hierarchy of propensity to co-operate, with those pre-disposed to co-operate co-operating most in all three games, the natural *individualists* next and the *competitors* last; against the competitive opponent, the last two groups tended to come closer together (Grzelak, 1988, 299, fig. 13.4). Others have replicated these results both in multi-person simulated social dilemma scenarios and in studies which include the altruism orientation e.g. the Liebrand and van Run study (Grzelak, 1988, 299-300).

Thus, it is evident that there is inter-individual difference in social dilemma behaviour; maximising personal gain by full co-operation is <u>not</u> the determining factor for all and orientations extend beyond the co-operation or individualism choices normally the base of the logic of game theory mathematical models. Despite lively scholarly interest in true altruism (maximising one's partner's gain) it is not necessary to demonstrate its existence or, indeed, motive in order to oppose self-interest as a personal motive; disposition to co-operate (i.e. maximise joint profit) is selfless enough to provide a challenge to an argument for purely learned non-selfish behaviour. The extent to which observed differences in individual behaviour are inherited in our evolved nature and the extent to which they are culturally influenced are the two issues germane to this study (and discussed in 'Co-operative nature' and 'Cultural Influence' paragraphs, respectively, below).

Co-operative nature

Frank's (1988) persuasive argument for the role of the emotions in engendering trust by providing readable, unconscious signals of one's own history of co-operation has already been outlined (above) and there can be little doubt that individuals do vary in the degree to which they feel emotions (e.g. guilt, shame, sympathy, anger, envy *inter alia*) which tacitly provides an argument for genetically inherited inter-individual difference evident in personality.

Arguing against socially-constructed dispositions to co-operate, Argyle (1991, 195-217) also tends toward the side of genetic inheritance, citing manifestation in two important ways. Firstly, he contends that predisposition to co-operate is an element of the *agreeableness* personality trait category, of which an important component is the ability to empathise and which is thought to be a cognitive capacity. Secondly, he posits that it is also an element of the *extroversion* personality dimension by reason of affiliation and intimacy motivation. People who are high in the need for affiliation are concerned to avoid competition and conflict and to avoid rejection and this need is very strongly correlated with the need for intimacy (Argyle, 1991, 205-207). Associated research in physiological processes suggests that there is a genetic base to these traits evidenced by linkage to the immune system of the body (for example, those with a high need for affiliation have stronger immune systems), suggesting that co-operation may well have evolved as a strategy adapted to well-being and survival (Argyle, 1991, 207-209). That would be unsurprising given the interpretation of the evidence for evolutionarily stable strategies of parenting partnerships and incest avoidance as elements of human sociality, discussed above, but extension to non-related others is more problematic. Kitcher has developed an embryonic model attempting to address the question of how true altruism (as opposed to co-operation *per se*) may have evolved in our hominid ancestors (Kitcher, 1993). In considering cognitively sophisticated organisms as a baseline, Kitcher posits that we can examine the role of the epistemic ability of the organisms by modelling a player's ability to select opponents (i.e. to choose to play with some and not others) (Kitcher, 1993, 499-501). He suggests that a model which recognises optional play and partner selection conveys the realism of situations and gives the choices of savannah-dwelling primates to forage alone (obtaining lesser quality prey) or hunting with others (with higher quality prey but the risk of exploitation) as an example (Kitcher, 1993, 500). Kitcher is able to demonstrate that amongst populations which may contain

- *Discriminating altruists:* those who play with anyone who has never defected and who always co-operate when they play
- *Willing defectors:* those who will play with anyone but always defect
- *Solos:* those who always opt out
- *Selective defectors:* those who are prepared to play with anyone who has never defected on them and who always defect,

discriminating altruists can invade and become collectively stable, as long as there are two of these strategists who meet in the first instance (Kitcher, 1993, 501-503). He acknowledges his debt to Axelrod and Hamilton's work (Kitcher, 1993, 498) and comments that discriminating altruism is no more stable than is TIT FOR TAT in their model (Kitcher, 1993, 503) but the value of this model is that its applied realism allows its extension to human social scenarios (in this case altruism as opposed to co-operation) and invites further work on, for example, variation in partner quality (e.g. weak vs. strong) and the effects of population dynamics (Kitcher, 1993, 514-516).

Although demonstration that a model is consistent with the facts does not prove that it has identified the cause of the facts (*'the fallacy of affirming the consequent'* (Ridley, 1994, 58-59)), it does provide good theoretical supportive evidence for the hypothesis that disposition to co-operate has evolved to become part of our genetic inheritance.

In social dilemma games in experimental conditions, one factor which stands out consistently as an influence on co-operative behaviour is the 'currency' in which the payoff matrix is expressed. Grzelak (1988, 301) cites a 1974 study by Eiser and Bhavnani (1974) which used the same social dilemma matrix expressed as 'points' in one series, an economic bargaining simulation in another and an international negotiation scenario in a third. The last two cases appear to have stimulated association with actions aimed at ensuring mutual satisfaction, engendering higher levels of co-operation than the first (Grzelak, 1988, 301-302, citing Eiser & Bhavnani, 1974). The difference may be attributable to the way of thinking; numerical representation of problems may be solved by a logical, probabilistic, deliberate style of thinking whereby the decision is fully evaluated, whereas there is plenty of evidence to show that much human thinking uses heuristics. (Grzelak, 1988, 305-306). Ridley (1996, 127-147) has reviewed both Frank's (1988) and Kitcher's (1993) input to the question and added that of the 'Wason' test, which is a psychological puzzle intended to elucidate that question of how people process information. The test is usually presented as four cards and the subject is required to turn over the minimum number necessary to test a certain 'if-then' rule (Ridley, 1996, 128). Ridley (1996, 126-130) has reviewed the results of a version of the test presented as a (fictitious) story to subjects, with interesting and informative results. Put briefly, the story (created by Leda Cosmides and John Tooby) concerns a chief named Big Kiku who was asked for some cassava by four hungry supplicants. The if-then condition set by Big Kiku is that if each supplicant gets a tattoo on his face then he will be given a cassava root in the morning. In the morning, Big Kiku advises observers (an economist and an anthropologist) that *'the first man got a tattoo, the second had nothing to eat, the third did not get a tattoo and to the fourth I gave a large cassava root'.* There are two tests presented to subjects here. The first group is asked the 'economist's question', namely which of the four they need to know more about to find out whether Big Kiku kept his word. That is comparatively easy and c 75% of the subjects from Stanford University got it right. However, the 'anthropologist's question' is which of the four they need to know more about to find out whether Big Kiku would refuse food to a man just because he did not get a tattoo. That is a logically similar problem yet proves much harder and the majority of subjects got it wrong. Results are consistent however the comparison is dressed and whatever the story. (Ridley, 1996, 127-129).

Ridley (1996, 129-131) suggests that the reason that it is harder is that humans do have an instinct to reciprocate and that the 'economist' wording appeals to a natural and familiar process of seeking cheats whereas the 'anthropologist' wording targets an 'unnatural' process of looking for altruism. From that he concludes that the test seems to *'tap into a part of the human brain that is a ruthless and devastatingly focused calculating machine. It treats every problem as a social contract arrived at between two people and looks for ways to check those who might cheat the contract. It is the exchange organ'* (Ridley, 1996, 130). Despite the fact that the form, location and logic of the 'exchange organ' has not been identified (and is unlikely to be), this exciting idea is curiously persuasive and, indeed, a strong point in favour of the mooted inheritance of propensity to co-operate.

Overall, the case for a co-operative nature depends more on circumstantial evidence and hypothesis than empirical observation at present, yet there is a coherence and persuasiveness about those arguments which suggests that facets of personality could, indeed, be manifestations of inter-individual inherited variation in propensity to co-operate. If so, then we might ask what there is left to explain in a theory of culture? If all difference could be accounted for as natural, then we would expect the range of social orientations (from masochism to altruism) to be present, in varying proportions, in a random spread amongst society. However, there have been a few cross-cultural studies which do reveal cultural variation in the proportions of some of those individual dispositions within a population (they are usually limited to individualism, co-operation and competition).

The evidence for cultural variation

Broadly speaking, there have been three forms of empirical work namely:-

1. International survey, with a view to forming theory about cultural influences on social orientation.
2. Controlled experiment to examine how theory relates to practice in novel situations.
3. Observation of the theory in unconstrained practice, revealing how the theory relates to practice in non-novel situations of everyday life.

The advent of large and commercially-oriented computing power in the 1960s facilitated a completely new type of empirical research, namely the large survey from which results could be realistically processed to highlight correlations. As early as 1967, Geert Hofstede, the Personnel Researcher for a large multinational corporation began work on putting together an attitudes survey of the organisation's personnel (Hofstede, 1980). Although commercially-oriented, the style of questioning allowed Hofstede to construct a cross-cultural analysis of the value systems of major groups of the population of 40 countries, termed the *Country Individualism Index.* There has been no other survey on this scale either before or since and the Index has become the baseline for subject selection in the design of experimental and observational studies, subsequently. The Hofstede survey and the Country Individualism Index are detailed in Appendix B - Behavioural Studies, below.

Experimental work has been concerned with ratifying the posited culturally-influenced disposition to individualism or co-operation and is exemplified by the comparative social dilemma studies designed by Parks and Vu (1994) to examine the differences between the behaviour of a highly individualistic group (American citizens) and a highly collectivist one (South Vietnamese), as rated by reference to the Country Individualism Index (Parks and Vu, 1994, 710-711). These well-designed and informative studies are detailed in Appendix B, below; the key findings were that the co-operation rate was very much higher on the part of the Vietnamese and that it was much more consistent, in that the decline in co-operation over time (and concomitant experience of 'playing the game') was less marked than that of the Americans.

Finally, the cultural differential in social orientation is borne out by the few observational studies of people in their everyday environment of which the important comparative study between students from the American University of Rochester and from the Chinese University of Hong Kong conducted by Wheeler, Reis and Bond in 1988 (1989) is a good example, detailed in Appendix B (below).

Whilst sociological and social psychological studies confirm the observation that there is inter-cultural variation in social orientation, their perpetrators are more concerned to understand the dynamics of interactions between people with a view to developing improved techniques for gaining co-operative responses in negotiation and conflict situations than they are to provide explanation and theory for how and why that variation exists; it is usually enough to say that there is variation in 'cultural beliefs and norms', without further elucidation. Investigation of the problem has been the remit of cultural anthropologists and their contribution is reviewed (below).

History of explanation of cultural variance

Working with published and unpublished ethnographies, together with material prepared by field work for the project, Margaret Mead studied 13 small societies to provide a review of the range and possibilities of ethnographic sources for cross-disciplinary research in '*competitive and co-operative habits*' (Mead, 1937, v-vi, 1-4). It is important to recognise that the work was *'focused on cultures that appeared to be relevant to the problem in hand'* (Mead, 1937, v) (i.e. clear cases of 'competitive' or 'co-operative' habits) and Mead did not follow up by analysing any work deemed to be irrelevant for any reason. Recognising that co-operation (defined for the study as *'the act of working together to one end'*) and competition (defined as *'the act of seeking or* *endeavoring to gain what another is endeavoring to gain at the same time*') (Mead, 1937, 8) are not opposites, Mead added a third category of *individualistic* behaviour i.e. in which the *'individual strives toward his goal without reference to others'* (Mead, 1937, 16). Mead was seeking the major motivation of the average habit of the individual (Mead, 1937, 16). A key conclusion of this research has become axiomatic; Mead asserted that the degree of co-operative behaviour on the part of an individual is conditioned by the group norm; *'the goals for which individuals will work are culturally determined*' (Mead, 1937, 16).

The analysis method was to review ethnographic material and inquire into the principal ends to which an individual devotes time, the main aims of group activities and the proportions of time and energy devoted by individuals and groups to goals which are shared, competitive or individual (Mead, 1937, 459). Whilst the approach was *'admittedly rough'* (Mead, 1937, 459), she was able to create a tripartite classification scheme as the differences in the study group were marked. The results are reproduced in figure 2.4:-

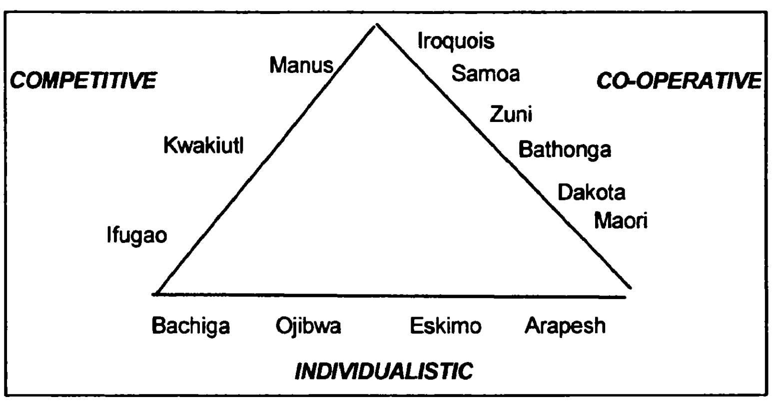


Figure 2.4 - The results of Mead's ethnographic analysis of co-operation, competition and individualism (source: Mead, 1937, 461)

Furthermore, each cultural group was not only classified by primary bias but also 'shaded' by secondary behavioural elements (Mead, 1937, 460-461). For example, Mead found the Kwakiutl the most competitive society in her study and positioned them in the centre of the 'competitive' dimension; the Ifugao were judged less competitive than the Kwakiutl, with individualistic tendencies, and the Manus also less competitive, with co-operative tendencies; each is placed on the triangle to represent that pictorially.

Perhaps rather surprisingly, the study did not inspire any further work for some 40 years, when social science revived its interest in those cultural dimensions as a result of the 1960s interest in game theory (Bethlehem, 1982, 250-251). Bethlehem (1982, 251-258) has reviewed Mead's subjective analysis and classificatory approach and analysed further societies, particularly of sub-Saharan Africa and Asia, although without 'shading' his findings from the primary to the secondary dimension:-

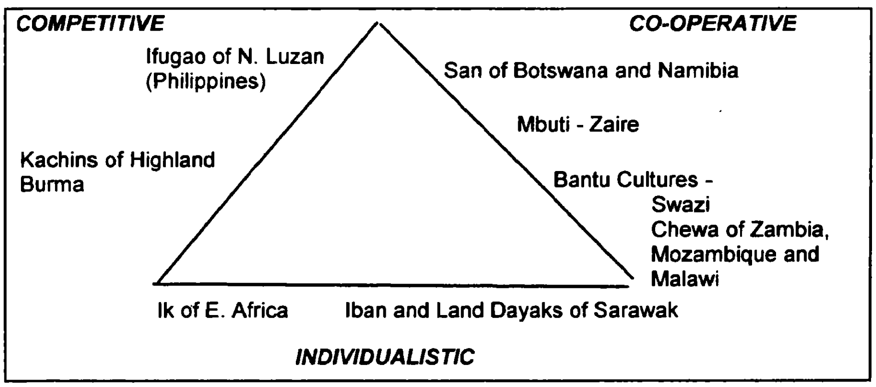


Figure 2.5 - Bethlehem's (1982) findings presented in the same style as Mead's (fig. 2.4, above)

He reiterates Mead's conclusion that there is no simple relationship between social and ecological characteristics and disposition to mixed-motive scenarios (Bethlehem, 1982, 258). Writing from a vantage point of seeing some 20 years of experimental research on cultural disposition, Bethlehem is able to review that work and find some support for inter-cultural difference in behaviour in novel situations (Bethlehem, 1982, 263). However, he warns that sub-sectors of participant cultural groups may not behave as predicted by the group norm, e.g. young people may be more competitive than older (Bethlehem, 1982, 263-264). For example, in a controlled study, Zambian children from the town of Lusaka were found to be as competitive as American children overall, although they did exhibit a wider range of dispositions, suggesting that traditional cultural norms of co-operation still exerted an influence (Bethlehem, 1982, 263-265). Non-Westernised Zambian adults proved to be as trusting and co-operative as is to be predicted by their collectivist classification (Bethlehem, 1982, 265).

Empirical work has concentrated on what Mead has called the 'individualistic' dimension, extending the meaning to recognise differences in attitudes to others in one's own social network by defining it as '*a preference for a loosely knit social framework in society wherein individuals are supposed to take care of themselves and their immediate families only*' and its opposite (Mead's 'co-operation') renamed 'collectivism', representing '*a preference for a tightly-knit social framework in society in which individuals can expect their relatives, clan or other in-group to look after them in exchange for unquestioning loyalty*' (Wheeler, Reis and Bond, 1989, 79, citing Hofstede, 1980). Competition is much less studied (if at all); it might be better viewed as extreme individualism. The degree of commitment to group loyalty is seen as a continuum between individualism at one extreme and the complete sublimation of self to group at the other.

Hofstede's (1980) research programme (discussed above) identified the possibility of a second dimension of importance which he terms '*power distance*', defined as '*the extent to which the members of a society accept that power in institutions is distributed unequally*' (cited by Wheeler, Reis and Bond, 1989, 79). From an entirely different quarter, and independently, the cultural anthropologist Mary Douglas (1978, 7-21) has developed a detailed argument for two important dimensions in influencing cultural behaviour, contending that social context could be viewed as a combination of the degree to which an individual's life is absorbed in and sustained by group membership (*Group*, broadly synonymous with individualism-collectivism) and the degree to which the social environment classifies the individual person and constrains personal choice (*Grid*, loosely allied on some points with power distance).

Cultural influence

It is clear that there is substantial heterogeneity of people's behaviour in a social situation and the model of the self-serving individual is not sufficient to explain why people act as they do. To delve deeper requires examination of how people make their choices, both for independent action and for relating to others. The range of alternatives available to anyone is limited by what s/he may regard as acceptable possibilities, by imagination and, when others are involved, choice may be influenced by what others do in practice. Of course, one episode does not amount to cultural influence but as we have seen (above) the 'shadow of the future', kept long by social networks, requires that some tacit agreement be reached on equivalence of values and on what is fair and just.

Decision-making

People choose the activities on which they spend time and energy; some of those involve relationships with chosen, particular others. Choices of action and relations are usually rational, in the sense that people do what they believe is likely to lead to the best possible overall outcome given their motives and goals (Elster, 1989, 22-28). This is not always the rational choice in the more specific sense of being that which derives the objectively-assessed greatest benefit, either for the individual or for the collective. Outcomes may be wrongly predicted, belief as to which outcome is best may be erroneous or based on a subjective assessment of probabilities inviting error of judgement, mistakes of execution may be made, beliefs may be irrational (especially when choices are emotional) or based on cognitive illusions or fallacies; any one of these factors may give rise to a sub-optimal, irrational action when viewed objectively, although none could be said to be subjectively irrational. (Elster, 1989, 31-45). Furthermore, motives and goals vary and personality plays a part in establishing priorities, as does the principle of marginal utility (i.e. the more that one has of a resource, the less one needs to acquire more of it) (Turner, 1991, 331-332), which in turn may be influenced by personal history of luck, opportunity and judgement.

Making choices by evaluation of the comparative costs and benefits to self is costly in terms of time to the decision-maker. That additional loading on the cost side may sway the decision, in that it is often less costly to take a chance and randomly choose a course of action than to spend the time for the potentially marginal benefit of one choice over the other. Much action is guided by social norms which provide an unsubstantiated *pro-forma* for what is appropriate in a particular circumstance. Social norms reduce the cost of decision-making by providing a predetermined choice, albeit that outcomes may not be optimised individually. In practice, social norms are internalised to an extent that many actions are habitual and unconscious of any motivated decision-making at all. As Elster (1989, 113) puts it *'action guided by social norms is not outcome-oriented'* in the sense that following norms is assumed to lead in general to the best outcome without any further evidence; this is in contrast to rational choice which determines action in the context of outcome achievement. Thus, for example, a rational choice takes the form TO ACHIEVE X, DO Y whereas a choice guided by a social norm may take the form DO X, or IF YOU DO Y, THEN DO X, or IF OTHERS DO Y, THEN DO X, or IF IT WOULD BE GOOD IF ALL DID X, THEN DO X (Elster, 1989, 116-117). In choosing a rational course an individual must assess the opportunity set, but that is 'filtered' by taking into account all of the environmental constraints and further tempered by internalised desires which are subjective and may be influenced by social norms as well as personality and need.

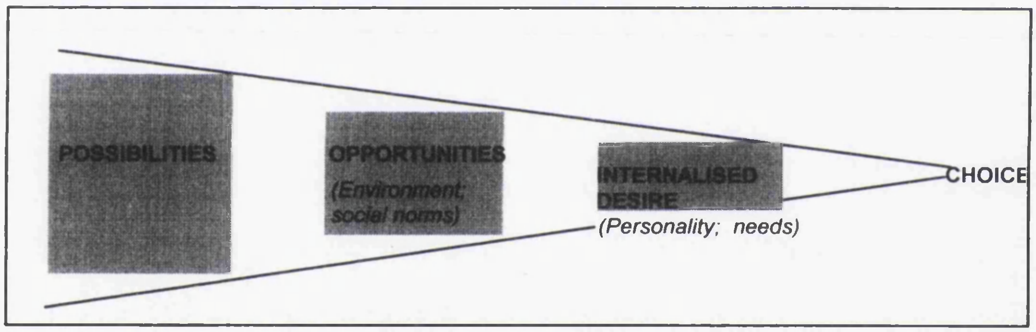


Figure 2.6 - Filtered choices

Although social dilemma theory gives interesting insights into co-operation, the social life of people cannot be reduced entirely to that understanding both because it does not allow that the goal of one is not necessarily that of all and because it assumes considered, rational decision-making uninfluenced by social norms.

Social norms

Reciprocity is no less a principle for a competitive, individualist society than one characterised by co-operative collectivism. To compete, a person strives to gain access to resources to increase personal capital; to be limited to a 'no credit' set of relations would be costly and risky. Similarly, in the co-operative society one highly valued resource is the sense of social identity gained from membership; reciprocation is tantamount to a condition of membership.

Our own society disguises the role of gifts (in the broadest sense) as techniques of domination and manipulation (i.e. power-building in terms of influence). Elster (1989, 58-59) cites Colin Turnbull's account of the Ik (Turnbull, 1984, 146) as being very reluctant to 'accept' a gift, applying much ingenuity to thwarting attempts to bestow a gift on ego, to avoid the obligation incurred. Similarly, the Ik go to great lengths to ensure that their own attempts at gift-giving are not thwarted (e.g. by hoeing a field in the owner's absence). This is interesting in that it is clear that there is a strong sense of obligation (i.e. norm of reciprocity) and there is no suggestion that defection is commonplace, but the Ik resist being beholden. That is still co-operative behaviour, yet has none of the good-natured connotation with which we colour the practice. The shade of meaning is revealing; whilst co-operation is an attempt to dominate, maximising utility to self, this is disguised culturally in Western society presenting it as a good-natured, almost altruistic action - apparently a strategy to hide motive.

The potential for inter-individual difference in social capital, articulated as variation in the 'direction' of an exchange relationship (i.e. difference between obligation to and obligation from an individual) is considerable. Energetic people may be motivated to build that capital deliberately (e.g. 'Big Man' systems), but small differences may also arise by chance.

The values exchanged in social life are vague and ill-defined, yet each one of us is able to judge whether an exchange has been fair by referring to an internalised norm of fair exchange.

Social norms cannot be predicted, *per se*, but it is reasonable to assume that they will include a norm of what is fair and just, 'filtering' opportunity sets for:-

- the circumstances which require reciprocity
- the basis for valuation of equivalence in an exchange
- the sanction which may be meted should those principles be violated.

These amount to a socially shared norm of justice. Justice norms may be so pervasive that internalised sanctions suffice; shame, or the anticipation of it, and the maintenance of self-respect are sufficient motive to ensure conformance even if violation would be unobserved. However, that is not always the case and external sanctions provide a useful counterweight in circumstances where weakness of will might prevail. (Elster, 1989, 118-119). Providing external sanctions carries its own cost to a population and the motive for one individual to sanction another for violating a norm is not always clear. Elster argues that it is difficult to make a case for instrumental utility of all norms (e.g. norms of dress; dietary rules), but acknowledges the possibility that there may be a deep and hidden rationality. For example, he agrees that it is possible that a complex plethora of norms of manners may be a rational solution to a perceived problem of detecting strangers intending to deceive a group by 'passing themselves off' as one of the in-group. (Elster, 1989, 120-123). On balance, he falls back on suggesting that norms may be the effect of unintended and non-instrumental psychological propensities which have evolved due to a natural selection factor (e.g. conformance as an adaptive survival strategy) (Elster, 1989, 123). A more straightforward answer does present itself, however. Norms may arise as a result of solutions to collective action dilemmas, preserving what is perceived as mutually beneficial co-operation; the original dilemma may be forgotten but by their very nature norms are conservative and may persist long past their adaptive usefulness (i.e. 'traditions').

Decentralised mechanisms for compliance depend upon self-interest, altruism or social norms motivating individuals to comply; elements of each are likely to reinforce the others in a particular case, but the nature of the motives is such that they are likely to yield too much or too little co-operation, as all will tend to do the same. Centralised mechanisms of a consensual type, rather than arising from coercion by individuals with a differential access to force, require collective agreement and action to establish an institution authorised to enforce participation (selective, or otherwise) by coercion or inducement and to sanction violations. (Elster, 1989, 147-149).

Even when run on democratic lines an institution may become independent of the social network, to a degree and in the sense that the individuals whose action creates and empowers it may find that their goals and intended outcomes are not faithfully retained. For example, if a block vote mechanism is established for efficiency's sake then the outcome may not reflect the true aggregation of individual choice; similarly, if stability and efficiency are key priorities then 'permanent' officials may be appointed and allow their personal goals to prevail, or may misunderstand collective intentions; extending that scenario, officials with personal power motivation may engineer a dictatorial position for themselves, rather than allow democratic rotation or election to post. (Elster, 1989, 156-157).

In these ways, inter-individual differences can be tacitly approved and given a degree of permanence which will be reflected in changes in norms of fair exchange. Differential influence can strengthen into dominance and compliance without any conscious intention on the part of the super- or the sub-ordinate parties. A fair exchange norm will implicitly recognise that those with access to the more valuable (and/or limited) resource can exact a higher 'price' for that than the more available resource; that price will tend to be the higher the more people are able to provide the less valued service, and the less people are able to provide the more valued. (Turner, 1991, 331-335).

Even in societies where coercion is extreme, sanctions are possible against dominators; the greater the imbalance between the super- and the sub-ordinates, the greater the probability of opposition; conflict is endemic to authority relations. The cost of rebellion may be severe to any individual but reduce as more people co-operate in subversive action; hence, opposition is a collective action dilemma in just the same way as is the establishment of integrative norms.

CHAPTER THREE - SOCIETY

Defining society for group dynamics analysis

Society is not a fixed and tangible entity but rather the ever-changing outcome of the actions and interactions of many individuals. There is no distance from which an over-arching view of an entirety is possible and no two people will see it in exactly the same way, given the uniqueness of human personality. Group dynamics analysis offers one view on society based on seeing social structures as the inter-relationship between individual action on the one hand and aggregate outcome on the other. As a *meso*-level theory, the techniques and terms from both micro-theory perspectives (particularly social network analysis) and from macro-level (particularly concepts of 'group' action) are brought together in this chapter to offer one coherent foundation for analysis, defining terms, removing ambiguity arising from melding differing uses of similar terms and coining new terms for new work.

Toward that end, two key components provide the foundation for Group Dynamics Theory:-

1. The entity data model: A formal model defining and describing the major units of analysis interest (*entities*) and the relationships between them.

2. Social Network Analysis method: A developed approach to analysing the relationships between the people in a society, from an atomistic point of view. The approach is used increasingly widely in a plethora of applications, including, for example, sociology, politics, economics and computer science, the results of which provide input to the theory of group dynamics.

These components are developed and defined in this chapter, providing a reference base for the remainder of the work.

The entity Data Model

What is a group?

In general usage, a 'group' is a term used to refer to a collection of people who have something in common. The condition of 'membership' is usually expressed as a category of an attribute but as a result groups can be transient, permanent, kin, work, voluntary, institutional, friendship, sub-groups within groups *inter alia*. For considered analysis of group dynamics, the nature of that 'something in common' is pinned down by robust definition. In working across academic disciplines it is imperative that the preferred (and often inferred) definition of that discipline is correctly interpreted. Most work related to social psychology is concerned with 'small groups', which is a term less concerned with size (although it usually means c3 - 36 people (Fraser, 1990, 177-178)) and more with the type of interaction of the people involved. Although there are variations, a generic description will include most of the following criteria:-

A small group is a set of people:

- small enough in number to permit face-to-face interaction among its members (Ott, 1989, 145) I.e. such that *'each member receives some impression or perception of each other member so that he* [sic] *can . . . . give some reaction to each of the others as an individual person'* (Fraser, 1990, 178)
- which remains in existence long enough for some personal relations, sentiments and feelings of identification to develop (Ott, 1989, 145)

- such that in all parts of it there is pressure from face-to-face situations to draw the same boundaries and accept the alignment of insiders and outsiders (Douglas, 1978, 7)

and the term:

- excludes larger, looser, more nominal and impersonal group formations (Douglas, 1978, 7).

Thus, it is regarded as fairly small, fairly permanent and cohesive. This is not enough to classify the potential groups as actual groups in the minds of sociologists, social psychologists or cultural anthropologists; whilst the brown-eyed, the English speakers, the vegetarians, the British and the queuers fail almost all criteria, more needs to be known about the sponsored walkers before deciding and the nested hierarchy of an organisation contains groups within groups.

Tajfel (1990a, 401-422 esp. 402) cites the historian, R Emerson (1960), as typical in suggesting that *'The simplest statement that can be made about a nation is that it is a body of people who feel that they are a nation; and it may be that when all the fine-spun analysis is concluded this will be the ultimate statement as well'.* In his work in social psychology, Tajfel does use the self-identification idea of 'nation' as his base for understanding 'group' and that seems eminently suitable for the small groups with which this project is concerned.

However, there is a need to discuss a larger unit of society which meets the same definition. The problem is one of ambiguity as those disciplines concerned with large-scale trends (e.g. sociology, political science, perhaps archaeology) may term that unit 'society', 'culture', 'nation', 'polity' or, indeed, 'group'. To resolve that, analysis and definition of terms is presented in the form of an entity data model defining not only the relevant entities but also the relationships between them and that formalises the framework to a degree greater than words alone readily allow.

Data domains

There are three domains of data types, namely:-

1. *Habitus :* replacing the society-wide group concept
2. *Social network:* representing people, their relationships with each other and the groups that they form.
3. *Location :* reflecting the spatial arrangements of co-residential living. Note that this refers only to how people may cluster together and is not intended to be a full data model of archaeological patterning; it is included to resolve residual ambiguity relating to terms for where and with whom people live.

Each is reviewed, below, and a full data model built up. The following key applies:-

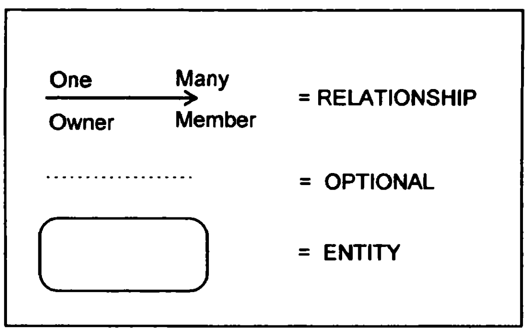


Figure 3.1 - The entity data model Key

Habitus domain

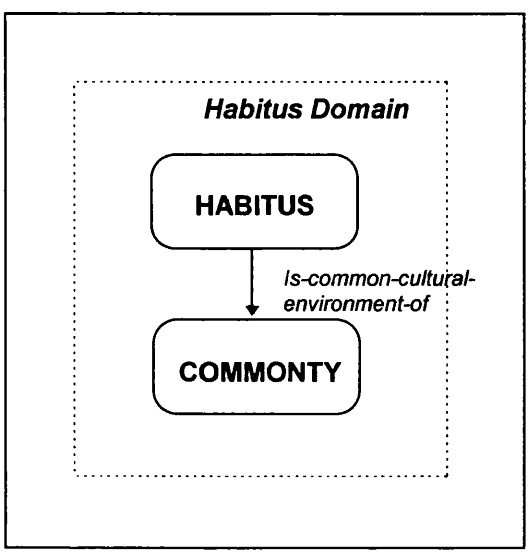


Figure 3.2 - The Habitus domain

The key difference between the small and the large group is that in the former interactions between people are personal whereas in the latter the climate is more impersonal. For this reason small group membership is usually more fluid and action comparatively less prescribed. Each incidence of a group will have a dominant worldview yet the posited variation in dynamism implies that the large group worldview is less susceptible to change than the small. Rules and prescriptions of the large group will serve to maintain its dominant worldview up to a point and that point may extend past the point at which a vote, so to speak, would reveal a numerically shifted dominant worldview. In other words, there may be a conservatism at the large group level.

The search for a concept which describes an entity which is conservative and, therefore, is not entirely the sum of the subjective views of the population, yet which is a practicable target for archaeological detection has been a difficult challenge for archaeologists since disavowal of culture-historical ideas which dominated archaeological interpretation for the first half of the twentieth century, at least. Shennan (1978, 1994a) has examined the validity of the concept of an archaeological culture, the ideas surrounding what meaning is intended in discussion of cultural identity and its relationship to ethnicity and suggests an answer to the problem.

Ethnicity is defined in very similar terms to 'large group', especially requiring that *'it is a body of people who feel that they are an ethnic group'*, whilst adding that that feeling is '*at least partly based on a specific locality or origin'* (Shennan, 1994a, 14). People have self-conscious identity in common and specific locality, at least, is more accessible archaeologically. Having said that, there is some argument that ethnicity is a modern idea associated with complex societies (especially states) and particularly those with social organisation based on localised communities of all classes (as opposed to organisation of a more prescribed kind based on social class) (Shennan, 1994a,14). In dealing with the full spectrum of potential social organisation, an acceptable umbrella for both 'horizontal' and 'vertical' ethnicity is needed.

Bentley (1987, 25) is concerned with understanding the mechanics of how a number of people can come to share one idea of common identity, together with how that can persist over generations. He describes the polarised models of earlier analysts who suggest that there is either an intentionality in that people with common interests form groups in pursuit of those interests (the 'instrumentalist model') or that there is an inherent, psychological need for identification with one's antecedents and origins and that this gives rise to a communal sentiment of 'sameness' (the 'primordial model') (Bentley, 1987, 25-26). Shennan (1994a, 15-16) characterises these as the 'subjective' and the 'objective' views, respectively. Bentley (1987, 26) identifies that *'neither addresses the question of how people recognise the commonalities (of interest or sentiment) underlying claims to common identity'* and goes on to argue that Bourdieu's (1977) Theory of Practice provides a way to answer that question.

Bourdieu (1977, 78-95) has suggested that the (objective) environment is a system of symbolic representations, subliminally guiding incomers (usually infant) in the way of doing and being, inculcating a set of dispositions in the individual. The range of dispositions may be such that particular people have particular perceptions, thus sustaining social ideas of behaviour and structure, e.g. role and rank. The environment is perceived as the evolved sum of past practice, guiding future practice and it may (conservatively) change as practice changes. Bentley (1987, 48-50) suggests that the Theory not only resolves the problem with the polarised models but also extends understanding in that it argues that shared experience is what gives rise to a shared idea of common identity - the self-conscious identity which defines the large group.

Bourdieu emphasises that it is predominantly the symbolically structured environment which exercises an anonymous, pervasive and pedagogic action on new members which is encouraging for the prospect of archaeological identification of the extent of a habitus (as Shennan argues in 1994a, 16-22). Taken with the benefit that it provides a 'bridge' between subjective ideas of identity and the objective context in which people live, the concept seems ideal for the project representing (and enhancing) those ideas attributed to 'large group'.

Whereas *habitus* provides a useful umbrella concept for a set of beliefs and values at a group universe level, it is too broadly inclusive for meaningful archaeological analysis in many cases. Whilst it may be recognisable over a wide area, yet more local groups may represent a second level of body politic to which an individual may subscribe and in which s/he has a voice. Terms often included in archaeology and anthropology include 'tribe' and 'clan' but these have overtones of biological relatedness, or claimed descent from a common ancestor and that is not a presupposition of group dynamics theory. Instead, it is useful to think of local people coming together as a body politic in which all have a voice or an interest. A useful term for that concept, rare in modern parlance, is 'commonty' (the origin of 'commonalty') meaning a self-governing commonwealth and that is chosen because it is just different enough to arrest reading, thus drawing attention to its formal meaning in the group dynamics context, whilst not being so different that it interrupts the flow.

There is often a need to refer to the totality of the individuals who are inculcated by a habitus at any one time and the term *habitants* is coined to replace the phrase 'the population inculcated by the habitus', for brevity. Similarly, commonty where the term *commontants* is coined.

HABITUS:
The system of durable, transposable dispositions; the product of the work of inculcation and appropriation necessary in order for those products of collective history, the objective structures, to succeed in reproducing themselves. (Taken from Bentley (1987, 28)).

(and **Habitants:**
The population inculcated by the habitus.)

COMMONTY
The self-governing body corporate.

(and **Commontants:**
The self-identifying members of the commonty)

Social network domain

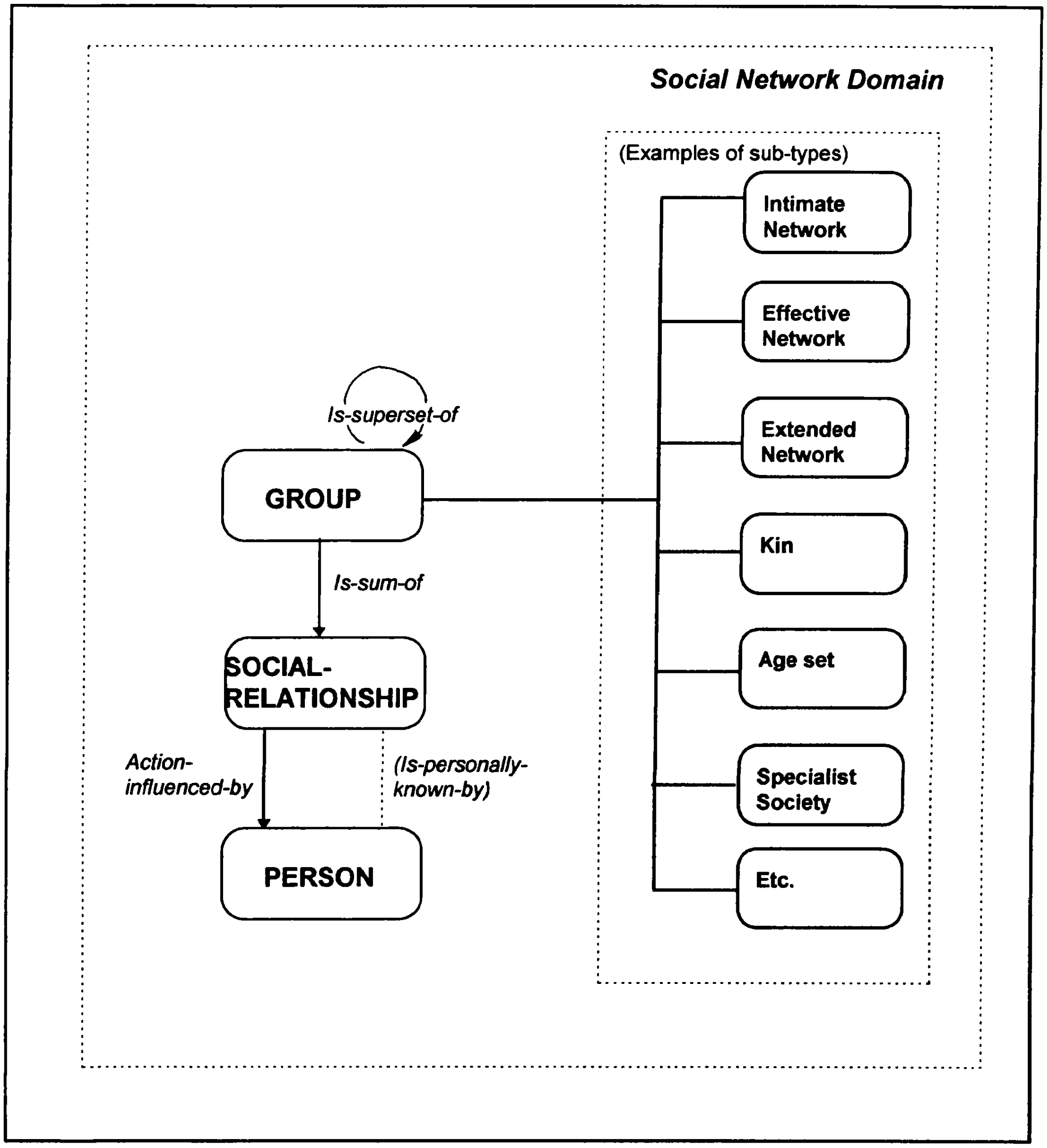


Figure 3.3 - The Social Network domain

Network analysis lies at the foundation of group dynamics theory and is discussed separately, below. There is an inter-dependency between the use of network analysis and the Data Model definitions of the components of the social environment. For the sake of brevity, each is defined in its entirety once and one or two of the social network analysis terms are introduced here in anticipation of formal definition later.

The commontants or the habitants as a whole may be organised in social classes, may include specialist societies, age sets, personal networks (intimate, extended or effective), and other subsets limited only by the imagination, which can all be defined using the 'umbrella' definition of the small group i.e. in terms of longevity, the face-to-face nature of transactions and common agreement to boundaries. As the HABITUS and COMMONTY entities replace the 'largest group' ideas, this entity can be referred to as a GROUP, with the benefit of the naturalness of the term in discussion outweighing residual potential for confusion with the 'large group' meaning.

GROUP:
A social unit which the members perceive as being a unit and in which there is a pressure from face-to-face situations to draw the same boundaries and accept the alignment of insiders and outsiders.
(i.e. as defined by Douglas (1978, 7))

It is important to recognise that groups may be hierarchically related to other groups (i.e. one group may be a superset of another) and that groups could cross-cut commonties (e.g. there could be a social sector of 'aristocrats' or 'green issues sympathisers' irrespective of which commonties they belong to). Individual people (PERSONs) may be members of many GROUPs and each GROUP may have many members. That many to many relationship is resolved and clarified by understanding that the nature of the social relationship(s) between two people is an important factor in gauging the influence that the actions of one may have on the actions of another. For example, it might be posited that if one disaffected individual is to leave a community, then members of his/her intimate network are more likely to accompany her/him than people s/he knows less well. Furthermore, there is a real possibility that the response to an individual's actions may depend upon the group context in which the catalyst has arisen, and thus it is necessary to understand one individual's relationship with others as determined by co-membership of a particular group. The personal network of an individual is <u>not</u> all that needs to be understood when examining the ramifications of action. Inclusion of a generalised idea of a type of SOCIAL RELATIONSHIP between two PERSONs extends understanding.

SOCIAL RELATIONSHIP:
The way in which two people know each other; the degree of involvement in each other's lives.

PERSON:
An individual social actor, responsible for his/her own behaviour (i.e. not a dependent child).

The complicated relationship between these entities and groups can be further elucidated by 'walking through' how real life relationships between people are represented. If this were a model of a real society, with real people and their social bonds represented as occurrences of the data model's entities and relationships, then 'navigation' of the model, picking out datasets, would be possible. Thus, for example, it could be said that from the point of view of the GROUP entity (fig. 3.3), its members can be ascertained by navigating the *is-sum-of* relationship to find the SOCIAL-RELATIONSHIP set members and finding the 'controlling' PERSON to which it refers in the *action-influenced-by* set. In reverse, and more commonly perhaps, to ascertain those people with whom an individual is socially involved, and the degree of the relationships, then each SOCIAL-RELATIONSHIP in the *action-influenced-by* set could be located and, for each, a check made on who it is with by locating that PERSON owner in the *is-personally-known-by* set and the degree by examining the type of GROUP in the *is-sum-of* relationship. This flexible approach allows that people could be members of the same group and yet not know each other personally.

Location Domain

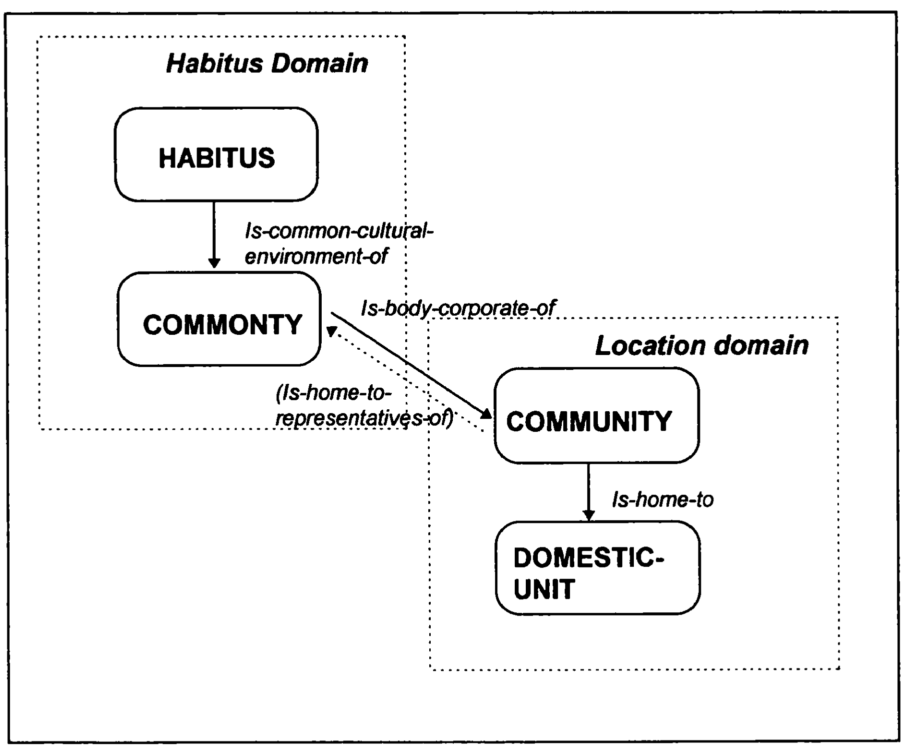


Figure 3.4 - The Location domain

Archaeological analysis requires identification of multiple assemblage locations and the range of influence of one commonty, or more. Thus, the extent of the commonty could ideally be mapped in terms of physical material. The model describes co-residence as COMMUNITY, taking the pragmatic view that whilst one COMMONTY may extend over many communities, each community represents only one COMMONTY. Whilst we might usually expect all the members of one community to participate in only one commonty, the larger communities which could be typical of early complex societies, for example, could house representatives of multiple commonties. Whether that can always be recognised in archaeological circumstances is doubtful. The term 'community' is used where archaeologists commonly use 'settlement'; the term allows understanding of a collective body of people as being sedentary, or not, whilst also suggesting dynamism instead of assuming stasis. A word which describes a physical environment without conjuring a vision of people in it suggests its persistence beyond population. For example, structures in settlements may house one person after another; if solidly built, the structures persist whilst the people do not. 'Community' conjures up an image of living people doing things, choosing where to live and involved in relationships with others. In theory concerned with aggregate outcomes of individual action, it is inherently confusing to use terms which suggest that objective entities exist independently of social actors. This is not just a question of preference, but rather a recognition that there has been no preordained formula to be played out by action.

COMMUNITY:
The largest population who live and work together as suggested by co-residence in a permanent settlement or who travel together and co-reside in temporary camps.

Conceptually, the COMMUNITY comprises many DOMESTIC-UNITs, spatial analysis of which is an important indicator of a commonty's cultural nature. Each DOMESTIC-UNIT is viewed as located with one COMMUNITY at any one time. Again, this is pragmatic in so far as whilst there is no doubt that a domestic-unit may transfer from one community to another over time, it is seldom (if ever) possible to track the history of individual people in archaeological circumstances (especially prehistoric).

Definition of a domestic-unit proves difficult as its make-up varies widely. Physical evidence will always lead the archaeologist to consider co-residence as a factor, but Goody's (1972) analysis illustrates that the primary co-residential domestic unit may be one of conjugal relations, and/or economic relations, and/or consumption. As he remarks '[the domestic group revolves] . . *around the hearth and the roof, the bed and the farm, that is, around the processes of production and reproduction'* (Goody, 1972, 4) but if universal characteristics of the relationship of those who actually live together (under one roof, so to speak) are sought then the relationship between domestic-unit and domestic group is by no means equivalent. Archaeologically, the data presented are physical structures and their spatial and access relationships to each other, storage facilities and hearths, from which mutual implication in the lives of the past residents can be deduced with some confidence, but the identification of the nature of these close relationships is much less secure. An archaeology of group dynamics is intended to encompass all forms of social organisation, and that may include institutional living in some cases. Thus, it errs on the side of caution in making assumptions about domestic-units which may be relaxed in cases where the data allows.

DOMESTIC-UNIT:

The normative smallest unit of the population who live together and who share food, on an everyday basis.

Inclusion of the concept of the norm will allow comment on and comparison of exceptional types of establishment in one community, facilitating open-minded recognition of less usual circumstances like single-sex institutions, communal living (c.f. communes), harem arrangements, 'households' comprising staff and their employers, and many more.

There is no assumption of conjugal relationships between people in a domestic-unit. Words and phrases with a 'family' connotation (e.g. 'nuclear' and 'extended' family) will be avoided so that value-laden images are not suggested to the subconscious. Similarly, gender relations; although there could be a great deal of interest in considering gender from a group dynamics perspective, it is beyond the scope of this work and all analysis and the language of presentation is gender-neutral.

The full model - Cross-domain relationships

The HABITUS : GROUP and COMMONTY : GROUP, HABITUS : COMMUNITY and PERSON : DOMESTIC-UNIT relationships have already been discussed, above. Clearly, there is a link between COMMUNITYs and GROUPs and this is important from the point of view of action analysis and its effects. In most cases, the community in its entirety is likely to represent an important level in the group hierarchy of a habitus. One COMMUNITY can comprise many GROUPs (e.g. social-status related sectors) but one GROUP (again, social-status related sectors present on example) may also span multiple COMMUNITYs.

The full model is presented in figure 3.5:

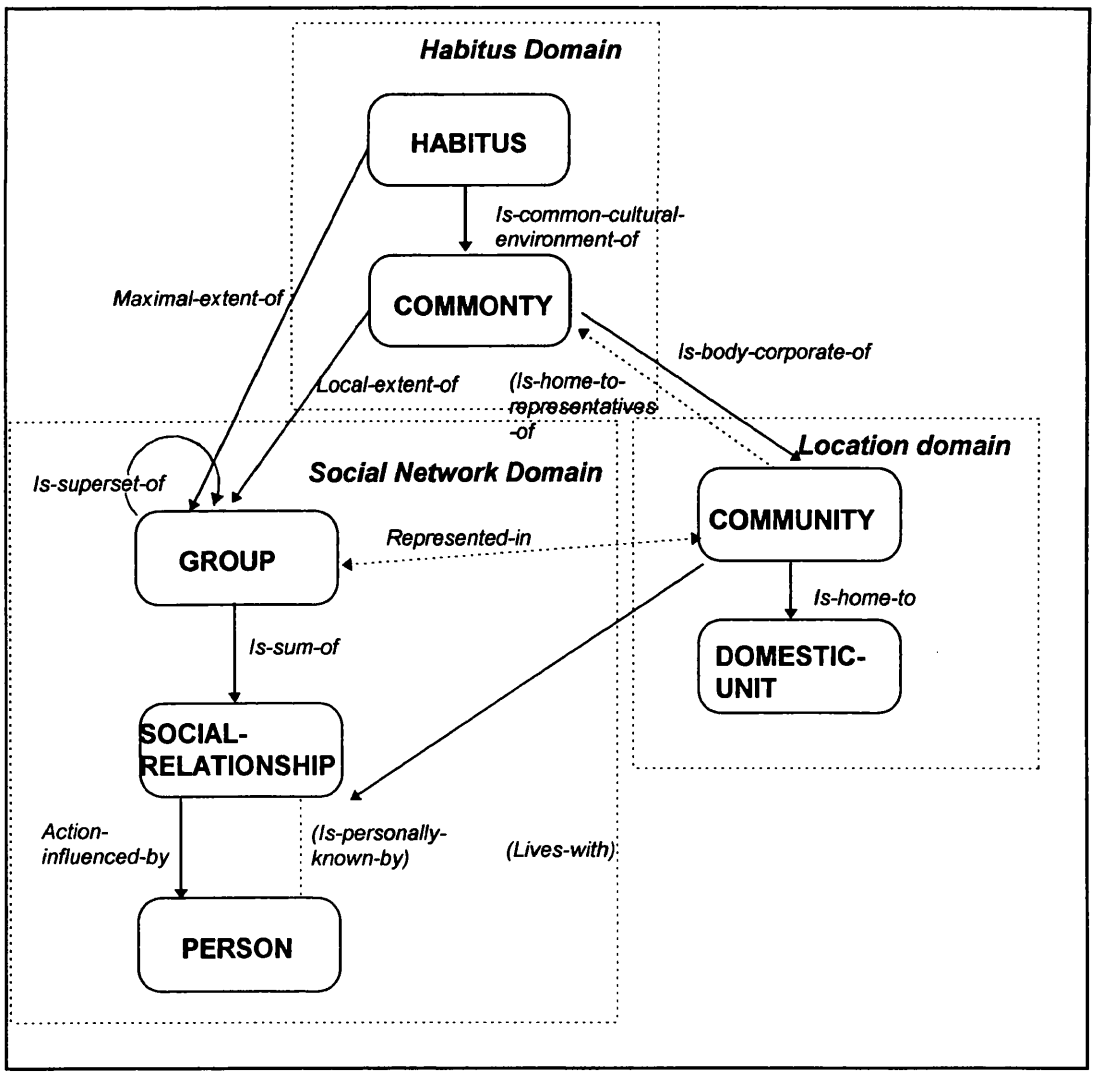


Figure 3.5 - The Entity Data Model

Social network analysis

Social network analysis is a method for identifying and representing key dimensions in the patterns formed by social bonds. Drawing a 'picture' of a population and their relationships does not inform *per se*, but it can act as a platform for discovering causal connections between a pattern, people's behaviour and the aggregate effects of action. The social sciences have some 40 years of analytical development in this area, although there is surprisingly little in the way of substantive theory as yet. That may be due largely to the difficulty of empirical testing on the large-scale that is the normal concern of sociologists. As commentators point out (e.g. Barnes, 1972, 26-7) in a population of only 100 people there are 9,900 potential relationships; making enquiries about all of those would be a vastly time-consuming task. Realistic numbers for modern societies make it impossible; for example, Boissevain (1974, 36) details one personal network in Malta which would amount to 875,000 people at one remove (i.e. if it included 'friends of friends'). However, some empirical work on partial networks has been achieved, particularly since the mid-1970s when large-scale computer power became commonly available to support these exercises. Given this boost, by the 1980s social network analysis had been recognised as a distinct perspective, perhaps amounting to a paradigm, and there has been a recent escalation of theory which is proving useful. (Wellman & Berkowitz, 1988a, 1-7).

Boissevain (1974, 3) discusses the general goals of social network analysis as:-

- identifying how interpersonal relationships are structured
- identifying how interpersonal relationships are influenced
- understanding how individuals manipulate interpersonal relationships to attain goals and solve problems
- understanding the effects of all of the above on the organisation and dynamism of coalitions (i.e. groups)

Attainment of these goals complements and extends dilemma models in that they tacitly aim for analysis of the influences acting on an individual by virtue of her/his position in the environment and they recognise deliberate action and decision-making in response to needs, whilst also recognising that an individual's action may change the environment of which s/he is a part. This is an ideal method for examining both cause and effect of social organisation change, from an individual action perspective.

The network as an entirety

A network contains *nodes*, each representing one occurrence of a unit which is normally a PERSON, but could be a GROUP, a COMMUNITY or a HABITUS. Nodes are linked by *relationships* (often called *social bonds* or *ties*) which represent the way in which people know each other, described by characteristics of the relationship (SOCIAL-RELATIONSHIPs). In the modern world, at least, where population is dense in most land areas of the planet, and where communication over long distances is commonplace, a network is potentially unbounded (the 'small world' effect). Strictly speaking then, network analysis is conducted on partial networks, which fits well with the archaeological project's concern with the smaller and partial social systems for which we have evidence.

Network characteristics

Viewing groups as social networks allows the application of network characteristics ideas as a methodological toolkit comprising structural elements and measurements of key variables in networks of nodes and their relationship to each other. Those relevant to analysis of group dynamics are shown in the network characteristics table (table 3.1) and cross-referenced to the paragraph which provides the technical detail.

Extent	*Structure*	*Ref.*	*Measure*	*Ref.*
Network-wide	Clusters	b.7	Density Transitivity Degree centrality Closeness centrality Betweenness centrality Prestige - Bonacich Power	b.1 b.2 b.3 b.4 b.5 b.6
Node-centred	Zones	a.1	-	-
Relationship attributes	Symmetry	c.1	Plexity Strength	c.2 c.3

Table 3.1 - Social network characteristics

Node-centred Structure

a.1 Zones

All zones relate to one node in the network (Ego) and are ordered such that the *first order zone* is the set of members with whom Ego has a personal relationship and all the relationships existing between them; the *second order zone* contains those who Ego does not know personally but can reach through one of her/his first order contacts ('friends of friends') and so on to the *n^{th} order zone* which includes those who Ego can reach through her/his $(n - 1)^{th}$ order contacts.

When analysing the extent of Ego's influence in a particular action, the type of relationship(s) involved is an important factor. There are many variables in analysing relationships (see below) but at a 'high level' of analysis it is useful to recognise the differences between friends, acquaintances and friends of friends. There is some disparity between commentators in use of terms and definitions; the terminology preferred here is division of the first order zone into the *intimate zone* (the closest intimates of Ego, in which relationships s/he invests the highest emotional and material resources), the *effective zone* (being the balance of Ego's close associates with whom s/he is likely to have effective contact) and the *extended zone* (being all others who Ego knows, but in a relationship of an instrumental rather than an emotional type). Whilst anomalous cases may be imagined, it is most often true that Ego will consider those in her/his intimate and effective zones as her/his social equals and that the people in these zones are more likely to know each other than are those in the extended network (Barnes, 1972, 14; Boissevain, 1974, 47).

Network-wide Measures

b.1 Density

The *density* of a network is a measure of the extent to which those relationships which could possibly exist do in fact exist (Boissevain, 1974, 37). Thus, it is an index of potential communication although it is important to recognise that the existence of a relationship does not mean that communication will occur in particular circumstances.

b.2 Transitivity

The degree to which those whom Ego knows know each other is termed the personal network's *transitivity* and correlates with network density. Transitivity is affected by the type of relationships between Ego and connected others. Whereas Ego's friends tend to stand in relationships of friendship to each other and are more likely to be friends than enemies (although there may be situational factors e.g. jealousy which prevent this tendency from always occurring), less intimate relationships are less likely to be transitive. The explanation lies in the empirically observed phenomenon that people are attracted to those who are similar to themselves and, therefore, the stronger the relationship between people, the more similar those people are *(homophily)* (Granovetter, 1973, 1362; Argyle, 1988, 229). Similarity of values gives social support for one's own views, essential for the universal psychological need for burnishment of self-esteem (Argyle, 1988, 229).

b.3 Degree centrality

If everyone were equally well connected, then no individual would be particularly visible to others in the network i.e. the *prominence* of nodes would not vary. *Centrality* of a network is the extent to which each actor is involved with others. An individual node's *degree* is simply the number of relationships in which they are directly involved, but the *degree centrality* of the network as a whole is the sum of all of the differences between a node's degree centrality and the largest value of that measure in the network, expressed as a percentage of the theoretical maximum value of that quantity. (Wasserman and Faust, 1994, 176-178).

The result will always be between zero (when all actors are equally central) and 100% (when one actor completely dominates the others). Those extremes are termed the 'ring network' (= 0%) and the 'star network' (=100%); the 'line network' is in between:-

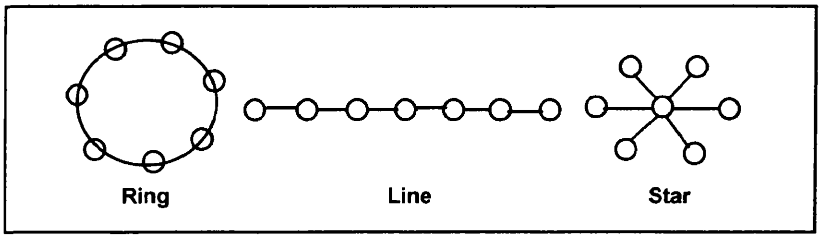


Figure 3.6 - Network centrality types

b.4 Closeness centrality

For the node, this is a simple indication of the distance to every other node. In other words, it is the number of people whom Ego would have to get to effect an introduction in order that s/he could meet every other person in a 'global' network. At the overall network level it measures the extent to which there is variation amongst nodes, in that it is an evaluation of the sum of the differences between the *closeness* of each node and the largest actor closeness value, expressed as a percentage of the maximum possible value for closeness. The opposite is termed *farness.*

When the value is 100%, one node 'chooses' all others (i.e. knows everyone) and the other nodes have geodesics of length two to all nodes other than the 'chooser' (a 'star network'). Value zero indicates that everyone is equal, as in the 'ring network'.

b.5 Betweenness centrality

Interactions between non-adjacent nodes (i.e. those with no direct relationship between them) depend on the other actors in the network who lie on the paths between the two, and who could therefore act as intermediaries or *brokers,* by controlling the interaction between the two strangers. Therefore, *betweenness* is a measure of strategic importance of a node. At the network-wide level, the sum of the differences between the betweenness for each node and the largest betweenness for the set of nodes is expressed as a percentage of the maximum possible value.

b.6 Prestige - Bonacich Power

Prestige is the extent to which a node is the *object* of extensive ties (i.e. a measure of the in-degree due to the node in directional relationships) and it is taken as an indicator of relative status of a node. Several analysts have proposed methods of measurement which are mathematically complicated. Although archaeological circumstances do not provide the data for calculating actual values it is useful to choose one measure to outline and assist understanding. The one preferred in this work was designed by Bonacich (1987).

Positive power:

Bonacich (1987, 1175) observed that equation of centrality (in any form outlined above) with status would tend to *'attribute higher status to the head of the secretarial school than to the president of the organisation'.* Whilst comparatively high individual centrality is valuable to an individual, acting as a 'hub' or a 'broker' within a social network is not the same as being in a prestigious position more allied with *power over* others than *power to* broker information. Working from a principle that in non-directional relationships a person connected to powerful others derives power from that, and vice versa, *Bonacich Power* calculates a status value as a function of the status values of those to whom the individual is connected. At a network-wide level, the *Bonacich Power* centrality index provides a measure of the heterogeneity of status, comparable between networks.

The logic of the measure is such that if one's status is a function of the others to whom one is connected and theirs is a function of their connections and so on, then a series of x equations, with y unknowns is generated in a network of z nodes. To solve those equations, a limit is placed on the distance over which comparative status is to be considered. Bonacich provides an attenuation parameter (β) which reflects the degree to which distant ties are taken into account. If it is set to zero, then results are directly proportionate to the nodes' degree centrality values. When the value is greater than zero, it can be interpreted as a probability that a communication will be transmitted by any receiving individual to one of her/his contacts (for which read, for example, that a command will be transmitted to subordinates) (Bonacich, 1987, 1173-1174).

Negative power:

Cook et al (1983, 276-279) introduced the concept of an 'exchange network' providing a set of exchange opportunities with others and exchange relations between them. Of key importance to the attempt to identify and evaluate power in a network is the recognition that in bargaining situations a resource-holding individual is in a better position when connected with weakly-connected exchange partners, as they have few alternative sources for the valued resource.

Bonacich (1987, 1176-1181) develops the concept of 'exchange power', recognising that it can be equated with a negative value of the attenuation (β) parameter. Thus, a negative value measures the extent to which an individual has gained a power advantage by being connected to less powerful others.

Network-wide Structure

b.7 Clusters

Networks may contain segments which have a relatively high density, generally termed *clusters* or *cliques*. This is likely when those involved have a high degree of transitivity (i.e. each knows many of the others) and only a very few of their nodes have links to others whom the majority do not know. Those latter relationships are often termed *bridges*.

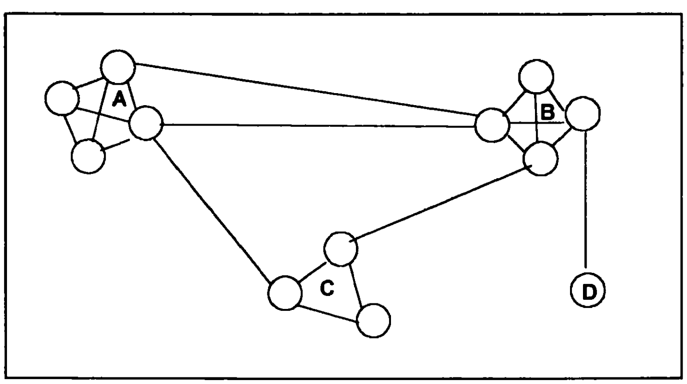


Figure 3.7 - A clustered network

The focus of analytical interest tends toward the bridges between clusters rather than the internal links within. Not only are those nodes which make the bridge in a comparatively powerful position when it comes to controlling (and hence potentially differential access to) resources, especially information (e.g. Granovetter, 1973, 1982; Wellman, 1988, 44-45), but also the approach tacitly assumes that inter-group relations arise from these bridges. Analytically then, figure 3.7(above) is commonly viewed at the group level, shown as figure 3.8:-

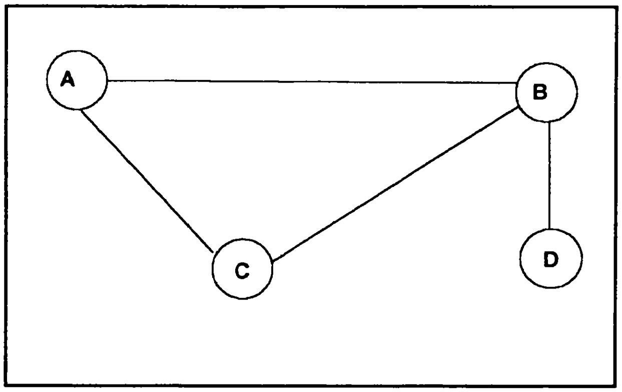


Figure 3.8- A clustered network, showing ties between groups A, B, C and D

Relationship structure

c.1 Symmetry

Relationships are two-way; if A has a relationship with B then B also has a relationship with A. Those may be equivalent (*symmetric)* when, for example, people are fellow-clanspeople or 'blood brothers' and commonly when they act in the role of friends (although Barnes (1972, 26-7) warns that assertions of friendship are not always reciprocated). As interviews and personal observation are unavailable to the archaeologist, it is probable that most modelled relationships in the intimate zone will be considered symmetric. Where relationships are asymmetric (e.g. patron : client; employer : employee) then there is the possibility of differential access to and control of resources (commonly including information) which amounts to differential power. *Asymmetry* does not mean that there is no exchange, but rather that the relative assessment of the value of the relationship differs.

Relationship Measures

c.2 Plexity

Social relations derive from the different activity contexts in which people come into contact and each context may be viewed as a role relation (Boissevain, 1974, 28-32). If two people meet for the first time as, say, a buyer and a seller their relationship in that context contains many meanings and roles which could include, for example, gender, age and race and which may influence their behaviour. Nevertheless, for analysis of change over time this is viewed as a single role pair, known as a *uniplex* relation (Barnes, 1972, 17). As uniplex relations occur in one context only, they are likely to be for an instrumental purpose.

Relationships which have many exchange contexts, serving a multiplicity of interests are said to be *multiplex* (Barnes, 1972, 13). Over time, durable uniplex relationships with frequent meetings between the pair may become multiplex (Barnes, 1972, 13-20) and it is generally assumed that multiplex relations will contain more intimate content (e.g. exchange of personal confidences) than uniplex (Boissevain, 1974, 32). The inter-influence of the multiple roles in a multiplex relationship tends to mean that it is more likely to persist over time and that there is greater accessibility through which to apply pressure than in uniplex relations.

Some commentators use the terms *density* and *multiplexity* as being almost synonymous. In practice, they are not; it is quite possible to think of a network as increasing in plexity of relations (due to durability and frequency, for example) yet not altering in terms of density. A small example is shown in figure 3.9a, changing to figure 3.9b, below, to illustrate this point. The misunderstanding probably arises from the relatively weak correlation between *transitivity* and the strength of a tie (discussed in detail below); as increasing plexity may lead to increasing strength of tie, there is a weak assumption that transitivity may follow, as illustrated in figure 3.9c, below.

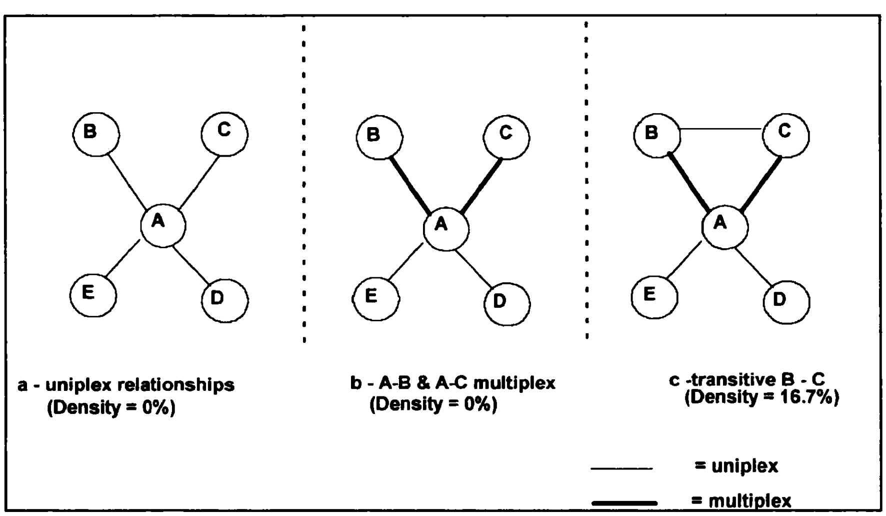


Figure 3.9 - Plexity and density

c.3 Strength

The concept of dividing a personal network into intimate, effective and extended zones is useful, but suffers from a multiplicity of definitions of the relationships which should be analysed as belonging to each zone (see above). Granovetter (1973) has circumvented the problem by introducing the simpler idea of examining the strength of any individual relationship and this appears to have been widely adopted. A measure of the strength of a particular relationship is a combination of factors which include its longevity, emotional intensity, the intimacy (mutual confiding) and the reciprocal services which characterise it (Granovetter, 1973). Granovetter (1973) argues that it is possible to have a multiplex relationship which is not, necessarily, a strong tie and, indeed, cites Simmel (1950, 317-329) in saying that uniplex relationships can, in rare circumstances, be strong as well. Experiment reveals that commitment to a relationship (i.e. the intention to continue it) depends more on 'investment' (i.e. time, effort, resources, shared property *inter alia*) than rewards (Argyle, 1988, 230) which tends to support Granovetter's argument for a separate measure for plexity. Argyle (1988, 230) adds that shared social network (i.e. density and transitivity) is also a further source of commitment.

This is clearly an important element in considering the dynamics of action in that it can be assumed, normally, that:-

- longevity and multiplexity indicate intimacy and commitment
- the stronger the tie, the greater homophily, increasing the likelihood of transitivity and clustering over time
- people strongly tied have shared values (worldview).

Somewhat counter-intuitively, Granovetter (1973, 1364-1366) argues that bridges between clusters are always weak ties and that diffusion (e.g. of influence, ideas or information) will reach larger numbers of people and cross greater social differences when passed through weak relationships rather than strong. This has important implications for effecting social cohesion and for the analysis of how and why change in social structure may occur. Granovetter's (1973) paper has had very wide-reaching influence, and engendered much follow-up work both empirical and theoretical which is summarised in Granovetter (1982) and of clear value to this project. Thus, the terms *strong* and *weak* ties are retained.

The groundwork is laid

The model of society which is used as the base for building group dynamics theory has been described and defined in this chapter, expressed in the form of an entity data model. The data domain representing the social network of all habitants has been brought into sharper focus by selection of apposite attributes of networks as developed by social network theory specialists. Thus, everything is in place for the first stage in group dynamics analysis developed in Chapters Four to Six, following.

CHAPTER FOUR - MODELLING SOCIAL STRUCTURE

It has been argued that anyone's choice of behavioural action is influenced both by their genetically inherited social dispositions toward others (and their needs and their wants) and their culturally inherited perception of the range and value of the choices available (Chapter Two, above). From the entire range of possible behaviours, the proportions of each selected are differentially influenced by what is regarded as desirable by commontants. In total, the theory of group dynamics seeks to explain the nature of that influence and, toward that end, asks how culturally-inherited behaviours influence individual choice of action and how individual action sustains, or changes, the cultural heritage of the next generation?

Given the time depth necessarily required to answer evolutionary questions about cultural heritage, an archaeological view provides an excellent test-bed (albeit that the archaeological record is only a partial view of the phenotypic expression of people's behaviour in the past). Thus, the first step is to provide a view of social structure which, although it can validly be applied to any current cultural environment, can also be applied to an archaeological dataset to link data and theory. This Chapter offers a model of the interaction between cultural influences on the individual and individual influences on the cultural heritage expressed as a matrix termed the *Group Dynamics Matrix* ('GDM'), together with the range of potential lines of evidence in the archaeological dataset which can link it to the GDM. That is the first stage in an archaeology of group dynamics and it results in a 'freeze frame' view of social structure at particular points in time (which vary depending upon the chronological resolution possible with any particular archaeological dataset).

From there, key patterns of social behaviour which vary cross-culturally depending upon social structure can be derived, tacitly providing causal explanation for apparent consistency of cultural behaviour over long periods of time, despite countless individual decisions, actions, personalities and social orientations ('normative group dynamics' presented in Chapters Seven to Nine, below). Finally, it can be said that some patterns are more robust than others yet all cultural behaviour evolves over time and the theory of 'evolving cultural behaviour' (presented in Chapters Ten and Eleven, below) offers causal explanation for change as it is measured on the GDM.

An Acknowledgement

Development of the GDM was inspired by Douglas' (1978) contention that culture may be better understood by analysis of the social context in which an individual operates, particularly with attention to the permitting and constraining effects on her/his choices (Douglas, 1978, 5). She constructed (Douglas, 1978, 7-21) a view of the individual in a social context of two dimensions and the resultant matrix was the starting point for this work.

Douglas' hypothesis that the two dimensions are of fundamental importance has been largely ratified by this investigation of the effects that give rise to those two constraining aspects; what was self-acknowledged guesswork on her part stands up well to this search for a firm base from which to build theory. Resolving that outstanding issue has suggested some transformation of Douglas' original work and highlighted a few omissions, together with indicating a relevant way of referring to the two dimensions by terms for the social network effects which they represent in practice.

There is a danger that acknowledgement of the seminal importance of the original may become lost in this extension and yet Douglas' 'Cultural Theory' is not so transformed as to lose benefits which accrue from translation back to it. Consequently, the direct references to Douglas' (1978) are few, but a 'translation matrix' (below) is provided for full acknowledgement and for further reference.

The Group Dynamics Matrix ('GDM')

Cultural influences on individual action

The more dense the network of commontants, the more transitive it is (i.e. the more people have mutual friends and acquaintances). The low end of the density scale is, as Douglas (1978, 16) puts it *'an environment in which a person finds himself* [sic] *the centre of a network of his* [sic] *own making'*. Relationships are mainly uniplex, arising from building one's network from people that one meets by virtue of where one lives, where one works, what one does for recreation and so on; if they were substantially multiplex, then one's acquaintances would be more likely to know each other, increasing density amongst the commontants overall. Conversely, the higher the density of the network the greater the plexity of relationships to the point, at very high density, where all commontants are co-implicated in the majority of facets of life

In making a decision, one considers the range of possible actions known to oneself; even the most percipient person is unlikely to think of every option every time and is 'helped' in that by referring to the variety of experience of friends, acquaintances and cultural progenitors. If those friends and acquaintances do <u>not</u> tend to know each other (i.e. low transitivity and, therefore, low density) their variety of experience presents Ego with a wide range of possible options. Conversely, when a network is very dense, then every member is likely to have very similar perceptions of what is possible because a comparatively limited range of experience is offered by people who only know each other, with a concomitant homophilous effect.

From that correlation of network density and homogeneity of experience it follows that the basis of decision-making will tend more to the subjectively rational at the low density end of the scale, as little common ground and experience amounts to little in the way of social norms; at the highly dense end the balance is tipped toward social norms. If there is to be any normative behaviour amongst people in a low density network then it will often require conscious collective action amongst 'rational' choosers. This involves agreement to a worldview acceptable to a dominant majority and must often be made explicit in 'laws' and codes of practice requiring, in turn, the establishment of formal institutions to draft, maintain and police adherence. Conversely, where people have a multiplicity of facets of life and experience in common, social norms can both evolve and maintain.

Decision-making on a basis of subjectively-rational choice requires less in the way of faith in others than dependence on social norms, but it is more costly in evaluation time. The high density network provides an environment conducive to fostering the trust required for co-operative action with the benefits that accrue from that, making it costly to leave and re-establish relationships elsewhere, by comparison with the low density. Thus, high density networks explain the effect often labelled 'collectivist', indicated by a syndrome whereby the individual apparently values the group more highly than any one person in it (including self). It has been argued that this is not true altruism but rather a commonty's worldview which has evolved as a collectively stable strategy of co-operation, selfishly-motivated but based on confidence in the longevity of the commonty and the trust in co-commontants which ensues (Chapter Two, above). Members of low density networks have no such confidence, as losing some acquaintances and gaining others is comparatively 'cheap'; that does not mean that they are characterised by the non-social life of constant defection, but it does suggest a climate where each case is selfishly decided with a resultant atmosphere imbued with the competitiveness of the culture hitherto labelled 'individualist' (Chapter Two - Sociality and Culture, above).

Thus, whilst the effects of cultural variation in behaviour have been observed and categorised by experiment and observation, the theory posits a causal pattern, proposing that the commontant network density is the key variable for the extent to which an individual's choice appears subsumed to the interests of a commontant population. The scale of network density is a continuum from 0 - 100%, but that is too fine for measurement of observable, contemporary society, let alone that known from the partial picture provided by archaeological data. Thus, the 'density dimension' of the commonty's social network is developed and enhanced by recognising three broad bands, defined in figure 4.1, below.

Density dimension: Measures cultural influences on individual action by reference to network density of the commontants, categorised into three broad bands.

CIRCUMSTANTIAL	Range >0 - 10%; median c5% Individuals are at the centre of networks of their own making, therefore they are related by force of circumstances only, typically by virtue of where they live and with whom they work.
CONTINGENT	Range 10 - 50%; median 20% The individual is free to join any associations; little is prescribed by custom and should individual behaviour give rise to internal conflict, the degree of mutual implication in life support is likely to be weak enough to allow fission as a practical solution.
CORPORATE	Range 50 - 100%; Median 80% A person is implicated with most others in the majority of facets of life, especially common residence, shared work, shared resources (technology and / or food) and shared recreation. Most aspects of life are prescribed by custom and personal fission is an impractical solution to internal conflict.

Figure 4.1 - The Density dimension categories

Each density category is accompanied by a range of density values where it may be expected. Those figures are derived from concatenation of the results of a number of published observation and experiment studies, detailed in Appendix C (Network Sizing Parameters).

The effect of individual behaviour on cultural behaviour

Thus far, cultural variation in social behaviour has been viewed as evolving as a result of the commontants' influence on the individual, but that is not sufficient causal explanation. Within commonty there is variation in the range of potential action available to a particular person and in the personal equation of comparative costs and benefits to self. Individuals do differ in propensity to co-operate, in opportunity, talent, luck, history, judgement and more, and selfish intent to maximise own gain by utilising personal advantages would tend to make the nascent differentials manifest if not checked.

If there is a resource which is valued and which is in comparatively short supply then as long as there are those differences between people there is potential for differential access to that valued resource. For one person to have more (an 'excess-holder' another must have less (the 'under-endowed'). To the extent of the difference in the relative cost to the individual of obtaining more of the resource (the 'marginal utility'), the under-endowed is comparatively more constrained in the range of possible actions from which to decide a course than the excess-holder. The excess-holder can negotiate equivalence in an exchange with the under-endowed which is disproportionate to the cost of reducing her/his stockholding by the exchanged amount. Transactions are likely to be in mixed 'currency' and that can include requiring conformance to a rule or prescription. The extent to which some individuals constrain the actions of others directly affects the evaluation of subjectively rational decision-making. The more power is in the less hands amongst commontants, the less the autonomy of the greater proportion of the population. That effect is the centrality of the social network, seen both as prestige centrality (the extent to which there is inter-node differential social visibility) and power centrality (the extent to which those of high status have relationships with others of high status). Note that the relationships can reflect any transaction type.

In so far as resources are the currency of exchange in transactions between parties in a relationship, it can be argued that those with the greatest number of relationships are those with the greatest <u>potential</u> for exercising *power over* the others. Those perceived as powerful have high social visibility and, as Boissevain argues (1974, 85-86) *'they may be included more often in the networks of the less powerful than the reverse. That is, a person may consider that he* [sic] *has a relationship with a powerful person, though the latter may not recognise this'.* It is very unlikely that the degree centrality of each individual's network is equal, thus maintenance of *equal* centrality requires collectively co-operative action to mask differences and prevent them being realised by resisting domination and avoiding competition by socially levelling mechanisms usually including sharing. Therefore, equality is not true personal autonomy in that the individual is not free to compete but it is the greatest average autonomy achievable for a commonty. Equals are free to live with whomsoever they like but may be required to share and will generally be ostracised or expelled from the group in the event of discovery of an attempt to defect from the mutually co-operative norm.

Without deliberate suppression, the differential social visibility effect can result in asymmetric relationships in that the less powerful person may seek access to the powerful influence of the other by attempting to develop the instrumental relationship between them (e.g. of client and patron) into a multiplex one by offering unequal (un-reciprocated) services. (Boissevain, 1974, 85-86). The power of that patron over her/his client may involve no overt coercion, yet does benefit the patron by increasing her/his social capital, burnishing self-esteem. It may also benefit the client, in that the association has increased her/his own stock of social capital, as well as opening an avenue for access to valuable resources in a subjectively economical way (e.g. as opposed to obtaining them by raw effort direct from source in the case of materials, or by acquiring new skills in the case of manufactured goods). The client may feel no unwelcome constraint but only satisfaction with the unequal relationship. Where neither party alters the tacitly acceptable balance between direction and service, the equilibrium of the social connection may persist over generations, becoming more a social norm than a subjectively rational choice with each iteration of the decision. The patron is more central than the client, but the freedom to accept or refuse the 'terms' of the relationship on both sides suggests a line network in which exceptional endeavour by a talented individual could result in greater centrality for that individual.

Differential relationships based on coercion may still be mutually acceptable and maintained by the commonty, but when the valued positions are not available to all with sufficient motivation and talent, then centrality approaches the maximum (i.e. a 'star' network) with the inescapable prescription of positions ascribed by birth and, at its most extreme, personal autonomy reduces to near nil; the cost of individual resistance would be denial of birthright. However, for a commonty to reach that extreme requires that the cost of personal resistance outweighs the benefit; for that to be the case requires coercive force, with painful sanctions. Thus, there may be some overlap between the centrality value range within a commonty with differential power based on coercion and with inherited status based on benign and mutually legitimated authority, but toward maximum centrality the power base is likely to include coercive elements, if it is to persist.

Thus, inter-individual differences in the degree of personal network can evolve into differential centrality (both prestige and power differentials) to an extent that commontants are classified by a social structure comprising groups who have *power over* other groups (a hierarchical structure) or, to put it the other way, to an extent that the *power to* of some groups is constrained by comparison with others.

Whilst centrality is measurable, there is no single measure which adequately reflects both the prestige and the power differential aspects. Furthermore, as with the density dimension discussed above, the refinement would be too great to be accessible in archaeological circumstances. Thus, borrowing from and extending what Douglas (1978, 17) termed the 'grid' dimension of social structure, three categories are proposed in which a range of combinations of prestige and power centrality are defined. There is a danger that this classification system will be seen as similar to the unidirectional trajectories of social evolutionism but that is neither the intention nor the reality. This may be seen clearly by considering the centrality of the social evolutionists' 'chiefdom' category (highest centrality - power in the hands of very few) and their 'state' category, which would have a much wider distribution of power, placing it down-centrality of the 'chiefdom'. The two-dimensional, evolutionary perspective on group analysis is aimed at doing away with sharp dichotomies - movement within the cultural behaviour matrix reflects both dimensions.

Centrality dimension:	Measures individual influences on cultural behaviour patterns by reference to centrality of the commontants' network, categorised into three broad bands.
EQUAL	Personal autonomy except to the extent that realisation of inter-individual difference is opposed by suppression of competition.
DIFFERENTIAL	Inter-individual differences are not suppressed (horizontal and/or vertical), to the extent that all valued positions are available to all with sufficient talent to fulfil them (except where limited by gender).
INSULATED	Inter-individual differentials in access to valued positions are ascribed at birth.

Figure 4.2 - The Centrality dimension categories

Inability to derive the exact network structure in the past necessarily means that the variety of different circumstances which could result in a similar degree of centrality can only be approximated. Thus, for example, some individuals could achieve relatively greater centrality than others by virtue of their 'sponsors" (e.g. parents) status, even though there is no ascription as such; that would place the network as a whole at the high end of the *differential* range or the low end of the *insulated*.

The Group Dynamics Matrix

Putting the two critical dimensions together, the cultural behaviour pattern of commontants depends upon the combination of the density of the social network acting as a restriction on the individual's range of possible action by virtue of the extent to which the individual's life is absorbed in and sustained by group membership, and the centrality of the network which acts to enable the advantaged individual to realise her/his potential at the expense of limiting the range of possible action of the less advantaged by virtue of constraint and prescription. The whole is the meso-causal Group Dynamics Matrix, shown in figure 4.3 and repeated in Appendix A for ready reference:-

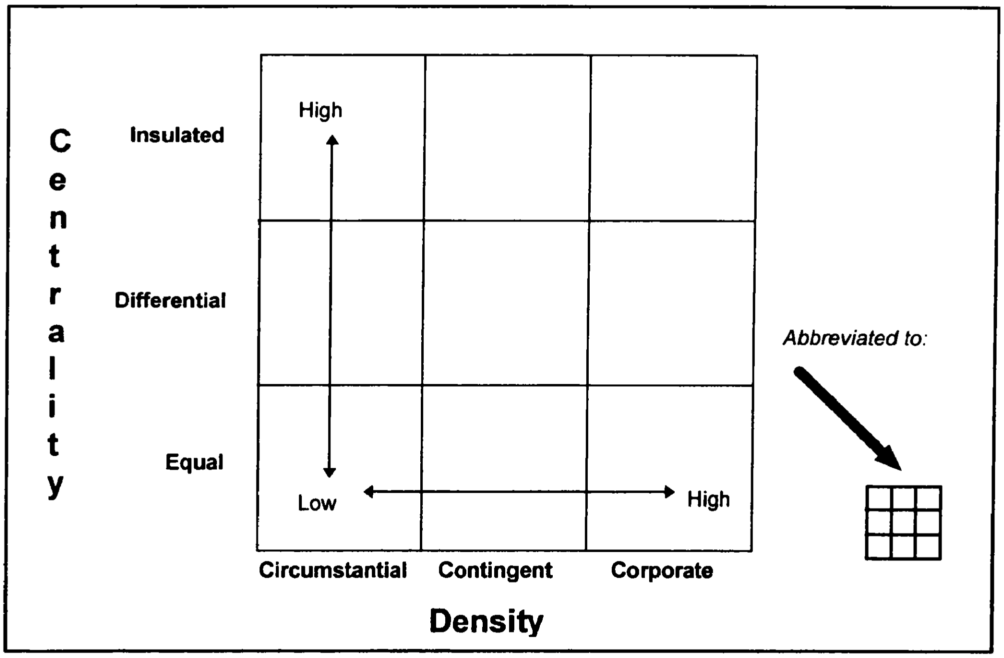


Figure 4.3 - The Group Dynamics Matrix

From the characteristics of the underlying network structure of a commonty, typical cultural behaviour patterns can be derived in the density and the centrality dimension categories, and then combined to form predictions of the dominant worldview of commontants of each matrix cell (Chapter Seven - Normative Group Dynamics, below).

Douglas' categories : extended grid-group matrix

Despite having re-oriented Douglas' (1978) Cultural Theory by locating the common denominator in social network effects and by extending it and transforming the Grid-Group matrix into a form amenable to derivation in archaeological circumstances (detailed below) there is still a considerable body of theory based on that matrix without alteration which remains a valuable resource to group dynamics theory. To facilitate independent reference, a rough translation matrix (figure 4.4, below) provides a start point, although detailed use of data accessed in this way should be approached with caution as some categories do not match exactly.

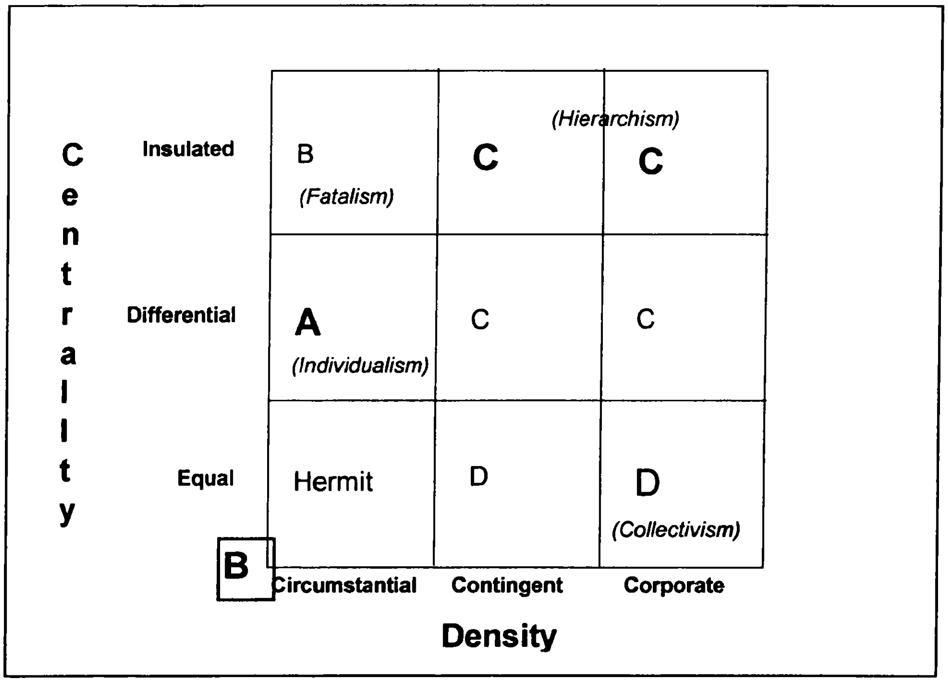


Figure 4.4 - Douglas' (1978) 'Grid-Group' categories mapped onto Group Dynamics Matrix

The approach to application to archaeological data

A material culture assemblage represents a partial picture of the past. The archaeologist does not know the extent of the mutually-identifying commontant population who used and deposited that material, yet the commonty is a key point of focus for group dynamics analysis. 'Territorial' analysis in the form of seeking patterns of communities in the landscape may offer some guidance, yet the risk of being misled is considerable given a modern cultural bias of imagining that hierarchy is to be expected, falling straight into the trap of assuming that large sites are central and, therefore, more 'powerful' without further correlation. Alternative approaches, particularly use of the 'archaeological culture' concept to identify an homogenous habitus have also been discredited (e.g. Shennan (1978, 113-140) on analysis of the mooted Bell Beaker 'culture' in Central Europe).

The habitus is a concept of inculcation of a population with cultural norms which are shared and, from the material point-of-view, that means by a common environment; the fact that neighbouring population commonties may, or may not, hold some cultural ideas in common is irrelevant to this perspective. It is differences which must be emphasised rather than similarities, in mapping populations and the commonties, albeit that transmission of behaviours between different populations is of interest in other ways.

Group dynamics analysis is likely to illuminate the question of a commonty's extent in many cases but analytical assessment of the relationship between cultural elements in the landscape and commonty is again difficult and uncertain. Consequently, it can neither be considered a linear nor a 'top down' approach but rather it must be iterative and heuristic.

In attempting to survey the wide range of possible lines of evidence for group dynamics, the presentation may appear somewhat prescriptive. There is no intention that an analyst should follow the approach slavishly; in a particular case it may be that some data is unavailable and/or that other data which provides high-resolution analysis may deserve more weight than less detailed and/or that extended analysis is possible in cases where further lines of evidence are available (particularly written records, historical accounts, inscriptions and coinage). In sum, the archaeology of group dynamics is initially presented as a *pro forma* for an entirely artificial case as the first stage in any analysis must be a detailed review for applicability and derivation of a particularised plan for research.

Position on Group Dynamics Matrix

The archaeological data which may contribute lines of evidence to analysis of the position of a social network represented by an archaeological dataset on the GDM are discussed below, organised in a manner which starts at the widest level of detail and narrows to the most specific units (i.e. from the whole study area to the level of the artefact and the individual) as summarised in figure 4.5:

Level of detail	Analysis	Centrality?	Density?
Whole study area			
	Population		✔
	Style		✔
	Specialisation	✔	✔
	Community site patterning	✔	
	Access	✔	
Community architecture			
	Territory and boundaries		✔
	Public spaces		✔
	Monumental architecture		✔
	Memorials (people and events)		✔
Intra-community assemblages			
	Intra-community spatial patterning		✔
	Domestic wealth	✔	
	Boundedness	✔	
	Storage	✔	
	Domestic-/social-unit specialisation	✔	
Artefactual			
	Status symbols	✔	
	Specialisation	✔	
	Weights and measures	✔	
The Individual			
	Mortuary	✔	

Figure 4.5 - Lines of evidence for Group Dynamics Matrix position

Each section is illustrated by a summary diagram and those are repeated in Appendix A (Models and Definitions) for ready reference.

Whole study area analysis

Population

Attempting assessment of a total population is notoriously difficult in archaeological circumstances, yet where estimate of range is possible some basic deductions of network density may be made. Aside from any other factors in calculating population, the analyst must be able to estimate the extent of commonty (especially spatially) with some confidence if *contingent* or *corporate* density is to be assumed on this basis. Evidence for typical personal network sizes has been examined (Appendix C - Network Size Parameters, below), showing that an adult individual is unlikely to maintain a network of many more than c400 relationships.

Therefore, if the population range of the commonty is unlikely to be more than c800 - 900 adults, *corporate* or *contingent* density can be posited with the former more likely; at up to c 4200, *contingent* or *circumstantial* (again, the former is more likely) and any greater population is very likely to represent *circumstantial*. Refining the choice between *contingent* and *corporate* density may be possible by considering the population of an individual community by comparison with the total commontant population; if communities are typically less than would satisfy personal network needs then inter-community relationships within the commonty are likely, tending to suggest *contingent* and if there is only one community then *corporate* is indicated. Otherwise, no further refinement can be made, as multiple communities may equally represent a federated *corporate* population or a typical *contingent*.

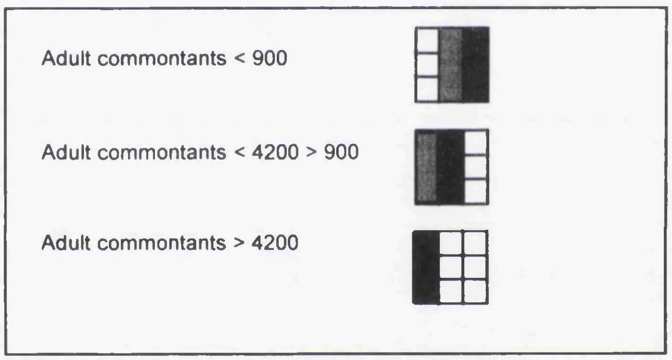


Figure 4.6 - Whole study area analysis - Population and network density

Style

People need a sense of self, an identity which is established both by comparison with others ('personal identity') and by self-identification with one or more groups ('social identity' or 'group identity') (Tajfel, 1978, 63-65). The degree to which people emphasise one or the other is at the heart of network density analysis. That sense of identity can be signalled in both verbal and non-verbal physical behaviour and the latter is of most interest to archaeologists as non-verbal physical signals include those which may survive as material evidence. Every item which is fashioned from raw material could be made in any number of ways, but any one instance of that item has been made in one particular way. This is the 'style' of the item; the *'way of doing'* (Hodder, 1990, 44-51). Consciously, or sub-consciously the maker has made choices about the way in which s/he has executed the task, both in technique and in decoration.

In the past decade, particularly, archaeologists have focused on this phenomenon, realising that the choices made express something about the maker's attitude to self and to group. There is lively debate about issues as fundamental as the essence of style, the ways in which it can be useful to the archaeological project and how it is formed and influenced (e.g. whether it is self- or sub-conscious, culturally influenced or individual choice) (Wiessner, 1990, 105-112). This is less important than it may appear at first, as the limits of the aims of group dynamics analysis do not stretch those style issues to any great extent.

There are several alternative, and vying, models for analysis of style including 'emblemic and assertive' (Wiessner, 1983, 253-276), 'panache and protocol' (MacDonald, 1990, 52-60) and 'isochrestic and iconic' (Sackett, 1985, 154-159). The examples and studies from Polly Wiessner's own work and Garth Sampson's (1988) work which uses the 'emblemic and assertive' model are useful for group dynamics analysis and the discussion will be restricted to that approach, for brevity. In no sense should that be taken to imply that alternative approaches are any less worthwhile; as Wiessner acknowledges herself (1990, 105-112), there is considerable symbiosis between the models and a consensual approach is likely to draw elements from each.

The prime contribution of style analysis to this project is in its correlation with network density, taking the view that the <u>absence</u> of strong social identity signals suggests the more individual-oriented end of the density continuum.

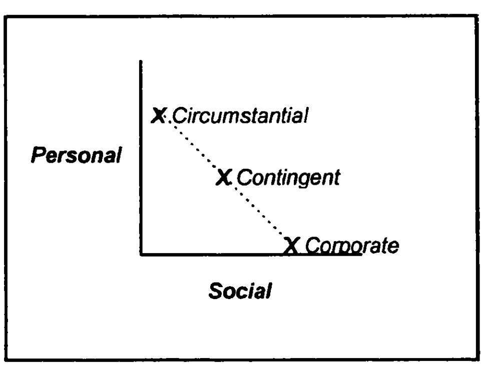


Figure 4.7 - Emphasis of style signals by network density

Every action by an individual may be expected to contain some element of personal style; Wiessner (1983, 257) records that social psychologists argue that *'when put in positions of extreme conformity individuals experience discomfort and strive to differentiate themselves* *from similar others'* but also that *'sense of identity is largely derived from membership in different groups and identification with those groups'*. However, a search for personal style need not concern the analyst greatly, as it is not the purpose of group dynamics analysis to find extreme conformity (albeit that it would be interesting). Furthermore, personal style is often expressed in physical adornment of the body (e.g. body painting, hair styles, tattooing, or the San men's alterations to their store-bought hats) and this does not survive well archaeologically. Thus, analysis is almost entirely concerned with emblemic style, defined as *'formal variation in material culture that has a distinct referent and transmits a clear message to a defined target population about conscious affiliation or identity'* (Wiessner, 1983, 257) as opposed to assertive style defined as *'formal variation in material culture which is personally based and which carries information supporting individual identity'* (Wiessner, 1983, 258).

It is posited that *circumstantial* commontants exhibit almost no emblemic style at all, primarily as a result of the lack of homophily which is a feature of low density networks (p. 88). Furthermore, they may positively seek to adopt different personal styles in many things that they do, striving to differentiate themselves from others, resulting in e.g. different house styles *inter alia* and there may be an element of competition in that (per Douglas' (1978, 22-36) 'weak group' category and discussed in detail in Chapter Seven - Normative Group Dynamics, below). Thus, in considering an attribution of *circumstantial* density the analyst must seek to ensure not only the absence of emblemic style, but also the clear presence of assertive style, to make a confident analysis. If unable, then a *null* result is preferable to an erroneous assignment.

As the members of a *contingent* density network will move freely from community to community, the extent of emblemic style is likely to exceed the extent of the community by a considerable margin. Finally, that of a *corporate* density network would tend to correspond to the extent of the community. However, review of an ethnographic study of the populations of the Ucayali region (see the 'Shipibo-Conibo study' in Appendix D - 'Method' Studies, below) reveals that it would be fallacious to conclude that the detection of no emblemic style archaeologically means that the subject group falls in the *circumstantial* category. Given the differential survival of material, detecting the difference between a *contingent* and a *corporate* density may be difficult. Even in the *corporate* case, exact correlation between the archaeological style boundary and the commonty cannot be expected. Sampson (1988) has tackled this problem head-on in his analysis of the archaeological style boundaries among the mobile hunter-forager groups of the Zeekoe ('Seacow') Valley in South Africa (detailed in Appendix D - Method Studies, below). This study is especially useful for group dynamics analysis as it tackles the more challenging analysis situation of mobile communities, although it will apply equally to sedentary.

The study allows an hypothesis that the *corporate* commonty will demonstrate a distribution of items conveying emblemic style, relatively close to home and that no other local commontant population will have the same emblemic style set. The *contingent* commontant is free and entitled to move between communities which may be some distance away. Sampson is able to construct a convincing map of territory as well as identifying those design elements which appear to be emblemic, as opposed to those which do not, by means of extensive fieldwork, surface sherd collection and analysis of manufacturing technique and decoration type. The history of archaeological fieldwork is such that the standard of collection and retention of material evidence has varied enormously and it must be accepted that in many cases, if not the majority, that standard is inadequate to support fully the style analysis approach pioneered by Sampson (Appendix D).

Erring on the side of caution then, the analyst may be able to use embryonic style analysis techniques to identify the place of a community in the commonty. When (if) stylistic analysis matures, there may be a great deal more that those techniques can offer to group dynamics analysis.

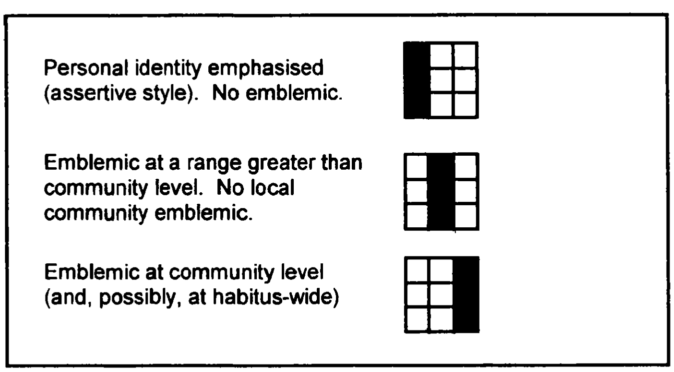


Figure 4.8 - Whole study area analysis - Style and network density

Specialisation

Whilst labour specialisation ('horizontal' differentiation) does not constitute limited access to resources *per se*, some must produce food for those who specialise in non-food-producing activities, in exchange for their services. When that specialisation is beyond the domestic-unit a degree of network centrality is rather likely for two reasons. Firstly, there is the potential for annexation and control of some comparatively valued resources (both material and skill) and unequal exchange is probable when that applies. Secondly, specialists may either enter transactions with many more people (and more widely spread) than non-specialists and, thus, be in a favourable position for exercising the power of 'broking' information or, alternatively, they may be somewhat marginalised in which case non-specialists are comparatively more central.

On a commonty-wide basis, a *circumstantial* density network is likely to need a 'market' facility to provide a forum for exchange, as the 'shadow of the future' is not long enough to allow trust in fair exchange with any but members of one's own close personal network; exchange in different 'currencies' is likely to require institutionalised control. Therefore, if there is a public location which appears to be a market within the commonty's archaeological landscape (e.g. corroborated by artefactual evidence and obviously not a community settlement site *per se*) then *circumstantial* density may be tentatively posited on the strength of that; *contingent* and *corporate* cannot be inferred by the absence of such. However, care must be taken to assure oneself that the putative market was intended to serve the commontants, as opposed to providing a formal facility for trading with other commontant populations. Strong corroborative evidence is needed before placing any great weight on this line of interpretation.

In centrality terms, however, specialisation within a commonty amounts to *differential* or *insulated* centrality, by definition. On a commonty-wide basis, it is difficult to conceive of the line of evidence which would allow an analyst to distinguish between the two in this respect. Therefore, it may only be concluded that if communities within the commonty's range appear to be specialised when compared with each other, judged on the basis of the overall community assemblage pattern, then this is likely to be *differential* or *insulated* centrality, but not *equal*.

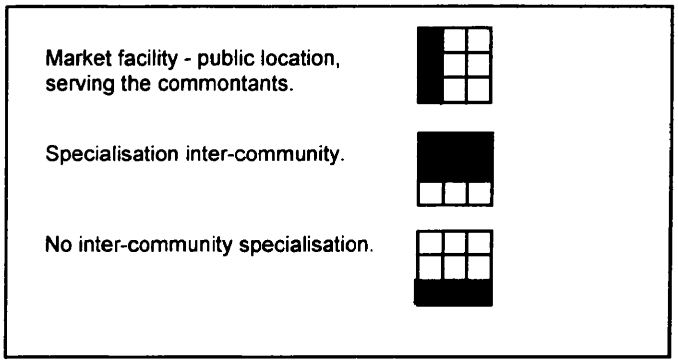


Figure 4.9 - Whole study area analysis - Specialisation and network density and centrality

Community site patterning

Alert for the possibility of differential location of social sectors, inequality on a commonty-wide scale may be sought by examining inter-community differentials in access to resources which appear to be valued by the commontants. Value may be seen in different areas. Firstly, wealth is discernible in terms of the energetics of production and procurement, relative rarity of a material or a good and in the degree of use. Smith (1987, 297-335) has demonstrated through ethnographic study that residential architecture is the strongest and most consistent expression of wealth and that the inventory of a household's possessions provides a reliable predictor of relative wealth levels. In centrality analysis, the analyst is concerned with evidence of differential access to wealth and in 'prestige goods', marking a privileged social sector as different from others (e.g. Hawaiian cloaks and feathered helmets which are made from c ½ million feathers of a rare yellow bird (Earle, 1990, 77)) and with the presence of items exchanged to effect and affirm social alliances in restricted spheres of society (e.g. polished stone axes in Neolithic Britain (Bradley, 1984, 38-57). Assessment of individual lines of evidence is discussed in paragraphs detailing assemblage and artefactual analysis, below.

Accumulating the evidence for each community, inter-community comparison allows assessment of commonty-wide centrality:-

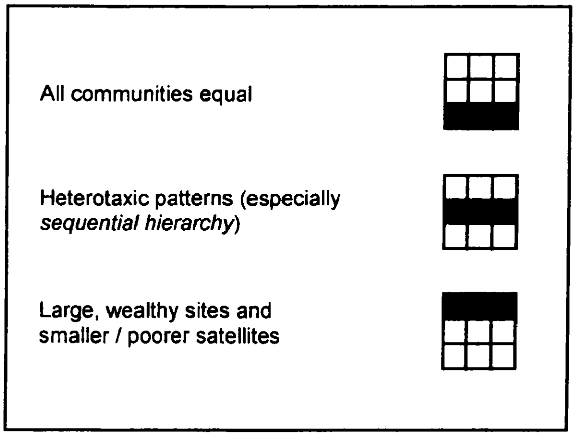


Figure 4.10 - Whole study area analysis - Community site patterning and network centrality

Access

Spatial arrangements of a site can be analysed to assess whether access is open to all or restricted. If the site is enclosed, or hidden in some way, such that the activity within is not clearly visible to the outsider then it is 'bounded' and if the capacity within a bounded element of the site (or the entire site) is limited then access to the activity within is 'restricted' to a portion of the population only. A bounded and restricted arrangement of inter-community facilities (e.g. public agglomeration, ceremonial, ritual or market sites) implies secrecy and exclusion, amounting to an indication that access to the knowledge of conduct as well as physical participation in performance is limited and that signals *insulated* centrality. At the opposite extreme, when access is unbounded and unrestricted, all performance is visible and any may participate and that indicates *equal* centrality. Where there are no obvious facilities at all in the archaeological record, meeting is assumed to have taken place in unrestricted and unbounded 'special places' and to have been available to all (i.e. *equal* centrality). In between, subjective judgement is needed but a lightly bounded (i.e. open to view from outside) facility with restricted capacity would tend to suggest *differential* centrality.

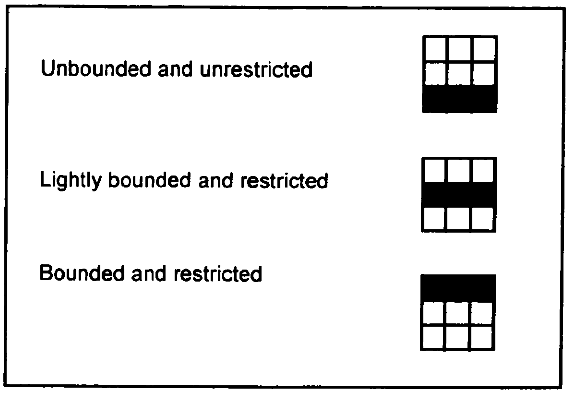


Figure 4.11 - Whole study area analysis - Access and network centrality

Community architecture

Territory and Boundaries

The criterion for high network density as defined by Douglas' 'strong group' (1978, 19-20) is that *'the individual is first and foremost constrained by the external boundary maintained by the group'* and, in contrast, *circumstantial* density (Douglas' 'weak group') is one where *'the social experience of the individual is not constrained by any external boundary'* (Douglas 1978, 20-21). In network density analysis, the importance of boundedness is as an expression of the strength of differentiation between the in-commontants and the ex-commontants. External boundaries may be manifest in many different ways including, for example, language barriers, social and supernatural sanctions and erection of permanent, bounding structures. This variety could be taken to imply that the analyst could make no confident prediction in the face of an absence of an archaeologically detectable boundary. However, before reaching that pessimistic conclusion, there are a number of factors to be considered which influence the outcome.

It has often been assumed that humans are territorial by nature but recent studies have revealed that territoriality is not a genetically fixed trait but, rather, a possible strategy that individuals may choose when it is to their adaptive advantage to do so (Dyson-Hudson and Smith, 1978, 36). Demarcation and defence of territory is, in part, a response to environmental factors which determine whether a resource is economically defendable, or not. Dyson-Hudson and Smith (1978, 21-41) identify the key parameters as resource density and predictability, proposing a model of four alternative strategies, depending upon those variables. That model is reproduced as figure 4.12, below.

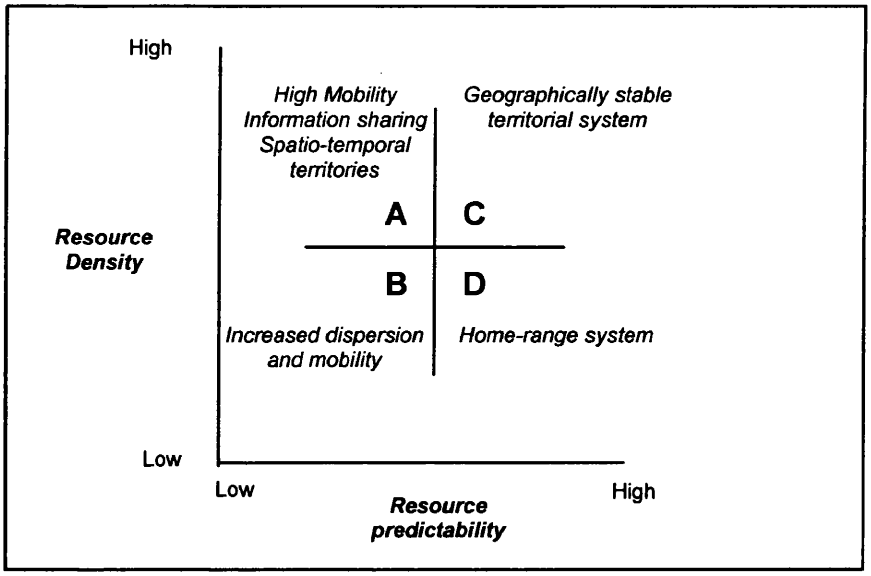


Figure 4.12 - Economic defendability model (source: Dyson-Hudson and Smith (1978, fig. 1)

It may be seen at a glance that each node of the model suggests a different position on the network density continuum, such that A would suit *contingent*, B *circumstantial*, C *corporate* and D either *contingent* or *corporate*. That is not to imply that network density can be predicted by environmental variables, as the history of membership of the commontants is likely to affect individual perception of the relative costs and benefits between staying and leaving if environmental circumstances change. However, it may be said that if the commontants' territory is economically defendable then the population may implement demarcation and defence by a combination of social and supernatural sanctions when the ex-commontants may culturally understand these, or by physical and defendable boundaries, when they may not. In the former case, the community is most likely to fall into the *contingent* network category; in the latter, the *corporate*.

Furthermore, the very action of perceiving a need to defend territory by a physical, defendable boundary is likely to affect social structure. Only strong *contingent*, or *corporate* groups by definition expect to persist without fission in the long-term future and only they can make levies on individual members to ensure capital investment to endow their prosperity (Douglas, 1978, 20). Thus, it may be suggested that, at the time of perceived threat, the individual will either stay with a community and contribute to the creation of protective boundaries (reducing the viability of leaving) or s/he may leave to join another community, resulting in dispersion.

Thus, over time, it may be posited that a *corporate* community will demonstrate physical boundedness, whereas a *circumstantial* would be bounded at the domestic unit level, at most. The *contingent* community may exhibit boundedness at the social cluster, or a weak physical boundedness in symbolic terms (e.g. 'territorial markers') and/or a 'closed', non-invitational physical arrangement.

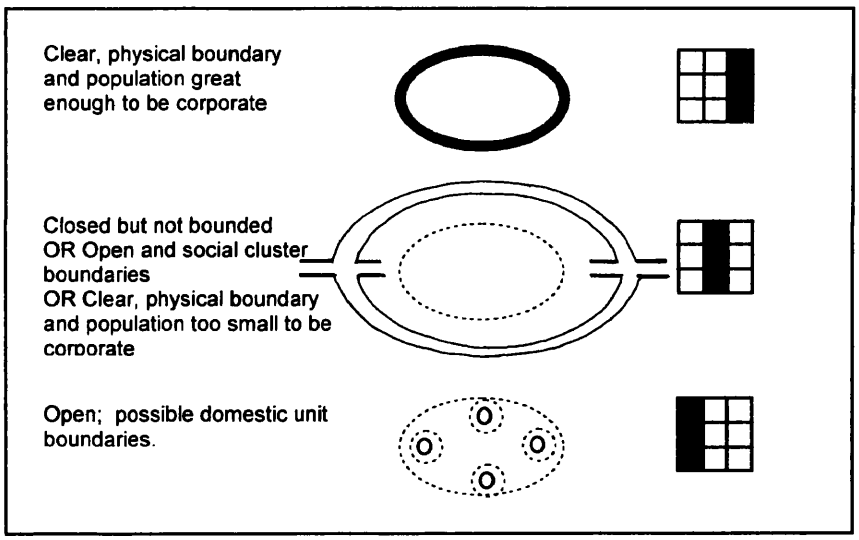


Figure 4.13 - Community architecture analysis - Territory, boundaries and network density

Public spaces

The *circumstantial* density commontants have little or no constraint to social interaction with others; they are not motivated by any spirit of community and in consequence there is little need for provision of public spaces. However, the lack of tradition, of cohesive style and of co-operation may create a need for commercial markets and services (per whole study area analysis, above).

The *contingent* density commontant does have a need for social interaction and communication with other domestic-units at the local level. S/he is also free to join any other communities, by definition, and thus the commonty's extent must be greater than a single community (unless it is very populous). Thus, it is possible that the *contingent* commontant will find investment in public space, for congregation, worthwhile at the commonty level.

The *corporate* network is largely self-sustaining and able to invest in its future posterity. Communal events are of considerable importance to maintain bonds and local public spaces essential for staging them. In the higher centrality case, the community may devolve or federate and, as a consequence, there is the possibility of a 'hierarchy' of public spaces for agglomeration of related communities, especially when the local community is too small to reproduce itself.

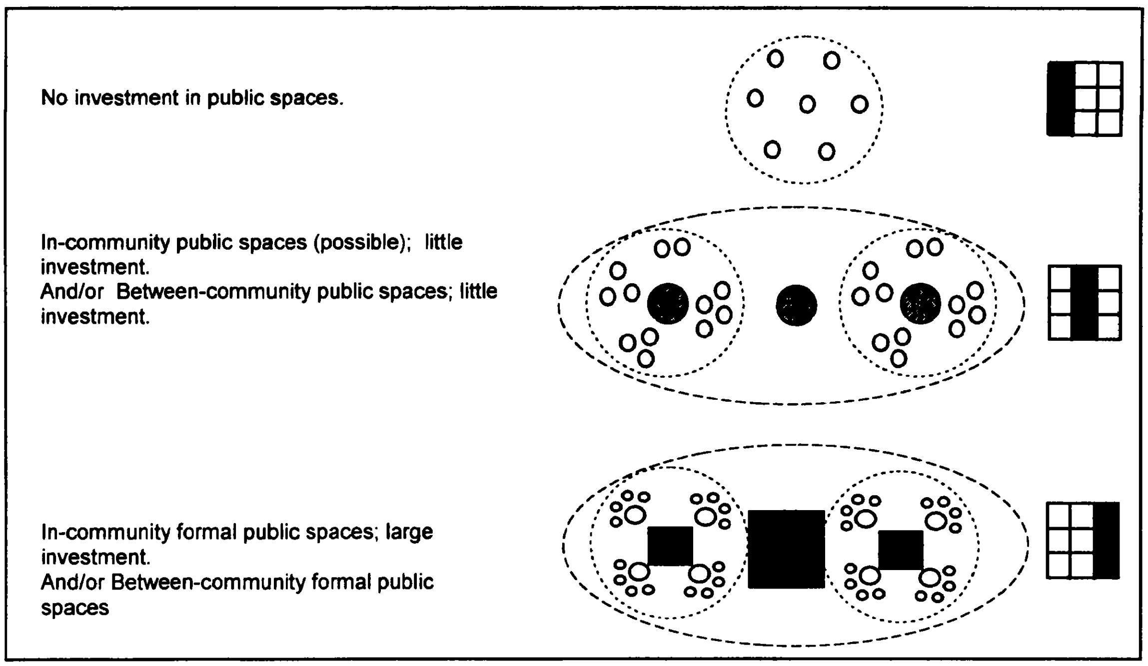
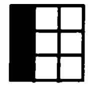


Figure 4.14 - Community architecture analysis - Public spaces and network density

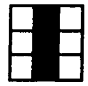
Monumental architecture

The conditions, circumstances and motives for the provision of monumental architecture are just as those for public spaces. However, in this context it must be noted that the category includes tombs, ritual structures, ceremonial sets and public buildings.

No monumental architecture.



In-community monumental architecture (possible); little investment
and/or Between-community monumental architecture; little investment.



In-community monumental architecture; large investment
and/or Between-community monumental architecture

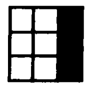


Figure 4.15 - Community architecture analysis - Monumental architecture and network density

Memorials (people and events)

Along the network density dimension the individual's values range from entirely personal-goal-oriented to considerable subsumation by group values. Douglas posits that the attitude to memorialism will reflect this, ranging from memorials to the famous dead '[who] *are part of Culture with a capital letter as well as now being a harmless uncompetitive part of nature'* (Douglas, 1978, 29) to creation of memorials to important communal events at the strong density end of the continuum.

Following from this, it must be expected that *circumstantial* network commontants may create private memorials and the *corporate* may participate in building memorials to communal events, but it should be expected that those would be at a commonty-wide level, rather than just local, as predicted for public spaces.

There is an apparent anomaly that it is important to recognise, archaeologically: the upper echelons of a social structure characterised as *insulated* centrality and *corporate* density (or, possibly *contingent*) may, as a social sector, fit the profile for individual memorials in this respect, particularly as they, or their successors, may be motivated by a political will to manipulate ideology to bolster and justify their own positions.

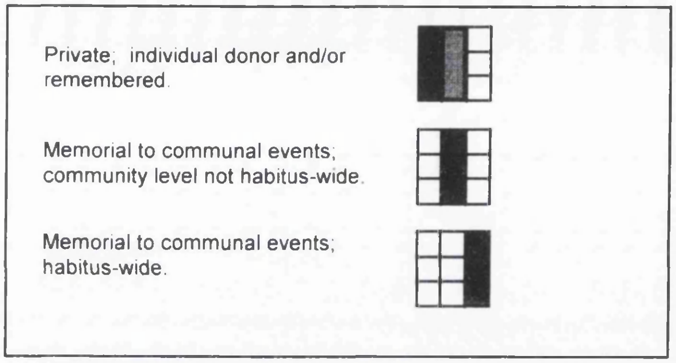


Figure 4.16 - Community architecture analysis - Memorials and network density

Intra-community assemblages

Intra-community spatial patterning

The way in which space is organised and used in a habitation site is related to the way that the site dwellers communicate and interact (Whitelaw, 1991, 139-140). Archaeologically, there are three observable variables to be considered, namely:

1. intra-domestic-unit spacing
2. regularity of domestic-unit space use
3. recurrent themes in patterning of space use

Studies of modern foraging communities, both mobile and sedentary (e.g. Whitelaw, 1991, 139-188; Gargett and Hayden, 1991, 11-32) have shown that domestic-units linked by strong relationships are physically closer to each other than the domestic-unit 'cluster' is to any other cluster. Underlining this phenomenon, Whitelaw (1991, 141-149) demonstrates a broadly inverse relationship between population and residential density, suggesting that *'larger communities will incorporate a larger number of people who will be less familiar with each other and who are likely to interact less regularly and less intensively'* (Whitelaw, 1991, 149) i.e. the larger the community, the less dense the social network. At the high residential density end of the scale, all of the communities reviewed by Whitelaw are small (usually < 50 individuals) and all large communities have relatively low residential density (Whitelaw, 1991, 149). Whilst these observations may tempt the analyst to think of absolute populations as a criterion in group dynamics analysis, that would be fallacious if taken beyond the general approach outlined in the 'Whole study area analysis - Population' line of evidence, above.

Circumstantial network commontants are drawn together by weak ties of alliance arising from common local interests; individuals feel few, if any, historical ties with each other. In those circumstances, it can be posited that it is unlikely that domestic-units will form any social-unit clusters and, furthermore, that each will be maximally distant from any other. Maximal spacing may be difficult to demonstrate without any delimiting, absolute boundary or spacing criteria. For example, the archaeological view of a landscape may be incomplete; when people are drawn to a particular resource, the sources or the constraints upon travelling and utilisation of time or, indeed, the cultural use of time may not always be apparent. Any number of factors may influence absolute spacing in a particular context, including those defined by Gargett and Hayden (1991, 26-27), namely:-

1. the need for observation of the household whilst about other activities, for detection of theft or intruders
2. the need to be near enough to others to avoid being accused of sorcery, or other mischief
3. the desire for personal privacy
4. refuse and activity areas outside domestic-units, and their spread through time
5. occasional personal alliances requiring proximity (e.g. disputes and fights).

In the absence of any formula for calculation of absolutes, it is best to bring further criteria to bear. *Circumstantial* commontants have little common custom and, apart from the use of local materials, it is predicted that household design will have little regularity and differences in style may be very marked.

By contrast, the community in *contingent* density network comprises any number of domestic-units which not only have the need for significant social interaction and communication between members but also between units. The members of the domestic-unit are related by kinship ties as a general rule in studies of modern small societies, but the possibility of other reasons for close, domestic affiliation should not be excluded (e.g. age bands; specialised roles). As is posited by Whitelaw (1991, 140-141) and demonstrated in the Gargett and Hayden (1991, 15-22) study of Australian groups, the inter-domestic-unit spacing of one social cluster is less than the inter-social-cluster spacing (termed 'clumping'). Nothing can be said about the regularity of domestic-units between social clusters; they may be regular (e.g. !Kung San; Dobu) or irregular (e.g. Gbaya).

Corporate commontants are implicated together in the majority of life support functions, with an established history, social continuity over time and the subsumation of the individual to the commontant population as a whole. Thus, strongly recurrent themes of patterning and regularity are predicted (Douglas, 1978, 26). Hence, it is useful to think in terms of sectors, constituting a closely-spaced pattern and the replication of that pattern. If there is a single sector to the community, then close spacing and extreme regularity of domestic-units may still be predicted.

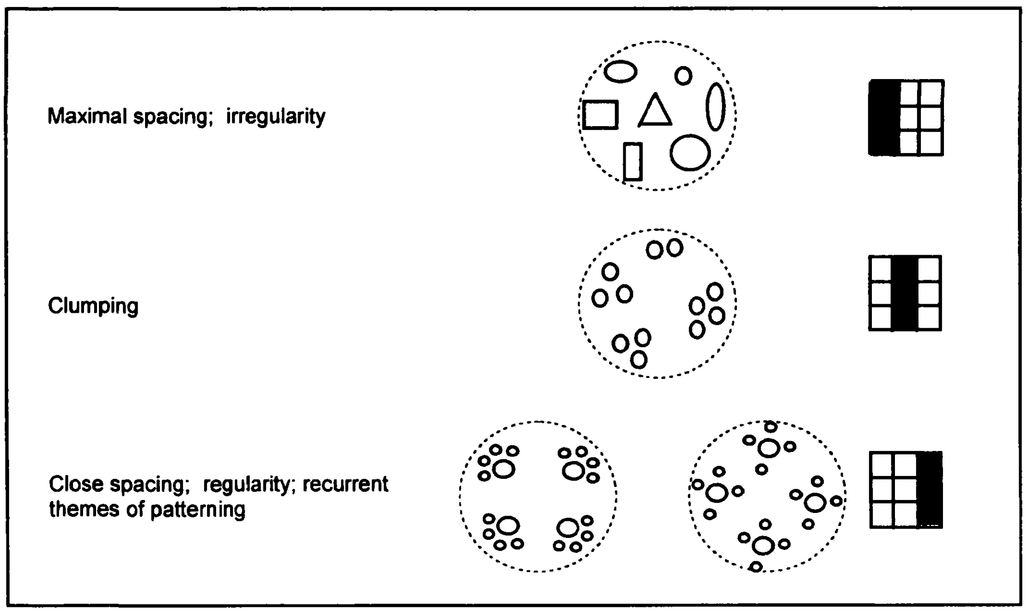


Figure 4.17 - Intra-community assemblage analysis - Spatial patterning and network density

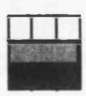
Domestic wealth

As a strong and consistent indicator of inter-individual differentials of capital regarded culturally as 'wealth', differences in the costs of procurement and the energetics of production between the architecture of domestic-units is a reliable indicator of the existence of centrality in the commonty's social network.

Homogeneity of residential architecture is to be expected for *equal* centrality but may also be argued as possible in weak *differential* centrality networks, as heavy, long-term investment in architecture may be considered more worthwhile when one may expect one's own progeny to benefit from one's efforts to provide wealth enough for inheritance and that can be expected in the strong *differential* or the *insulated* centrality cases only.

It may be possible to refine the assessment based on residential architecture further by adding the wealth indications of the household assemblage itself to the equation. In total, if there is an approximate equality of wealth of domestic-units then either *equal* or weak *differential* centrality is indicated, but if there is difference, then *differential* or *insulated* centrality describes the data better. In the latter case, it may be possible to infer one or the other in a particular case on the basis of whether the comparative difference suggests the building of a large inheritance for legatees or whether it represents a level more appropriately regarded as life-long comfort and prestige for a particular domestic-unit (*insulated* or *differential*, respectively). That may be accessible in the archaeological record by cautious subjective assessment of effort and facility, together with the potential longevity of the fabric of the superstructure.

Residential architecture = homogeneous; equality of energetics of production; equality of 'wealth' in assemblage.



Differential energetics of production of short-lived emphasis (architecture and/or domestic-unit assemblage); personalised.

Differential energetics of production large enough to suggest inheritance (architecture and/or domestic-unit assemblage).

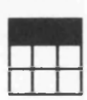


Figure 4.18 - Intra-community assemblage analysis - Domestic wealth and network centrality

Boundedness

Much capital which underlies cultural status differentials may not be in held in a form which is evident in the archaeological record and analysis of domestic wealth (above) will consequently tend to understate the degree of centrality in many cases. However, it has been argued that the *equal* centrality commonty must maintain levelling mechanisms to counteract the constant pull up-centrality which is inherent due to inter-individual difference in talent. Thus, it is posited that settled communities within *equal* centrality networks will be characterised by an open and invitational architecture, with little inter-domestic-unit secrecy, allowing equal practice to be monitored by the collectivity. The same is likely for *differential* centrality predicated on specialisation and democratic forms of representation, although stronger *differential* centrality shading into *insulated* are likely to be more closed and private.

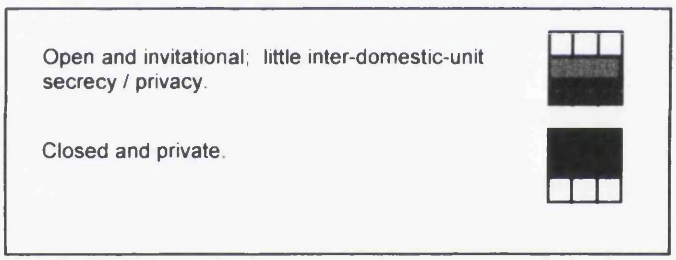


Figure 4.19 - Intra-community assemblage analysis - Boundedness and network centrality

Storage facilities

If storage is on a community-wide level then there is clear evidence of wide-scale sharing of whatever resource is stored. If that stored, shared resource is relatively unbounded then it is probable that the network is characterised by *equal* or weaker *differential* centrality. However, if a central storage facility is closed and bounded, possibly even protected, then it may signal that the resource is managed and rationed by the powerful in strong *differential* or *insulated* centrality arrangements.

Storage capacity at a social-unit level may also be bounded and closed, or unbounded and open and the same argument applies at a social unit level.

If storage is not central, then differential capacity can be brought into the analysis; inter-domestic-unit or inter-social-unit variation suggests *differential* (if widely varied) or *insulated* (if there appear to be distinctive 'levels' of capacity) centrality, whereas no difference implies *equal* access to resources.

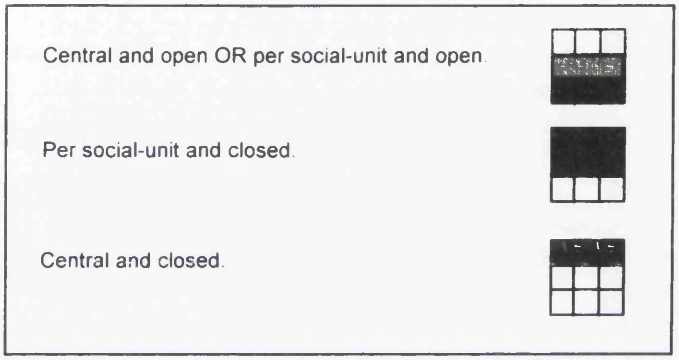


Figure 4.20 - Intra-community assemblage analysis - Storage and network centrality

Domestic-/Social-unit specialisation

Variability in the <u>content</u> (not the value) of domestic-unit assemblages within a social-unit generally indicates specialism with centrality implications as discussed above (pp. 101-102) and that may suggest either *differential* or *insulated* centrality. The absence of specialisation can (cautiously) be taken to imply *equal* or weak *differential* centrality as the chance of significant inter-individual power differentials without specialised items to act as prestige markings is slim.

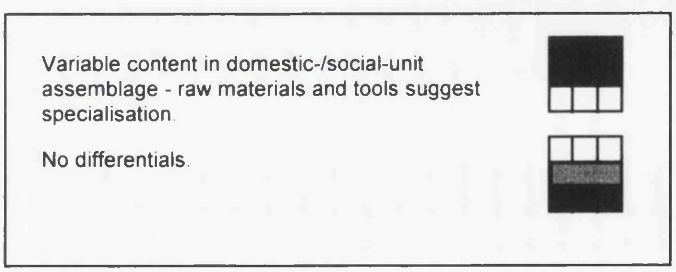


Figure 4.21 - Intra-community assemblage analysis - Domestic-/social unit specialisation and network centrality

Artefactual analysis

Status symbols

Positions of authority (whether legitimate or coercive) are often marked by symbols of status and/or office. The absence of such markers does not negate the possibility of valued, limited positions, so *equal* centrality may never be thus assumed, but the presence of status symbols does imply either *differential* or *insulated.*

Markers of status / office.	
No markers of status / office.	**NULL**

Figure 4.22 - Artefactual analysis - Status symbols and network centrality

Specialisation

Artefacts which are standardised to the extent that routine manufacture by a limited number of producers is indicated may be interpreted as evidence of a considerable degree of specialisation (Rice, 1981, 221) which would indicate *differential* or *insulated* centrality (pp 4.33). Again, absence cannot be taken to suggest *equal*.

Manufactured goods.	
None	**NULL**

Figure 4.23 - Artefactual analysis - Specialisation and network centrality

Weights and measures

The presence of standardised weights and measures implies the formalisation of equivalence required to support an economy in which production is specialised, in some degree. Therefore, presence may indicate *differential* or *insulated* centrality, but absence may not indicate *equal*.

Weights and measures present.	
Absent.	**NULL**

Figure 4.24 - Artefactual analysis - Weights and Measures and network centrality

The Individual

The individual is seldom visible in the archaeological record in any line of evidence other than mortuary practice. Exceptions may include coinage, written sources and art but those are regarded as 'special' and atypical data from the point-of-view of group dynamics analysis, requiring specialised knowledge and techniques considered outside the scope of this project.

If the analyst could be confident that the ideology of burial ritual reflects that of a living society, then analysis of spatial arrangements, interment treatment and grave good assemblages would be invaluable evidence for centrality analysis. However, Ucko's (1969) work on the ethnography of funerary remains makes it abundantly clear that in many cases the ideology is concerned with distorting, or obscuring social relations in life. As such, disparity between the apparent ideology of funerary practice and the centrality measure of the independently-analysed commonty is useful input to consideration of the maintenance of status. However, it can be input to group dynamics analysis of centrality in the first instance in some circumstances.

Hodder (1982, 152-153) extrapolates from Giddens' (1979) work to show that there are three ways in which domination may be accepted ideologically and he predicts the ways in which material symbols could be used in burial for each circumstance, as shown in figure 4.25, below:-

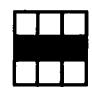
Acceptance of domination	*Symbolism of burial*
1. Ideology is used to *deny* the conflict within society. It is normally in the interests of dominant groups if the existence of contradictions is denied or their real locus is obscured.	Burial pattern denies social differentiation (i.e. apparent equality, when the social reality is very different).
2. An ideology may represent the sectional interests of one group as the universal interests of the total society. So, the ideas of the ruling class become the ruling ideas.	As denial (above).
3. Naturalisation occurs in an ideology when the arbitrary existing system of relations appears immutable and fixed, as if they are natural laws.	Accurate reflection of social differentiation in life.

Figure 4.25 - Domination and material symbols in burial

Thus, it may be seen that there is either an accurate reflection of social differentiation (if any) or that the burial pattern explicitly obscures it by representing an equality in death. Ucko's (1969) work has most frequently been interpreted to mean that little faith can be placed in unsubstantiated analysis of burial ideology as a reflection of contemporary social life. However, it could be argued that where there is apparent differentiation in burial practice then this is an example of naturalisation (3 in figure 4.25, above). It is suggested that whilst the analyst must not interpret egalitarian mortuary practice as correlating with egalitarian social practice, s/he may interpret socially differentiated mortuary practice as representing non-egalitarian social life i.e. no society represents a social structure in death as not egalitarian when in life it is.

A pro-forma for analysis of social differential in burial is difficult given the huge variety of practice through space and time. However, careful comparative analysis of the 'wealth' exhibited in grave goods and pyre goods, in combination with physiological, spatial and chronological evidence, may allow centrality analysis, expressed on a 'closest fit' basis.

- Specialisation, even without wealth differentials and/or differential burial practice
- No evidence of hereditary status
- No physiological evidence of improved health and longevity correlated with a wealthier group
- No extremes of differential wealth (must be acquired in a lifetime)



- Differential burial practice, correlating with substantial differences in wealth
- Emphasis on differences
- Hereditary status

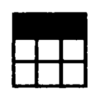


Figure 4.26 - Individual analysis - Mortuary analysis and network centrality

Group dynamics theory - linking to the past

This Chapter has derived and detailed a model of social structure which is applicable to any modern-day society but it has also provided analysis criteria for archaeological data which allow the model to be linked to the past. That is demonstrated by application to a prehistoric dataset spanning at least 1200 years (Chapter Six - The GDM of Sussex and Appendix I - The GDM of Hampshire) introduced for the non-specialist in the next chapter (Chapter Five - The Case Study).

CHAPTER FIVE - THE CASE STUDY

Purpose of a study

The thesis that the information value of archaeological data is improved by an interpretation of the prevailing, culturally contextualised group dynamics requires convincing analysis of a case study which:

1. demonstrates the practicability of applying the theory and method to an archaeological dataset
2. demonstrates versatility by showing that it can be applied to different kinds of base data and allow them to be compared as a result
3. demonstrates sensitivity to change over time
4. has been the subject of enough modern interpretation to allow evaluation of the additional contribution of the group dynamics perspective and
5. has been published in an accessible enough fashion to allow competent building of a dataset by a non-expert in the field.

A study of the neighbouring modern Counties of East and West Sussex (grouped together as 'Sussex') and Hampshire in the first millennium BC satisfies all points whilst also providing the chance to throw some light on the intriguing problem of how regional variation observed in the proto-historical years at the very border between BC and AD reckoning of chronology could have come to be.

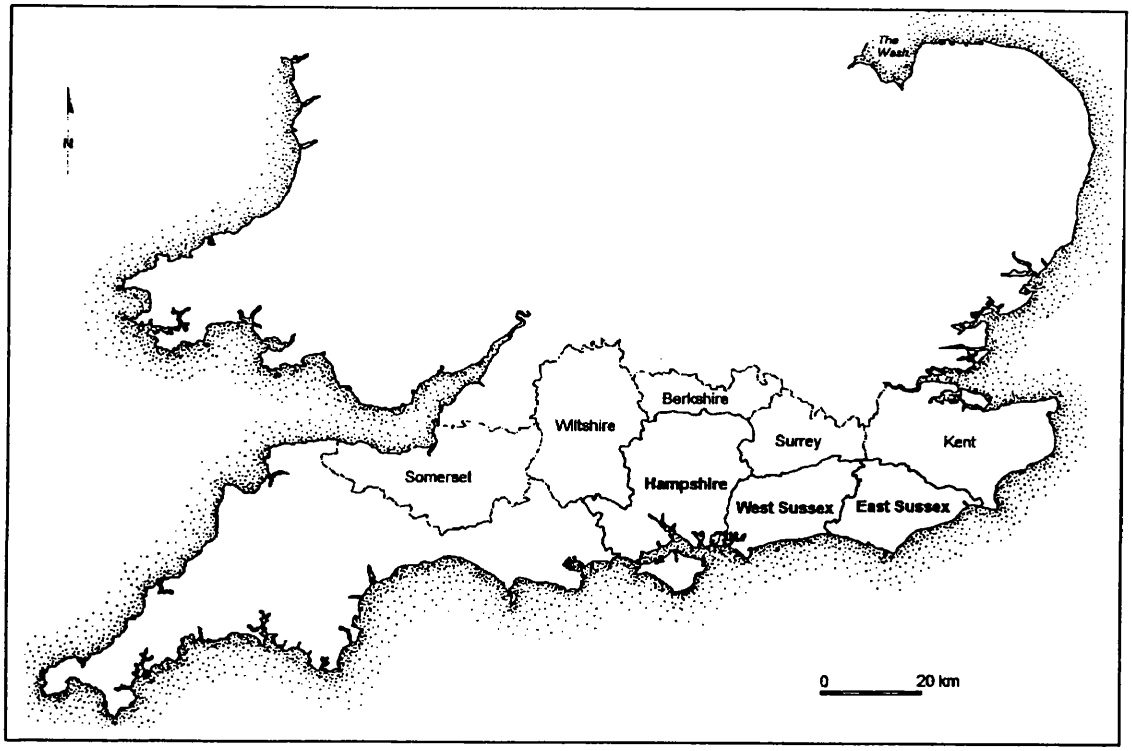


Figure 5.1 - Location map - the case study area

In this Chapter, key background data appertaining to the case study are introduced in order that a non-specialist can readily see how the study challenges the theory and method as well as providing information needed to follow the analysis through as it is developed. The suitability for demonstration of efficacy is reviewed, the environmental aspects of the region in prehistory summarised and the nature of the case study dataset introduced in preparation for the analysis and evaluation exercises.

Suitability

A substantial study

The challenge of a study spanning the last millennium of prehistory in Britain is in no small part due to the size of the dataset. Whilst this is commonly regarded as a boon, interpretation is generally complicated by the lack of any clear methodology for handling such volume. The quality of excavation and reporting has been variable as much of this period has attracted the attention of the enthusiastic 'amateurs' of the early C 20th and this makes garnering information to build a dataset a time-consuming exercise. However, working with multiple lines of evidence at varying levels (i.e. from the micro-level of individual artefacts to the macro-level of whole study area site patterns) does invite the contribution of each type of data whilst allowing shortfalls in recovery or recording to be filled by other, equivalent, data.

Change over time

The first millennium BC spans the developments commonly thought of as the 'Bronze Age to Iron Age transition' as well as those associated with contact with Roman cultural values prior to the Roman invasion of Britain. A study of evolutionary development needs a baseline, so this study starts at a point toward the end of the second millennium BC, providing the later middle Bronze Age period as a base from which an understanding of change through the period from c1000 BC - AD 43 is built, grounded in a cultural history of some 200 years or so.

Versatility

Studies generally treat 'Wessex' as the central Southern area of Britain yet Wessex is variously defined; it always includes Hampshire but, for example, Sussex is considered part of Wessex in most of Cunliffe's work (e.g. 1976, 1991a) but not in his contribution to the review of Wessex to AD 1000 (1993d); Hill's (1995a, fig. 1, 45, 61) study of 'hillforts' does include Sussex data but the 1993 Conference of the Association Francaise de l'Etude de l'Age du Fer on the subject of recent developments in Wessex did not (Collis, 1994b, ix). It appears that the decision on whether to include Sussex, or not, may depend upon whether its strong data on settlement in the middle to late Bronze Age is required in argument and, conversely, whether its comparatively weaker data on the Iron Age detracts from argument. The GDM model and method allows two areas with different data characteristics to be directly compared without using 'stand in' data from other areas to fill apparent shortfalls.

The tradition of scholarly amateur interest in the Sussex Iron Age has been long and solid so there is a body of work on Sussex as a whole which can be tapped. The same is less true of Hampshire as it is consistently treated as the heartland of Wessex (with Dorset and Wiltshire) and rarely in isolation. Reducing the whole area to detailed examination of specific parts allows assessment of the value of studying fine-scale differences rather than arguing for similarity by default.

Modern interpretation

Academic study of the first millennium BC has a long-standing tradition of specialisation grounded in the Three Age System; it is of interest to Bronze Age specialists for the early part, Iron Age specialists for the greater part and Roman specialists for the later. Needless to say, different disciplines tend to diverge in the focus of their interest and their methodological approaches. Recently there has been movement toward greater liaison, co-operation and co-ordination of methods between the three specialisms and the group dynamics approach is one which does facilitate blending of those different academic interests, thus fitting the climate of the times.

However, although the pre-Roman Iron Age period, particularly, is much studied and interpreted it is a field in which there have been recent calls for new theoretical work and the 1990s have seen a leaning toward social aspects of the period. That provides a sound base for evaluating the contribution of the group dynamics approach within the context of comparable and up-to-the-minute interpretative ideas as well as those imbued with the processual thinking of the past.

Data accessibility

The data volume is considerable and synthesis on any local level rather slight so accessing data is by primary reference to published excavation reports rather than excavation archives, together with modern interpretative updates of older excavations where commentary has been forthcoming. If all sites are considered they number hundreds, making a dataset quite unmanageable in its entirety for the detailed work required for group dynamics analysis. That has been reduced by consulting the Sites and Monuments Records ('SMRs') of each of the Counties and only recording those sites which amount to more than 'find spots'. However, the history of archaeological interests and the difference in approach and budgets afforded the development of County SMRs has resulted in a wide variation in the quality of available information (Gardiner, 1990, 34-36). Further important sources for 'hillforts' have been the 1962 Ordnance Survey 'Map of Southern Britain in the Iron Age' and Hogg's (1979) listing of 'hillforts' derived from that, Avery's (1993) detailed account of actual excavation work on 'hillfort defences' and Hamilton and Manley's (1997) important synthesis of all of the 'prominent enclosures' in Sussex (whether excavated or not). Settlements have not been as well-served although a volume providing localised studies of late Bronze Age settlements (Barrett and Bradley, 1980) has proved an invaluable resource, as has the site list published by Cunliffe (1991a) in his seminal work of synthesis of the Iron Age in Britain as a whole.

Chronology is primarily established on the basis of ceramic evidence but, as the dataset has built over the years, typological chronologies have been calibrated with radiocarbon and thermoluminescence dates, thereby improving accuracy. Calibrated dates are annotated 'cal BC/AD' and un-calibrated determinations 'bc/ad'; general dates are simply expressed as 'BC/AD'. Most dates are calibrated to a 95% degree of confidence (i.e. two sigma) and where they are not, that is made clear. Where necessary and practicable, the findings of earlier excavation reports have been updated in the course of this exercise and that has been made explicit.

Scope and limits

The data used in group dynamics analysis is restricted to that found at Hampshire (generally excluding the New Forest) and Sussex sites, except in the case of a study of territory and boundaries which extends into neighbouring north-east Wiltshire, seamlessly (i.e. the 'Salisbury Plain Study', Bradley et al, 1994). That precludes calling on a number of studies which require a wider catchment area to derive large enough datasets to provide significant input and those are especially in the arena of artefactual analysis (e.g. brooches, weaving combs *inter alia*). Similarly, historical and proto-historical sources are seldom used, not least because sources were often actually recorded centuries after the event and seldom refer explicitly to the study area. However, there are some exceptions and those are used more to provide corroborative support for findings of group dynamics analysis than as input to the work.

Group dynamics analysis does not extend to considering the question of gender relations (p. 92) and the language used in this work is gender-neutral. Nevertheless, the work does focus to some extent on behaviours concerned with themes like physical prowess in competition and on targeted aggression which many might unthinkingly imbue with a certain masculinity, perhaps subliminally influenced by the ongoing presentation of the Iron Age as a period populated by the male 'Celtic Warrior' and which glorifies 'masculine' values of valour and strength (e.g. The Iron Age museum at Andover, Hampshire, in its presentation of the Danebury 'hillfort' collection) as well as the modern British debate on the role of women in the military. Those interpretations should not be taken for granted and those involved in fighting, stealing, generosity, shows of bravery, story telling, body-adornment, and just about any other behaviour which will be touched upon, could equally have been biological women or men. It is important to be quite clear that no bias is intended; whilst bronze weapons and armour dating to the early centuries of the first millennium BC are most often found in contexts not associated with human remains, where there are bodies and they can be sexed they are male, but at the other end of the millennium there can be no doubt that the infamous and valiant Boudicca, active war-leader of the insurrection of the Iceni against the Romans in Britain in AD 60, was biologically female. The individual is seldom seen directly in the dataset but, where s/he is, representation of the sexes is roughly equal. Attempting to identify, analyse and understand gender and gender relations of the first millennium BC would be a task far too large for inclusion in this work and it is to be hoped that it does not suffer for that.

First millennium BC Southern Britain

Assuming little expertise in this period or region, a brief overview of the evidence for the environment around the Study Area is presented here, outlining key aspects of geological and geomorphological variation, the climate in the first millennium BC, palaeoenvironmental data for forest coverage and the effects of human interference.

Geology

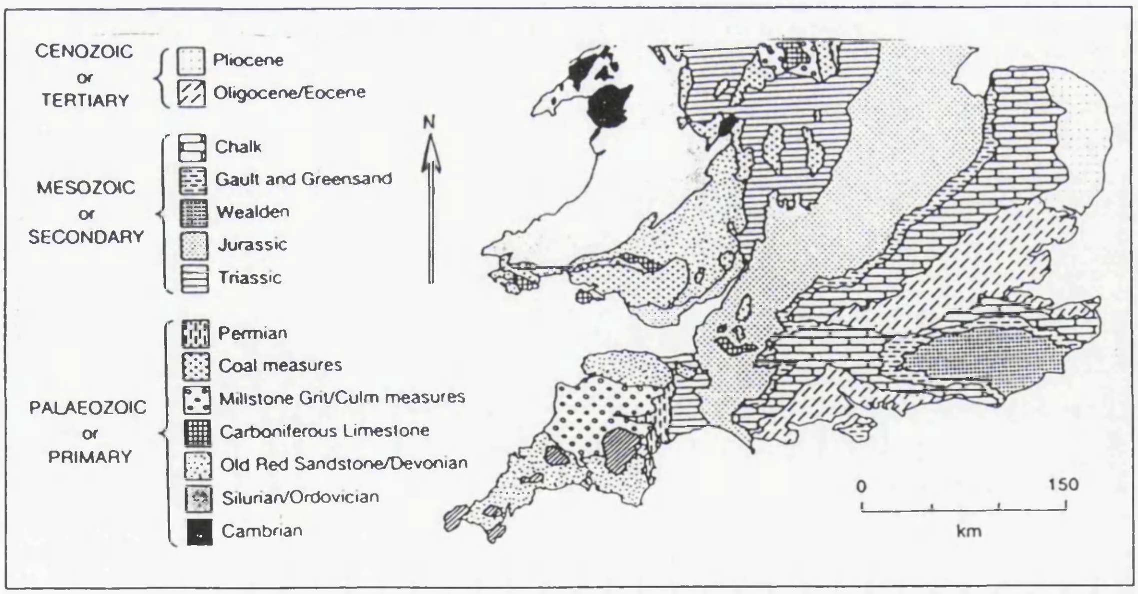


Figure 5.2 - Solid geology of the South (source: Goudie and Brunsden, 1994, fig. 15)

In Sussex and Hampshire the clays, sands and chalk of the Cretaceous and then the mixed sand, gravel and clay deposits of the Tertiary form the Weald, the Hampshire Basin and the scarplands of Salisbury Plain (and extend further to the Chilterns, the North and South Downs and the Lincoln Edge).

Climate

Turner (1981) comprehensively details the most compelling evidence for climatic change in later prehistory, derived from analysis of the stratigraphy of peat. The North-European-based work of Weber (1900) led the way by identifying the phenomenon of a 'recurrence surface' signalled by a few centimetres of fresh peat (formed on an extremely wet bog surface) between a lower, highly humified, darker coloured peat and a higher, fresher-looking, weakly humified and lighter peat (Turner, 1981, 251-253). By association with archaeological artefacts, Weber (1900) was able to date a recurrence surface to the period 1000 - 750 BC (Turner, 1981, 251-253).

The recurrence horizon occurs in many British raised bogs and upland blanket peats, where the lower layer is commonly associated with cotton grass (*eriphorum vaginatum)* and heather (*calluna vulgaris*), suggesting that the bog surfaces must have been relatively dry, and the higher layer with bog moss (*sphagnum* species) which grows in extended wet periods, suggesting a downturn to cooler and wetter conditions. (Turner, 1981, 253).

The advent of radiocarbon dating techniques in the 1950s has allowed the testing of the synchronicity of a recurrence horizon both intra- and inter-peat bogs and an extended study of the Swedish data revealed some local variation. In Britain however, cases of local synchroneity are the norm. For example, correlation of radiocarbon data points and the pollen evidence from the Rusland bog in the Lake District clearly shows one recurrence horizon, at one time across the entirety; the same effect occurs in a Danish study of five bogs. (Turner, 1981, 254-256).

In Britain, analysts have been able to draw on corroborative evidence of prehistoric wooden trackways posited as having been built to maintain traditional routes over peat areas as they became increasingly wet. Taking the example of the well-dated Somerset Levels trackways, C14 dating suggests a date of 890 - 460 cal BC (median 676 cal BC), tallying well with the date for the raised peat bog underlying the tracks (1360 - 352 cal BC) and the peat formed over the tracks (678 - 247 cal BC) and interpreted as evidence of a dry surface at a time earlier than about 850 BC, increasing wetness from the period 850 - 450 BC (and possibly as late as 250 BC) and reforming of peat after that point. (Turner, 1981, 256). That pattern is seen elsewhere, but with a consistently earlier time period toward more westerly regions. (Turner, 1981, 256-259).

Turner concludes that all of the evidence indicates a slight deterioration from a climate warmer and more stable than today toward a colder and wetter from c1250 BC, causing recurrence surfaces to form (e.g. at Llanllwych) and faster growth of peat (e.g. Bloak Moss), accelerating after c 850 BC (e.g. the trackways evidence) to reach a maximal point at c 650 BC, by which time peat growth renewal had begun on most dried-out bog surfaces (Turner, 1981, 260). Bell reviewed the data in 1986 (1996, 5) finding no fault with Turner's analysis and supporting that view against some contemporary dissension, adding that new environmental studies concur. It is clear that Bell (1996, 5-16) has understood Turner's (1981) synthesis to mean that there is a highland to lowland direction for the effects of the change, starting in the north and west and noticeably affecting the south and east by c1000 BC. That is tangentially corroborated by the present day climatic pattern of annual rainfall and its variability, frequency and duration, all of which reveal more severe precipitation conditions in the Highland regions of Britain (Goudie and Brunsden, 1994, 60).

Lamb (1981) has examined the weather patterns indicated by the evidence and suggests that the very sharp drop in average temperature would have resulted in increased storminess, more intense windstorms than we experience today and a growing season reduced by more than five weeks (Lamb, 1981, 55). He argues that environmental evidence from Yorkshire suggests that it would have been much drier in the East than the North and West between c 750 - 400 BC and infers that this could only have been the case if there was an extraordinary predominance of westerly winds (unequalled since) (Lamb, 1981, 55-56). If that were correct, then they would have produced great storms and dramatic coastal changes in their wake (Lamb, 1981, 56). Rather later than that there is one Roman written source (Pytheas) recording a tremendous bout of storminess in the North Sea (c 120 - 114 BC) and its effect of flooding of coastlines and causing (permanent) eastern shifts in the North Western Continental Europe regions (especially

Germany and Denmark), discussed in the context of being the cause of migration from those regions (Lamb, 1981, 56); that event must have been felt along the Eastern seaboard of Britain, too.

By the late Iron Age and into the Roman period, warmer weather is indicated by the introduction of vine growing and there is some evidence from bog stratigraphy to support the view that the climate had become drier. There are few recurrence surfaces dating to that time and of those that there are most are by the sea or large estuaries and were probably the result of marine transgression associated with rising sea levels, rather than climatic circumstances. The rates of growth on raised bogs show a deceleration of peat formation starting in the late C 5th BC and, from limited data, Turner concludes that at around 400 BC Britain experienced an improvement in weather conditions to a state warmer and drier than today's (Turner, 1981, 261-262).

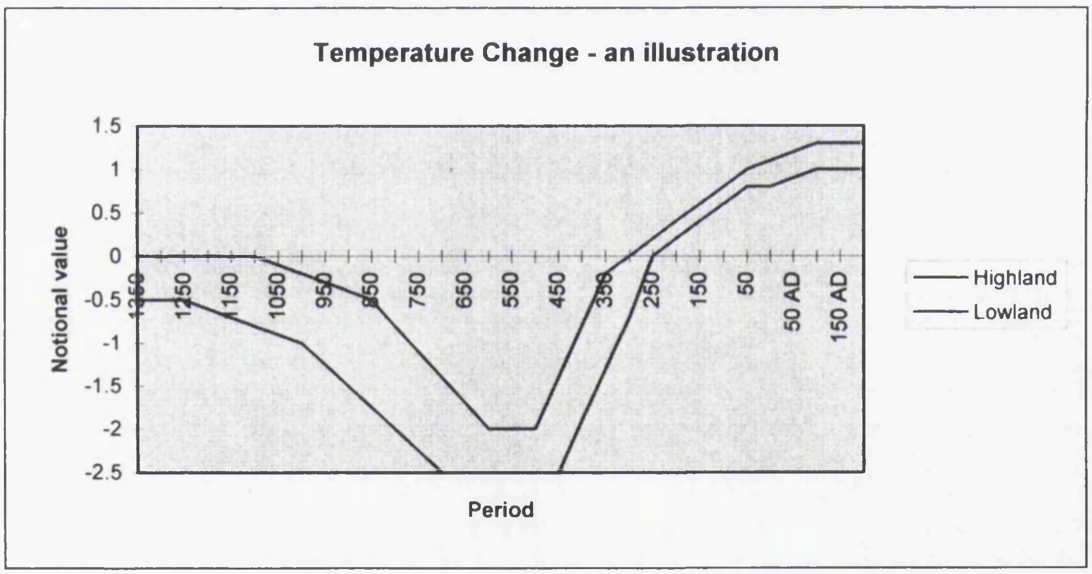


Figure 5.3 - Pictorial representation of how temperatures may have changed in first millennium BC

Biogeography and soils

There are a number of variables affecting the development of soils including climate, vegetation cover, topographic position and age but the key concern in trying to retrodict the effects of the first millennium BC climate must be the drainage characteristics of the soils and their distribution. Despite the potential for some change in the last three millennia, there is reason to believe that a study of modern drainage characteristics will have a reasonably close correlation with the past at that distance, albeit that the detail of the local studies do use input from palaeoenvironmental observations to refine and focus the picture where that is available.

The lower land within the Study Area is mainly covered by gleys arising from an impermeable substratum of parent material (e.g. clay) in large tracts and growing conditions in those regions are likely to have worsened seriously in the high-rainfall climate of the first half of the study period. Those soils cover most of the Hampshire Basin and the Sussex Coastal Plain, as well as the Weald beyond the Sussex Downs higher land and they extend beyond to include much of Norfolk and Suffolk, the Chilterns, the Oxford clay vales and the East Midlands plateau.

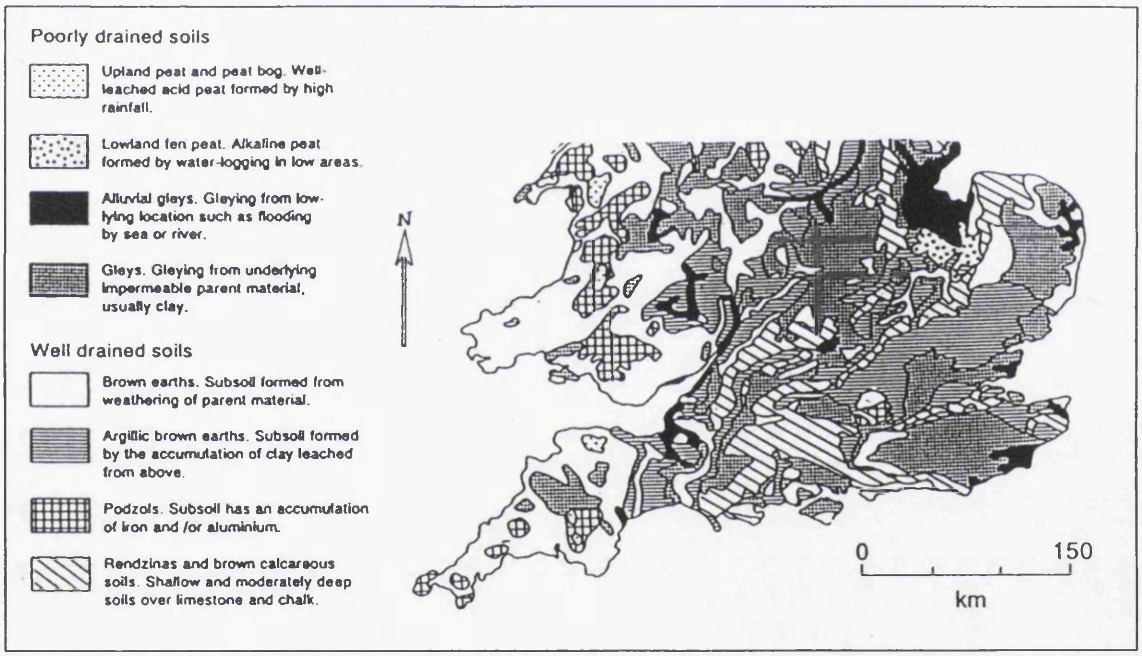


Figure 5.4 : Generalised Soil types (after Goudie and Brunsden, 1994, fig. 100)

Well-drained soils are equally well-represented, however, particularly in the great tract of argillic brown earths formed by the leaching of clay from above in the London basin and the rendzinas and brown calcareous soils over limestone and chalk spread widely over the higher regions of the Wessex, North and South Downs and beyond to the Chilterns.

The equation of soil-drainage quality and better agricultural yield in times of high precipitation is not entirely straightforward. Looking at the modern picture, the potential for erosion is a contributory factor in productivity and one of particular importance in agriculture practised without modern fertilisers and soil conditioners. In a study of soil erosion risk today, Goudie and Brunsden (1994, 150-151) reproduce and comment on Morgan's (1980; 1986) analysis of erosion factors including water and/or wind, slope and soil structure qualities and whether it is under arable cultivation, forested or grass-covered. Those areas most at risk are concentrated in the more northerly and easterly parts of Britain but large parts of those areas deemed at less risk are grass-covered today. Under cultivation, there is a far greater danger of soil loss from run-off on upland areas and, most specifically, that includes the Sussex Downs and the east of Hampshire in the Study region.

Palaeoenvironment

Prior to 3000 BC the forest cover of the British Isles was largely unaltered by human agency and the coverage of the main species of trees has been reconstructed by combining palaeobotanical pollen analyses and the modern observation of species preference by soil type producing the pattern shown in figure 5.5:

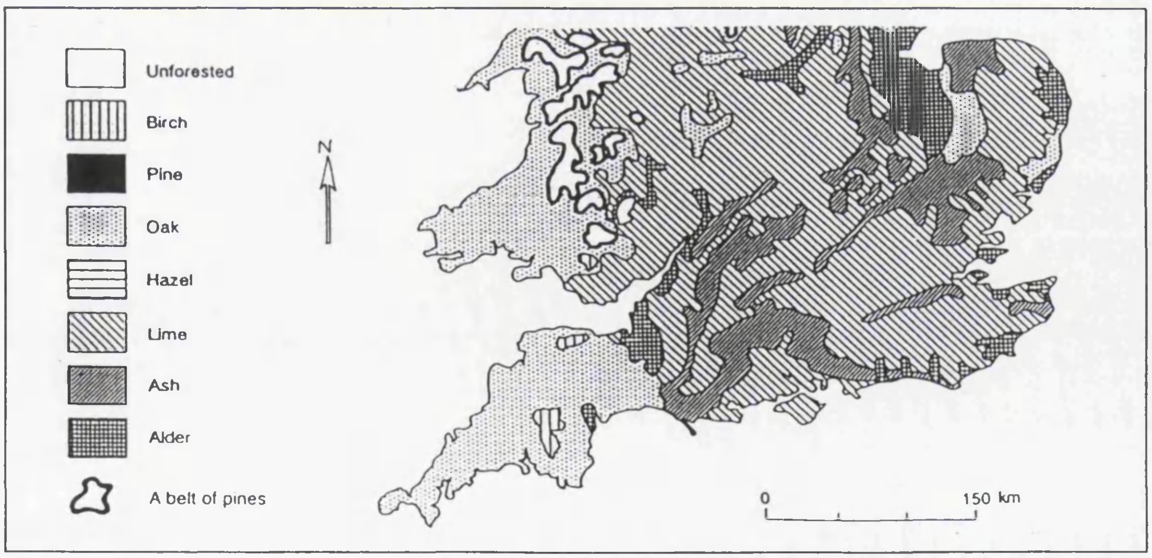


Figure 5.5 - Predominant woodland coverage before human intervention (c3000 BC) (after Goudie and Brunsden, 1994, fig. 99)

Within a region the local situation can vary from site to site and the picture is rather too complex to build at this juncture. Therefore, the briefest of descriptive details only are noted here. Initial long-term clearances of the land on many chalkland sites began in the Neolithic (Bell, 1996, 6) but the detail of local history is highly varied; for example, the first millennium BC sites at Rams

Hill, Berkshire and Danebury, Hampshire were both built in an environment of long-standing grassland, as were the linear ditch systems in North West Hampshire and Salisbury Plain but parts of that system shows some evidence of previous arable cultivation in the neighbourhood (Bell, 1996, 6). Recent, archaeologically-contextualised analysis of colluvial deposits on a block of downland overlooking the Ouse has revealed that most hilltops were cleared of trees by the middle Bronze Age (c1200 BC) and it is possible that many of the lower slopes were, too, but farming can be seen to have been much more extensive in the late Bronze Age (Allen, 1995, 36-38).

Some areas were not cleared so early (e.g. the Devil's Dyke valley in Sussex was not until the middle Iron Age) and other sites show evidence of abandonment and regeneration periodically (e.g. Rams Hill 'hillfort', and the longer-fallowed Rimsmoor and Winchester downs regenerated between the Neolithic use and the early first millennium BC). (Bell, 1996, 6).

The Case Study dataset

The traditional approach to managing data in quantity has been to employ classification and categorisation methods. At the highest level, first millennium BC study divides sites into 'hillfort', settlement and other (e.g. 'shrine', burial, 'banjo' enclosure and midden) sites. This division has a considerable element of interpretation implied, especially in the suggestions that 'hillforts' were strongholds intended primarily for defence (implied by the name), that settlements were where people lived (although they lived on 'hillforts' as well, met at midden sites presumably, may have moved from site to site in the seasonal round, and more) and that the only deposition of human remains of interest to the analyst is formal mortuary practice evident in burial. None of these interpretations are unchallenged by modern commentators and this study does not automatically extrapolate these categories into the mindsets of those in the past. Nevertheless, to review the quality of the dataset used for the case study it is pragmatic to continue with those terms as the input is categorised in that way.

Data capture

The overall aim has been to capture details of as many excavated sites as possible of the period 1200 BC - AD 43 but with an emphasis on using published data. The breakdown of sites in the dataset is:

	Sussex	*Hampshire*
'Hillforts'	23	9
Settlements	36	34
Other	10	7
Total:	69	50

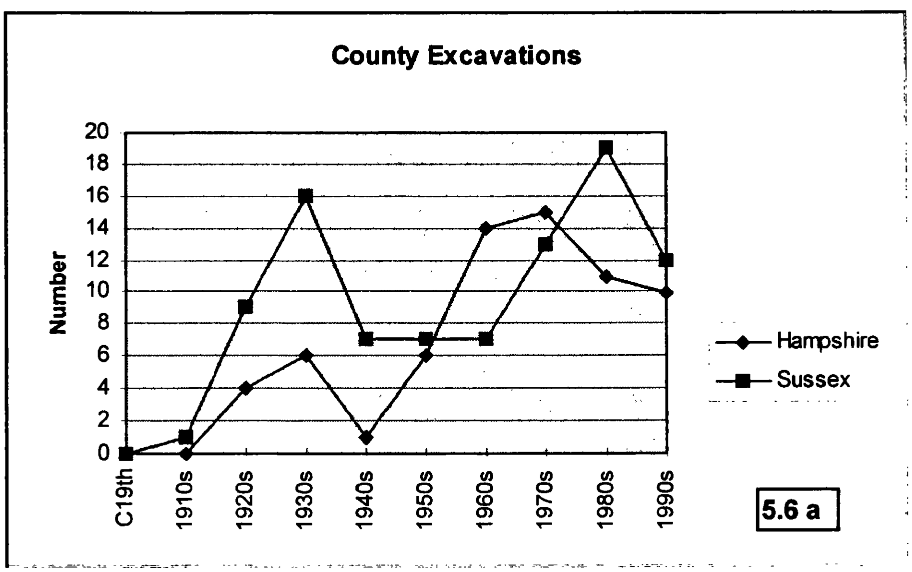
Table 5.1 - Sites in the dataset by County by traditional classification

There is a clear difference in the relative proportions of sites by traditional classification but part of the explanation for that lies in the use of Hamilton and Manley's (1997) comprehensive review of all known 'hillforts' in Sussex, which exceeds the data held on the Sussex SMRs. More generally, the post-war period has seen substantial development programmes, both urban and rural, with the happy effect from the point-of-view of first millennium BC study, of giving rise to the Rescue Archaeology movement and, more recently, the presumption in favour of preservation of archaeological sites in Planning decisions, together with developer-funded evaluation and excavation. Many sites have been newly discovered and there has been a plethora of modern excavations as a result. The stimuli for excavation tend to be development-based, thus un-weighted views of distribution cannot be adduced. Rural areas may be more suitable for detection of sites by aerial photography but are less likely to be explored and evaluated in the light of development proposals. For example, Hampshire and Berkshire are roughly equivalent yet it is noteworthy that Berkshire's level of development-led discovery of first millennium BC sites is considerably less than Hampshire's (Hughes, 1994, 34), so it would be possible to make broad-ranging comparisons about matters like population density if detailed work were undertaken. Hampshire and Sussex may be rather less equivalent in that it would appear that settlement concentration was on the high Downs in Sussex for most of the millennium and that area has not been developed greatly, with a correspondingly low level of site discovery in recent years, whereas some major modern conurbations in Hampshire have revealed any number of fragmentary glimpses of the period (e.g. Basingstoke, Southampton and

Winchester). Furthermore, in the later part of the period in Sussex, when settlement had moved into the Weald, it was purportedly observed by the contemporary geographer, Strabo (IV.5,2), that *'The forests are their cities; for they fortify a large circular enclosure with felled trees and there make themselves huts and pen their cattle, though not for a long stay'* (Millett, 1992, 18); that does not augur well for discovery in wooded areas some 2000 years later. Thus, comparisons in the group dynamics analysis are restricted to qualitative equivalence and not quantitative.

Quality and biases

Each excavation series for each site has been dated and counted in every decade which it spans, allowing the comparison of excavation histories of the two counties and highlighting some important differences. In terms of raw numbers, the level of excavation in Sussex is higher than in Hampshire for all decades apart from the 1960s and 1970s and there are two clear peaks of effort in Sussex (the 1920s and the 1980s) whereas Hampshire work did not gather pace until the 1950s onwards. The war years are reflected in a sharp decrease in the 1930s and the effects of the presumption in favour of preservation may account for the 1980s - 1990s downturn, although delay in reaching public attention by publication may account for some of that.



5.6 a

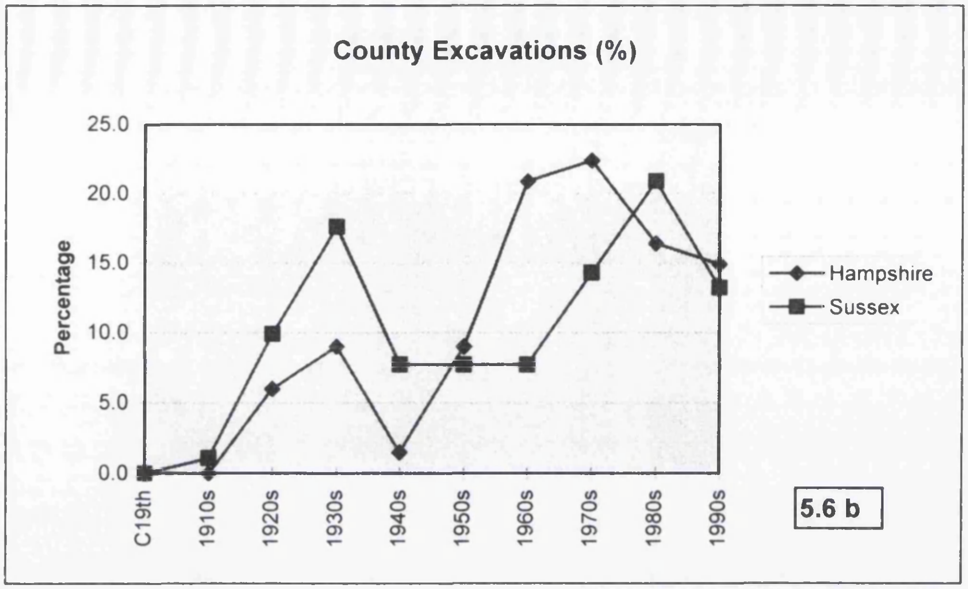
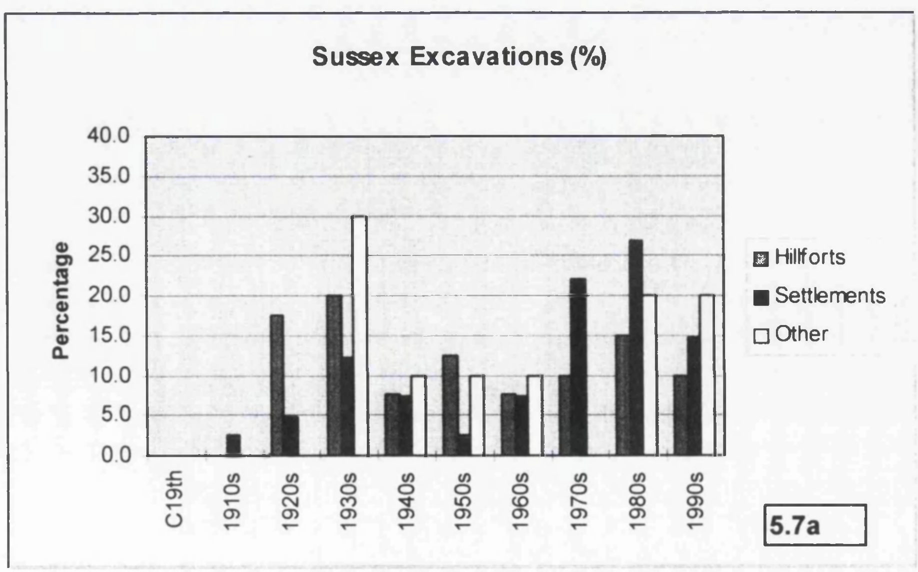


Figure 5.6 - County excavation history by a) number of excavations then b) percentages

Turning to the percentages (figure 5.6b, above), Sussex data can be seen to be more 'elderly' than Hampshire data in that a greater percentage of excavations were conducted in the earlier decades; they have only evened out in the 1980s and 1990s.

Breaking the picture of the history down into the traditional site categories allows the effect of that to be explored further:



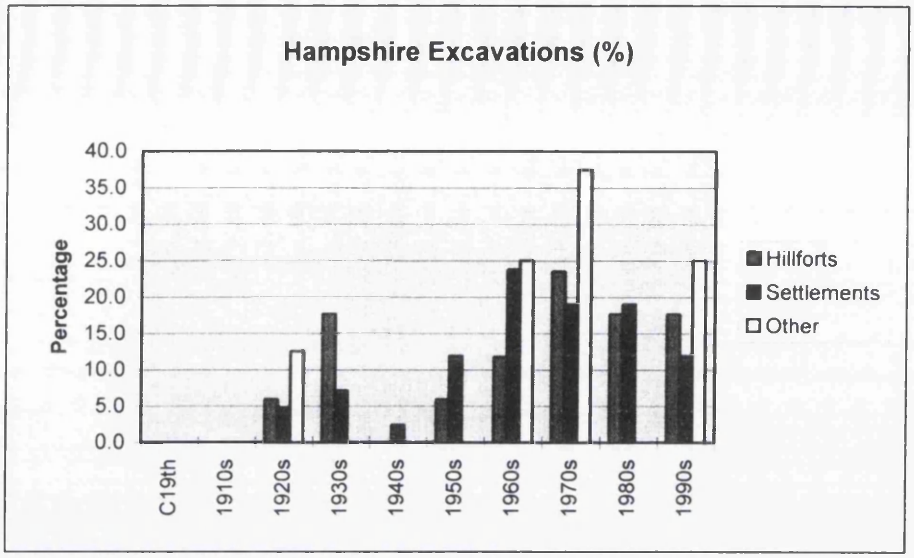


Figure 5.7: Excavation percentages by decade by traditional site category - a) Sussex b) Hampshire

It is immediately apparent that the early Sussex efforts were directed toward 'hillforts' and that the settlement excavations are more likely to have been conducted to modern standards. The same is true in a less marked way in Hampshire and the data in that County should be more modern in all areas. This is important when considering early excavation of Iron Age (and, it is suspected, late Bronze Age) settlement sites which was characterised by a lack of recognition of post-holes for what they are; it has often been said (e.g. McOmish, 1989, 101-103) that Bersu's excavation of the enclosed settlement at Little Woodbury, Dorset in 1938 (Bersu, 1940) was the first case where post holes were recognised. The lack of detailed stratigraphic recording together with inaccurate, somewhat casual noting of 'pit dwellings' in earlier reports render them scarcely useful for detailed work (although key elements in distribution studies). Similarly, dateable artefacts like wood, charcoal and even ceramics were seldom recorded in detail before the 1940s and the advent of new technology for analysis and dating. Turning to 'hillforts', the ragged division between Bronze Age and Iron Age studies is nowhere more evident than in the identification and classification of sites which would usually be called 'hillforts' in Iron Age work. Where a 'hillfort' has been excavated in a modern manner, earlier occupation has a fair chance of being identified (typically by finding late Bronze Age material under the defining structural works) but the form of earlier settlement is almost always obscured. When a 'hillfort' has been identified but not excavated, there is little chance of deriving any late Bronze Age history. Thus, since there is some evidence of certain middle or late Bronze Age pre-rampart occupation of 'hillfort' sites (e.g. Trundle in Sussex and Beacon Hill in Hampshire), it must be assumed that that condition is under-represented in the datasets.

Chronology

Stuart Needham has recently developed an outline periodisation for defining *'successive prevailing cultural characteristics'*, based on metalwork assemblages, ceramics, radiocarbon dates and dendrochronology, which is capable of independent application to different regions, allowing independent regional chronology (Needham, 1996a, 121-123). A start point centring around 1200 BC spans the end of his period 5 (characterised by very late Deverel-Rimbury ceramics) and overlaps into period 6, generally thought of as the later middle Bronze Age (Needham, 1996a, 122, fig. 1). Earlier work (the majority of sites in the dataset) is not so accurately characterised and, thus, there is a degree of confusion and ambiguity in attribution to the 'Three Age' period; taking a start in the later middle Bronze Age avoids dispute which can occur if the middle Bronze Age is taken in its entirety (Hamilton, pers. comm.). Moving into the first millennium BC, a radiocarbon calibration 'plateau' between c800 and 400 BC provides some difficulty for accurate actual dating (Needham, 1996a, 123) and the date bands for analysis are defined by ceramic changes at the broadest scale. This work follows the most recent in-depth review of absolute dating for typological change in Sussex (Hamilton, 1993; pers. comm.) and in Hampshire (Barrett, 1980; Cunliffe, 1991a; Hill, 1995a) namely:-

Sussex	***Hampshire***	
End M 2nd - 1000 BC	***End M 2nd - 950 BC***	*(Later Middle Bronze Age)*
c1000 - 750 BC	***c950 - 800 BC***	*(Late Bronze Age)*
c750 - 600 BC	***c800 - 600 BC***	*(Later Late Bronze Age)*
c600 - 400/300 BC	***c600 - 400 BC***	*(Early Iron Age)*
c400 - 100 BC	***c400 - 100 BC***	*(Middle Iron Age)*
c100 BC - AD 43	***c100 BC - AD 43***	*(Late pre-Roman Iron Age)*

Table 5.2 - Chronological bands for analysis

Most references are to date bands rather than the 'Three Age' labels to avoid any confusion, as a key finding of Hamilton's (1993) work has been that where Sussex sites do demonstrate changes in form and technology with parallels elsewhere (including Hampshire), they do not always occur at the same time.

Presenting the Case Study in this work

The Sussex and Hampshire datasets are recorded separately and fully detailed on a site-by-site basis in Appendices E and F, respectively. Those records incorporate all details of a factual nature used in the group dynamics analysis and refer to the original sources for the data as well as including maps which locate sites and show distribution changes through time and a table of sites by period and by location. To enhance readability, each site name mentioned is followed by a mnemonic which points to its entry in those gazetteers (e.g. 'Lavant E35' means that the full details are listed under the 'E35 - Lavant' section in Appendix E) and the references to original sources are not repeated in the main body of text unless new points of analysis are raised.

The Sussex dataset is used as a demonstration for all facets of group dynamics analysis, namely the organisation of base data into a suitable form for analysis (this chapter, below), the application of the GDM analysis approach (Chapter Six - The GDM of Sussex), the analysis of normative group dynamics (Chapter Eight - Normative Group Dynamics of Sussex) and in derivation of causal explanations for change (Chapter Eleven - Regional Variation). For brevity, the organisation of the Hampshire data and the Hampshire GDM analysis is removed from the main body of text and included as Appendix I (The GDM of Hampshire) but the normative group dynamics demonstrate new points and are included as Chapter Nine (Normative Group Dynamics of Hampshire). Chapter Nine includes a brief review of the key features and patterns of the Hampshire dataset, to minimise interruption of the flow. Finally, the Hampshire case is compared and contrasted with Sussex in Chapter Eleven, seeking the roots of regional variation.

Sussex

The Sussex site patterning is outlined here and the organisation of the base data into a form amenable for group dynamics analysis is fully demonstrated.

Site patterning

Sussex is geologically divided in tranches approximately in line with the coast beginning with the low-lying Coastal Plain, backed by the high terrain of the chalk downlands, followed by a generally steep drop (up to 1 : 3) onto the Greensand levels and with the Weald beyond that:

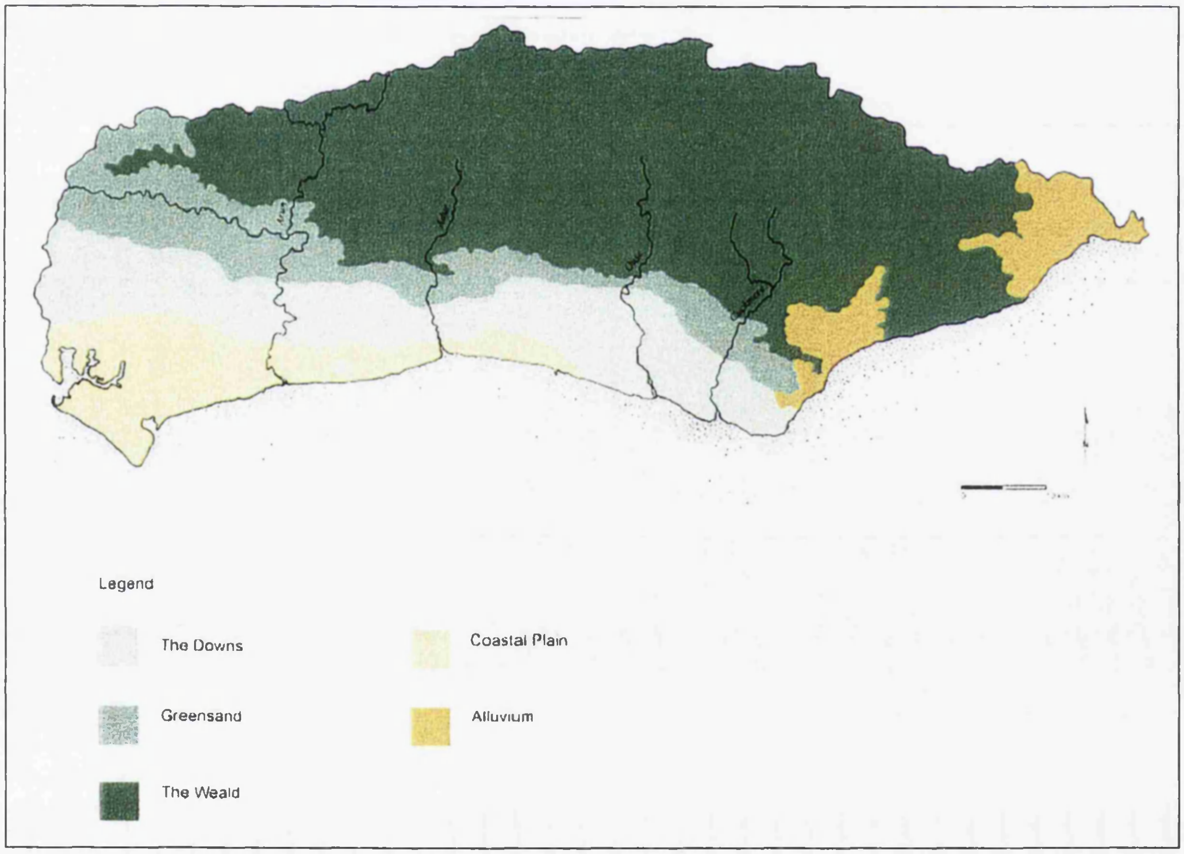


Figure 5.8 - Sussex Topography

Until toward the end of the study period, almost all known sites are on the South Downs. The extent to which this could be a result of variable archaeological discovery or a reflection of reality is reviewed. The Downs and Upper Weald regions are naturally divided, topographically, into four blocks within the modern Sussex boundaries by the Rivers Ouse, Adur and Arun and this work breaks down locales into 'East of Ouse', 'Adur to Ouse', 'Arun to Adur' and 'West of Arun' (which leads into the Hampshire Downs) for ease of considering the inter-relationships between communities in manageable tranches in following work. It is only when considering sites from c100 BC that the approach alters to take into account sites in the Weald.

Coastal Plain

Bedwin (1983c) has examined the evidence for settlement of the Coastal Plain in prehistory, ascertaining that the evidence of Bronze Age activity constitutes almost entirely chance finds with the notable exceptions at the time of his writing of the Highdown Hill E28 settlement on an isolated chalk hilltop in the Arun to Adur sector and, possibly, a settlement at Yapton E69 indicated by a group of pits only (Bedwin, 1983c, 34-35). Those finds are especially numerous between the Adur and the Arun on the Plain below Highdown Hill E28 and the majority are bronze hoards.

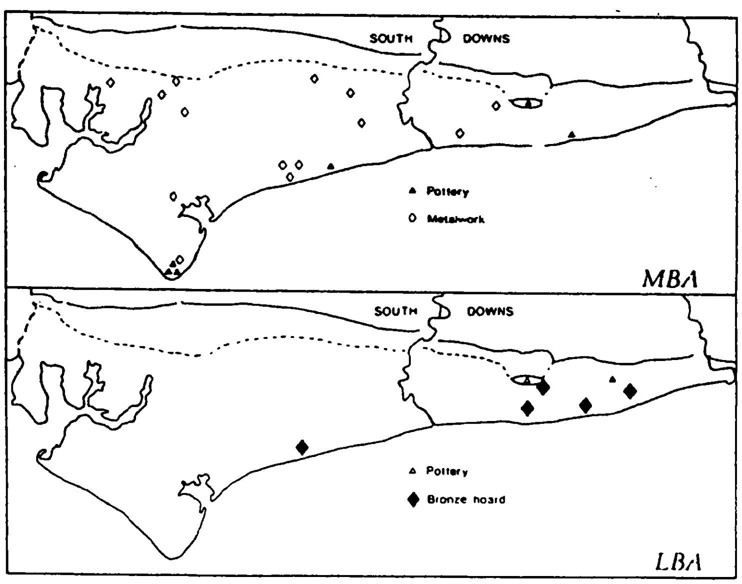


Figure 5.9 - Distribution of middle and late Bronze Age finds as known in 1983 (source: Bedwin, 1983c, fig. 2)

Subsequently, a site with structures has also been located in the same area (Rustington Site B E52) and further settlements suspected in the West of Arun sector at Knapp Farm E33 and Selsey Bill E56. Whilst Bedwin (1983c, 34-35) does suggest that there is a possibility of interpreting the evidence as representing the limited beginnings of permanent settlement in the Beaker and early Bronze Age periods when mapped over time, he notes that a further rise in find spots in the middle Bronze Age (late second millennium BC) is apparently followed by a sharp reduction in the early first millennium BC and he attributes that to the poorer climate associated with that period. Recent discoveries tend to push that finding toward the tail end of the period (c750 BC). Whilst sea levels are thought to have been rather lower than the present day during much of the Bronze Age, the higher rainfall associated with the climatic downturn may have led to an increased marshiness on the Coastal Plain, particularly in the lower Coastal Plain region west of the River Arun. Given that there is something of a tendency for deposition of hoards in damp, marshy areas away from settlement sites, any hint of an increase may be a reflection of reduced settlement and increased marshiness rather than taken as a corollary for settlement itself. (Bedwin, 1983c, 34-35, fig. 2). The region was apparently not resettled until some time after c400 BC (as indicated by the sites at North Bersted E41, Oving E43, Lavant E35 and Westhampnett E67) and that appears to be coincident with the abandonment of some of the major sites on the South Downs, particularly Cissbury E10 and the Trundle E64, hinting at a population movement off the Downs onto the Coastal Plain in a region west of the Ouse.

Those subsequent developments are readily illustrated by the distribution map series for the Sussex dataset of excavated sites used in this work, concatenated in figure 5.10, below. Note that the individual distribution maps detailing site names are introduced in the organisation of the base data detailed later in this Chapter (below).

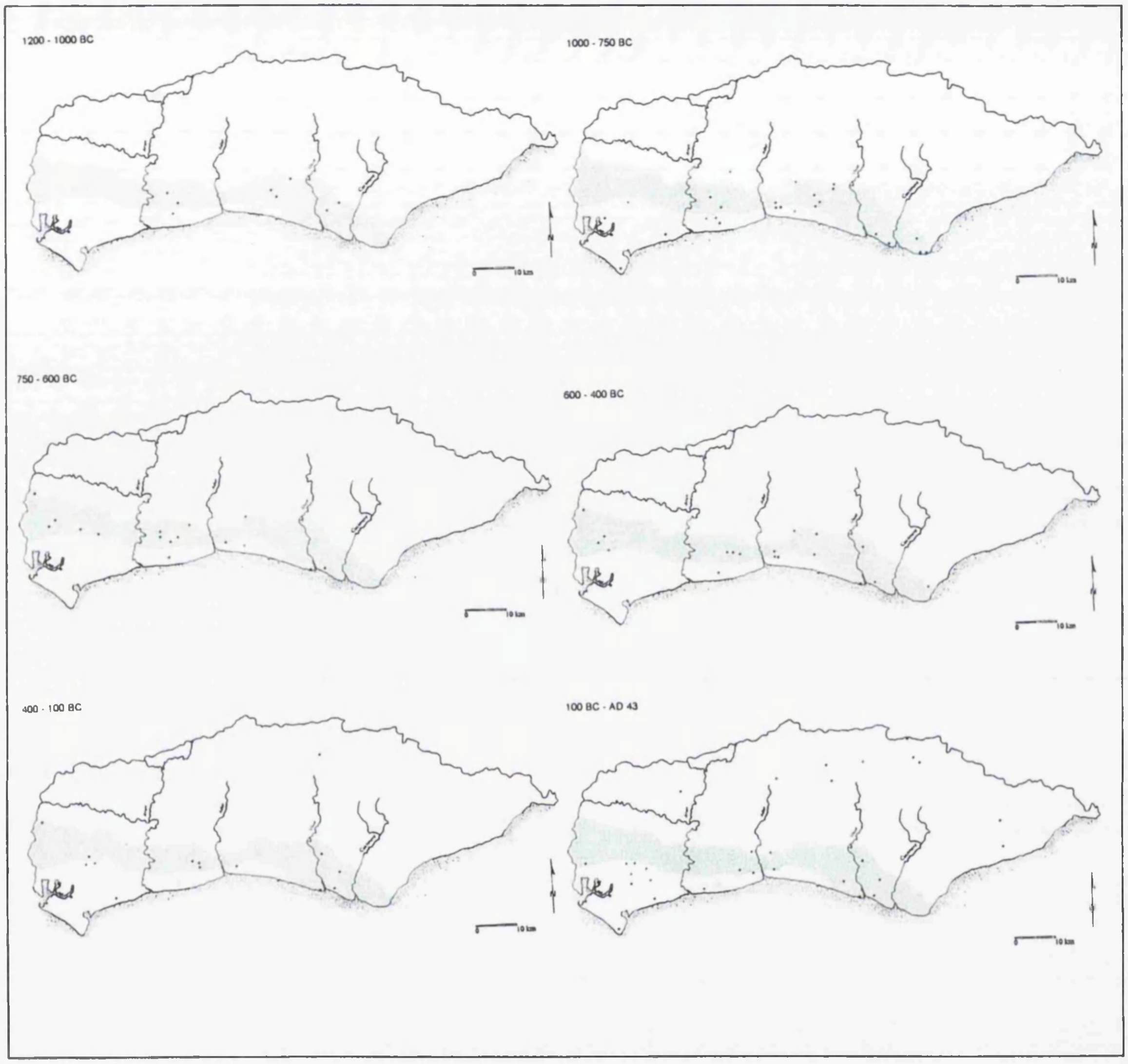


Figure 5.10 - Distribution of sites in Sussex dataset by period

The Sussex Downs

On the downlands beyond, there is something of an east to west differential in settlement pattern (see figure 5.10, above). Although there are a number of instances of Bronze Age burial sites on this high ground, the first substantive evidence for post-Neolithic agricultural exploitation of the Downs from a base of permanent settlement begins in the late second millennium BC in the area east of the Ouse at Itford Hill E31 and Black Patch E04, on the tranche of high ground between the Adur and the Ouse at Plumpton Plain E47/48 and between the Arun and the Adur at the closely neighbouring sites at Cock Hill E11 and New Barn Down E40. The Sussex and east Hampshire downland area west of the Arun has evinced no evidence for settlement at this time, creating a large geographical 'gap' in settlement between Sussex and the neighbouring Hampshire Downs. Between 1000 - 750 BC, it became more dense as shown by Bishopstone E03, Seaford Head E54, Belle Tout E02 and Heathy Brow E25 to the east of the Ouse and Kingston Buci E32, West Blatchington E66, Thundersbarrow E61, Wolstonbury E68 and Hollingbury E29 in the Arun : Ouse sector. At the same time, the localised population of the Arun : Adur sector appears to have spread, particularly indicated by settlement at Highdown Hill E28 which is considered a downland location although, strictly speaking, it is a high ground 'island' in the Coastal Plain. There are no known Sussex downland sites west of the Arun until 750 - 600 BC.

The site pattern from 750 - 400 BC shows the exploitation pattern of the Downs spreading in a westerly direction with, possibly, something of a reduction in the more easterly part of the region. Given that the area was cleared by the third millennium BC, it is quite possible that the local soils were deteriorating toward the thin, degraded soils that characterise the Downs today, even at the time that the late second millennium BC settlers moved in (Drewett, 1980, 377) and exhaustion could explain the short-lived nature of those settlements and the posited westward trend.

By 400 BC the distribution of downland population appears to have levelled out somewhat with fewer but more permanent, higher investment sites. Certainly from 100 BC there was a substantial depopulation of the downland into both the Coastal Plain and into the Greensand and the Weald to the north.

Greensand and the Weald

Little settlement evidence is forthcoming from the Greensand and Weald regions until the C 4th / C 3rd BC (Castle Hill, Kent) (Money, 1978) and the vast majority of sites of all types date from the late Iron Age (i.e. c100 BC onwards) (see figure 5.10, above) although there is some suggestion that clay, iron and stone sources may have been exploited at earlier periods (Money, 1978, 38-39 - iron; Hamilton, 1993, - clay; Peacock, 1987 - quern production at Lodsworth).

The paucity of evidence for occupation in the Bronze Age and the majority of the Iron Age has puzzled commentators and sites are not easy to discover in this environment for a number of reasons. Although the Weald is primarily pastoral, and thus not extensively destroyed by ploughing, it does appear that standing earthworks are less common than on the downlands (Gardiner, 1990, 33). Fieldwalking is hampered by the comparatively small area given over to arable and, although the area has increased in more recent years, the heavy soils need to be left ploughed for a considerable period before artefacts surface and become visible (Gardiner, 1990, 33). Furthermore, the area is heavily wooded (East Sussex is the most wooded county in England) and that hampers both fieldwork and aerial survey; but even sites in non-wooded settings are hard to detect from the air as the heavy soils are not very good for producing crop and soil marks. (Gardiner, 1990, 33). Finally, the lower Greensand has proved a particularly 'brittle' environment and the degree of soil movement, thought to have been initiated by prehistoric land clearance operations, has buried sites near the bottom of slopes to considerable depth (e.g. the Roman site at Bodiam Bridge was buried to 1.8 metres and even the AD C 15^{th} layers at that site were 0.45 metres below ground surface) (Gardiner, 1990, 40).

Despite the catalogue of difficulties facing the archaeologist, sites have been located in the Weald and on the Greensand and in some numbers when detailed, dense surveys have been conducted (e.g. the Hastings Area Archaeological Research Group work (Gardiner, 1990, 37)), the private work of Straker, Margary and Winbolt (Gardiner, 1990, 34) and the 1987 - 88 survey of the London University Field Archaeology Unit (Gardiner, 1990, 36)). Numbers of known and suspected first millennium BC sites have increased as a result yet they are still noticeably many fewer than earlier sites (to the early Bronze Age) and later (from the late Iron Age onwards) leading Gardiner (1990, 43) to agree with Needham (1987) that the impression is that of a retreat from extensive Wealden exploitation in this period and to speculate that it is likely that the cause lay in exhaustion of soils.

Where there has been more detailed research work on sites, it has been centred on 'hillforts' in the region with little attention given to the less conspicuous sites of which very few are known

(Gardiner, 1990, 43); thus, the record may be rather biased in that respect in the analysis which follows. Overall, the balance of probability is that there was little, if any, settled exploitation of the region in the earlier part of the millennium, suggesting either that the land was unsuitable for arable use, or that a population preferred to live on high ground and needed no extra acreage, or that it was used by communities who managed it from the distance of a settlement base on the Downs.

Site pattern summary

In summary, for the major part of the first millennium BC, the home territory of the Sussex population was almost entirely based on the downland. Furthermore, if the population remained in the general area then it would appear that there was no great pressure on arable land, as a general westward move seems to have provided an adequate solution to the posited exhaustion of local resources. Pastoral exploitation of the land certainly included the Downs but probably included lower-lying land for adequate access to water supplies and pastures, although these could have been satisfied by the river valleys of the Arun, the Adur, the Cuckmere and the Ouse which divide the downland.

Organising the base data

In order to analyse the dataset using the GDM analysis methodology, a view on which sites were home to settled communities must be taken and, of those which were not, a view on which were inter-community aggregation sites and unoccupied, domestic sites.

Community settlement sites

This interpretation includes those sites which were occupied by one domestic-unit or more for the best part of the year. Community settlement sites are recognised as those with clear evidence for 'living' structures which were usually in the form of roundhouses but there are some exceptions (e.g. Park Brow I E44 which has a large two-aisled rectangular structure). There is one case where the presence of a roundhouse has <u>not</u> been interpreted in this way (the Caburn

E05) and the reasoning behind that is addressed below. There are a number of sites where excavation and survey has been limited, comprising pits associated with domestically-oriented assemblages; where there are no obvious large earthworks in the vicinity (e.g. Kingston Buci E32 and West Blatchington E66) they have been designated community settlement sites on the balance of likelihood but it is recognised that that attribution could be wrong. Fortunately, unless the majority of the cited examples of these were wrong in any one period, the overall picture would be unaltered. Rather more importantly, some sites have no obvious roundhouses yet do have a number of above-ground storage structures and pits. Where there is no further clear evidence of occupation these have not been considered community settlement sites but where there is, they are (e.g. Bishopstone E03 has hearths and a kiln but no obvious residential structures; on balance, it has been regarded as a community settlement site but the attribution is tenuous). The sites are listed by period in table 5.3, below, together with a very brief note of how they have been interpreted and those designated community settlement sites marked 'Sett.' in the final column:-

Table 5.3

SITE BY PERIOD	PHASE	INTERPRETATION / NOTES	Type[1]
End M 2nd BC			
Black Patch E04		Roundhouses	Sett.
Cock Hill E11	Built this period or next?	Roundhouses	Sett.
Downsview E15		Roundhouses - details not published	Sett.
Itford Hill E31		Roundhouses	Sett.
New Barn Down E40		Roundhouses	Sett.
Plumpton Plain A E47		Roundhouses	Sett.
Potlands Farm E50		'Burnt mound'; role uncertain; could be seasonal meeting place	Agg.
Varley Halls E65	I	Roundhouses	Sett.
1000 - 750 BC			
America Wood E01		One roundhouse ?	Sett.
Belle Tout E02		Stock enclosure	Stock
Bishopstone E03	1 - Open	No roundhouses but pits, hearths, above-ground storage structures and kiln	Sett.
Bishopstone E03	2 - Enclosed	As above	Sett.
Cock Hill E11	Built this period or previous?	Roundhouses	Sett.
Downsview E15	Continues	As above	Sett.
Heathy Brow E25		One roundhouse and one rectangular structure	Sett.
Highdown E28	Pre-enclosure	Details uncertain but probably roundhouses (as following period)	Sett.
Hollingbury E29	Earliest enclosure	No internal details known, although occupied in later period	N/k.
Kingston Buci E32		Pits only; domestic assemblage	Sett.

[1] KEY:
'Sett.' = Community settlement site
'Agg.' = Inter-community aggregation site or meeting place
'Stock' = Stock enclosure
'N/k' = Not known
'Cem' = Cemetery

Table 5.3 (continued)			
SITE BY PERIOD	**PHASE**	**INTERPRETATION / NOTES**	**Type**
1000 - 750 BC (continued)			
Knapp Farm E33		Pits only; domestic assemblage	Sett.
Lavant E35		Pits and bronze items; no structures identified	N/k.
Mile Oak E37		Roundhouses; details not published	Sett.
New Barn Down E40	Continues	As above	Sett.
Plumpton Plain A E47	Built this period, not previous?	Roundhouses	Sett.
Plumpton Plain B E48		Extensive domestic assemblage but excavation record poor; crude structures assumed	Sett.
Potlands Farm E50	Continues	As above	Agg.
Rustington B E52		Roundhouses	Sett.
Seaford Head E54		Stock enclosure	Stock
Selsey Bill E56		Roundhouses suspected, but not excavated and reported in a controlled manner; domestic assemblage	Sett.
Shinewater E57		Platform(s) in marsh with domestic assemblage.	Sett.?
Thundersbarrow E61	Earliest enclosure	Little interior investigation	N/k.
Varley Halls E65	II	One roundhouse	Sett.
West Blatchington E66		Pits and ditch sections only; domestic assemblage	Sett.
Wolstonbury E68	1 - Inner	Little interior investigation	N/k.
Wolstonbury E68	2 - Outer	As above	N/k.
Yapton E69		Pits only but domestic assemblage	Sett.
750 - 600 BC			
Bishopstone E03	Continues ?	As above	Sett.
Castle Hill, Newhaven E07		No structural details known	N/k
Chanctonbury Ring E08		Meeting place - ritual? Ceremonial? Stock?	Agg.
Goosehill E19?	Probably next period	Roundhouses	Sett.
Halnaker Hill E21	Use of Neolithic enclosure	Special place? No structures	Agg.
Harrow Hill E23		Meeting place - cattle cull	Agg.
Harting Beacon E24		Roundhouses	Sett.
Highdown E28	Enclosure	Roundhouses	Sett.
Hollingbury E29	Continues ?	No internal details known, although occupied next period	N/k.
Kingston Buci E32	Continues	As above	Sett.
Muntham Court E39		Pits only; domestic assemblage. Later site of Romano-Celtic temple.	Sett.
Thundersbarrow E61	Continues	As above	N/k.
Torberry E62	Pre-enclosure	Special place? No structures	Agg.
Trundle E64	Pre-enclosure	Special place? No structures	Agg.
West Blatchington E66	Continues	As above	Sett.
Wolstonbury E68	Continues ?	As above	N/k.
600 - 400 BC			
Bishopstone E03	Continues	As above	Sett.
Caburn E05	Pre-'hillfort' enclosure	One large roundhouse but interpreted as meeting place	Agg.
Castle Hill, Newhaven E07	Continues	As above	N/k
Ditchling Beacon E14		Little interior investigation	N/k.
Findon Park E17		Pits only; domestic assemblage	Sett.
Goosehill E19	Continues ?	Roundhouses	Sett.
Green St., Eastbourne E20		Pit only; domestic assemblage	Sett.
Harting Beacon E24	Continues	Probably visited but not occupied in this period	Agg.
Highdown E28	Continues	As above	Sett.
Hollingbury E29	Enclosure	Roundhouses	Sett.
Kingston Buci E32	Continues	As above	Sett.
Muntham Court E39	Continues	As above	Sett.
Park Brow E44		Two-aisled rectangular structure	Sett.
Slonk Hill E58		Pits, above-ground storage structures, a working hollow, gullies and linear features	Sett.
Stoke Clump E59		Surface collection only; domestic assemblage	Sett.
Thundersbarrow E61	Outer enclosure	Little interior investigation	N/k.
Torberry E62	Cross-ditch	'Special place' for meeting?	Agg.

Table 5.3 (continued)			
SITE BY PERIOD	PHASE	INTERPRETATION / NOTES	Type
400 - 100 BC			
Bishopstone E03	Continues	As above	Sett.
Caburn E05	Formal enclosure	Developed hilltop enclosure	Agg.
Carne's Seat E06		Surface survey and sample excavation only - settlement site suspected. Little detail.	Sett.
Castle Hill, Newhaven E07	Continues	As above	N/k
Charleston Brow E09		Two 'hut sites' in fields; pits; domestic assemblage. Poorly recorded	Sett.
Cissbury E10		Developed hilltop enclosure	Agg.
Findon Park E17	Continues	As above	Sett.
Garden Hill E18	Period I enclosure?	May have been this period; probably unoccupied	N/k.
Kingston Buci E32	May have continued	As above - previous period and next, so may have been occupied in this	Sett.
Lavant E35		Roundhouses	Sett.
North Bersted E41		Roundhouses	Sett.
Oving E43		Roundhouses	Sett.
Park Brow II E44		Pits, postholes and working hollows; domestic assemblage	Sett.
Slonk Hill E58	Continues	As above	Sett.
Torberry E62	Full enclosure	Developed hilltop enclosure	Agg.
Trundle E64		Developed hilltop enclosure	Agg.
100 BC - AD 43			
Bishopstone E03	3 - Open	Continued domestic assemblage (as above)	Sett.
Carne's Seat E06	Banjo enclosure	Associated with earlier settlement. Limited excavation	Sett.
Castle Hill, Newhaven E07	Continues	As above	N/k.
Charleston Brow E09	Continues	As above	Sett.
Cissbury E10	Continues ?	Lack of excavation means must allow this possibility	Agg.
Crowhurst Park E12		Iron working site; unstratified assemblage. Limited excavation.	Agg.?
Devil's Dyke E13	Enclosed ?	Date uncertain. Limited excavation. One roundhouse, at least.	Sett.
Eridge Park E16		Iron working site; unstratified assemblage. Limited excavation.	Agg.?
Garden Hill E18	Enclosed	Roundhouses within enclosure	Sett.
Hammer Wood E22	Enclosed	No excavation of interior	Agg.?
High Rocks E26	Enclosed	Little use of interior	Stock
Highdole Hill E27		Roundhouses within fields.	Sett.
Horsted Keynes E30		Kiln site. Ditch. Limited excavation.	N/k.
Kingston Buci E32	Continues	As above.	Sett.
Lancing Down E34		Shrine on site of later temple.	Agg.?
Lavant E35	Continues ?	As above - ditch section only this period (probably extends beyond excavated area)	Sett.
Lordington E36	Enclosed	No internal features.	Stock
Money Mound E38		Deposits at Beaker bowl barrow	Agg.?
North Bersted E41	Continues	As above	Sett.
Ounces Barn E42	Enclosed	Enclosure with no internal buildings but thought to be pattern of Oving E43 (limited excavation)	Sett.
Oving E43	Continues	As above	Sett.
Philpots E45	Enclosed	Very limited excavation; none of interior.	N/k.
Piper's Copse E46	Enclosed	Very limited excavation; none of interior.	N/k.
Portfield Gravel Pit E49		Unstratified domestic assemblage. Limited excavation	Sett.
Rustington A E51		Ditch only with domestic assemblage. Limited excavation.	Sett.
Saxonbury E53	Enclosed	Iron working in interior.	Agg.?
Sedlescombe E55		Iron working site; unstratified assemblage. Limited excavation.	Agg.?
Selsey Bill E56		Unstratified domestic assemblage. Limited excavation	Sett.
Tester's E60		Ditch only with domestic assemblage. Limited excavation.	Sett.
Tote Copse E63		Ditch only with domestic assemblage. Limited excavation.	Sett.
Westhampnett E67		Cemetery	Cem.

Table 5.3 - The Sussex dataset analysed by case study period

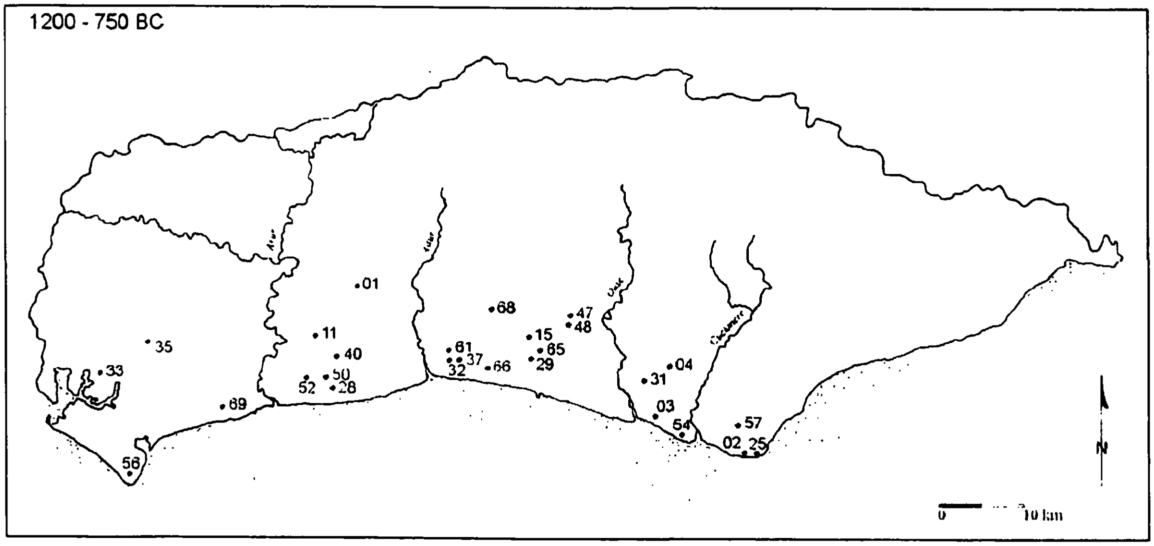
Not community settlement sites

A crude view of the role of each site not interpreted as a community settlement must be taken by considering site morphology, assemblages and the site within the context of contemporaneous others in order to be able to designate the site as constituting 'public space', inter-community 'monumental architecture' or domestic facility, in preparation for GDM analysis. This has been tackled by attempting to distinguish between those sites interpreted as facilities for people from different communities to get together (i.e. inter-community aggregation sites) and those which are simply demarcated sites for an individual community for a purpose other than permanent occupation as a home base (given the generic term 'stock enclosures'). A crude estimate of the comparative effort needed to construct enclosed sites can be made by calculating the time needed to dig the ditch and using that to stand for the minimum possible labour cost of building the earthworks. That is not intended to represent the actual labour cost, as there are any number of variable factors, but it does allow broad comparisons to be made and helps in assessment of whether sites were likely to have been built by one community or more, on the basis of order of magnitude differences in the minima. The detailed work is included as Appendix G2 (Ditch Labour Calculations) and the summary of results repeated here:

1000 - 750 BC	***Person months***	**750 - 600 BC**	***Person months***	**600 - 400 BC**	***Person months***
Belle Tout E02	49	*Chanctonbury E08*	63	*Caburn pre-hillfort E05*	n/k
Bishopstone E03	14	*Harrow Hill E23*	20	*Ditchling Beacon E14*	99
Hollingbury E29	n/k	*Harting Beacon E24*	164	*Goosehill - inner E19*	19
Seaford Head (min.) E54	151	*Highdown E28*	156	*Goosehill - outer E19*	30
Thundersbarrow E61	5	*Average:*	101	*Hollingbury E29*	207
Wolstonbury - 1 E68	15			*Thundersbarrow - 2 E61*	63
Wolstonbury - 2 E68	56			*Torberry cross-ditch E62*	46
Average:	48			*Average:*	93
400 - 100 BC		**100 BC - AD 43**			
Caburn E05	66	*Garden Hill E18*	n/k		
Cissbury E10	1,175	*Hammer Wood - out E22*	177		
Torberry E62	67	*Hammer Wood - inn E22*	131		
Trundle E64	n/k	*High Rocks - 1 E26*	30		
Average:	436	*High Rocks - 2 E26*	54		
		Lordington E36	10		
		Philpots E45	164		
		Piper's Copse E46	112		
		Saxonbury - outer E53	n/k		
		Average:	167		

Table 5.4 - Ditch labour calculations for Sussex sites

End M 2nd - 1000 BC



Legend

01: America Wood
02: Belle Tout
03: Bishopstone
04: Black Patch
11: Cock Hill
15: Downsview
25: Heathy Brow
28: Highdown Hill
29: Hollingbury
31: Itford Hill
32: Kingston Buci
33: Knapp Farm
35: Lavant
37: Mile Oak
40: New Barn Down
47: Plumpton Plain A
48: Plumpton Plain B
50: Potlands Farm
52: Rustington B
54: Seaford Head
56: Selsey Bill
57: Shinewater
61: Thundersbarrow
65: Varley Halls
66: West Blatchington
68: Wolstonbury
69: Yapton

Figure 5.11 - Sussex sites in dataset end M 2nd - 750 BC

The 'burnt mound' at Potlands Farm E50 on the Coastal Plain is the only candidate for inter-community aggregation at this time. Given the location, which would have been liable to flooding, seasonal visits seem likely and the pollen evidence suggests that the mound would have been within a wooded area with clearings and the charcoal remains suggest the use of local trees for fuel (Stevens, 1997, 69). Interpretation of the purpose of this type of site is far from certain but there is no evidence of permanent settlement at the site and most commentators assume a connection with cooking (Stevens, 1997, 69). Those factors are not atypical of this type of site and it has been suggested that they represent places visited in the course of hunting expeditions and which may have hosted a ritual relating to the slaughter of prey (Stevens, 1997, 69; Buckley, 1986, 70). Excavation of a similar site at Harbridge in Hampshire (not included in the Hampshire dataset) included a phosphate survey which suggested no significant deposition of organic refuse at that site and, corroborating that, no bone was found despite the expectation of survival in the soil if there had been (Shennan, pers. comm.). No bone survived at Potlands Farm E50 but the soil was acidic (Stevens, 1997, 68-69) and no phosphate survey was conducted. Thus, as has been argued for Harbridge with its corroborative, negative evidence (Shennan, pers. comm.), the possibility that the site was for sweating or bathing (argued on the grounds of ethnological parallels in Finland and, historically, in Herodotus' account of the Scythians' practice) (Stevens, 1997, 69) is a strong alternative interpretation.

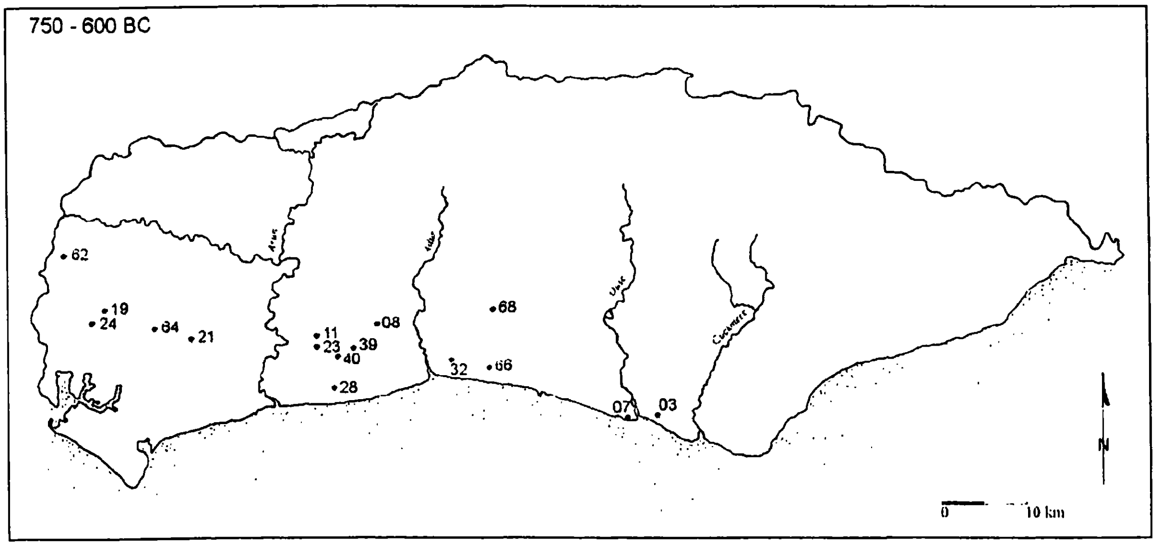
1000 - 750 BC

This is the earliest period in which enclosed, but not permanently occupied, sites are known (albeit that the dating is not very secure for some examples). Lightly bounded enclosures in the East of Ouse sector are found at the cliff edges of Belle Tout E02 (possibly associated by a trackway with the Heathy Brow E25 community settlement site) and at Seaford Head E54, neither of which appears to have been developed beyond the boundaries originally laid out (and in this they differ from sites further west).

Seaford Head E54 (roughly 12 ha - cliff-crumbling requires approximation) was probably more than four times larger than the next largest site and Belle Tout E02 was twice that (at c25 ha). Much has been made of the development of high and prominent enclosures ('hillforts') through the first millennium BC but there has been a tendency to view site function as similar through space and time. For example, Avery (1993) argues for a functional role in a climate of warfare and defence whereas Cunliffe (1991a) views them as the 'territorial stronghold' homes of an elite sector of society and Bradley (1971b) suggests use as stock enclosures. More recently, there has been an initiative to consider the Sussex evidence in more detail without recourse to Wessex comparisons and one of the most important conclusions drawn by Hamilton and Manley (1997, 107) is that *'the great variability of the Sussex enclosures defies single function explanation'*. Considering the largest enclosures first, there is little likelihood of them being in any sense 'strongholds' as no interior structures are apparent and the enclosing banks and ditches were rather slight. Furthermore, there was no attempt to hide the interior, indicating little fear of mass attack and that suggests that they may have been designed more to keep animals in than people out. Stock enclosures would have been needed for a number of reasons, one of which was probably to set aside a large area of pasture to constrain animals from straying onto arable fields before they were harvested and that may explain the larger areas of Belle Tout E02 and Seaford Head E54. Whilst few of the fields and trackways are dated, the plot of crop and soil marks from aerial photographs around the Bullock Down area shows a dense network which stops at the bank of the Belle Tout E02 enclosure (map sheet number TV59NE of the East Sussex Sites and Monuments Record). Furthermore, when enclosures are large it is possible that the reverse could apply, namely that they serve to keep animals out of crops grown within; naturally, the two activities could be complementary in the agricultural year.

Thundersbarrow E61 and Wolstonbury E68 have scarcely been the subjects of any internal excavation at all, so it would be foolhardy to dismiss the possibility that they could have been permanent community settlement sites. The *ditch labour cost* (above) shows that they could easily have been built by a small community and they could equally have been small stock enclosures of especial use at times of birthing and breeding when little pasturage but close protection is required and, perhaps, for over-wintering on occasions when fodder is required to supplement the natural pasture available. However, the sites may have had some greater significance as 'special places' simply by virtue of the facts that they are inter-visible with a site of considerable significance in the following period (Chanctonbury E08).

750 - 600 BC



Legend

03: Bishopstone
07: Castle Hill, Newhaven
08: Chanctonbury Ring
11: Cock Hill
19: Goosehill
21: Halnaker Hill
23: Harrow Hill
24: Harting Beacon
28: Highdown Hill
32: Kingston Buci
39: Muntham Court
40: New Barn Down
62: Torberry
64: Trundle
66: West Blatchington
68: Wolstonbury

Figure 5.12 - Sussex sites in dataset c750 - 600 BC

Sites with strong connections to the distant past began to appear and some of those can be interpreted as fulfilling very particular, special purposes. In the Arun to Adur downland sector, Chanctonbury Ring E08 was enclosed (c 1.25 ha) by a slight and simple dump earthwork and it appears to have been carefully located in that there are views to Harting Beacon E24, Thundersbarrow E61, Harrow Hill E23 and Wolstonbury E68 which, as a group, represent all of the hilltop enclosures which were in contemporary use except Highdown Hill E28 (a community settlement site, enclosed in this period); conversely, it is also highly visible from a distance. (Bedwin, 1980, 174). There are signs of earlier passage through the site in the Neolithic and earlier Bronze Age (Bedwin, 1980, 185) and it is possible that it was a religious site from this time (or earlier) because it is incontrovertibly the site of a Romano-Celtic shrine and long-term continuity of religious practice is often noted. However, the fact that the pottery assemblage is heavily biased in favour of coarseware could be taken as argument against that contention. On the evidence of the ceramic assemblage, the site was occupied for 100 years or less in the first millennium BC (although visited intermittently as late as the C 4^{th} BC) and the activity there was neither extensive nor long-lived (no structures and c25 ceramic vessels only, although those vessels may have been broken and deposited whole). However, excavation was not very extensive and further occupation material could underlie the later shrine. Analysis of molluscan evidence taken from the bank and ditch suggests that when the enclosure was established, the area surrounding it was not intensively used as it had not been ploughed and grazing by livestock was unlikely (Bedwin, 1980, 186) but that does not preclude the possibility of use for stock enclosure for limited periods. It is rather difficult to decide between the alternatives yet it should be noted that the Romano-British *cella* was central and may well obscure earlier occupation evidence; on balance, the possibility of long-term continuity of use as a 'special place' with some ceremonial or religious significance seems rather likely.

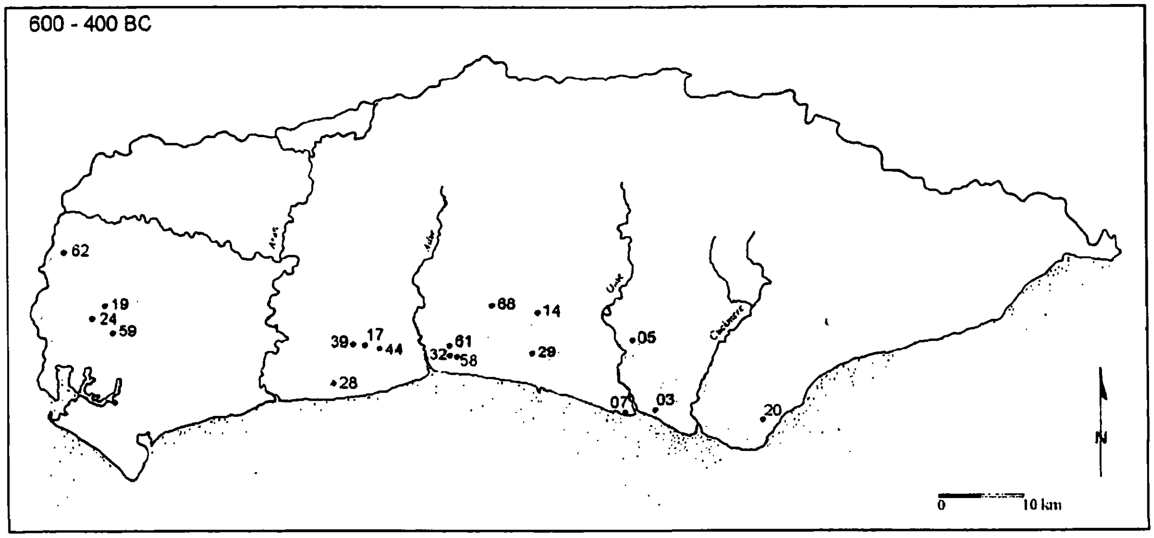
Harrow Hill E23 is a second unusual site in the Arun to Adur downland sector in that it lies over part of an extensive complex of Neolithic flint mines and was encircled by a stockade, screening activities within from the gaze of outsiders whilst also emphasising the presence of the site. Those activities certainly included killing large numbers of cattle but just to explain it as a slaughter location is not sufficient. Although this site can only be dated to a 200 year band, it is unlikely that its stockade of earthfast timbers would have lasted more than 25 (Avery, 1993,10-11, drawing on Findlay (1967, 32-61) and Forest Products Research (1956, 7-8, 165-169)); 100 years would be the absolute outside. Therefore, 20 - 40 animals per annum were represented and that high number suggests a herd of at least 200 - 450 head of cattle [2] which would require between 600 - 2,250 hectares of pasture [3]. Unless there was such a great differential that one herd manager had the right to graze up to 25% of a complete downland sector, there is justification for assuming representation of several herds and for arguing that the site housed a meeting of herd managers for slaughtering cattle (probably seasonally).

Interestingly, on the theme of places being regarded as 'special' by reference to the past, the Neolithic enclosure at Halnaker Hill E21 was visited in this period and both the Trundle E64 and

[2] Modern figures for slaughter percentage extraction rate on African range lands = 6.2 - 21.5% of herd (Tivy, 1990, 158) - not a very close analogy; If 20 = 6.2%, 100% = 93; if 40 = 21.5%, 100% = 645; a mid-range has been chosen.
[3] Modern figures for grazing of mature head of cattle show a requirement for 3-5 ha of grasses and legumes (Tivy, 1990, 148, table 9.1).

Torberry E62 were also visited although not enclosed until the following period, which both presages the future and also may be read as suggesting that these, too, were 'special places' in the social memory of the first millennium BC commontants. That phenomenon, if correct, is particularly interesting as it appears to have been the first time in the study period that the West of Arun downland sector was visited in an archaeologically visible way.

600 - 400 BC



Legend

03: Bishopstone	20: Green St., Eastbourne	44: Park Brow
05: Caburn	24: Harting Beacon	58: Slonk Hill
07: Castle Hill, Newhaven	28: Highdown Hill	59: Stoke Clump
14: Ditchling Beacon	29: Hollingbury	61: Thundersbarrow
17: Findon Park	32: Kingston Buci	62: Torberry
19: Goosehill	39: Muntham Court	68: Wolstonbury

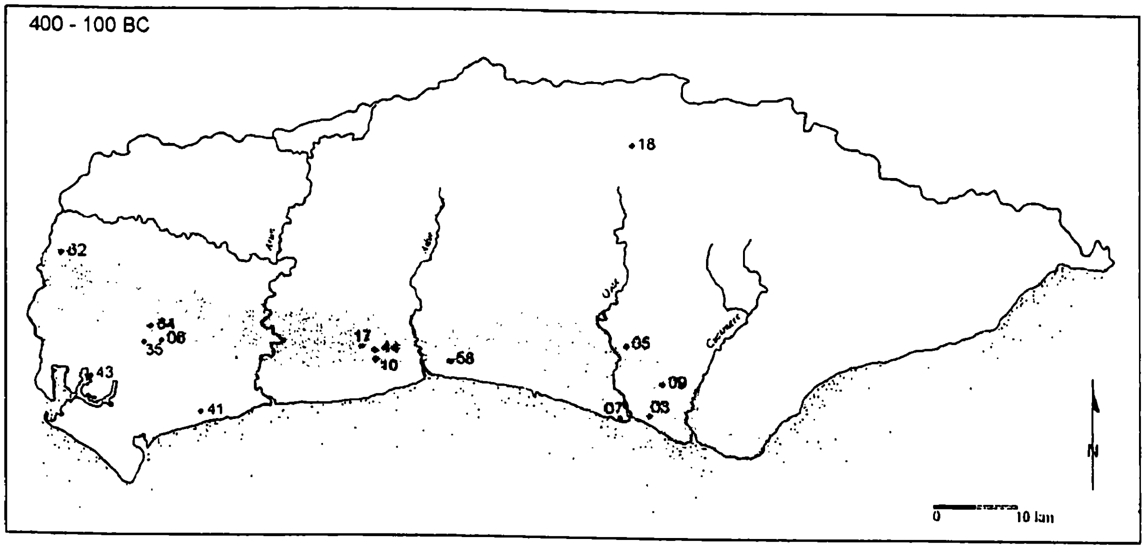
Figure 5.13 - Sussex sites in dataset c600 - 400 BC

To the northern edge of the Downs, settlement was established on the domed hilltop of the Caburn E05 in the form of a large roundhouse with an assemblage reported as being 'high status' by Drewett and Hamilton (1996, 6). The hilltop is very exposed to wind and weather and markedly domed, constituting an environment which would seem uncomfortable to us today and which must have been difficult terrain for building structures of any kind. Thus, it is assumed that it was chosen more for its prominence in the landscape than its suitability *per se*. Certainly in the following period the enclosure of the hillcrest served to emphasise and mark a naturally impressive landmark. This prompts speculation that the roundhouse was not so much a permanently occupied all-year-round site but, rather, provided protective shelter for meeting of sectors of society on an occasional basis (and in inclement seasons).

Between the Adur and the Ouse, both Thundersbarrow E61 and Wolstonbury E68 were enlarged (perhaps after a gap in regular use periods) and both took the new form of concentric rings. At a minimum, this appears to be a case of the elaboration of 'special places', given earlier occupation, but it must be remembered that there has been little investigation of the interior. Given the morphological similarity to the newly developed community settlement site at Goosehill E19 (West of the Arun) and other contemporary sites further afield (e.g. Buzbury Rings in Dorset) there is a temptation to suggest a functional explanation for the form (e.g. specialised stock rearing or training). Additionally, the enclosure at Ditchling Beacon E14 appears to have been developed at this time but there has been no extended search for occupation evidence and the site is largely ploughed out so little can be deduced.

In the downland sector west of the Arun, a new enclosure was created by the Torberry E62 cross-ditch which isolated c1.4 ha in such a way that it could have been used effectively for stock enclosure but the ditch is much more emphasised than would be strictly necessary and this does suggest the marking of a special place for privileged meeting, especially as there is a small amount of evidence for visiting the site in earlier periods.

400 - 100 BC



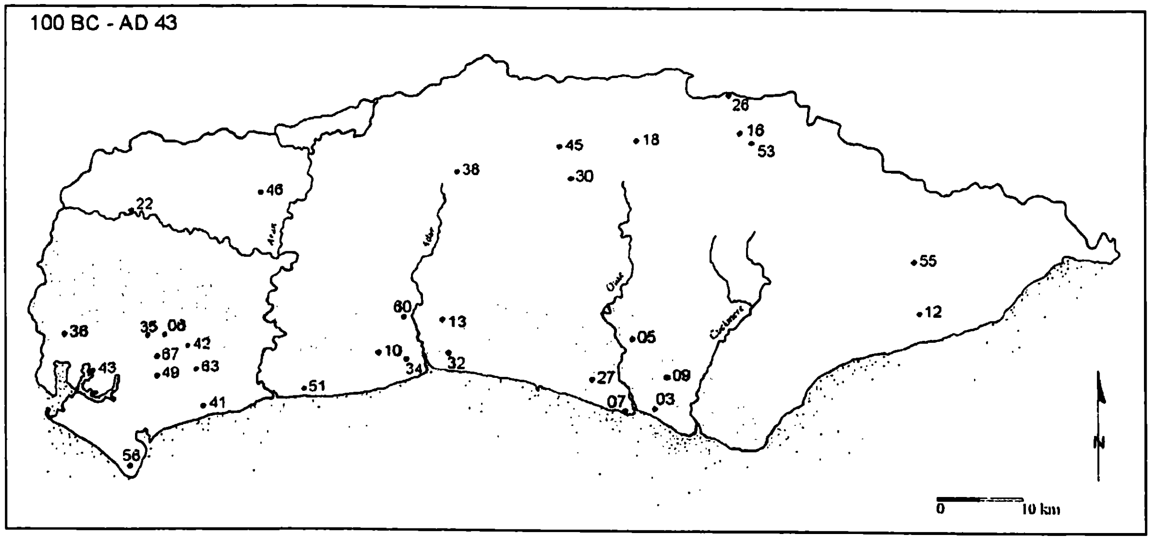
Legend

03: Bishopstone
05: Caburn
06: Carne's Seat
07: Castle Hill, Newhaven
09: Charleston Brow
10: Cissbury
17: Findon Park
18: Garden Hill
35: Lavant
41: North Bersted
43: Oving; Copse Farm
44: Park Brow
58: Slonk Hill
62: Torberry
64: Trundle

Figure 5.14 - Sussex sites in dataset c400 - 100 BC

All known downland enclosures (and most other sites) fell out of use at this time, apart from the four 'developed hillforts' at Caburn E05 (formally enclosed), Cissbury E10 (newly built), the Trundle E64 (developed from a Neolithic causewayed enclosure) and Torberry E62 (promontory fully enclosed). All of the 'developed hillforts' are sited on very high ground with extensive views outward and all have exaggerated banks, ditches and entrances; thus, all are interpreted as places for inter-community agglomeration (an argument which is developed in detail in later chapters). The Cissbury E10 site is quite different from the other three by virtue of its sheer size (c24 ha) and partial multivallation. It seems quite massive both from the outside, looking at banks rising more than 8.6 metres, and from the top of the bank, looking down into drops of up to 3.9 metres into the interior and much more to the exterior. The extensive Neolithic works concentrated in the south and west render sight across the site impossible, yet activity within could not possibly be observed from outside. It is nearly a 2 km walk around the top of the banks and the uneven interior ensures that there is no point within the site from which one could view more than a few degrees of the surrounding countryside. Stock could have been safely contained and at least half of the interior may have been suitable for settlement although it has not been explored in detail. Survey by Donachie and Field (1994) has located small field systems and other features including ponds which may have belonged to this period. However, that pattern does seem to have been moved from the outside of the hilltop in the Bronze Age to the interior at this time, or later, suggesting a desire to protect some arable growth at least. It is tempting to suggest that the move may have been associated with the actual enclosing phase when large numbers of people must have needed local sustenance if it were built over a short period.

100 BC - AD 43



Legend

03: Bishopstone
05: Caburn
06: Carne's Seat
07: Castle Hill, Newhaven
09: Charleston Brow
10: Cissbury
12: Crowhurst Park
13: Devil's Dyke
16: Eridge Park
18: Garden Hill
22: Hammer Wood, Iping
26: High Rocks
27: Highdole Hill
30: Horsted Keynes
32: Kingston Buci
34: Lancing Down
35: Lavant
36: Lordington
38: Money Mound
41: North Bersted
42: Ounces Barn
43: Oving; Copse Farm
45: Philpots
46: Piper's Copse
49: Portfield Gravel Pit
51: Rustington A
53: Saxonbury
55: Sedlescombe
56: Selsey Bill
60: Testers, Steyning
63: Tote Copse
67: Westhampnett (cemetery)

Figure 5.15 - Sussex sites in dataset c100 BC - AD 43

The 'developed hillforts' on the South Downs went out of regular use (with the possible exception of the unexcavated, undated occupation of the interior of Cissbury E10) but the large and occupied Devil's Dyke E13 enclosure on the north scarp may have been built in this period. However, it has not been dated and excavation has been very slight indeed, so it is excluded from GDM analysis. The crop mark indicating an enclosure at Lordington E36 has been sampled to a degree enough to estimate the *ditch labour cost* at 10 person months only (table 5.4, above) and there are no interior features (Holgate, 1986b, 247), suggesting nothing more than a small, domestic stock enclosure. Surface survey of the 'banjo enclosure' integrally associated with the small community settlement site at Carne's Seat E06 (Holgate, 1986a, 48) similarly suggests no more than a domestic context for that site.

The remainder of the evidence for the Downs and the Coastal Plain is for community settlement sites with the single exception of the unusual, small shrine site at Lancing Down E34, which is considered an inter-community aggregation site because it is not associated with any other site, it does not exclude by enclosure and it does lie in the Arun : Adur sector of the Downs in the region of previous sites of possible religious or ritual significance, including Chanctonbury E08 and Muntham Court E39. Practice may have been for individuals to visit in their own time rather than for orchestrated inter-community performance at the site so, given its size and the small investment implied by that, Lancing Down E34 is treated as a public space as opposed to monumental architecture in GDM analysis. In some ways, Lancing Down E34 is similar to Money Mound E38 in the Weald, the site of a Beaker period barrow which acted as a focus for special deposits in this period (and beyond).

Most noticeably in this period sites not thought to have been community settlements started to crop up in the Weald, an area largely unoccupied since the late Bronze Age on current knowledge. At least three ill-defined, open sites with an obvious emphasis on iron-working are known at Crowhurst Park E12, Eridge Park E16 and Sedlescombe E55. All three are iron smelting sites, particularly, indicated (in varying degrees) by cinder spreads, charcoal, burnt clay, iron slag and, in the case of Crowhurst Park E12, Tuyere caps (for bellows) (Straker and Lucas, 1938, 224). It is argued that iron smelting would have been the remit of craft specialists at this time because of the complexity of the technique and the *'uncertainty of viable iron production'* (Ehrenreich, 1994, 18). As none of these were community settlement sites and open to access, they have been viewed as public spaces for inter-community aggregation, where people with the requisite iron smelting skills would meet in their work.

By contrast, whilst it is evident that at least three of the formally enclosed hill top (or 'promontory') sites of this period were also associated with iron extraction processes, the work (or knowledge of the work) was clearly restricted by exclusion by physical barriers. If the area enclosed and the *ditch labour costs* (table 5.4, above) for the Wealden enclosures of this period are considered, it is clear that the three solely iron-working sites are the smallest. Piper's Copse E46's evidence is for iron smelting only but the interior has not been investigated; a hearth or furnace was set into the enclosing bank and the excavator usefully finds analogies between this phenomenon and other Wealden sites beyond the limits of modern Sussex, at Castle Hill (Kent), Dry Hill, Holmbury and Hascombe (Winbolt, 1930, 234; 1942, 247), suggesting that these comments may apply further afield. As Winbolt (1942, 249) remarks, the bank and ditch are *'not inconsiderable'* (at 4.3 metres total drop (Winbolt, 1942, 248)) for so small an area (c 0.5 ha). A *ditch labour cost* of 112 person months (table 5.4, above) suggests that it could have been built by a small community but the lack of actual community settlement evidence suggests that it was more likely to have been an inter-community effort by interested specialists. Similarly, although no *ditch labour* calculation for Saxonbury E53 (0.5 ha) is possible, the very substantial stone-built inner oval must have been costly to build, all smelting is contained within it and there is no occupation evidence at all, suggesting a special facility for inter-community aggregation for specialised work. More smelting locations are evident below the hilltop site *'300 to 400 ft from the gills'* (Winbolt, 1930, 231).

Garden Hill E18 is somewhat different, being larger (2.7 ha) and containing evidence for permanent settlement in three roundhouses (within the 5% of the interior which has been excavated) in close proximity to 'metallurgical hearths'; all set near the banks and associated with slag spreads and at least one 'forging hearth', suggesting smithing operations as well

(Grew, 1980, fig. 23). Ironworking continued at that site on a considerable scale until the middle AD C 3rd. In contrast to smelting operations, smithing expertise is said to have been at a very basic level during the late Iron Age as smiths were unable to alter the properties of the iron in their products (Ehrenreich, 1994, 18). There is evidence for smithing on small settlement sites and larger, prominent enclosures ('hillfort sites') in all settled areas of Southern Britain and is considered to have been an unsophisticated, non-specialised skill at this time (Ehrenreich, 1994, 18). Thus, Garden Hill E18 has been interpreted as a community settlement site with an emphasis on iron-working in the GDM analysis and mentioned here for completeness in the discussion of the range of iron-working sites.

Of the other three Wealden enclosures, Hammer Wood E22 (3.0 ha) stands out for its elaborate architecture and concomitant building investment estimated at a *ditch labour cost* of 308 person months (table 5.4, above), plus the cost of building stone-revetted cross banks (Boyden, 1958, 161). There has been no excavation of the interior of this site, although the 'circular platforms' noticed were sampled and found to be much later (Boyden, 1958, 155), so permanent occupation is not suspected. Therefore, on the basis of the investment in building the enclosure, inter-community effort to construct a meeting place is assumed. Philpots E45 and High Rocks E26 are both considerably larger, at 6.0 and 10.0 ha, respectively. Philpots E45 has an impressive entrance in its almost perpendicular bank (<u>not</u> revetted) (Hannah, 1932, 159) and there is no evidence for interior occupation at all. Furthermore, there is absolutely no evidence allowing dating and it has been assigned to this period solely on the basis of morphological similarity to other sites. Hannah (1932, 164) suggests that it may have been built thus for keeping sheep in and wolves out and that would seem especially likely if the generally wooded environment seen today reflects that of the past. Thus, this is interpreted as possibly a stock enclosure of this period or for some purpose unknown in an aceramic period (outside the range of this study). At High Rocks E26, occupation evidence was sought by geophysical survey but not located except in two hearth sites, one of which was surrounded by a horseshoe of postholes of which one had iron slag in its upper fill. The slag was examined by Henry Cleere and thought to have been from a bowl furnace of this date but he also found that the hearth was not connected with iron working. (Money, 1968, 178). It is clear that occupation was never intensive and the site was given over to agriculture between the two phases of enclosure, yet the entrance, particularly, was rather impressive in that it was approached by a metalled track and stone revetted and may have been stockaded. The *ditch labour cost* of 84 person months (table 5.4, above) shows that the enclosure without embellishments may have readily been built by the labour of a small community but the exaggerated boundedness suggests a site of more than domestic importance and it may have been for inter-community aggregation relating to some stock function.

Summary - the interpreted dataset

It has been argued that settlement *per se* was concentrated on the higher land of the Downs for most of the millennium, moving down onto the Coastal Plain, the Greensand and into the Weald after c400 BC at which time the climate must have improved from the low of the first 500 - 600 years. There is some suggestion, on the pattern of evidence from excavated sites, that that settlement was biased toward the east in earlier periods, moving westward to cover all of the Sussex Downs during the 750 - 600 BC period. At the end of the second millennium BC, the only known sites are small communities of a few domestic-units each, practising mixed agriculture on an entirely local basis. During the 1000 - 750 BC period, some stock enclosures were built, in two distinct size ranges explained by the different needs of enclosure for over-wintering, for keeping stock off fields and for protecting and controlling stock at vulnerable times in the reproductive year. Some of the earlier settlements had been abandoned by this period and it would appear (on a small sample) that new settlements were more like farmsteads, supporting one or two domestic-units at the most but which may have been longer-lived. The exception was the recently discovered site of a platform and trackways set in marshland at Shinewater E57 which housed a community clearly much 'richer' and better connected than any other known community of this time.

The 750 - 600 BC period is characterised by an apparent rise in the relative importance of the Arun to Adur sector as the possibly special activity sites of Chanctonbury Ring E08 and Harrow

Hill E23 were developed and the comparatively wealthy and long-lived Highdown Hill E28 site enclosed in a more assertive and grandiose fashion. West of the Arun, a presence on the Downland is evident but shows a bias toward visiting and using sites which had been occupied in the Neolithic, echoing the interest in 'special places' detectable in the earlier period elsewhere. It would appear that actual settlement of this region in a form more typical of the other sectors was confined to the 600 - 400 BC period, after which people seem to have preferred the Coastal Plain. There are a couple of examples of the development of enclosure of earlier settlements at Highdown Hill E28 and Hollingbury E29 and there is other evidence at those to indicate that they were comparatively wealthy. Interestingly, settlement focus apart from those sites seems to presage the development of the four true Sussex 'hillforts'. Those were developed in the 400 - 100 BC period at Torberry E62, the Trundle E64, Caburn E05 and Cissbury E10. The very fact of enclosure would have served to enhance the reputation of sites which were probably already regarded as special places. Most other Downland sites were abandoned at this time in favour of the Coastal Plain in the West of Arun sector and presumed to be to the lower-lying land of the river valleys, the Greensand and the Weald in other sectors.

Finally, in the 100 BC - AD 43 period, settlement evident in the record seemed to change somewhat in nature as it is apparent that a number of the Wealden sites were strongly associated with iron extraction whereas those on the Coastal Plain continued the emphasis on agriculture.

Chapter Six - The GDM of Sussex

The Group Dynamics Matrix (GDM) analysis is organised from the lines of evidence at the widest scale to the narrowest, following the method outlined in Chapter Four (Modelling Social Structure), namely from the whole study area, to community architecture, to intra-community assemblages, artefactual analysis and, finally, the individual. The full extent of the habitus is neither known nor assumed at any point in this study and the widest scale for analysis is simply taken to be the modern counties of East and West Sussex (termed 'Sussex'). As the GDM analysis is developed through the first millennium BC, a possible cultural boundary is located at the River Arun and signalled by differences in ceramics, site patterns and site morphology. Populations on each side of that divide were still part of one habitus but they would probably have identified themselves as members of at least two commonties. Whilst it may have been useful to sub-divide the whole study area at that boundary and reiterate the analysis for each group, none of the conclusions for any period depend so heavily on data from sites on either side that the effort required for that exercise seemed justified.

Each line of evidence is analysed in turn and the GDM position for each time band stated clearly at the end of the discussion as *weak* or *strong*, as subjectively evaluated, in preparation for normalisation of the results which are summarised at the end of this chapter and the process and calculations included in Appendix H1 (Adjustment of GDM Results). To maintain the flow of discussion some calculations have been taken out of the main text and placed in Appendix G (Calculations used in GDM Analysis). Finally, the sequence of sites through time, their geographical mapping and the full site details are included in Appendix E (Sussex Dataset) for easy reference on any point of detail.

The whole study area

Population

In Chapter Five (The Case Study) it was observed that most of the population was concentrated on the South Downs, living and working from permanent settlement bases and practising localised, mixed agriculture until c400 BC. Thus, for calculation of an order of magnitude figure for population, the area can be limited to the Downs whilst noting that there are a number of factors which could affect the accuracy of any network density estimate based upon the number of people that that area could support. These are:

i. Any social network of which Sussex people were part could (and probably did) include people who did not live in Sussex; therefore, the network density will tend to be a little overstated by concentrating only on the local population.
ii. There could have been more than one commonty on the Downs and they may have been self-contained in network terms; if so, any generalised network density calculation would tend to understate the density.
iii. The above two conditions may have varied through time over the case study period.

However, an order of magnitude estimate allows assessment of the balance of likelihood of these alternatives and that is refined as further lines of evidence are brought to bear. No attempt is made to calculate population after 400 BC, as movement into the Weald increases the likelihood of the first objection (i, above) due to physical proximity with neighbours beyond modern Sussex.

On the basis of the production potential of the Sussex South Downs in the first millennium BC, the maximum population which could have been supported has been calculated (detail in Appendix G1- Population Calculation) and is noted in the 'maximum population' column of table 6.1:

Site	*Hectares*	*Maximum population*	*Occupied between End M 2nd - 400 BC for:-*	*Population if exhausted land not re-occupied*
East of Ouse	11,300	22,250	800 years	2,750
Adur : Ouse	15,900	31,300	800 years	3,900
Arun : Adur	8,500	16,750	650 years	2,550
West of Arun	20,500	40,350	650 years	6,150
		>110,000	***Total***	***c15,350***

Table 6.1 - Population which could have been supported by sector of the Sussex Downs

Calculation of the maximum population which the land could have supported suggests that there could have been as many as 110,000 people in periods when all downland sectors were settled. If there had been no re-settlement of land after a period of easement following soil exhaustion the figure would still be more than 15,000 people.

Drewett's (1980, 393) crude estimate of population based on observed settlement between the Ouse and the Cuckmere in the earliest part of the study period can be extrapolated to suggest that numbers at any one time may have been as low as 1/3rd of the lower of these estimates (i.e. 5000 - 6000 people, to extrapolate) but the balancing argument that the archaeological picture is not representative of the actual pattern of land use at that time is strong (detailed in Appendix G1 - Population Calculation).

All of the communities as represented by settlement sites, at all periods of the first millennium BC, were less populous than would satisfy personal network needs so that inter-community relationships are likely. When a commontant population is greater than c800 people then *corporate* density is very unlikely. From c 800 - 4,200 people *contingent* or *circumstantial* network density is likely and any greater population is more likely to represent *circumstantial* (pp.

96-97). In the period from end second millennium to 750 BC it has been argued (above) that the population concentrated in the easternmost sectors of the Downs, which could have supported a maximum of c 22,250 people, may have been as few as c3,000 (Appendix G1 - Population Calculation). Thus, the degree of network density cannot be resolved between the *circumstantial* and the *contingent* range for this period. However, from c750 to 400 BC many communities comprised individual domestic-units, supporting a stronger suggestion of *circumstantial* density and the population is likely to have been much greater, adding strength to that impression. After 400 BC, the move back onto the Coastal Plain area and into the Weald render assignment of values to variables in a population model too tenuous, so no attempt at analysis has been made.

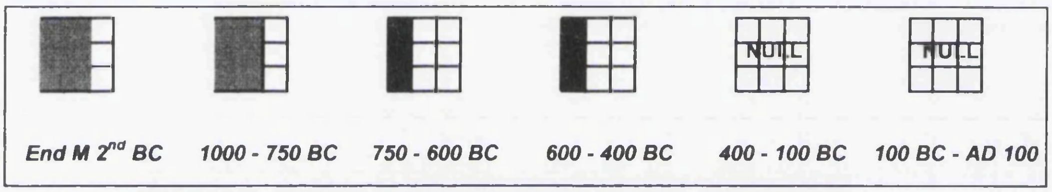


Figure 6.1 - Sussex GDM - Whole study area - Population

Population estimation to derive network density is probably the most tenuous line of evidence used in GDM analysis and, therefore, it has proved useful to model the alternative of *null* results in all periods to demonstrate the degree to which one input affects the overall result. That work is included in the illustration of tolerance of the approach at the end of this Chapter.

Style

Style indicators are limited to the distribution and form of ceramics. Ann Woodward (1995) has added to those studies focusing on the traditional view of style as constituting decorative repertoire and form by considering the variability in vessel size and how that alters over time, concentrating on the Deverel-Rimbury and post-Deverel-Rimbury changes. Although that study is of 'Southern Britain' (Woodward, 1995, title and abstract) it does <u>not</u> include any Sussex material, so it is of limited value to this study. Nevertheless, an argument can be developed for applicability of some of its key findings, so it is included here. Woodward takes Barrett's (1980) argument that the middle Bronze Age to late Bronze Age transition is marked by an increase from a tri-modal vessel size range distribution to a five-modal as a starting point and tests and develops the argument with selected assemblages, finding important variations in size range distribution which fall into geographical clusters (Woodward, 1995, 197-198). The 'Dorset Downs' region's finewares (especially globular urns) are smaller than other areas and constricted to a more tightly defined range of size (Woodward, 1995, 198-199). Turning to coarseware, finds in Central Wessex and Avon/Stour areas concentrate in a similar size-range but the Central Wessex dataset has a second clustering point at a larger size than any others (Woodward, 1995, 199). Woodward reads the size mode variance as an emblemic style signal at a regional level, reflecting potential differences in cooking and dining practice, and she suggests that social groups (by which she means self-identifying groups or commonties) come to be *'symbolised and regulated by the adoption of regional styles of fineware'* (Woodward, 1995, 201).

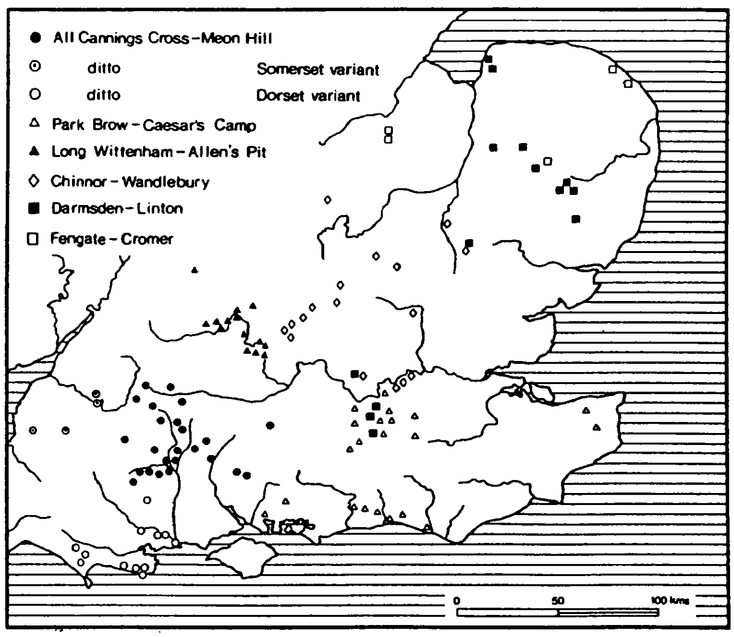


Figure 6.2 - Distribution of pottery styles 600 - 400 BC (source: Cunliffe, 1991a, fig. 4.4)

For the 600 - 400 BC period, Cunliffe (1991a, 69-79) has identified and plotted the distribution of ceramic styles of form and decoration which show a tendency to geographic grouping (Park Brow - Caesar's Camp style in Sussex and around the northern edge of the Weald).

Returning to Sussex specifically, and moving forward in time to the 400 - 100 BC period, Hamilton (1993, 298) has identified a distinct style zone 'border' in Sussex, located at the River Arun, by the study of the differential distribution of decorative pattern on saucepan pot ware. West of the Arun, the style extends as far as Danebury F14 in Hampshire and east of the river it is an homogenous whole (Hamilton, 1993, 298). At the same time, study of fabric and form as well as decoration has led Hamilton to conclude that the distribution of the output of any one potter is no greater than c12 km (Hamilton, 1993, 368-369) and, therefore, different producers of pottery used the same decorative style repertoire.

In the 100 BC - AD 43 period, ceramic styles and distribution resolved into two clear zones, namely the more easterly '*Sussex Ouse ware*' (as far west as the Arun) and the westerly '*West Sussex wheel-thrown ware*' (as far east as the Adur) (Hamilton, 1993, figs. 13.11 and 13.12, 370). Each was consistent, not least because production had become substantially more centralised and specialised, yet there can be little doubt that each conveyed a readily recognisable style signal. Form differed with large bulbous storage jars, small high-shouldered jars and barrel shaped jars characterising the Sussex Ouse ware whilst necked cordoned bowls, ovoid jars, roll-rimmed globular jars and barrel-shaped jars were more typical of a West Sussex assemblage (Hamilton, 1993, 349, 351-352). Additionally, the decorative repertoires were distinctive both in terms of motifs and method of application and, finally, the temper differed (grog for the East and quartz in the West) and that differentiates the two by touch (Hamilton, 1993, 349, 351-352).

The archaeological picture of the West of Arun downland region suggests that it was not settled in the earliest periods of the Sussex study (to c750 BC), leaving an essentially unoccupied zone (from the point-of-view of permanent settlement) between Hampshire and Sussex Downs for several centuries. Sussex does exhibit a different trajectory of ceramic development to Wessex at that time, in that the Deverel-Rimbury tradition in Wessex continued well into the first millennium BC with an *'essentially plain ware'* in parallel but there was a fairly abrupt change with no equivalent plain ware element in Sussex (Hamilton, 1993, 337). Since the size variation highlighted by Woodward (1995) is concentrated around the developments of those changes, it appears likely that the regional variation noted for the Central Southern and South Western areas would have been reflected in another variant with a distribution including Sussex which encourages the tentative conclusion that this is the *'emblemic signal at a range greater than community level and with no local community emblemic'* (fig. 4.8) of *contingent* network density. That view solidifies when the evidence for differential settlement practice between the west and the east of the Arun is apparent (c750 BC +) and the Park Brow - Caesar's Camp ceramic type is mapped and even more so when the saucepan pottery observations apply (c400 - 100 BC). In the final period of this study, the style signal was made even more overt by clear differences in form, decoration and to the touch, yet it cannot be confidently said to amount to a habitus-wide emblemic signal of a *corporate* degree of density (as the limit of habitus is not known), albeit that it may be.

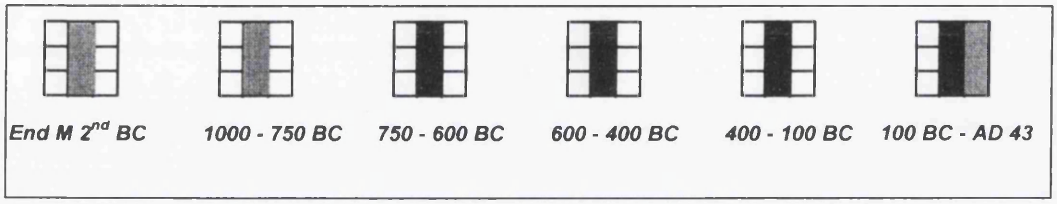


Figure 6.3 - Sussex GDM - Whole study area - Style (ceramics)

Specialisation

Centrality

In the earliest period (end second millennium BC) the seven community settlement sites in the dataset appear to have been self-sufficient, suggesting an absence of community specialisation (i.e. *equal* centrality). The evidence for the 1000 - 750 BC period indicates more diversity, with settlements both in single domestic-units (e.g. Varley Halls E65; Heathy Brow E25) and multiple (e.g. Plumpton Plain B E48; Mile Oak E37) as well as a number of sites which have not been excavated over a wide enough area to reveal the full extent (e.g. Selsey Bill E56; Rustington B E52). The overall impression remains one of self sufficiency of small communities and no specialisation. However, Highdown Hill E28 has an unusually rich assemblage, especially in finewares and in gold and bronze metalwork (Hamilton, pers. comm.). Although thought to have been unenclosed at this time, the Highdown Hill E28 site is spectacularly sited and overlooks the sector of the Coastal Plain where contemporary bronze hoards were preferentially deposited (pp. 138-139; Bedwin, 1978b). Taken together, those indications do suggest that this community was at least a centre of high status consumption of bronze metalware and could also have specialised in some way in controlling its supply and/or production. That may represent an instance of inter-community specialisation amounting to *differential* or *insulated* centrality.

Unoccupied, enclosed sites also appeared in this period and these have been interpreted as most likely to be stock enclosures built and used by one or two communities and closely associated with them (c.f. Heathy Brow E25 'farmstead' and Belle Tout E02 cliff-top enclosure) (p. 150). Some difference is hinted at at Thundersbarrow E61 and Wolstonbury E68 but excavation has been too limited to allow confident judgement. An explanation for the disparity in the range of sizes of stock enclosures could be proffered, couched in terms of a functional requirement based on specialisation (e.g. cattle breeding) but, erring on the side of caution, it is felt likely that functional explanation by virtue of local conditions and practice is the only safe conclusion to be drawn from such sketchy data.

Between 750 and 600 BC surprisingly little is known of community settlement sites, so no conclusions can be drawn on that basis. However, Highdown Hill E28 not only remained in use but was also elaborated by a substantial earthwork enclosure (at a *ditch labour cost* of 156 person months) so the conclusion for the previous period is carried forward to this.

Into 600 - 400 BC, it is just possible that the series of sites built as two concentric rings (Wolstonbury E68, Thundersbarrow E61 and Goosehill E19) could represent some kind of specialised stock rearing facilities but there is little to corroborate that thought and it is not used to assert inter-community specialisation. There was a newly-enclosed community settlement site at Hollingbury E29, thought to be of a higher status than the typical, smaller site, because of the investment put into building the enclosing earthworks (*ditch labour cost* of 207 person months and timber lacing of the bank which suggests investment considerably over that minimum figure) but the community does not appear to have been involved in specialised activity and, thus, cannot contribute to this line of evidence. There is the possibility of settlement association with the building of three of the four 'developed hillforts' which appeared in the following period. Three small, open settlements were established within 2 km of the site which became the home of Cissbury E10 in the next period (i.e. Park Brow E44, Muntham Court E39 and Findon Park E17), a large roundhouse was built on the Caburn E05 hilltop within the area which was to become the 'hillfort' enclosure and the cross-dyke was built at Torberry E62 (but no settlement evidence has been excavated in the very limited investigations in the interior). Whilst it is just possible that these housed specialised communities of 'builders', the connection is tenuous and need not imply specialised communities as a whole, anyway, so it is disregarded. Again, then, it is only the continued use of Highdown E28 which suggests any specialisation between communities.

Between 400 and 100 BC, Highdown E28 was abandoned at the same time as a number of other changes in settlement patterns are evident. An agglomeration 'hierarchy' of the (probably non-settled) 'developed hillforts' has been proposed (pp. 155-156) which would not suggest specialisation were it not for the fact that they housed seed corn in below-ground storage pits in very large quantities when compared with capacity in new, open settlements (e.g. Cunliffe, 1991a, 375; Rawlings, 1991, 90; Jefferies, 1979, 15). Whilst that may have been simply a practical facility for communities who had moved into lower-lying areas off the chalk, and whilst those sites may not have been specialised by comparison with each other, there is obvious potential for the development of inter-community differentials and it is interpreted as evidence for that. Additionally, although little is formally published on the recently discovered settlement sites dated to this period on the Coastal Plain, North Bersted E41 gives more substantial evidence for metalworking as does the Trundle E64 on the Downs; those two sites are both west of the Arun and that could suggest some localisation of metalworking specialisation.

By the late Iron Age, there is little doubt that there was localisation of iron extraction and smelting operations, at least (e.g. at the Piper's Copse E46 and Saxonbury E53 unoccupied enclosures, at Garden Hill E18 enclosed community settlement site and at the open, unsettled sites at Crowhurst Park E12, Eridge Park E16 and Sedlescombe E55 in the Weald). Furthermore, it is argued that pottery production had become the remit of dedicated specialists at a number of production centres (Horsted Keynes E30, Chelwood Gate and Castle Hill, Newhaven E07 for Sussex Ouse ware and in the Petersfield area for West Sussex wheel-thrown ware) (Hamilton, 1993, 255, 362, 364). Both lines of evidence strengthen the *differential* or *insulated* centrality conclusion.

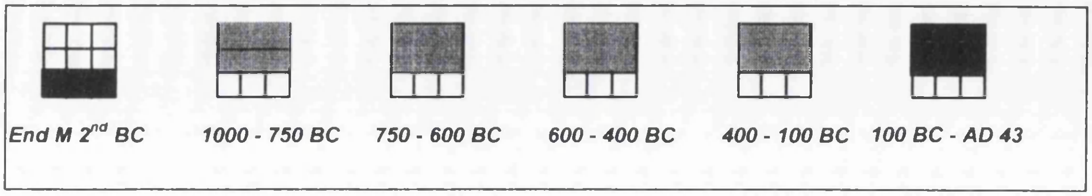


Figure 6.4 - Sussex GDM - Whole study area - Specialisation - Centrality

Density

Whilst there is every possibility, at all times in the study period, that the stock enclosures and the 'developed hillforts' could have acted as markets, there is only the slight evidence of the individual finds of small lead weights (c250 - 300g) at Caburn E05 and at Torberry E62 (both c400 - 100 BC) to suggest measured exchange. Neither of those sites are regarded unreservedly as having been centres for any social agglomeration greater than the local communities, and the observation that the weights are of a similar weight to that found at Glastonbury (Cunliffe, 1976, 14; Bulleid and Gray, 1911, pl. XLV; Curwen and Curwen, 1927, 16-17) would suggest a wider application of the standard than simply the Case Study region. The whole amounts to a considerable doubt that these were market sites serving the habitus as a whole and the conclusion can only be *null* for this line of evidence.

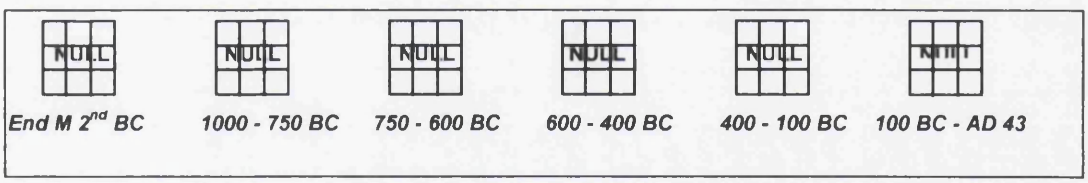


Figure 6.5 - Sussex GDM - Whole study area - Specialisation - Density

Community site patterning

The *ditch labour cost* values for all enclosed community settlement sites are:

Site	*Period*	*Ditch Labour Cost (person months)*
Hollingbury E29	1000 - 750 BC	n/k
Highdown E28	1000 - 750 BC	n/k
Highdown E28	750 - 600 BC	156
Goosehill E19	600 - 400 BC	49
Hollingbury E29	600 - 400 BC	207
Garden Hill E18	100 BC - AD 43	n/k

Table 6.2 - Ditch labour costs - enclosed settlements in Sussex

All of the sites dated to the period from the end of the second millennium to 1000 BC were fairly unbounded and of comparable residential architecture. No great differentials in any of the valued items within the assemblages has been noted and the same is true for the following period. Thus, from end M 2nd - 750 BC, *equal* centrality is indicated by this line of evidence. However, in 750 - 600 BC, Highdown E28 was formally enclosed in the manner seen today and the community held a particularly rich assemblage (Hamilton, pers. comm.). Hollingbury E29 was also in use at the same time but the *ditch labour cost* calculation cannot be made as the earlier enclosure is thought to have been on the same circuit as the later enclosure (with *ditch labour cost* of 207 person months) and, if that were so, it would be comparable to Highdown E28. Again, the assemblage may have been of an unusual nature (Hamilton, pers. comm.) but the recent excavation results have yet to be published. Unfortunately, little is known of other settlement sites at this time yet it is likely that they were only slightly enclosed (if at all) as any earthworks associated with the pits found would have been noted by the experienced excavators. Thus, there may have been a two-tier community hierarchy which could hardly be described as the 'large, wealthy sites and satellites' of *insulated* centrality (fig. 4.10) but which might be better thought of as representing the heterotaxic pattern of *differential*.

In the 600 - 400 BC period that pattern continued and the unusually large roundhouse (and, possibly, one other identified by AE Wilson (1939, 196)) located at the Caburn E05 hilltop could be included, even though it may not have been enclosed, as it also has been reported as having an unusually rich assemblage (Drewett and Hamilton, 1996, 6) and is marked out by the dramatic, special location. Goosehill E19 was also probably built at this time at a rather smaller cost and has no special assemblage associated with it. Other settlement sites were smaller and presumed to have been open. Thus, it would appear that the *differential* centrality pattern persisted.

Into the 400 - 100 BC period the settlement concentration shift (from the Downs to lower ground) means that rather less is known but all known community settlement sites were open (except Bishopstone E03). However, each erstwhile populated downland sector was home to a 'developed hillfort' with clear centralised functions for storage of seed corn at least. The whole may have provided the facility for the decision-making practice of sequential hierarchy, with a limited sector debating local issues at the 'local' community aggregation site or wider issues at the larger, therefore presumably more populous, aggregation site at Cissbury E10. Again, that is characteristic of *differential* centrality although articulated in a rather different form.

From 100 BC onward, the 'developed hillforts' were no longer regularly visited and the focus of settlement transferred to the Weald and the Coastal Plain. The majority of settlement sites were open, to all intents and purposes, even though some were agglomerations of domestic-units each associated with their own small enclosure. However, the Garden Hill E18 site not only may have housed a large community (comparatively speaking) but also was assertively enclosed, although the *ditch labour cost* cannot be estimated from the excavation evidence. It is difficult to judge whether it is comparable with the open community settlements on the Coastal Plain as only c 5% of its interior has been excavated, revealing three roundhouses; the open settlements (e.g. North Bersted E41; Oving E43) are even less explored. On balance, it was probably more populous and it was also home to iron working (both smelting and smithing) on a large scale, practice which has been treated in special ways at non-community settlement sites in the region. Overall, it is probably an indication of the heterotaxic pattern of *differential* centrality.

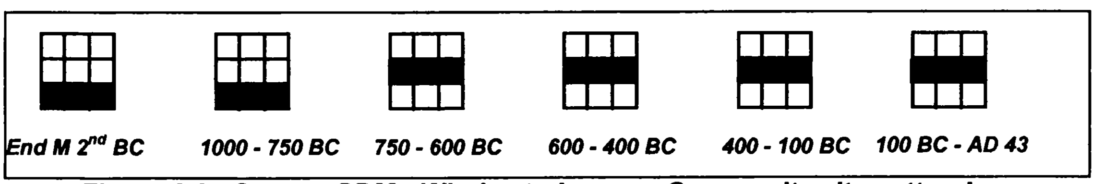


Figure 6.6 - Sussex GDM - Whole study area - Community site patterning

Access

No inter-community aggregation sites are suspected before c 750 BC, unless the slightly bounded stock enclosures were shared; *equal* centrality would best describe this. By contrast, from c 750 - 600 BC it has been argued that Harrow Hill E23 and Chanctonbury Ring E08 probably served the wider community for the practise of special functions (pp. 151-152). Both were fairly visible from afar but the Harrow Hill E23 site was stockaded (height not known) and sited such that there is no nearby higher ground from which to see into the interior. Thus, the architecture must have shrouded internal activity in secrecy and the small size of the enclosure certainly would have acted to exclude; the capacity of the interior was strictly limited. That is best described as characteristic of the bounded and restricted arrangements of *insulated* centrality. Chanctonbury E08 was not much larger but much more slightly enclosed and its siting on a high plain would have meant that any ceremonial performance within could have been open to an audience or to participants who remained outside. The sight lines and visibility are such that it could have been viewed from afar. Overall, that is more indicative of the lightly bounded but restricted characteristics of *differential* centrality.

The 600 - 400 BC period saw a decrease in inter-community focus on the Arun to Adur sector, as Chanctonbury E08 and Harrow Hill E23 both went out of use. For the first time an inter-community facility may have been built in the West of Arun block, in the form of the cross-ditch annexing the promontory site at Torberry E62. Surrounded by steep slopes on three sides, the boundary to the promontory was emphasised by the cross-bank and ditch (height not known) but, in that, may have been rather like Chanctonbury E08 as activity in the inside may have been observable from the level ground immediately outside (later to be incorporated into the enclosure). Therefore, it could be best categorised as *differential* centrality. At much the same time, the Caburn E05 hilltop was surmounted by the large roundhouse which has been tentatively interpreted as having provided an inter-community meeting point for some sectors of society (pp. 153-154). Although not enclosed by a surrounding demarcation of the wider area, it would be *de facto* exclusive but activity could be viewed from nearby, depending on its nature; that is probably best described as the open but restricted boundedness of *differential* centrality but it could indicate the more closed boundedness of *insulated*. In the following period, the Caburn E05 was fully encircled and the roundhouse abandoned. However, the domed hilltop renders activity within the boundary highly visible (unless hidden behind the banks) from parts of the perimeter, as does that of the Trundle E64. Both would be best described as exhibiting the lightly bounded but restricted characteristics which signal *differential* centrality. By contrast, Torberry E62's more emphasised enclosure probably served to make it bounded and restricted. Finally, the huge Cissbury E10 enclosure was certainly bounded but could not be regarded as being as restricted as other venues, given the available area within of at least 18 ha (if the Neolithic flint mines were avoided); it is quite likely that a sizeable proportion of the population could have met there in comfort, although probably not all.

In the 100 BC - AD 43 period the pattern of aggregation sites became a good deal more complicated. The small, iron smelting, unoccupied enclosures at Piper's Copse E46 and Saxonbury E53 were heavily bounded and restricted by virtue of their small size, their locations and their heavy and marked enclosing architecture, suggesting *insulated* centrality. The other enclosures in the Weald at High Rocks E26, Hammer Wood E22 and Philpots E45 were all emphatically separated from the landscape, making internal activity invisible to the external gaze, but each had considerable space to the interior suggesting that entry cannot have been greatly restricted, indicating *differential* centrality overall. The iron smelting sites at Crowhurst Park E12, Eridge Park E16 and Sedlescombe E55 were all open and unrestricted in physical terms, as was the ritual site at Money Mound E38, but all may have been restricted by virtue of the access to special knowledge required for participation in activities at the sites and, possibly, if they were sited in areas wooded at the time. Overall, they strongly suggest *equal* centrality but could be interpreted as *differential*. Finally, the shrine site at Lancing Down E34 is open in terms of approach but restricted within both in terms of size and ability to see in, suggesting *differential*. Overall, there is enough restriction in access to almost all sites to suggest a *differential* degree of centrality and *insulated* is arguable.

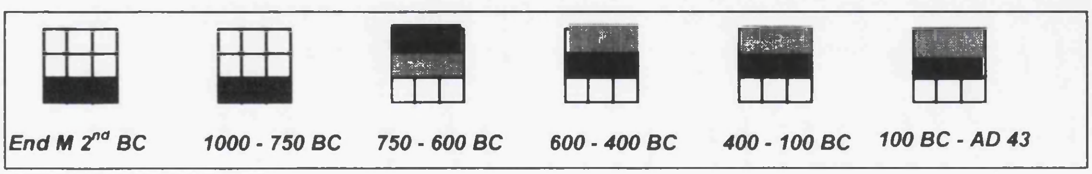


Figure 6.7 - Sussex GDM - Whole study area - Access

Community architecture

Territory and Boundaries

There has been a long history of study and inventive interpretation of the humanly altered downland landscape in prehistory. Regrettably, the features are rather under-researched by excavation, making it very difficult to date the Sussex examples, but Richard Bradley's (1971b) influential review of the data in both Wessex and Sussex provides a sensible and believable interpretation upon which to base the GDM analysis of territory.

Bradley (1971b, 9) has coined the term 'cross dykes' to stand for both the banks built across ridges of the Downs and those which go along the length of blocks, to avoid confusion arising from earlier interpretations which attempted to argue that they varied, functionally. Additionally, there are a number of long linear ditches which are paralleled in Wessex but which appear in association with cross dykes in Sussex (e.g. at Bow Hill, near Chichester) (Bradley, 1971b, 9-11). Again, some elaborate arguments were made for differing cultural approaches to managing territory between the two regions but Bradley (1971b, 11) argues, convincingly, that the difference is simply one of terrain; ditches are peculiar to plateau conditions whereas cross dykes occur where the ground is steeper.

Observing that nearly all downland valleys contain lynchets (suggesting use for arable), that high ridge tops are often barren and that palaeo-environmental evidence shows that the scarps between were not cleared early, Bradley (1971b, 9-11) suggests a model of use of all available suitable lower-lying land for arable farming and grazing of herds on less fertile, higher ground. In support of this model, there is some evidence for association between the ends of cross dykes and trackways through the fields below (Bradley, 1971b, 13). On that analysis, the cross-dykes and linear ditches probably served to demarcate large tracts of pasture ('ranches') on the hilly terrain (Bradley, 1971b, 11), explaining the partial nature of many examples as they may have served simply to 'cut-off' access points rather than providing a full enclosure. In further support of this reading of the evidence, Bradley (1971b, 9-13) has identified a considerable number of very small and slight enclosures 'attached' to lengths of cross-dyke which evidently would have provided localised (or 'out-field') stock management facilities complementing those closer to the community (the 'in-field enclosures', discussed in detail as they occur in the dataset, above).

Dating evidence for the type of feature is very rare, but Bradley (1971b, 14) cites Itford Hill E31 as an example of a middle Bronze Age settlement directly associated with a cross-dyke and a number of examples of cross-dykes impinged upon by mid-late Bronze Age round barrows (e.g. on Harting Down, Hayden Down and Upwaltham). Thus, they must have been a typical feature from the end of the second millennium BC onwards. However, the more recent excavation of the examples near Chanctonbury E08 arrived at the surprising conclusion that the two flanking dykes on that plateau were Romano-British in date (Bedwin, 1980, 182); that provides a lesson that it would be foolhardy to extrapolate from the early patterns by using them as a basis for later inference. Thus, at all times in the first millennium BC the cross-dykes and linear ditches evident on the Downs probably served to demarcate ranges for grazing by one, or more, communities but the lack of dating and excavation evidence and the difficulty of detailed survey in mid-height regions covered by woodland today, as well as modern use of the lower ground, makes it difficult to refine the detail. One avenue of enquiry, however, follows on from Peter Drewett's (1982b, 392-399) economic model of the Sussex Deverel-Rimbury middle Bronze Age downland settlement sites which estimates the nearest distances to freshwater and lowland pasture, expressed as minutes to travel, as reproduced in table 6.3, below:-

	River - human	***River - cattle***	***Spring - human***	***Spring - cattle***	***Lowland pasture - human***	***Lowland pasture - cattle***
Black Patch E04	48	120	34	85	48	120
Cock Hill E11	113	283	48	120	63	158
Itford Hill E31	35	88	23	58	35	88
New Barn Down E40	98	245	39	98	48	120
Plumpton Plain A E47	79	198	22	55	19	48

Table 6.3 - Distances to fresh water and lowland pasture on the Sussex Downs (after Drewett, 1982b, table 12)

Those distances render it rather likely that arrangements were made for crossing land, should the right to use it have been restricted. Furthermore, the labour cost of building the dykes and ditches must have been considerable, which would tend to suggest inter-community co-operation to build them (and minimise the number required) given the small size of all communities at all periods in the case study. The demarcation of territory could have been prompted more by the desire to contain the herd and control 'ownership' of the livestock than to protect a right to graze the land.

In the early period, the association of Itford Hill E31 and Black Patch E04, particularly, with round barrows may indicate the assumption of rights to land closer to the settlements. Although none of the earliest sites were heavily bounded themselves, they were all set amidst small fields which would *de facto* serve to provide a wider, weak boundedness as lynchets built up and tracks between wore in, over time. Within the community settlement sites, boundedness is present at the social-unit level but is decidedly weak. Combining all lines of evidence for territory and boundedness, *contingent* network density would best describe the pattern observed.

In the 1000 - 750 BC period the evidence for territoriality remains indirect and incomplete, as seen in the simple, open, 'farmstead' site at Heathy Brow E25 and that would tend to suggest *circumstantial* density were it not for the putative link with the large, cliff-top stock enclosure at Belle Tout E02; the latter could be interpreted as an alternative to high-ground 'ranch' territory and is physically bounded (albeit slightly) by a bank and ditch. The fact that the Shinewater E57 site was built on a wooden platform in a marsh, accessed only by a wooden trackway across (or by boat) indicates a degree of boundedness more typical of *contingent* density and taken together the evidence can be construed to indicate *contingent* density overall.

In the 750 - 600 BC period, the Highdown E28 site appears to emphasise the boundedness of the community in enclosure by a clear physical boundary and non-invitational entrance arrangements, suggesting an up-density development, yet that is not evident in demarcation of territory in any way. Goosehill E19 was built as an enclosed settlement but is only a single-domestic-unit site and all others appear likely to have been comparatively unbounded and similarly small, continuing the argument for *contingent* density as does the development of Hollingbury E29, balanced by a number of small open sites in the following period.

A firm change is signalled by the more marked boundedness of the 'developed hillforts' of 400 - 100 BC. Not only are they physically enclosed, but also at least two of them have been sited at locations where the effect of the enclosing banks is exaggerated to the eye by the local topography (Caburn E05 and Trundle E64) and at least three (if not all) were sited at places which may have already been considered 'special' and, possibly, imbued with supernatural sanctions as a result. Each has a wide angle of vision over the surrounding land and the Caburn E05, at least, is associated with a substantial earlier cross-dyke (Ranscombe) which indicates that it was sited near an earlier (and probably current) territorial marker. All of these factors could amount to the evidence of a move toward *corporate* density although the new sites on the Coastal Plain, west of the Arun, appear to have been open and bounded at a domestic-unit level at most (suggesting *circumstantial*). Overall, though, the significant changes of site location and type do sway the argument toward favouring the view that network density increased, either strengthening within the *contingent* range or representing an outright development to *corporate*.

In the 100 BC - AD 43 period, the existing territorial markers would still have been clear and obvious, but settlement emphasis had moved from the Downs to the Coastal Plain and the Weald. There is little to suggest any emphatic marking of territory or landscape boundaries in the Weald and the Coastal Plain may simply have been divided by the topographical boundary of the river Arun. If so this would tend to suggest that territory and boundaries were neither strongly stated nor maintained, constituting boundedness at the domestic-unit level at the most and amounting to *circumstantial* density. However, the vexed question of the status and dating of the 'Chichester Dykes' or 'Entrenchments' must be brought to bear.

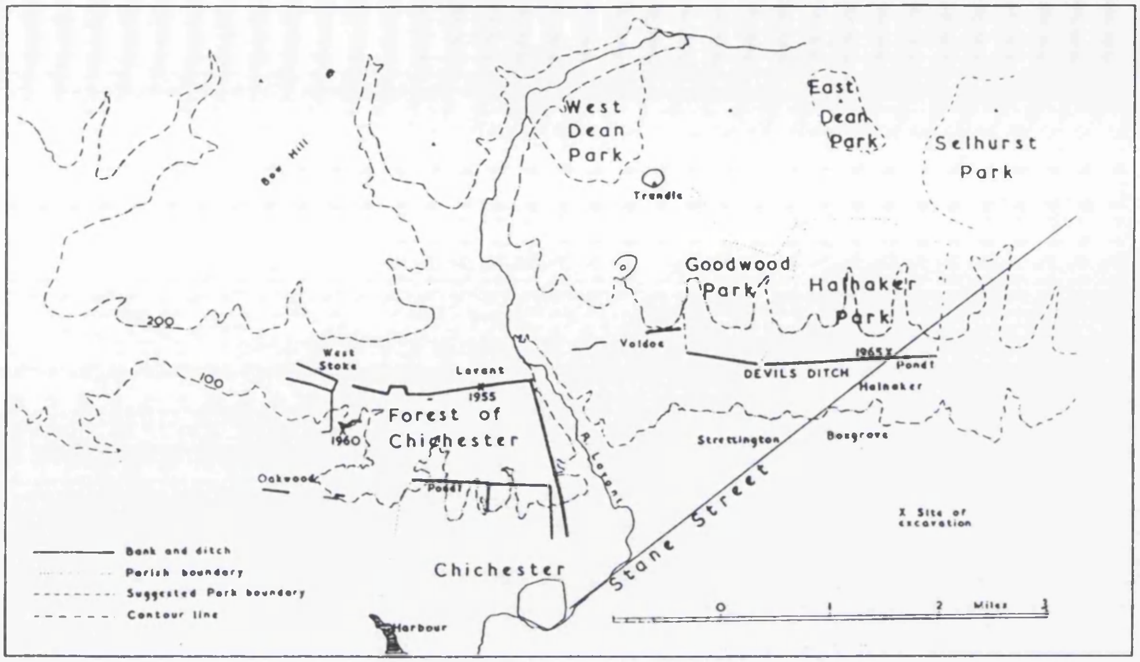


Figure 6.8 - The Chichester Dykes (source: Holmes, 1968, fig. 2)

The Chichester Dykes are a series of banks with V-shaped ditches to the side facing away from modern Chichester, known broadly as two sections, 'Devil's Ditch' and 'West of Lavant', and usually thought to have been joined originally, making a length over 6 kilometres. There has been a long history of interpretation as the work of the 'Belgic Britons', attempting to defend a *territorial oppidum* at modern Chichester against the Roman invasion of Britain and, thus, dating to the late pre-Roman Iron Age. Limited archaeological support for that was obtained by Ms KME Murray in 1955 (Murray, 1956) when she cut through the ditch at a site near West Lavant, finding 2 sherds of early Iron Age pottery and the profile of the ditch V-shaped (Holmes, 1968, 64) but against the case for the 'defence' argument is the observation that no evidence for Iron Age occupation under the site of modern Chichester has ever been found, despite a number of excavations (Holmes, 1968, 64). John Holmes was presented with the opportunity to investigate further in a rescue operation where a small excavation at Halnaker was able to examine the point at which the Devil's Ditch crosses the ditch of the Stane Street Roman road (Holmes, 1968, 65). The junction showed that the Devil's Ditch obliquely cut across the completely silted Stane Street ditch and some of its material was spread over the filled-in Roman ditch, leading to the conclusion that *'there can be no doubt that the Devil's Ditch is later, probably much later, than the Roman ditch'* (Holmes, 1968, 65). Using mainly historical references, he argues for a likelihood that it was part of a boundary system for Goodwood and Halnaker Park in the Middle

Ages and extends the argument to the ditches west of the Lavant, suggesting that they were the medieval enclosure of the forest at Chichester (Holmes, 1968, 67-72). Nevertheless, many more recent commentators still appear to accept the Iron Age account without demur (e.g. Millett, 1992, 24-25, 103; Cunliffe, 1991a, 153-154). Furthermore, the situation has been further complicated by the recent excavation of Ounces Barn E42 which provided the chance of examining the question by excavation of a section across Devil's Ditch at the point at which it terminates at the enclosure at Ounces Barn E42 (Bedwin and Place, 1995, 64). The dating of Ounces Barn E42 enclosure to the late Iron Age and the termination at that point is unquestionable, but the temporal relationship between the Devil's Ditch and the enclosure remains unclear although the evidence does appear to favour a later date for the Devil's Ditch on balance, suggesting that the Ounces Barn E42 enclosure was the pre-determined end-marker for the ditch (Bedwin and Place, 1995, 64). Nevertheless, Ounces Barn E42 was itself the site of coin production which is most unusual and would sit well with an interpretation of location within the bounds of a territorial *oppidum* (Bedwin and Place, 1995, 64). Overall, the analyst would hesitate to come down on either side of the debate with the evidence as it stands. If this were a substantial definition of an *oppidum* boundary then it would suggest *contingent*, or even *corporate* density and presumably for a territory west of the Arun. On balance, the analysis must be *null*.

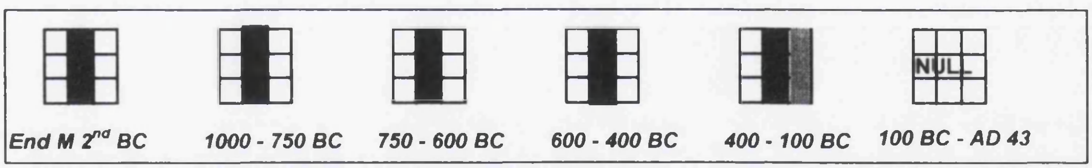


Figure 6.9 - Sussex GDM - Community architecture - Territory and Boundaries

Public spaces

At no time were any of the sites in the dataset as excavated large enough, in terms of domestic- and social-units, to allow any meaningful analysis of public space provision within community settlement sites. The question of inter-community public spaces is a little more difficult, in that it is clear that some built sites were intended for inter-community aggregation and built at a widely varying cost, depending on the superstructure. Those have all been treated as the 'monumental architecture' line of evidence (below) for the sake of a coherent analysis.

There are a number of sites which have been interpreted as 'special places' on the strength of evidence of visiting sites which were of importance in the distant past and which were probably extant to a degree that made them impressive in the first millennium BC and, conversely, of visiting sites which were to become important locations for development as monumental meeting places in later periods in the first millennium BC. At the turn of the first millennium BC, the Potlands E50 'burnt mound' site was established but the interpretation of that is too uncertain to allow confident assertion of use as a 'public space'. From 750 - 600 BC, the Neolithic enclosure at Halnaker Hill E21 was reused and the Trundle E64 and Torberry E62 sites visited prior to their enclosure at later times. Harting Beacon E24 was no longer an occupied settlement by 600 BC yet a special deposit was made in the ditch in the 600 - 400 BC period. Whilst at no time does the investment in these in-community public spaces appear 'large', there may have been the 'little investment' required to justify an indication of *contingent* density as opposed to the absence of public space provision for *circumstantial.* On the other hand, where sites may simply have been re-used with no investment it must be recognised that this could amount to the 'no investment in public spaces' of *circumstantial* density networks (fig. 4.14). Overall, from c750 - 400 BC onwards there is the possibility that 'special places' were known as meeting points, recognised by long-term knowledge and by memorable location, thus providing loci which may have been routinely used as public spaces in this meaning of the term whilst leaving little archaeological trace of that activity, suggesting a probable *contingent* density but a possible *circumstantial.* From 400 - 100 BC, no public spaces are known which are not better described as monumental architecture (below); this cannot be construed as 'no provision for public spaces' (fig. 4.14) as a *circumstantial* designation would falsely represent the position, thus that period is *null.*

There is no strong evidence for in-community public spaces in the 100 BC - AD 43 period but it has been argued that low investment in between-community provision is seen at the open iron smelting sites (Crowhurst Park E12, Eridge Park E16 and Sedlescombe E55) and at the two sites associated with ritual and/or religious activity at Money Mound E38 and Lancing Down E34

(p. 157). If it were not for Lancing Down E34, this could be said to amount to the 'no investment in public spaces' of *circumstantial* density, but that small site tips the balance in favour of a *contingent* degree.

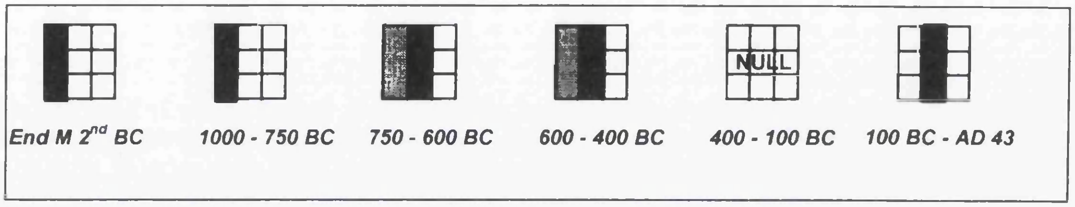


Figure 6.10 - Sussex GDM - Community architecture - Public spaces

Monumental architecture

At no time in the study period has there been a community settlement site with evidence for an investment in internal architecture of monumental proportions. However, apart from the earliest period, there are candidates for the designation at sites which are not community settlements and those candidates have been identified in the discussion on 'not community settlement sites' (pp. 147-160). None of those were built before c 750 BC.

From c 750 - 600 BC it has been suggested that Chanctonbury Ring E08 and Harrow Hill E23 may have been built to provide inter-community meeting facilities for particular purposes (e.g. restricted sectors of society). The evidence for the 600 - 400 BC period is a little more tenuous, comprising only the large roundhouse at Caburn E05 (perhaps not strictly 'monumental') and the Torberry E62 cross-ditch enclosure of the promontory. However, it is not until the 'developed hillforts' of the period 400 - 100 BC, and particularly the Cissbury E10 site, that a convincing argument can be made for substantial investment in provision of facility for meeting in larger numbers, albeit that the Cissbury E10 investment is some 20 times that of the other sites, on the basis of the *ditch labour cost* calculations.

Communal events are of considerable importance to maintain bonds and local public spaces essential for staging them. In the higher density case, the community may devolve or federate and, as a consequence, there is the possibility of a 'hierarchy' of public spaces for agglomeration of related communities and the whole commonty, especially when the local community is too small to reproduce itself. Thus, the difference between *contingent* and *corporate* density patterns may be simply one of degree.

The lack of any investment before c 750 BC suggests *circumstantial* density but from there on there is a combination of fairly small investment in formal sites suggesting *contingent* density but not *corporate*. The investment increased in the 400 - 100 BC period but the order of magnitude difference which could indicate a move to *corporate* density is seen at one site, only. Thus, *corporate* density cannot be assumed just on the basis of increased investment, albeit that an hierarchy is mooted with Cissbury E10 as the whole commonty meeting point. Nevertheless, the very presence of a facility does alter the social environment and, therefore, lack of intention does not mean that up-density evolution could not result. On balance that will be classified as most likely to represent *contingent* density but also, possibly, *corporate*.

From 100 BC - AD 43 the level of new investment in monumental architecture for enclosure at Hammer Wood E22, Philpots E45, Piper's Copse E46 and, probably, Saxonbury E53 is considerably greater than earlier periods, judging by *ditch labour costs,* and with the exception of Cissbury E10. That suggests a degree of density amounting to *contingent* at least, but possibly *corporate*. If the Chichester Dykes on the Coastal Plain west of the Arun could be confidently attributed to this period, then the *corporate* possibility would be stronger but there is sufficient doubt to exclude this complex from the analysis.

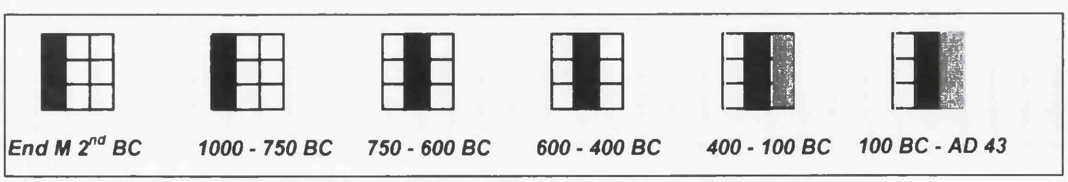


Figure 6.11 - Sussex GDM - Community architecture - Monumental architecture

Memorials (people and events)

There is no evidence obviously fitting this category until at least 100 BC, when practices at Money Mound E38 and Lancing Down E34 may have been associated with memorial events, albeit that there is no clear indication either way. However, the cremation cemetery at Westhampnett E67 may have some bearing on this line of evidence in that Andrew Fitzpatrick (1994, 112) argues that the number of burials there (c 170) within a short period (c 50 years from 70 - 20 BC) indicates that the surrounding small communities (e.g. Oving E43) must have combined together to bury their dead at a communal site. It is likely that each grave was individually marked (as they do not inter-cut) but the form of marker and its emphasis (on the individual or the community) is unknown; nevertheless, the pyre goods and the grave goods do seem to have varied between burials within a small range, suggesting some individuality being commemorated with the bones (Fitzpatrick, 1994, 107-112). Overall, this suggests *contingent* density at least for the combining together of communities to practise funerary ritual but probably not the group emphasis of *corporate* density because of the individualism of the burials themselves.

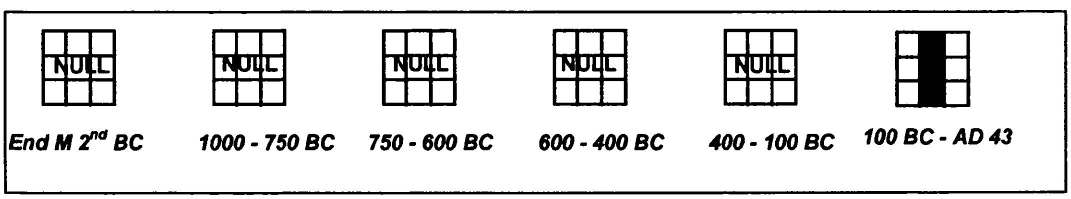


Figure 6.12 - Sussex GDM - Community architecture - Memorials

Intra-community assemblages

In general terms, this category of analysis is not well served by the dataset (with the notable exception of the end of the second millennium BC period) because of an unhappy combination of poor excavation record for older exercises, limited area covered in more recent excavations and the tendency for many communities to be small after that time. A summary of all of the available evidence to date and a brief assessment of what it offers is given in table 6.4:

Table 6.4

Period	*Site*	*Comments*
End M 2nd BC	Black Patch E04	OK
	Cock Hill E11	OK
	Downsview E15	Details not published
	Itford Hill E31	OK
	New Barn Down E40	OK
	Plumpton Plain A E47	OK
	Varley Halls E65	OK
1000 - 750 BC	America Wood E01	Interpreted as a single domestic-unit farmstead
	Bishopstone E03	Roundhouses not discovered; sett. assumed on other grounds
	Cock Hill E11	OK (continued in use)
	Downsview E15	Continued - details not published
	Heathy Brow E25	Interpreted as probable single domestic-unit farmstead
	Highdown Hill E28	Modern excavation (interior) not published
	Hollingbury E29	No internal details known at this period
	Kingston Buci E32	Limited extent of excavation
	Knapp Farm E33	Inadequate data
	Lavant E35	Inadequate data
	Mile Oak E37	Not published
	New Barn Down E40	OK (continued in use)
	Plumpton Plain B E48	Excavation record inadequate
	Rustington B E52	Limited extent of excavation
	Selsey Bill E56	No controlled excavation
	Shinewater E57	Limited extent of excavation and not published
	Varley Halls E65	Limited extent of excavation for this period (continued in use)
	West Blatchington E66	Limited extent of excavation
	Yapton E69	Limited extent of excavation
750 - 600 BC	Bishopstone E03	Inadequate data (continued in use)
	Castle Hill E07	Limited extent of excavation
	Goosehill E19	This period or next? Single domestic-unit
	Harting Beacon E24	Limited extent of excavation
	Highdown Hill E28	Not published
	Kingston Buci E32	Limited extent of excavation (continued in use)
	Muntham Court E39	Not published
	West Blatchington E66	Limited extent of excavation (continued in use)
600 - 400 BC	Bishopstone E03	Inadequate data (continued in use)
	Castle Hill E07	Limited extent of excavation (continued in use)
	Findon Park E17	Limited extent of excavation
	Goosehill E19	This period or previous? Single domestic-unit
	Green St., Eastbourne E20	Inadequate data
	Highdown Hill E28	Not published
	Hollingbury E29	OK
	Kingston Buci E32	Limited extent of excavation (continued in use)
	Muntham Court E39	Not published
	Park Brow I E44	Excavation record poor
	Slonk Hill E58	Limited extent of excavation
	Stoke Clump E59	Limited extent of excavation
400 - 100 BC	Bishopstone E03	Inadequate data (continued in use)
	Carne's Seat E06	Limited extent of excavation
	Castle Hill E07	Limited extent of excavation (continued in use)
	Charleston Brow E09	Inadequate data
	Findon Park E17	Limited extent of excavation (continued in use)
	Kingston Buci E32	Limited extent of excavation (continued in use)
	Lavant E35	Not published in full, but OK with limited detail
	North Bersted E41	Limited extent of excavation
	Oving E43	Limited extent of excavation
	Park Brow II E44	Excavation record poor
	Slonk Hill E58	Limited extent of excavation (continued in use)

Table 6.4 (continued)		
100 BC - AD 43	Bishopstone E03	Inadequate data (continued in use)
	Carne's Seat E06	Limited extent of excavation
	Castle Hill E07	Limited extent of excavation (continued in use)
	Charleston Brow E09	Inadequate data
	Devil's Dyke E13	Limited extent of excavation
	Garden Hill E18	Not fully published but OK with limited detail
	Highdole Hill E27	Inadequate data
	Horsted Keynes E30	Inadequate data
	Kingston Buci E32	Limited extent of excavation (continued in use)
	Lavant E35	Limited extent of excavation (continued in use)
	North Bersted E41	Limited extent of excavation (continued in use)
	Ounces Barn E42	Limited extent of excavation
	Oving E43	Limited extent of excavation (continued in use)
	Portfield Gravel Pit E49	Inadequate data
	Rustington A E51	Limited extent of excavation
	Selsey Bill E56	Inadequate data
	Testers E60	Limited extent of excavation
	Tote Copse E63	Limited extent of excavation

Table 6.4 - Suitability of Sussex settlement site dataset for intra-community assemblages analysis

Intra-community spatial patterning

Throughout the first millennium BC, each of the sites interpreted as a permanent settlement base for a community was too small to have provided a potential social network large enough to satisfy an individual and it would be safe to assume that any one person knew all others within the community. However, the simple fact that network density at any one settlement is 100% does not make for a *corporate* density network, by default. Individual community members may have maintained relationships with all members of a few other communities or, alternatively, with selected members of a greater number of other communities. It has been argued that those dispositions are reflected in the way in which space is organised and used on a settlement site, giving an indication of the way that the members communicate and interact (pp. 109-111) and application to this dataset is summarised in table 6.5:

Table 6.5		
Period / Site	***Form***	***Density analysis***
End M 2nd - 1000 BC		
Black Patch E04	Huts are tightly clustered into 'hut platforms' and the hut platforms are distant from each other. Contemporaneity of hut platforms is not certain but seems likely as the whole site was occupied for no more than 50 years (Drewett, 1982b, 343). Within hut platform 4 there are 5 huts which could scarcely be physically more close but which are grouped by fencing. Division of tasks and facilities yet clear similarity in architectural style suggests that these were domestic-units clumped closely into social-units and the social-units more distantly located.	Clumping; regularity but not repeated patterning; not maximal spacing within social-units. *Contingent*
Itford Hill E31	Thirteen huts in nine 'enclosures' over a period of 25 years at most which Ellison (1978, 35-36) has re-analysed to derive a picture of four hut clusters separated by fence lines and embankments. Overall, though, all are fairly close to each other.	Clumping; not maximally spaced; little regularity. *Contingent*
Plumpton Plain E47	Four linked enclosures defined by slight banks ranging from 35 metres apart (II to III) to c 120 metres apart (III to IV) (Holleyman and Curwen, 1935, fig. 2). Each contains one domestic-unit (at most) and enclosure IV is presumed to be a communal cooking facility (Holleyman and Curwen, 1935, 26-28).	Tendency toward maximal spacing of domestic-units but some regularity and a communal facility. *Contingent*
Other sites	Cock Hill E11, New Barn Down E40 and Varley Halls E65 are morphologically similar to the three more easterly sites (above) although they are single social-unit sites at most.	*Contingent*
1000 - 750 BC		
Heathy Brow E25	Two occurrences of a domestic-unit pattern comprising one dwelling structure, some above-ground storage (postholes) and a working hollow (Bedwin, 1982, 73-81). However, one floor is rectangular and the other a typical porched, oval roundhouse. It seems highly likely that this is a single domestic-unit 'farmstead'. If not, then architectural differences are marked.	May be single domestic-unit site *Circumstantial* Not maximal spacing; distinctly different styles *Circumstantial*
Highdown Hill E28	Internal spatial arrangements not published but a number of closely clustered roundhouses were uncovered (Hamilton, pers. comm.).	Not maximal spacing; regularity; little else known. *Contingent*
Other sites	Cock Hill E11 and New Barn Down E40 (both *contingent*) may have remained in use. No other excavation reports provide enough detail to allow this analysis.	*Contingent*
Summary:	Some sites single domestic-unit, suggesting *circumstantial* balanced by small multi-domestic-unit sites fitting the criteria for *contingent*.	***Circumstantial to contingent***

Table 6.5 (continued)		
Period / Site	***Form***	***Density analysis***
750 - 600 BC		
Highdown Hill E28	Discussed as previous period (above); continued in occupation.	*Contingent*
Goosehill E28	One domestic-unit only	*Circumstantial*
Summary:	As in previous period.	***Circumstantial to contingent***
600 - 400 BC		
Highdown Hill E28	Discussed as previous period (above); continued in occupation.	*Contingent*
Hollingbury E29	Social-unit cluster of three roundhouses at any one time.	Not maximal spacing; regularity *Contingent*
Other sites	Green Street E20, Slonk Hill E58 Phase I, Findon Park E17, Stoke Clump E59 - excavation extent was too limited to judge; Muntham Court E39 not published.	
Summary:	A number of sites have not been excavated widely enough to be able to contribute to analysis for this period but those which have suggest a degree of density in the *contingent* range.	***Contingent***
400 - 100 BC		
North Bersted E41	Partial excavation reveals one roundhouse and associated enclosure (Bedwin and Pitts, 1978, fig. 5) and the field system surrounding the site, together with its longevity, does suggest that there may be others in the area. If so, that would be repeated patterning of domestic-units interlinked within small fields, suggesting at least a *contingent* degree of density.	Not maximally spaced; no clumping apparent; organised on a site-wide basis and fairly regular ?. *Contingent (weak)*
Oving E43	Open in the same sense as North Bersted E41 (above) and comprising a complex of enclosures linked by tracks and field boundaries (Bedwin and Holgate, 1985, fig. 2). Excavation of one domestic-unit revealed a roundhouse opening into a small enclosure surrounding a working hollow (Bedwin and Holgate, 1985, fig. 3). If pattern repeated, it could suggest *corporate* but lack of excavation does not allow assertion of regularity of architecture to that degree.	Not maximally spaced; no clumping apparent; organised on a site-wide basis and fairly regular. *Contingent*
Lavant E35	Up to thirteen roundhouses (Kenny, 1993, 28) clustered and clumped, although the clumps are not maximally spaced and are irregular.	Not maximally spaced; clumping; irregular. *Contingent*
Park Brow E44	At least two occupied structures set c 80 metres apart which were very different in form (a very large two-aisled structure and a rather amorphous 'roundhouse'); recording was poor by modern standards. However, the variety and separation does weakly suggest *circumstantial* density.	*Circumstantial (weak)*

Table 6.5 (continued)		
Period / Site	***Form***	***Density analysis***
400 - 100 BC (continued)		
Summary:	A little suggestion of *circumstantial* density but the evidence for *contingent* is stronger.	***Circumstantial (weak) to contingent (strong)***
100 BC - AD 43		
Garden Hill E18	Excavation of 5% of the interior revealed three roundhouses which are close together and show no particular patterning but it is not possible to say whether they were part of a clumping pattern or not, given the limited information.	Not maximal spacing; clumping uncertain; regular patterning uncertain. *Contingent (weak)*
Summary:	The limited data can only support weak conclusions	***Contingent (weak)***

Table 6.5 - Intra-community spatial patterning analysis for Sussex settlements

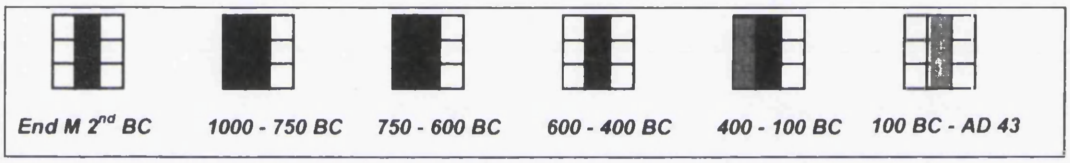


Figure 6.13 - Sussex GDM - Intra-community assemblages - Spatial patterning

Domestic Wealth

A simple comparative analysis of floor area and doorway arrangements can provide some input to assessing inter-domestic-unit differences in wealth as expressed in residential architecture, as long as an attempt is made to designate which roundhouses were used as living accommodation. The calculation is detailed in Appendix G3 (Hut Area Calculations). Most of the sites with enough evidence of multiple domestic-units for analysis date to the earliest period. No differential is apparent at Plumpton Plain A E47 but the floor areas at all other sites varied considerably; the ratio of largest to smallest of those which can be confidently termed 'living' huts is:

- 1.5 : 1 at Black Patch E04
- 2.1 : 1 at Itford Hill E31
- 1.3 : 1 at Cock Hill E11
- 1.9 : 1 at New Barn Down E40
- 1.5 : 1 at Varley Halls E65.

Where classification as a 'living hut' has been in doubt, only huts which were built with a clear 'porch' entrance (the most elaborate doorway architecture) have been included. At all sites the architecture is fairly homogeneous and variation in area is not so marked that it could not be simply explained as the need to accommodate more people in one domestic-unit than another. Nevertheless, more people may provide more labour (differential capacity at a domestic-unit level) and the benefits of that may have exceeded the additional 'cost'. Thus, a *differential* degree of centrality is indicated at a minimum. Considering the possibility of it being as great as *insulated*, the question of inheritance cannot really apply to timber buildings as the superstructure could not be expected to survive longer than a generation, given the rots and moulds to which earth-fast timbers are susceptible. However, centrality could still amount to *insulated* based on inheritance of rights and/or property not so fixed as the superstructure of residential architecture. Although there are some inter-domestic-unit differentials in the value of the artefactual assemblage in terms of energetics of production (e.g. Kimmeridge shale bracelets, metalware) many of them can be directly explained by a functional variation in the activities commonly practised in each location and they do not seem particularly great, tending to indicate *differential* centrality as more likely than *insulated.*

Moving forward in time, Cock Hill E11 and New Barn Down E40 did continue into the 1000 - 750 BC period, carrying forward the *differential* implication; Varley Halls E65 also continued but there is only one roundhouse within the excavated area attributable to this later date (although more are suspected).

There is no suitable evidence for analysis in the 750 - 600 BC period, but Hollingbury E29 provides a single example for analysis in the 600 - 400 BC. It is quite probable that other huts were present at Hollingbury E29 (only c10% excavated) but, of those excavated, there is a very clear difference between the area of the enormous Site A and the rest, at a ratio of 10 : 1 (sites A : D). Twentieth century damage has limited the recovery of an internal assemblage from these huts but some specialisation of function was indicated making it difficult to judge whether they were all 'living' huts, or not. The degree of difference between A and the rest (and, indeed, any other first millennium BC hut in the dataset) does invite speculation that it was more a communal facility than a living hut. However, even if *differential* centrality could not be asserted based on site A the differences in area in the other huts may be enough to support the analysis. Moreover, the larger site A hut was developed on the site of an earlier hut with an area more in keeping with the norm at this site, so the considerable degree of difference required for an assertion of *insulated* centrality could be supportable here, particularly in that the site itself is only paralleled at Highdown E28, on present knowledge, in its enclosure within an elaborate palisaded bank and ditch.

In the 400 - 100 BC period, only Lavant E35 has been excavated widely enough to reveal multiple roundhouses but the absence of published details prevents analysis of which huts represent living accommodation. However, even if the two particularly small huts are excluded (huts 5 and 10), the hut sizes vary considerably with the ratio between the largest and the smallest being c 1.5 : 1 and the greatest variation appears to be between huts which are <u>not</u> in the same cluster. Tentatively, that finding suggests continuation of *differential* centrality.

The only clear and excavated example of multiple domestic-unit occupation of a settlement site in the 100 BC - AD 43 period is Garden Hill E18 and the two roundhouses for which sizing data is available are broadly the same suggesting *equal* centrality.

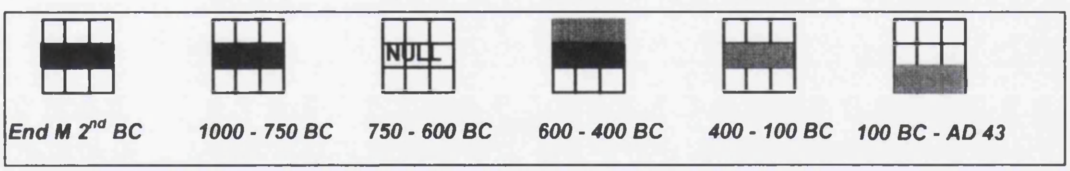


Figure 6.14 - Sussex GDM - Intra-community assemblages - Domestic wealth

Boundedness

Roundhouse architecture naturally provides privacy because the portion of the interior which lies outside the angle of sunlight through the door appears dark to a person standing outside; the slope of the roof rafters (to a shallow wall or directly onto a low bank support) does not allow openings into the walls of the structure to provide any further 'window' light. Entrance through a porch structure exaggerates the secrecy and privacy effect. Porched entrances are not ubiquitous and those roundhouses which are porched tend to be the largest (above) so the variation in the degree of secrecy implicit in the architecture does suggest a *differential* degree of centrality at least. However, when the roundhouse is considered within the context of a social-unit, the superstructure for sub-division of area is by no means as secret and private as it could have been. In the earliest period, sub-division by fencing was common and posts were usually fairly close-set (c 1 metre spacing would be typical at both Black Patch E04 and Itford Hill E31) which suggests either small hurdles or simple post and rail 'stock fences'. Neither secrecy nor privacy is emphasised by that arrangement either within or between social-units which means that all outdoor activity and animals kept in the yards were in open view. Furthermore, entrances are neither oriented away from each other nor from visitors to the community (e.g. at Cock Hill E11, an entrant to the site would walk past the doorway of Hut 1). Overall, a degree as great as *insulated* is not indicated. That finding will be given more weight if the Shinewater E57 site (a platform set in a marsh) proves to comprise more than one platform when formally excavated; social-units would have been clearly inter-visible but bounded by the limited access between (by tracks).

By contrast, in the 600 - 400 BC period, Hollingbury E29's privacy and secrecy emphasis is marked by its separation of insiders and outsiders by enclosure, but there does not appear to have been internal division of the site, on current evidence. Nevertheless, those roundhouses for which the entrance has been located tend to have their 'backs' to each other and to the entrance with the effect that privacy of activity within roundhouses was maintained and emphasised in an otherwise undivided site. From the perspective of an outsider, the site is closed and bounded both at the level of the enclosure and by the orientation of roundhouses within; that certainly suggests centrality of a *differential* degree and could indicate *insulated*.

In contrast, in the 400 - 100 BC period, the entrances to the roundhouses at Lavant E35 do not face away from each other but, rather, tend to face in different directions onto what may be a central, communal area. Whilst the lack of an excavation report means that there is no data available from which to reconstruct fencing arrangements, the suggestion of *equal* centrality can be made with caution. Even more tentatively, it appears that the multiple roundhouses thought to underlie the 'enclosure pattern' at North Bersted E41 and Oving E43 were each associated with their own enclosure, suggesting centrality tending toward the *differential* degree.

The 'enclosure pattern' at North Bersted E41 and Oving E43 continued into the 100 BC - AD 43 period and the emphasised enclosure bounding Garden Hill E18 supports an attribution to *differential* centrality, albeit in a different architectural form.

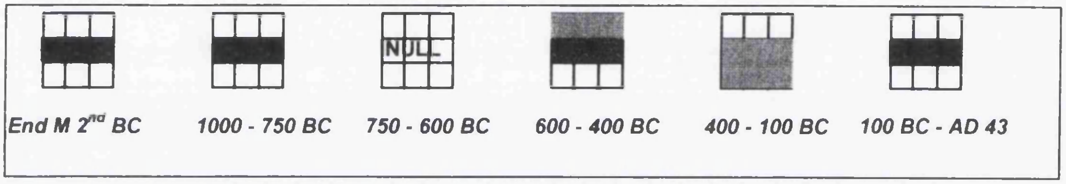


Figure 6.15 - Sussex GDM - Intra-community assemblage - Boundedness

Storage facilities

For the earliest period the modern excavations at Black Patch E04 and Itford Hill E31 provide enough data for comparative analysis. Examine the figures for Itford Hill E31:

Pit Volume at Itford Hill			
Domestic-unit I:	Hut A	1.21 cu. m	With Hut B (no pits) and large cooking area
Domestic-unit II:	Hut C	0.24 cu. m	
	Hut D	0.07 cu. m	Largest, most private hut
	Hut E	1.85 cu. m	
Domestic-unit III:	Hut L	1.04 cu. m	could be communal

Table 6.6 - Storage capacity by domestic-unit at Itford Hill E31 (using Ellison's (1978, 35-36) attribution of huts to domestic-unit)

Domestic-units I and III may both represent capacity for communal storage of provisions and, if they were, then they are rather unbounded in being contained within simple huts with no elaborate entrances to protect them from view and no surrounding defence or even inhibiting fences. That would tend to argue for *equal* or *differential* centrality. However, there is an equivalent capacity located within domestic-unit II which does have a marked boundary, although most of the capacity is <u>not</u> within the largest, most private individual hut (D). If the rest were not communally held, after all, then *differential* centrality is clearly indicated. However, even if all of the rest were communal holdings, there is enough differentiation to suggest *differential* centrality on the strength of the imbalance represented in the second domestic-unit alone.

Communally-shared storage is not a feature at Black Patch E04. The hut within hut platform 1 contained a single storage pit of its own (feature 12) making it appear to be a self-contained domestic-unit. On hut platform 4, the 'hut 1' domestic-unit (hut 1 and its pond) had its own storage capacity within pit 1 under cover of the hut (feature 160), the 'hut 2/3' (hut 2, hut 3 and pond) had three covered pits in hut 3 (pits 3,4 and 5) and one in the centre of the open area (pit 2) and the 'huts 4/5' had none. Overall, the pattern of storage facility does seem to demonstrate clear inter-domestic-unit variation in capacity and there may be subsidiary dependence of 'hut 4/5' upon 'hut 2/3', signalled by both storage and access to pond water. On that basis, Black Patch E04 appears to convey *differential* centrality as well. Varley Halls E65 has limited evidence for pits but that is significant in itself; the only three are spatially very close to the rear (west) of hut 1 which stands alone, away from the cluster of huts 2 and 3 and the 'cooking hut' 4 and hut 1 also includes two clay-lined holes thought to have been for storage of a liquid (Greig, 1997, 14-15, fig. 3, fig. 4). If there was any other storage provision it must have been above ground within the huts. The lack of any clear centrally shared storage argues against *equal* centrality but the lack of overt secrecy and privacy arrangements balances that, suggesting a *differential* degree of centrality but no greater.

There is extensive evidence for storage in pits and above-ground structures at unoccupied enclosures (and those where occupation is uncertain) in the 1000 - 750 BC period and that practice continued throughout the rest of the millennium. Stock enclosures have been interpreted as being probably the property of just one or two communities (above). Since they seem to have been only lightly defended (if at all) and are correspondingly unbounded, this indicates no greater concern for annexation of resources than might be expected in *equal* or *differential* centrality networks.

The evidence from Hollingbury E29 can be brought to bear in considering the 600 - 400 BC period. Several round pits c 1.2 - 1.5 metres in diameter and c 0.5 metres deep were located in the area excavated and all were between the roundhouses apart from one smaller pit found in the large hut A and from which a shallow gully led to one of the larger pits (Holmes, 1984, 36). As the excavator suggests, it is likely that this arrangement was designed to carry water or waste away from the hut rather than for storage (Holmes, 1984, 36).

It has been argued that the great rise in storage in single locations represented by the 'developed hillforts' in the 400 - 100 BC period and matched by the apparent absence of below-ground storage at settlement sites (including Lavant E35 (Hamilton, pers. comm.)) at that time was associated with protecting stored material and products on behalf of several local communities at a single location. That is almost complete centralisation of storage, indicating *differential* or even *insulated* centrality.

There is no site in the 100 BC - AD 43 dataset with enough data to support analysis of storage patterns and capacity.

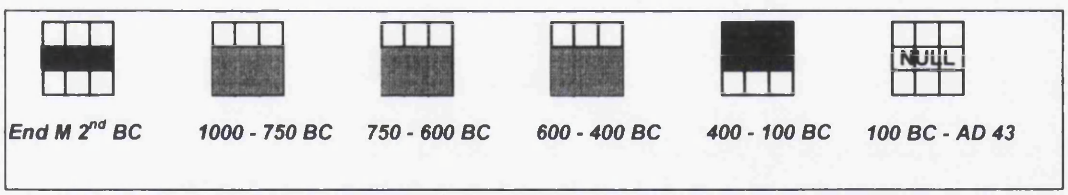


Figure 6.16 - GDM - Intra-community assemblages - Storage

Domestic-/Social-unit specialisation

As with other lines of analysis requiring intra-site comparison, the data for the period from the end of the second millennium to 750 BC is strongest. If the social-units identified at Itford Hill E31 (Ellison's i, ii, iii and iv) (1978, 35-36) and Black Patch E04 (hut platform 1 and 4 and others) were *de facto* social-units and not single domestic-units, then analysis of the assemblage content by the excavator in the case of Black Patch E04 (Drewett, 1982b) and by Ellison in the case of Itford Hill E31 (Ellison, 1978, 35-36) shows clear inter-domestic-unit variability. For example, at Itford Hill E31 there is firm evidence for weaving in hut E and no other; cooking and food preparation has already been discussed (above). Similarly, at Black Patch E04 food preparation appears the exclusive preserve of the hut 1 domestic-unit and craft production activities are divided between huts 3 and 4. It is possible that there was some inter-social-unit variability at Itford Hill E31 although there is not enough excavated data available to be sure of this at Black Patch E04.

Plumpton Plain A E47 has very little in the way of small finds, yet they were found in abundance at the nearby Site B E48, casting a doubt on the argument for the site replacement explanation here; it is regarded as equally possible that site B could be the 'working area' of site A, sited at a rather unusual distance (see Appendix E - sites E47 and E48 for detail of argument). Site B is characterised by structures which might be better described as rough shelters rather than roundhouses and show there is rather less variation in assemblages. Cutting 1 site had spindle whorls, flint hammer stones, cores, scrapers, worked tools and flakes and three whetstones (Holleyman and Curwen, 1935, 28-29); cutting 2 was similar but with smaller numbers of finds and cutting 8 was similar, again, but had no worked flint or flakes but did have a bronze winged axe and a knife (Holleyman and Curwen, 1935, 31).

New Barn Down E40 had very few small finds but the neighbouring Cock Hill E11 had clear evidence for weaving in Hut I (10 - 12 loom weights in a pit) but not Hut II and broken bone and a whetstone, amongst other things, in Hut II.

Almost all of the evidence points to a division of labour within a domestic-unit at least, and probably between the domestic-units within a social-unit, suggesting the potential for *differential* or *insulated* centrality. None of the sites provide evidence for those specialised activities involved in the production of known prestige items, however, and that tends to argue more strongly for *differential* centrality than *insulated*.

In the 600 - 400 BC period, Hollingbury E29 is the only example which can provide input and finds were few. However, the excavator reports clear evidence for the identification of Hut D as a weaving hut (Holmes, 1984, 37), extending the argument for *differential* centrality into this period.

There are no sites in the dataset from 400 BC onwards which have enough excavated data for this line of analysis.

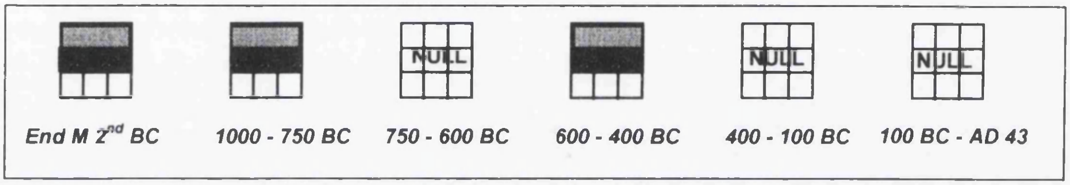


Figure 6.17 - Sussex GDM - Intra-community assemblages - Domestic/Social-unit specialisation

Artefactual analysis

Status symbols

A carefully carved chalk phallus was deposited in a small recess of the doorway posthole number 7 of Hut D, the largest 'living' hut at Itford Hill E31 (Burstow and Holleyman, 1957, 201-202, fig.26). Although the excavation report is ambiguous on the subject of its location, it appears that this was not so much a buried 'foundation' deposit as a readily removable artefact. The coincidence of its unusual nature and association with hut D does suggest a symbol sanctioning some type of culturally-valued authority or role and that indicates *differential* or *insulated* centrality. There is no comparable evidence from any other site at any period in the study dataset.

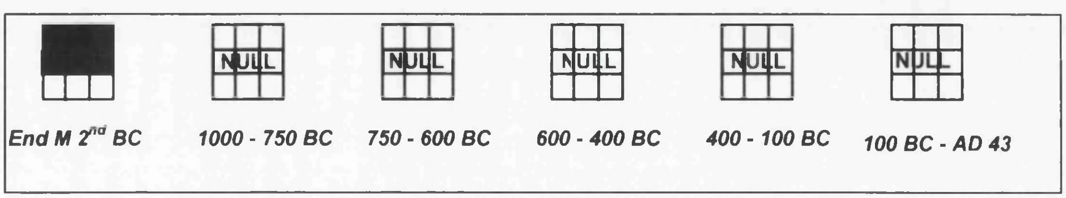


Figure 6.18 - Sussex GDM - Artefactual analysis - Status symbols

Specialisation

Recent study of ceramic forms, fabrics and technology is most relevant to this analysis category. By examining all of the evidence associated with pottery manufacture (including clay quarry pits, caches of both unfired and prepared clay, the presence of burnishing pebbles, bonfire kiln debris and pit kiln props and wasters), Hamilton (1993, 334-335) has argued that the quantity of evidence for production at local community sites decreased throughout the millennium, indicating increasing non-local centralisation of production over time. The turn of the millennium appears to have seen important changes in the ceramic repertoire as the Deverel-Rimbury range, characterised by large capacity storage vessels, was extended by thinner-walled, smaller capacity bowls and jars which Hamilton (1993, 334-335) argues would explain the introduction of the more controllable pit-kiln firing alongside the erstwhile normal bonfire kiln method. That change contributes to the idea that more skill was required to produce the thinner-walled, more finely-grained range of style. Skill may have been valued enough to make specialisation viable, especially as it is likely that there would have been a concomitant increase in the status of ceramic production in society as a whole, as new vessels replaced wood and metal versions. (Hamilton, 1993, 368-369, 334-335).

By 600 BC onwards, the early Iron Age (c600 - 400 BC) finewares and the middle Iron Age (400 - 100 BC) saucepan pot ware featured the use of specially selected clays and tempers in association with a restricted repertoire of form and decoration (Hamilton, 1993, 368-369). Output was limited and distribution of any one particular style of form, fabric and decoration was restricted to an area typically c12 km across, yet homogeneity within those discrete distributions suggests workshop production (Hamilton, 1993, 368-369). However, it was only in the later Iron Age (100 BC +) that larger scale, centralised production from multiple production centres and to a degree that might be called 'standardisation', is evident (Hamilton, 1993, 369-370).

In GDM terms, however, there can be little doubt that production of the finer ceramics became the remit of specialists, albeit that it may have been a seasonal, part-time occupation, until the middle Iron Age onwards. Thus, apart from the very earliest period, the evidence for specialisation is strong and gets stronger, indicating *differential* or *insulated* centrality.

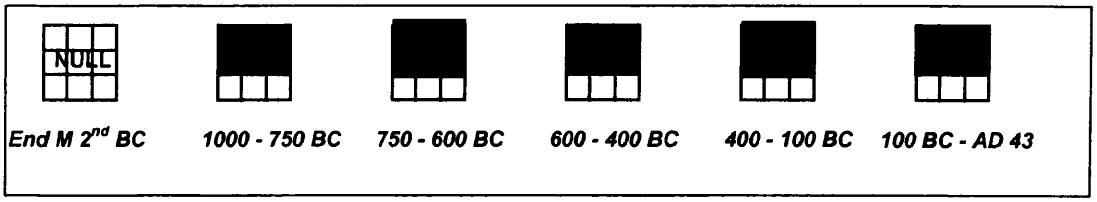


Figure 6.19 - Sussex GDM - Artefactual analysis - Specialisation

Weights and Measures

No artefacts before 400 BC period appear to be uniform enough to suggest use as standards but the small lead weights found at Caburn E05 and Torberry E62 and comparable with that from Glastonbury (Cunliffe, 1976, 14; Bulleid and Gray, 1911, pl. XLV; Curwen and Curwen, 1927, 16-17) in the 400 - 100 BC period are likely to have been. From 100 BC onwards (possibly a little earlier), coins began to be used in Sussex in some number and a coin production site was located at Ounces Barn E42); coins were both in the form of the earlier Gallo-Belgic gold, imported from northern France and those issued from Britain (Cunliffe, 1991a, 107-118). Whilst coinage does not necessarily indicate a market economy as it is understood today, it is likely to have represented an agreed value in local terms which was not directly pegged to the intrinsic value of the token itself. On that understanding, coinage represents a clear example of weights and measures in circulation.

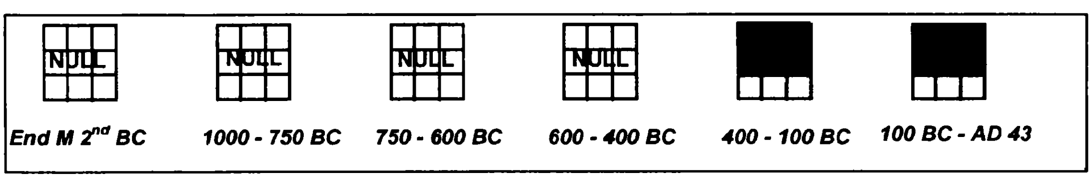


Figure 6.20 - Sussex GDM - Artefactual analysis - Weights and measures

The Individual

The individual is invisible in the archaeological record for the first millennium BC in any line of evidence other than mortuary practice. To draw any conclusion at all about network centrality from mortuary evidence requires a large body of fairly consistent data on practice and the dataset is quite inadequate for this purpose, not least of which because the 'typical' practice seems to have been archaeologically invisible in Sussex until, perhaps, the late Iron Age period which has recently been illuminated by the cremation cemetery at Westhampnett E67. Although wealth differentials may be discernible in the pyre and grave goods, they are not great and cremation ensures that there is no recourse to corroborative confirmation of differential access to health or longevity. Therefore, this site does not allow any confident analysis of network centrality in life.

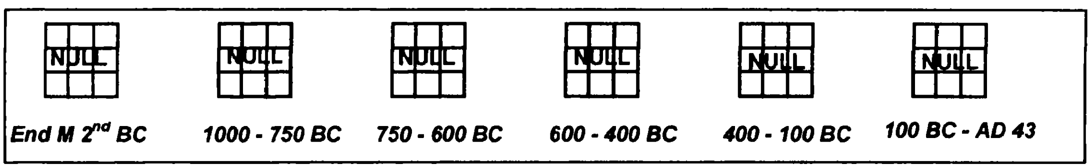


Figure 6.21 - Sussex GDM - The individual

The GDM of first millennium BC Sussex

The normalised result

The results are accumulated and normalised by a method detailed and calculated in Appendix H1 (Adjustment of GDM Results) but which can be summarised as:

1. Weight the results in the ratio of 2 : 1 weak to strong rating.
2. Value each non-*null* line of evidence as 1 toward the total for the appropriate density or centrality category if it includes strong results, else ½ if weak.

3. Express the totals for each GDM cell as a percentage of the total for all evidence for all cells.
4. For each GDM cell, calculate the variance from 'random' assignment (i.e. 11.1% in each of the nine cells).

That variance provides a useful indicator which is then presented visually, such that all values greater than +10% are noted and cells which have a positive value less than that are shaded; thus, the full range of the evidence is displayed in the GDM result:

Sussex:

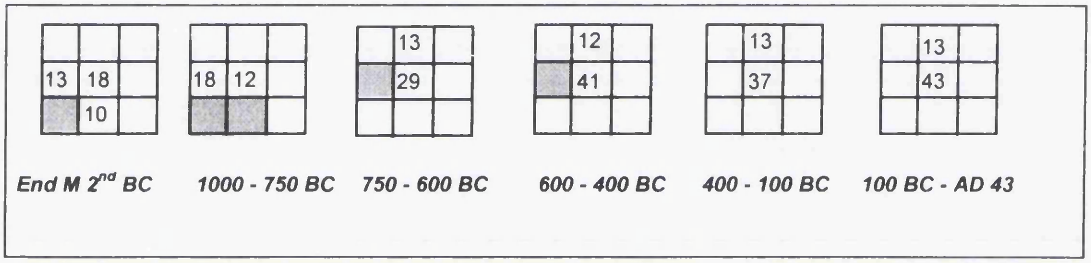


Figure 6.22 - The GDM of first millennium BC Sussex

The pictorial representation highlights areas to follow up, makes trends and patterns clear and provides easy direct comparison both between different time bands in one dataset and between different datasets (as will be seen by comparisons with Hampshire in later chapters).

Robustness

Some lines of evidence are likely to be more tenuous than others in a particular study and it was noted that the 'Population' calculation may have been particularly so in this case (above). To demonstrate the value of taking multiple lines of evidence in this formal manner and presenting the full result, the values for the Sussex results were recalculated to see what difference it would make to the result if the 'Population' line of evidence had not been included. The full calculation is included in Appendix H2, below, and summarised here:

Sussex:

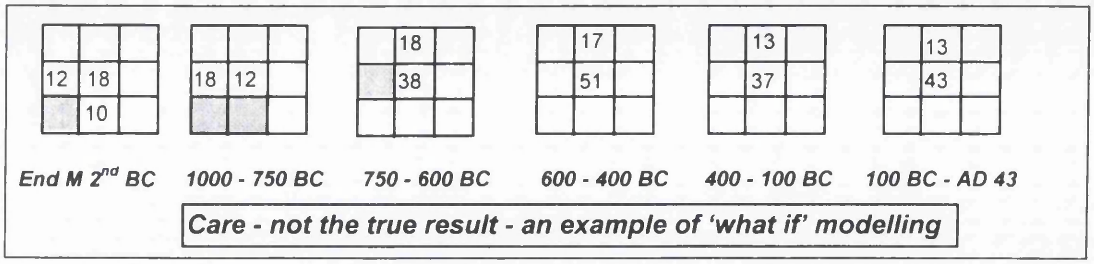


Figure 6.23 - The GDM of Sussex had 'Population' been *null*

Clearly an incorrect attribution of the 'Population' evidence would not invalidate the result in this case; proportions between one cell and another remain very similar indeed. Thus, the approach is rather robust when there are a number of lines of evidence available and the fewer the lines then the more fragile the result. Even a potentially fragile result can be recognised, evaluated and quantified so that a margin for fragility could be taken into account in presenting conclusions based upon it.

CHAPTER SEVEN - NORMATIVE GROUP DYNAMICS

The social environment within which an individual acts exerts a pervasive, yet usually unconscious, influence framing her/his experience. Although people have their own ideas, preferences, tastes, habits, talents, needs, wants, history and inheritance, predictions of the way that they will view the world and make life choices can be made within the context of the social structure.

This chapter explores the nature of the attitudes and actions that, it is predicted, will normally result from the relationship between the individual and the social environment and which provide the patterns of the normative group dynamics. This establishes a theoretical base from which retrodictions about social and cultural life can be made, given further input from the archaeological evidence. It also adds breadth to the interpretation of any period in the past, providing a wholly new way of looking at the individual's experience and application to the two county datasets demonstrates that clearly (Chapters Eight and Nine for Sussex and Hampshire respectively). Predictions of network density influences on personal disposition are detailed first, followed by centrality and then combined to provide a contextualised position on the GDM. Naturally, reality is such that the past is populated by individuals, <u>not</u> actors, and the normative dynamic will not be that of everyone. The question of different personal perspectives is tackled last.

Cultural behaviour patterns

Density dimension and personal disposition

Basis for choice of action

It has been argued that at a low network density (i.e. the *circumstantial* range) commontants will tend to make choices on the basis of subjective, outcome-oriented rationality as establishment and maintenance of social norms is difficult to sustain (p. 87). That is likely to directly result in competition between people for resources (p. 87) unless collective action is established (below). The greater degree of co-involvement and the more homophilous experience of members of a social network at a higher network density (p. 86) will tend to underwrite a comparative reduction in the 'cost' of 'policing' norms (albeit that intention may be unconscious) from the *contingent* range upwards. At the highest end of the scale, a *corporate* degree of density should be great enough to ensure that the costs associated with establishing and maintaining norms are minimised, reducing the threshold for co-operative behaviour yet further.

Collective action

Achieving co-operation in collective action projects which require everyone to contribute depends in considerable part upon the extent to which people trust each other not to defect at some point in the future (pp. 39-44). The transitivity of a *corporate* degree of network density can sustain that trust both because detection of defection is probable and because personal memory of the past actions of particular individuals is supplemented and reinforced by the memories of those who also know those particular others. Thus, projects will tend to be consensual, usually requiring little in the way of formal management and monitoring. At the other end of the scale, consensual collective action projects which require full participation by members of *circumstantial* commonty could be achieved only if everyone considered it in her/his personal best interest to contribute; that is fairly unlikely as some individuals are almost bound to feel that they can serve themselves best by defecting. The probability of some succumbing to that temptation will tend to give rise to the need for further, selfishly-motivated collective action to ensure adherence and to punish would-be 'free-riders' (Elster, 1989, 147-148); low network density cannot generally sustain a norm of moral fairness strong enough to motivate all. Similarly and iteratively, if everyone's consensual co-operation is needed to perform that policing operation but carries costs for the contributor, there is the temptation to defect on fulfilling that 'duty'. In practice, the more 'cost-effective' solution for the individual may be to contribute to establishing and maintaining a group vested with the authority to act on behalf of everyone, namely a 'formal institution' (Elster, 1989, 131).

Contingent density commontants need to maintain relationships amongst communities if they are to retain freedom of movement (p. 87), and collaborative projects may serve in this enterprise. However, an individual's freedom to move about means that a personal history of untrustworthiness could be 'escaped' and that may engender suspicious caution in predicting her/his trustworthiness in the future, resulting in a more rational choice bias to collective action decisions. There is a strain towards integration to keep paths open, yet no boundedness to limit the integrated whole. Thus, it is unlikely that the length of the shadow of the future would inspire enough confidence to allow fully consensual collective action. Whilst people may be motivated to participate in collective action projects to provide facility for maintaining inter-community integration, a formal institution may be necessary to compel input.

Turning from the question of the organisation of collective action problems to the typical extent of the contribution, it is immediately apparent that the possibilities for consensual organisation (by social norms and monitored by virtue of high network density) are far more conducive to fully participatory projects than the more formal, 'institutional' approach posited as typical of the lower density network commonty. When combined with a choice-base biased toward social norms and homophily, it is posited that *corporate* network commonties will share a strong sense of the boundaries of membership and a view of the future of the group as inviolable, encouraging investment in that future by public, fully participatory collective action projects emphasising the history, the longevity and the solidity of the commonty. In contrast, collective action presented as being for the public good in *circumstantial* commonty will commonly be limited to the subset of the commontants who do consider it in their best interests to co-operate in the venture. The motivation of sponsors of projects may include increasing personal stock of esteem in the public eye, achieved by ensuring that their action is not anonymous. Hence, personal investment in individual provision of monuments for collective benefit may seem worthwhile, but anonymity may be rather less so to the benefactor. Thus, from network principles, we are able to predict that those monuments will tend to commemorate or acknowledge individuals and individual sponsorship, rather than the commonty or a commontant event (thus confirming Douglas' (1978, 29) prediction for her category 'A').

Sanctioning of norm violations

It is posited that the high transitivity associated with a *corporate* degree of density will ensure that the advantage to be gained from social grooming as a way of gaining information about others is maximised, thus providing a vehicle for early detection of norm violations and a fast-flow conduit for disseminating news of personal failures to conform. Furthermore, it ensures that individual 'knowledge' of norms is heightened by virtue of the homogenising effect of high network density (p. 85) to a degree which may amount to something qualitatively akin to 'group memory' articulated through an internalised set of standards (cf. a personal code of honour). That sense of honour may seem incontrovertible and immutable to the individual. In this social environment, a norm-violator is unlikely to be able to raise much support amongst the commontants, as all will be imbued with a similar worldview and yet the personal cost of resolving conflict by leaving the commonty or the community is likely to be very high. Therefore, it is posited that the potential miscreant will greatly fear detection in norm-violation and that threatening expulsion or ostracism will deter, ensuring that internalised sanctions can usually be effective in exacting compliance.

Flexibility of fission and fusion is the key to the life of the commontant in a *contingent* density network and thus s/he can usually leave in the event of dispute as s/he has other social clusters (and communities) which s/he can join (p. 87). Furthermore, the multiple communities comprising a commonty may have their own, localised norms. The individual is comparatively cosmopolitan, so to speak, in that relationships are maintained with people in other communities to ensure that mobility options are kept open. Hence, whilst an argument for some internalised sanctioning may be sustainable, it is important to recognise that 'external' sanctions may be necessary, provided by collective action to create formal institutions with adequate authority to police, arbitrate and punish miscreants on behalf of the commonty, boosting fear of detection and reprisal. Social opprobrium may not be enough deterrent in all cases and individuals may be able to avoid penalties for minor 'misdemeanours' by canvassing support amongst their personal network and by moving without great cost.

Social norms have comparatively little power to guide the action of *circumstantial* commontants as mobility is high and the chance of detection low; the effectiveness of an internalised norm would be greatly challenged by temptation to defect and it has been argued that external, decentralised sanctions are often ineffective (above). Punishing another has a cost to self and that cost is best borne by sharing it amongst the population as a whole by collective action to form and maintain formal, centralised institutions to serve justice. In some cases, for some misdemeanours, people may not feel that making the contribution is worthwhile and miscreants may go unpunished as a result. As Douglas (1978, 36) argues (for her 'Category A'), those who live outside societal 'rules' may become socially *'invisible'*, in which case *'their failure to get a following is their punishment, the most that they could dread'.* To be condemned to live in social oblivion is anathema to the self-serving as 'success' cannot be felt when there is no other with whom to compete and compare.

Dynamism

The deliberation involved in making choices by subjective, outcome-oriented rationality in *circumstantial* density network argues for a high likelihood of individual variation in perceived problems and solutions. Answers may be inventive and, naturally, an invention may prove useful and 'efficient' (from a cultural point-of-view) in problem-solving. An individual with a problem may turn to members of her/his personal network for ideas for solving it and may receive suggestions for a range of potential solutions; evaluation time spent comparing those alternatives to find the 'best' may be high and is reducible only by limiting the range considered or by making an arbitrary judgement. A parallel exercise elsewhere in the commonty will be conducted on similar, but parallel lines and the chosen solution will not always coincide, especially if the range of possibilities is not fully evaluated. Overall, it is posited that innovation rates will be high as a result, although there is the chance of independent invention of similar solutions. However, the low plexity of relationships in a *circumstantial* density network will tend to provide a fairly slow conduit for dissemination of useful new ideas.

Corporate density networks are inherently conservative in that innovation sources are fewer as, even when personal network sizes are just the same as those in lower density commonties, everyone's second order zone is much smaller due to high transitivity. Innovation may be rather rare, as the pervasive social norm base for decision-making would tend to discourage seeking new solutions to old problems; it may be that the group as a whole needs to identify a requirement before invention is manifest. Any putative change may be met with resistance due to the strength of pervasive social norms but if an innovation is evidently useful and acceptable it should spread rapidly.

Mobility and community localisation ensure that useful innovation can be adopted rapidly in *contingent* networks, yet the potential 'duplication costs' of development of new ideas should be minimised due to the information-flow speed of a middle-density network population. On these arguments, this is probably the most effective crucible for change.

Summary

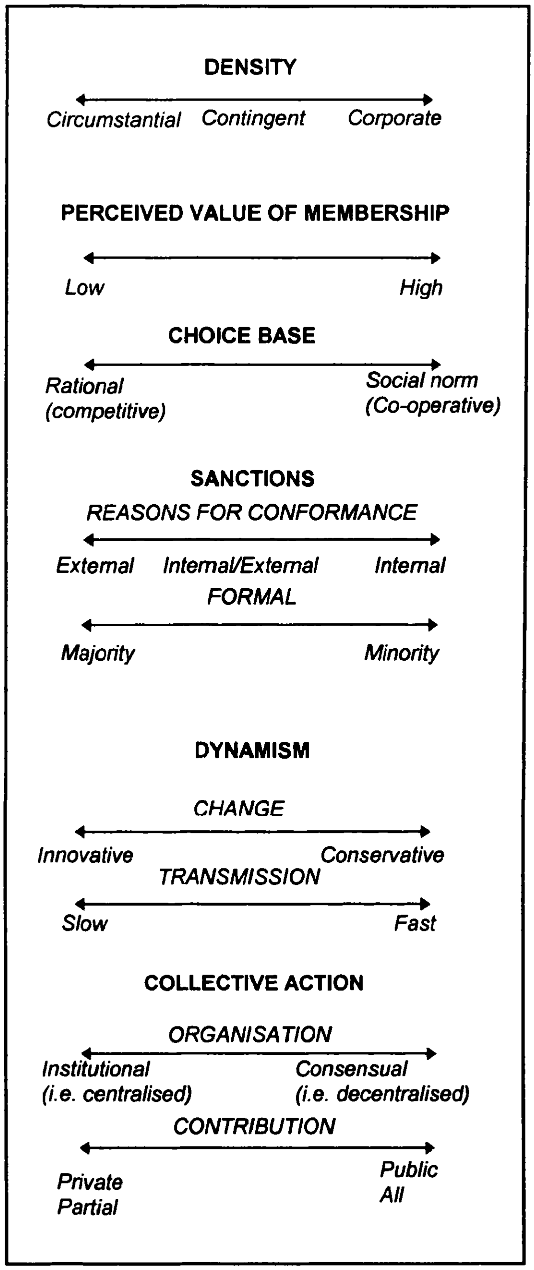


Figure 7.1 - Density dimension and behavioural disposition

Centrality dimension and personal disposition

Personal decision base for action

Those individuals with a high in-degree (asymmetry in their favour) or who are centrally placed in the network are in a position to exert greater influence than others should occasion arise (pp.

76-79). For *equal* centrality, both opportunity and outcome must be equal for all (pp. 89-90) and most argue that that is not neutral but must be asserted (e.g. Woodburn, 1981, 431) by measures to counter realisation of the latent potential for influence. Norms of humility and anonymity are typical. For example, the !Kung San lend arrows to each other but the owner of the first arrow to hit an animal subsequently killed is regarded as the person with the right to distribute it; thus, the skill of the hunter is taken out of the equation (Lee, 1979, 247-248). However, it has been argued (above) that social norms are rather unlikely to be internalised to an extent which limits the range of perceived possibilities for action in the particularly low network density range and that reveals an alternative face to *equal* opportunity and outcome. When a group of people leave their history behind them and meet in an environment alien to all (e.g. refugees, pioneers, colonisers), their nascent network may be rather low density (at first, at least) and all relationships and entitlements must be negotiated. In these circumstances, it seems likely that equality in instrumental transactions would be a popular and widely acceptable ethos. Furthermore, if that *de novo* society were established in a harsh environment, the opportunities for actualisation of inter-individual potentials for differential success would be few and that position could maintain for protracted periods. Thus, a plausible case can be made for *equal* centrality even at *circumstantial* density but it is rather unlike the assertively egalitarian society more frequently regarded as characteristic of equality.

Equal centrality cannot be maintained in the face of establishment of centralised institutions to police adherence to cultural 'rules' of equality as some must be empowered to control the acts of others and this is true even if assignment to office is temporary, arbitrary and/or rotational. For all to participate equally, it is posited that the majority must act to sanction violations independently, suggesting decentralised action guided by social norms.

The *differential* centrality range defines those societies characterised by equal opportunity, although not necessarily equal outcome (p. 92) and, thus, provides a natural 'home' for inter-individual differences and their resulting power differentials. Those may be predominantly differences in degree of influence as opposed to those of ability to exact compliance (Blau, 1964, 118-119 as cited by Turner, 1991, 334), defined as *'the capacity to withhold rewarding services and thereby punish or inflict heavy costs on those who might not comply [with one's* *demands]*'. There is room for either the centralised approach to monitoring societal principles of fair exchange (i.e. enabling contractual obligations) or the decentralised approach to maintaining fairness by norms of justice, as the *differential* centrality band can range from the rational choice to the social norm base, as long as broad democracy is at the base of decision-making.

By contrast, *insulated* centrality society is characterised by positions of power ascribed at birth (p. 92); whilst these positions may be legitimated and tacitly approved by norms of fair exchange and justice, the potential for exacting compliance is vested in the empowered absolutely and tempered only by the potential for collective action to rebel should the subordinate groups be so pressed. By definition, that decision is based on rational choice on the part of each individual and, therefore, the chance of opposition is weak in that the personal cost of a failed attempt at rebellion could be very high indeed. It is posited that it is unlikely that super-ordinates would find it to any strategic advantage to sanction any centralised institution for co-ordinating opposition.

Power to - personal power base

It would be tautologous to assert that in an *equal* centrality commonty resources exchanged should be equivalent, in that the norms of fair exchange establish just what is regarded as equivalent (pp. 57-58). However, as access to resources should be equal, and fortuitous excess exchanged for obligations for the return of the same resource in the future (at the most), this amounts to the exchange of the same or very similar items at similar value measured in whichever currency one may care to name. As has been argued, above, there will normally be sanctions to redress the balance should it be exceeded.

In *differential* centrality networks, positive balances of a resource can be built up and the effects of supply and demand on 'price' can enable an individual to build social capital in whichever currency applies. If, however, that capital is in the form of a resource which cannot be stored indefinitely (e.g. would-be 'Big Man's' pig-holding) then it must be either exchanged for a more permanent resource (e.g. throwing a feast to gain high in-degree of social obligation and the esteem that goes with that) or be devalued and 'sold cheap'.

The power-wielders in *insulated* centrality society have the opportunity to demand resources of others at a 'price' set by themselves, independent of free market effects, when they are at their most confident vis-à-vis potential rebellion. Perhaps more commonly, there is a balance between demand and supply even between members of super- and sub- ordinate groups, albeit that the super-ordinate's limited resource may command a 'price' which represents a far greater return on investment (i.e. a 'profit').

Power over - collective power base

The perceived necessity for collective action for, e.g., decision-making or redistribution has been cited as an important factor in the development of inter-individual power differentials (e.g. the 'hydraulic society' hypothesis) and requires close attention as institutional office often does provide potential for manipulation by motivated individuals.

Democratic institutions, so-called, can take many forms. *Equal* centrality society allows that there may be gender differentials, by definition (p. 92), thus immediately recognising one potential shortfall in equal representation of as much as 50%, even whilst naming it 'equal'. Using material from social psychological experiment and observation, Johnson (1982, 392-396) has argued persuasively that optimised decision-making activity is undertaken by 5 - 6 people. He posits that a *'sequential hierarchy'* system is employed by groups in egalitarian aggregation systems, whereby each group elects a representative to take their views forward to a 'higher level' meeting and vote accordingly (Johnson, 1982, 396-404). This solution is broadly democratic in that each person's opinion is counted equally and all may 'vote'. However, there comes a point where hierarchic strata at one representative per 5 - 6 sub-groups represent so many individuals that no one auditing individual can ensure that her/his vote has been given equal weight and fairly counted (See Appendix C - Network Size Parameters, below). That point is likely to be reached at c 2 - 3 hierarchical strata (Appendix C1, below) and the term 'democratic sequential hierarchy' is coined to differentiate this power base from the unauditable 3+ hierarchical strata which is termed 'democratic representation'.

Differential centrality commonty may be characterised by democratic representation, a 'grass-roots' decision-making approach whereby some empower others to canvass and represent their views. The cumulative effect of 'block voting' may be such that the decision made does not represent the view of the majority. Alternatively, as *differential* centrality is defined as social structure which may have vertical hierarchy, the decision-making system can be the 'top-down' system of *'simultaneous hierarchy'* (Johnson, 1982, 407-410), as long as the positions of authority are open to all with sufficient talent to fill them (i.e. not inherited). Appointments may be for a lifetime, but the potential for abuse of power (in terms of societal norms of justice) is counterbalanced by potential sanctions on the part of the represented (e.g. de-selection from office).

By contrast, the simultaneous hierarchy of *insulated* networks is an order of magnitude greater in power terms, in that the super-ordinate are empowered by virtue of their birth, amounting to a dictatorial system which can be opposed only by the costly and risky collective action required for rebellion on the part of the subordinate group.

Summary

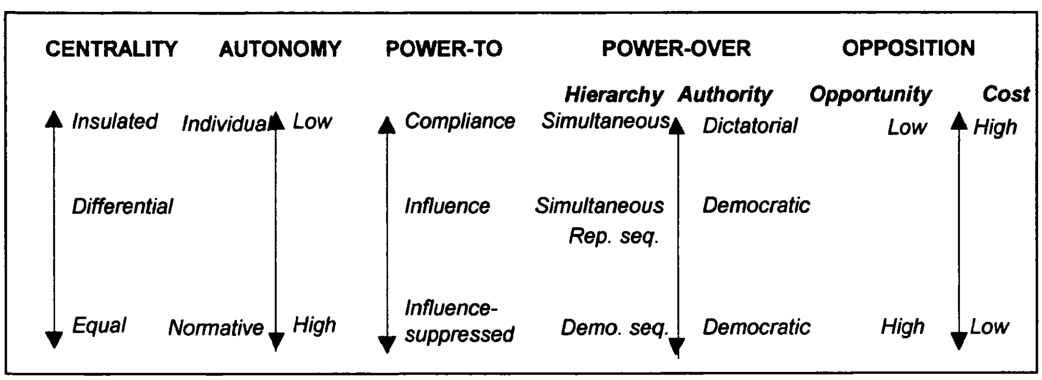
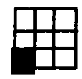


Figure 7.2 - Centrality dimension and behavioural disposition

The Group Dynamics Matrix and cultural behaviour patterns

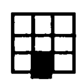
Each social structure (GDM cell) is reviewed in the light of the network-oriented characteristics discussed above to provide a static model adding breadth to understanding of a particular social environment:

Equal Centrality / Circumstantial Density



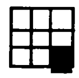
Inter-individual exchanges are guided by subjective rationality and few social norms are sustainable in the low-density network. Potential for differential influence is inevitable and competition to realise that potential rife. *Equal* centrality commonty cannot endorse formalised authority and democratic sequential hierarchy is sustainable in a small population only. Thus, there is no practicable means for suppression of inter-individual power differentials and this social structure cannot be sustained beyond a small group and probably in an environment impoverished in terms of opportunity. It is inherently unstable.

Equal Centrality : Contingent Density



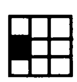
A flexible social structure which has mechanisms for sustaining a high degree of conformance to social norms which may counter the competitive element which is pervasive in 'selfish', rational choice based transactions. That propensity to sustain norms ensures that incipient influence differentials can be suppressed, even amongst large populations and over the long term. Furthermore, this structure fosters a responsiveness to change which should sustain society to a degree, even when challenged by environmental change.

This is a weak form of egalitarianism where, as no individual has the authority to exercise control over others, except by claiming to speak in the name of the group (definition - Thompson et al, 1990, 1-13), difficulties in maintaining a democratic sequential decision-making system may arise from time to time in a very large population. Further, as individuals can leave if they do not have a voice in that process there may be a tendency for localised communities to form a breakaway commonty in the long term.

Equal centrality : Corporate density 

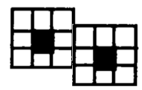
High density is the main emphasis and it is self-sustaining to a degree in that the conservative, internalised social norm base for action climate requires to be 'fed' by maintenance of that density. Resistance to change may be considerable and fission more akin to federation (i.e. splitting the commontant population) than to mobility, the probable response to pressure. In extreme cases, however, resistance to fission itself can be predicted and Douglas (1978, 19-21) argues that an undercurrent of hidden resentment and covert faction-building would characterise a population thus restricted. In this atmosphere of suspicion, careful 'auditing' of democratic sequential decision-making might be expected and that is possible in relatively small groups, only.

In a stable environment and given a stable internal dynamic, the strong egalitarianism of this social structure may be relatively long-lived as there is a tendency for *equal* centrality and *corporate* density to be mutually reinforcing. Consequently, should the values-base of the commonty be challenged, perceived choices may be as extreme as self-destruction and change may have to be forced.

Differential centrality : Circumstantial density 

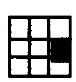
The 'selfish' rational choice base for action is readily sustained by formal institutions established with an ethos of equal opportunity but not outcome. The competitive element may tempt individuals to maximise their power potential by coercion which will, in turn, create a perceived need for further authorised policing and sanctioning to sustain that ethic. The lack of density to sustain significant social norms combined with competitive individualism suggests ever-increasing institutionalisation, formalising and annexing collective responsibilities.

The emphasis is on the individual, her/his achievement and desire to gain an advantage which, together with the comparative lack of information overlap which goes with transitivity, should provide a climate for rapid and innovative change but little transmission and commonality. That is not to argue for social instability but rather for the constantly shifting environment as a matter of course.

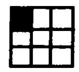
Differential centrality : Contingent density 

The central position in the GDM matrix is certainly a flexible social structure but there are a number of potential pulls toward conflict, arising from the rational choice base of many individuals' actions (a pull toward individualism), the competitive element in interaction combined with the potential for formalised power differentials inherent in simultaneous hierarchy (a pull up-centrality) and an ambivalence about institutional solutions to collective action problems inherent in medium network density and the corresponding (moderate) sense of group boundedness.

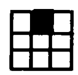
Small environmental changes could cause structural change to the delicately balanced collective to individual emphasis and a markedly dual approach to collective action organisation (institutional to consensual) would allow the intentional, power-building action of an individual to slip through the net of detection. Thus, there is an ever-present (although probably unrecognised) dynamic to shift toward a more stable form of social structure.

Differential centrality : corporate density 

This social structure may be very stable over the long-term, as long as the consensual base for collective action remains strong and the group remains small enough for effective maintenance of the democratic base for hierarchical decision-making. Group size may be extended over the *equal* centrality population, but the unattractiveness of fission remains an important constraint to maintenance of the structure.

Insulated centrality : circumstantial density 

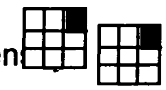
This social structure is little more than a theoretical possibility as the competitive, rational choice base for individual action combined with the dictatorial power of *insulated* centrality suggests the possibility that the individual's choice is no choice at all (i.e. only one course of action) and that may occur in some situations of slavery (from the point of view of the enslaved) and imprisonment (from the point of view of the imprisoned). Speaking generally, the archaeology of group dynamics requires that social structure be treated as a whole, rather than as that of individual strata. Thus, it is very unlikely that a network with these dimensions will be encountered and if the combination ever did exist it is very unlikely to be detectable in the archaeological record.

Insulated centrality : Contingent density 

One or more super-ordinate groups are able to exact compliance from subordinate social sectors by virtue of either being vested with legitimate authority by the norms of fair exchange and justice or by having captured the stock of an important resource and restricting its distribution. Subordinate groups can resist that *power-over* them by acting together to rebel, or by exercising their freedom to move from one community to another. The first case requires an element of a rational choice base to action decisions and, indeed, that is expected of *contingent* density commontants. The second can be countermanded by a localised hierarchy of representation of the empowered, although not prevented entirely.

The potential for resistance argues for a moderate, negotiated base for power as typical (i.e. legitimate authority), as the tight controls on freedom of movement required for coercive power suggest an up-density tendency. Individuals are subject to both the control of others and the demands of socially-imposed roles and Thompson, Ellis and Wildavsky (1990, 1-13) have coined the useful term 'hierarchism' to describe that duality.

Given no move to rebellion, the range of options for resolution of conflict and the inherent mobility characteristic should support a large group size over the long-term; this structure can be very stable.

Insulated centrality : Corporate den 

Corporate density engenders an important sense of 'groupness', or cohesion, bounding society and reducing the mobility option which tends to temper the power base of the *insulated/contingent* social structure (above). Thus, although power may be benign authority legitimated by norms of fair exchange and justice, there is room for the less legitimate, coercive state as rebellion is more costly to the individual because the information system associated with high density provides a vehicle for ready exposure of dissidents. What could be described as hierarchism in the more benign social environment could be as strongly coercive as dictatorship in another example of this social structure.

The importance of retaining a small group size to maintain network density, yet 'monitor' a democratic process does not apply in the dictatorial power situation, thus removing the handicap of fission/federation as a response to increasing size. Therefore, this structure can be fairly stable and long-lived.

Different personal perspectives

Archaeologically, we see the aggregate outcome of action as indicated by the material evidence and that allows a link to the GDM model of social structure, deriving one dominant combination of network dimensions and the 'shading' away from that into others suggesting the key pulls in other directions. That evidence is for a social structure and not for individual people and the group dynamics are those normative to that. However, the dominant ethos (or frame of perception) was, and is, never without its detractors. This tacit understanding is made explicit by an interpretation which claims an individual decision-making point-of-view. For example, to have selfish individualism arising from low density and a degree of centrality in the network makes it unavoidable that there must be some people who are comparatively less empowered than others (and probably some with no personal autonomy at all); if any people are more central in the network, others must be more peripheral and their attitudes and perceptions of the scope for action will differ as a result.

Douglas (1978, 7-13, 19-36) identified five broad attitudes (worldviews) most of which have been introduced already but which are reviewed in their entirety here, for clarity. Thompson, Ellis and Wildavsky (1990, 1-13) have coined useful terms for shorthand reference:-

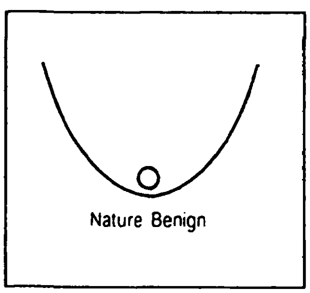
- *Egalitarianism:* No individuals have the authority to exercise control over others, except by claiming to speak in the name of the group.
- *Hierarchism:* Individuals are subject to both the control of others and the demands of socially imposed roles.
- *Fatalism:* Individuals are controlled from without and have no path for joining or influencing the controlling group.
- *Individualism:* Individuals negotiate their own positions in life.
- *Hermit:* Individual withdrawn from social and cultural world.

The fifth, *hermit*, is of no further interest to this enquiry as archaeology clearly focuses on habitus rather than its lack.

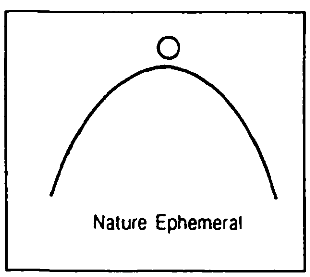
Not only do Thompson et al (1990, 1-13, 48-51) argue that there are only these four engaged ways of being in the world but also that <u>any</u> political culture (their main focus) will usually be home to supporters of all four, albeit in different proportions. The same would tend to apply to the social network of a commontant population.

Considered within social structure, one worldview will prevail over others at any one time and this is termed the 'dominant worldview' meaning the worldview of the majority or, in the case of unequal centrality, it can be the worldview of a numerical minority but with the comparative resource to coerce others regardless of their alternative worldviews. Thus, for example, the illustration of the individualistic dominant worldview of *differential* centrality and *circumstantial* density used above could be held by a numerical minority; the majority may well be fatalists, socially down-centrality of the more successful individualists and feeling powerless to make any effective change in the dominant worldview.

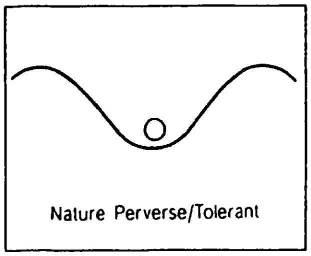
It is useful to introduce Douglas' (1978, 22-36) work on worldviews (which she called 'cosmological derivatives'), together with the work of others based on that original, as it provides useful input to understanding the entirety of the individual's perspective especially with respect to personal beliefs and values and that can provide extra depth to understanding change. Taking one important example to illustrate, Thompson et al (1990, 25-29) develop an argument that there are precisely four viable, engaged social constructions of the idea of nature and that each is at the heart of one of the four worldviews. Those *'primary myths of nature'* (Thompson et al 1990, 27) are easily remembered by reference to a powerful diagram system (figure 7.3, below). Overall, the four primary worldviews on nature establish a way of thinking about human nature, relationships and society as a whole which establishes the base from which personal beliefs and values and higher 'levels' of perception are built.



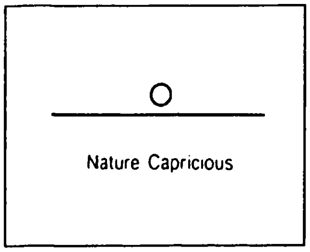
Nature benign is a view of the world as forgiving; whatever is thrown at it, nature will always regenerate and equilibrium return. Thus a *laissez-faire* attitude can persist with the result that this worldview both encourages and justifies the trial and error of *individualism*, on the tacit assumption that some 'sky hook' will guide us all toward the best possible outcome. (Thompson et al, 1990, 26-27). This is the platform for the search for scientific 'truth', for experiment in the name of that truth and for belief in one-way 'progress' to a 'better world'. It is a view which justifies inequality on the grounds that it is inevitable that the more talented will do better than others and that performance to one's best ability is a suitable life aim and inheritance for the next generation. In other words, the competition and maximisation of personal position of *individualism* are legitimised by being presented as showing proper gratitude. Human nature, like physical nature, is stable and all are essentially alike in being self-seeking (Thompson et al, 1990, 34).



Nature ephemeral is an understanding of the world as unforgiving; interference with nature may trigger the collapse of the life of the world as we know it (Thompson et al, 1990, 26-27). The worldview requires that nature be treated as a fragile boon with minimal intervention and that sanctions are essential to ensure that the precarious balance is not tipped, unleashing unpredictable and, perhaps, cataclysmic forces. *'This is the perfect justification for those who would have us all living in those small, tight-knit, decentralized communities that respect nature's fragility and make appropriately modest demands upon it'* (Thompson et al, 1990, 27). That is the worldview of *egalitarians* who, in parallel with nature, believe that human beings are born good but are highly malleable to interventions in life, risking corruption by evil influences but with the possibility of maintaining 'goodness' if nothing is allowed to sway it (Thompson et al, 1990, 34).



Nature perverse / tolerant allows that nature is rugged but is vulnerable to the occasional, unusual and potentially cataclysmic occurrence (Thompson et al, 1990, 26-27). Therefore, it must be managed to insure against such an eventuality. To avoid making all restraint look like illegitimate coercion, it is essential that people consider that those perceived as the most able are the 'natural' choice for assuming the roles to ensure *'painstaking regulation of human activities'* (Thompson et al, 1990, 35). In this way, an *hierarchical* view of both nature and human nature is constructed.



Nature capricious is a random world of erratic events which must be borne but which cannot be predicted and managed (Thompson et al, 1990, 26-27). It can be a cornucopia, but it can be destructive and punishing; either is a matter of chance. *'It is luck, not learning, that from time to time brings resources our way'* (Thompson et al, 1990, 28). This is the worldview of the *fatalist*, seeing human nature as unpredictable but with a greater likelihood of hostility and 'doing-down' than benevolence (Thompson et al, 1990, 35). The *fatalist* will tend to be suspicious and distrustful of others, assuming the worst and feeling defenceless and ineffective (Thompson et al, 1990, 34).

Figure 7.3 - Worldviews and myths of nature

Summary

Key aspects of the normative behaviour expected from populations of each social structure identifiable on the GDM has been outlined and the effect of different points-of-view, given inter-individual difference introduced. Useful general terms for worldviews have been coined, from the earlier 'Cultural Theory' work (especially Douglas, 1978 and Thompson et al, 1990) and, with that, the ground has been laid for analysis of the normative group dynamics of both areas of the case study, developed in Chapter Eight (Normative Group Dynamics of Sussex) and Chapter Nine (Normative Group Dynamics of Hampshire), below.

CHAPTER EIGHT - NORMATIVE GROUP DYNAMICS OF SUSSEX

The nature of explanation

Interpretation of the evidence of the past can be couched in terms of what has changed and why. In group dynamics terms, the 'what' element amounts to evaluation of the aggregate behavioural changes recognisable in the archaeological record. Understanding the cultural milieu in which behavioural choices were made has been approached by analysing the archaeological evidence and deriving the GDM 'freeze frame' view of group dynamics per archaeologically-detectable time block of the first millennium BC. Whilst some may regard the changes in the nature of the patterns of the archaeological evidence as sufficient indication that changes occurred and that they need to be explained, that is a view with a positivistic bias which can understandably arise from the indisputable fact that material culture is the primary source of data for the archaeologist. On one level, there can be little doubt that habitus is articulated through material culture and, therefore, that change in material culture results in change in all cultural environments (including, of course, behaviour). However, as explanation, the levels of inference which can be derived from observing the change in isolation are comparatively impoverished. Overarching a number of clear developments in aggregate behaviour, as expressed in the archaeological record, the GDM analysis has demonstrated that a broadly similar social structure can pertain despite change and defines the social network parameters which influenced the cultural environment framing the individual's behavioural dispositions. The result clearly illustrates the point that the phenotypical expression of the normative group dynamics can alter whilst the underlying structure and dynamic of society does not.

In this Chapter, the group dynamics of the developments of constantly shifting stasis in social structure over the first millennium BC are derived, calling on the theoretical group dynamics base developed in Chapter Seven (Normative Group Dynamics) and adding further inferences where archaeological evidence for the particular cultural environment signals actual behaviour. The work results in a contextualised view of the cultural influences on the individual and the individual influences on the cultural heritage over the Case Study period. That provides a fuller answer to the question of what has changed and lays the foundation on which the potential causal models, the 'why?' element of explanation, can be built (Chapters Ten and Eleven, below).

The normative mindset is reviewed through time to understand the window which the 'typical' individual is likely to have had on the world, based on the GDM as derived in Chapter Six (The GDM of Sussex), reproduced here as figure 8.1:-

Sussex:

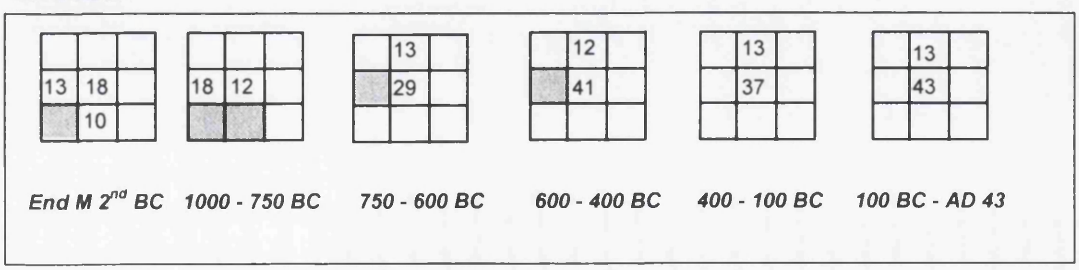


Figure 8.1 - The GDM of first millennium BC Sussex

It is immediately evident that there were two key developments in the balance of the commontant worldview over the period; from the end of the second millennium to c750 BC, the dominant ethos was that of the rationally 'selfish' individualist and that changed to a weakly prevailing co-dependence seen in an hierarchical influence from c750 BC - AD 43.

A society of individualists from end M 2nd - 750 BC

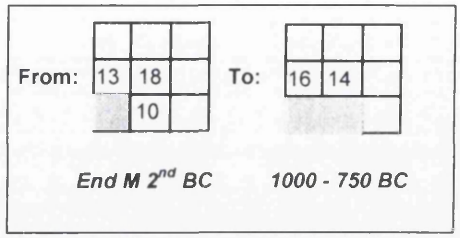


Figure 8.2 - The GDM from end M 2nd - 750 BC

The couple of centuries at the end of the second millennium BC provide the baseline for this study and the social environment was articulated through an environment of small, self-sufficient communities of similar morphology and with no indication of differential access to valued resources although there was a degree of status differential between the domestic-units within the community. No community was large enough to provide a self-reproducing commontant network but there is little indication of any inter-community investment in formal facility for meeting. This is the first time that there is unequivocal evidence for sedentary settlement on the Sussex Downs, in the form of settlement sites, although the referents to the past seen at Itford Hill E31 and Black Patch E04 and implied by the presence of the cross dykes tend to suggest that the people considered themselves part of a longer tradition of community 'rights' to land (pp. 177-178). Hunting probably continued alongside farming, as is indicated by small proportions of non-domestic species in the faunal remains assemblage where it has been recovered and recorded. To select a few examples to illustrate, the end of the second millennium period is represented by red deer remains (mainly antlers and teeth) at Black Patch E04 (Drewett, 1982b, 379) and Cock Hill E11 (Ratcliffe-Densham, 1961, 83) and the 1000 - 750 BC period by Bishopstone E03 where red deer, roe deer and fox are present, as well as gull and swan indicating fowling and seal and whale which suggest co-operative fishing if they were not simply stranded animals (Bell, 1977, 135). The only suggestion of organised aggregation activity between communities (albeit tenuous) arises from the ambiguous burnt mound site at Potlands Farm E50 (pp. 148-149). People may have met in a planned manner to join in hunting, at special places in the landscape not archaeologically detected, in everyday business relating to agriculture (e.g. crossing land to get to water) and, presumably, visiting at other community settlement sites.

At the end of the second millennium BC, network density is just in the *contingent* range of degree and in the lower range of *differential* centrality. Without knowing the cultural history of society at this time, it can be said that a network centring on *differential* centrality and *contingent* density is one which is flexible but which has a number of pulls toward conflict (p. 217) and in this case the direction was toward an individualistic emphasis on personal autonomy (pull to *circumstantial* density). Thus, an effective resistance to over-emphasis on inter-individual differentials must have counter-balanced the tension and it is that opposition which is probably reflected in the tendency toward broad equality, indicated in the pull toward *equal* centrality in the GDM. Moving forward to the second period (250 years from 1000 - 750 BC), the social network parameters changed little although the balance shifted a little down-density into the high range of the *circumstantial* band and a little more up-centrality. That up-centrality development is largely predicated on inter-community differentials seen in Highdown Hill E28's differentially rich assemblage and the exotic assemblage of the unusually situated and short-lived Shinewater E57. Balancing those larger and more resourceful communities, most communal living fractured at this time, devolving into self-sufficient communities of only one or two domestic-units.

In summary, for 450 years the commontant population of the Downs formed a social network with contacts further afield and which comprised nodes of small communities (tending to get smaller over time) which were broadly self-sufficient and autonomous. Network centrality increased, although remaining in the *differential* band and network density reduced enough to show as a shift from *contingent* to high *circumstantial*. Thus, the individualist element were able to assert themselves from the start and became more dominant over time. A degree of inter-individual difference within the social structure of a community is likely but it would have been tempered by virtue of the ease of resistance rather than by concerted effort to quash it. Certainly, that inter-individual difference compounded to a degree that differentials between communities had developed by the latter half of the time band.

Discussion of the interpreted normative group dynamics of the period is organised into the areas of behavioural disposition predicted for the network density dimension, in line with the statement of theory in Chapter Seven (Normative Group Dynamics) but contextualised with the centrality dimension and the archaeological record as appropriate.

Value of membership

The individual is not likely to have valued membership of commonty very highly and, at first, the value as perceived was probably that of membership of the social-unit(s) of home community. Except for the particularly high-status communities, most communities devolved to just one or two domestic-units, suggesting that they typically reduced to intimate personal networks alone.

Choice base

It has been argued that at a low *contingent* or *circumstantial* network density range, society comprises self-seeking people making choices based on subjective, outcome-oriented rationality prioritising their own interests (p. 205). Optimising personal success requires that one competes against others to build advantage, in the form of a stock of valued resources (p. 205). Thus, a person's sense of self is likely to emphasise qualities like capability, responsibility and flexibility to support and sustain the role of self-provisioner. Additionally, the competitive side of the individualistic worldview will have the effect of creating culturally-shared ideals of valued roles to which one may aspire, in an environment where inter-individual differences are not suppressed. Considering what those roles may have been is of use in extending understanding of this period, as it identifies the goals of the competition. There are a number of possibilities and they are grouped into areas which can be best described as roles of specialism, stakeholding of valued property, personal prowess and social skills, hosting and roles of representation:

Specialisation

There is no direct evidence of any attempt to gain competitive advantage by specialising in production of particular products (and thereby obtaining economies of scale) although that could be archaeologically invisible. Furthermore, a market in specialised products would generally require a surplus of goods (typically subsistence) to be produced and stored ready for exchange for those products; as there is no evidence for long-term storage of perishable produce in large quantities (e.g. no large pits in the dataset, no local salt before c750 BC (Morris, 1994a, 384-385)), the posited absence of specialisation to any significant degree is indirectly corroborated.

Valued property

Artefacts

One of the most specialised craft skills in this period was probably the production of bronze metalwork pieces, certainly the most elaborate artefacts found in any quantity in archaeological contexts. However, there is an indication that bronze became less highly regarded toward the end of this period as there was a considerable increase in numbers of un-recovered hoards, especially of artefacts of the Ewart Park phase type (c 900 - 700 BC) (Needham and Burgess, 1980, 456; Needham, 1990, 130-140; 1996, 137; Bradley, 1984, 106, 117-124). Some part of the phenomenon may have been due to the introduction of iron to the British Isles, requiring less skill in the artefact production processes (Ehrenreich, 1994, 18) (perhaps the same degree as casting bronze) and providing an opportunity for people to 'bypass' dependence on bronze specialists. Many artefacts which survive archaeologically show no marked pride in production. For example, ceramics study reveals the persistence of locally produced, relatively plain middle Bronze Age Deverel-Rimbury wares whereas other areas developed new and more complex designs (Bradley, 1984, 106-107) However, there are late Bronze Age exceptions and the Shinewater E57 assemblage includes a quantity of very well preserved artefacts (in water-logged conditions) which shows just how wide the range could have been: amber, horse riding accoutrements, lead 'purse' pendants and a number of copper alloy items show that there were limited distribution items of value in the C 9th and C 8th BC. That finding can be stretched back to the C 10th BC by including the example of the metalwork component of the considerable (but inaccessibly published) assemblage at Highdown Hill E28, comprising mainly bronze but including some gold (Hamilton, pers. comm.). These two sites held 'wealth' in the form of atypical artefacts in holdings an order of magnitude greater than other sites of the period and this suggests annexation of the circulation of those valued artefacts. However, it can be assumed that individuals would still have competed even when not able to build holdings of the most highly valued property. Thus, other valued holdings must be sought in less lasting, riskier and more personally-oriented enterprise and this steps into the realm of greater speculation due to less archaeological visibility.

Animals

There is little doubt that domesticated livestock were an important part of subsistence life and they may have been valued not only for meat, but also for secondary products. However, the little evidence that there is suggests that people were self-sufficient in secondary product production but no more (e.g. spinning and weaving, tool production and tool use for processes like leather polishing). Whilst sheep and pigs are unlikely to have represented any 'disproportionate' value given the practical difficulty in moving them in number over any distance, it is quite possible that the more readily mobile and useful cattle (for draught), horses (carriage and riding) and dogs (hunting, keeping watch, herding) did represent 'wealth' and there is considerable evidence for special deposition of, and regard for, these animals in later periods (below). Even though that practice may be best described as being for a 'ritual' purpose, that does not invalidate the hint that regard for these animals could also have been as 'wealth' this early. That case can be strengthened by considering the interpretation of integrated linear ditch systems and the pattern of settlement as indicating ideas of 'ownership' vested in agricultural land (pp. 177-179), fitting with a proposition that a consequence of emphasis on self and self-sufficiency is the concept of personal property. If land for grazing was the property of an individual or a community, then it is very likely that the animals grazing thereon were, too.

People

Whilst the possibility of enslavement or control of some people by others is certainly a possibility in the prevailing group dynamics, it is hard to imagine how people could have been physically constrained without leaving any indication in the archaeological record. Restraint by subscription to a social norm of voluntarily filling the role of another's slave due to culturally-perceived obligation (e.g. corvée labour) is unlikely in a low density group, as social norms are comparatively unsustainable (p. 87) and the subjectively rational choice to leave (or default on a 'debt of honour') could readily prevail.

Physical prowess and social skills

To discuss the possibilities for building social capital by competing in the realms of personality, physical prowess and social skill requires that a contextualised argument for the individual's attitude to her/his place in the 'world' and personal values be made. Where competitive advantage can be gained, the individual may judge it to be to personal advantage to defect on some outstanding transactions in another's favour as the 'shadow of the future' is short (p. 40). However, appearing trustworthy to subjectively-designated 'attractive' others is also important for gaining competitive advantage (pp. 41-44). Building on that, it is posited that the individual's perception of the boundary between self and other is strong, with the direction of focus turned inward toward those 'selfish' concerns at the foundation of motivation. In a low density social network there is a high chance that people encountered will not be personally known to one (p. 37) and that suggests that it is important to have a system for remembering and reciting one's biological genealogy. In this way, kin can be identified by a shared system without the need to know what they look like or, indeed, to meet face-to-face. Furthermore, in negotiating social standing by establishing relationships of mutual trust (or, at least, an impression of personal trustworthiness) with unknown others, a search for common acquaintance amongst those living as well as between one's ancestors can provide a powerful personal resource in the form of providing a 'reference'. Thus, it is predicted that an individualist's view of her/his timeline is such that the future of the 'world' (beyond own biological life and death) is of importance for a fairly short time (perhaps a generation or two) but that time depth in the recitation of one's genealogy is of significantly greater importance (in a non-literate society without capacity for communication over long distances at speed). To summarise, a commontant's cosmological scheme was likely to be self-centred with the focus on the genealogical past but without emphasis on myth. It is unlikely that ideals of 'morality' could have been enforced by any idea of at- or after-death 'judgement' as the post-death future would not be given great weight.

Face-to-face meetings were probably informally organised rather than choreographed, allowing the freedom to discuss common acquaintance (alive and dead), to state one's credentials and to negotiate exchanges (of people, information, promises, fixed property, and livestock *inter alia*). Social skills are inevitably of great value in negotiating and maintaining important relationships of trust and are likely to have been highly developed to sustain the low plexity of low density network. To that end, meetings may have provided platforms for building valued reputations for, for example, telling involving tales, for making music, for dancing, for persuasiveness and believability or, indeed, admired skills more culturally alien to us (e.g. braggartliness).

An individual's focus on lifespan rather than past and future timelines will make it seem proportionately more important, tending to favour an attitude that time is in short supply, as Douglas (1978, 28) predicts for her 'category A'. Building on that, the selfishness of individualism suggests that the future may tend to be seen more as vested in one's children than in any idea of a personal life after biological death. An emphasis on self-sufficiency and personal capability tends to glorify youth and activity in comparison with age and incapacity; 'young and active' associations are prized and 'age and incapacity' are not, with the effects that the passage of time is not regarded as a criterion for intimacy in itself and that age is neither a criterion for deference nor a principle for segregation by seniority (overt, anyway) (Douglas, 1978, 28). Thus, a valued personal style as presented to the world is likely to have been youth-associated (e.g. in personal appearance and concepts of attractiveness), apparently ready and able to take anything on, putting a brave face on disappointment, concealing tensions and disguising illness or infirmity where that was possible (Douglas, 1978, 28-32). In order to help in that disguise, it is possible that knowledge of medicine and healing and body adornment skills to help in acquiring the youthfully 'attractive' look (e.g. body painting, tattooing, piercing and head flattening *inter alia*) are candidates for the specialised but valued skills which are archaeologically invisible.

Competition for demonstrating one's fitness for selection above others (in competition for reproductive success) may have overtly focused on physique in the form of demonstrating superior physical condition by games of physical skill, strength, and speed in the arenas of athletic competition, fighting, hunting and riding *inter alia*. Although finds of 'war like' accoutrements of this period are few in Sussex they are not wholly absent (e.g. Shinewater E57 and Highdown Hill E28) and it is likely that personal weapons were part of the assemblage of 'valued property', suggesting that one-to-one fighting competition to demonstrate personal prowess was at least a possibility. Furthermore, the very possession of weapons could have stood for previous success or standard of ability (c.f. a 'trophy' either personally commissioned or forfeit by the loser), extending the holding of personal prowess gained in youth into older age by acting as a referent to achievements and standing in the personal past. Similarly, such symbols could be passed down the biological line (i.e. 'inherited') and thus act as 'evidence' of the physical fitness of one's biological ancestors. That line of argument is tentative, although at home in this cultural environment, and support for the other possibilities is beyond the limits of the Sussex evidence.

Hospitality

Although inter-community meeting can be confidently posited in order for society to reproduce, there is little evidence of its form at this time. If there were 'special places' for meeting they are not apparent in the archaeological record as it is currently known, except at Potlands Farm E50. Incidental meetings would certainly have occurred when travelling around the landscape but social life is likely to have also included visiting between communities. 'Pleasure now' is a predictable principle given the posited view of timelines (above) and building social relations could certainly include impressing others with one's ability by what one was able to offer visitors. Hospitality is a potential opportunity to demonstrate generosity and, in consequence, a tacit demonstration of superior ability in building a surplus and both of these aspects can amount to differential power holdings. The individualist prefers to flaunt what s/he has by conspicuous consumption, in order to show others where the power lies and that behaviour is justified by claiming that *'envy is the spur of ambition'* (Thompson et al, 1990, 60-61). 'Generosity' is also a convenient cultural value in any risk-pooling relationship between host and visitor as the host may have to provide more than s/he can consume in case of being called upon to redistribute. A virtue can be made out of necessity as amounts in excess of calls and the needs of personal consumption are available for bolstering one's social capital by freely distributing.

Roles of representation

Representation of a community in the wider decision-making agglomerate is more properly left to appropriate categories below. Suffice to say, at this point, that legitimate roles of authority are retrodicted and they were probably a basis for building differential centrality. Early on there is evidence for some differential status between domestic-units within the community (pp. 190-192). It has been suggested that these may have been based on age or gender (i.e. the 'head man' of Drewett's (1982b, 341-343) analysis); whilst that is certainly possible, especially as the cultural history of the baseline period is unknown, it is rather unlikely in an individualistic society which emphasises ability (above). Emphasis on ability can result in a squeamishness in the face of physical or mental abnormality or infirmity as it represents an incapacity to perform in a competitive situation (Douglas, 1978, 32). The basic principle of self-fulfilment absolves people from 'sacrificing' life and pleasure to the care of one less capable (whatever that person's own claim to self-fulfilment) although the care may be provided by collective action to form an institution for that purpose (Douglas, 1978, 30-32). If there is a choice, there is some sense in the less capable grouping together with similarly afflicted others (Douglas, 1978, 31-32). It is possible, then, that the life of the un-able was regarded as less than a life by the able and treated cheaply. Considering an afflicted child, for example, caring for her/him would take up 'precious' time and if there were no 'redundant' personnel who could fill the caring role, the result is likely to have been failure to thrive and, indeed, s/he may have been murdered; that may be an element of the occasional child 'burial' or cremation seen in the immediate environs of settlements (e.g. Cock Hill E11). Therefore, whilst differential status may have been based upon a longevity of experience or a history of success (which would tend to favour the older person), it is unlikely to have been strictly on age by right. Gender relations are not considered in this study (pp. 123-124) and, thus, the question of the extent to which intra-community differentials could have been vested in gender has not been addressed.

Reasons for conformance

By definition the existence of commonty requires that there is wide acceptance (implicit or explicit) of the norms of culturally acceptable behaviour but in a reasonably low density network the reasons for conformance are likely to be primarily vested in formalised, centralised and institutional bodies (pp. 205-206). Early on there is some suggestion that communities agreed to a role of legitimate authority vested in a 'head of community' (above) but as they devolved into smaller units in the 1000 - 750 BC period, the down-density move probably resulted in the disempowerment (or abolition) of that role. Certainly, there is no evidence of inter-individual differences within the community at that later time, on current knowledge; the differentials recognised in GDM analysis tend to be based more on inter-community variation.

A view of nature as a cornucopia, controllable by skill (p. 221) will tend to encourage blaming personal failure on bad luck, personal incompetence, or both but the competitive system will remain blameless (Thompson et al, 1990, 50, 60). Thus, the individual would not only have built a margin into plans for maximising resources by comparison with needs but also pooled risk by entering into mutual arrangements with others for support in the event of failure. Support is required not only for physical resources (e.g. food or seed in the event of crop or storage failure) but also in socially-grounded life crises (e.g. emotional support; back-up in revenge actions). The uniplex nature of the low density network is such that those calls could be made on quite different members of one's network; it may have made sense to have a 'subsistence resource' partner at some distance from home in order to distribute risk of production failure due to weather, illness or disease but to have an 'emotional life support' partner nearer to hand, depending upon the frequency of difficult incident in local social life and the response time that one could afford in the event of a crisis.

Whilst personal mutual relationships of support can be one way of ensuring the resolution of disputes, the individual in a fractious society may feel that the cost of maintaining justice is better borne by contributing to collective action to empower others to do it (pp. 207-208). That could provide a further opportunity for the creation of 'valued positions', although it is possible that local arrangements could be fulfilled by turn-taking with less chance to accrue personal status than a formal, personal role and that is more likely to have been the case here given the observed 'pull' toward *equal* centrality. As far as punishment goes, Douglas (1978, 36) argues that the tendencies to an humanitarian ethos suggest a rejection of harsh punishment, taking the view that prevention is better than cure and rehabilitation better than deterrence.

Collective action

Detection and punishment of offences against the cultural code may have been a community responsibility in the baseline period but is likely to have become the focus of collective action, perhaps organised, of the wider commontant population in the later. If that were organised then positions of legitimate authority would be required, empowering some to coerce others to behave in the expected fashion and, as a result, gain social capital. Similarly, collective action is indicated in agreeing territory and boundaries and administering justice (e.g. violations of land access rights). It is noteworthy that there appears to have been little regard for ensuring the protection of locally-held property and the person in this early period and that suggests a degree of success in preventing aggressive action against the property of another.

Dynamism

The social environment of this period should have been an effective crucible for change, getting more innovative as the network density decreases over time (pp. 208-209), yet there is little suggestion of significant change in the record. The myth of nature as a cornucopia encourages and justifies a trial and error approach to learning and this is likely to translate into a prizing of self-expression and encouraging children to learn by trial and error (p. 221; Douglas, 1978, 25) (i.e. guided learning with an emphasis on self-teaching) which tends to argue against any need for 'age set' systems for indoctrination with fixed beliefs and values.

Autonomy

Personal autonomy and scope are likely to have been fairly high (pp. 92, 214). Although people may have had the power to influence others, opportunities for opposition were high because positions of value were probably 'earned' on the basis of ability rather than claimed by right and the disaffected could simply leave the community (indeed, the commonty) without too great a personal loss, should they feel that they had been unduly constrained.

Wider-scale decision-making probably allowed participation on the basis of democratic representation (sequential or simultaneous), giving each person a say and an opportunity to audit the outcome. At first, it is not at all clear where the decision making process could have taken place and it may have been hosted by communities at their own settlements or at special places not identified in the archaeological record. However, as some communities gained differential status, it is possible that that could have been connected with the decision making process (e.g. by being the accepted location for inter-community meetings to discuss matters of wide concern). There is some tangential evidence for that possibility at Highdown Hill E28 in that its home Arun to Adur downland sector became the focus of 'special' activity in periods which follow (below).

Swing in favour of hierarchism

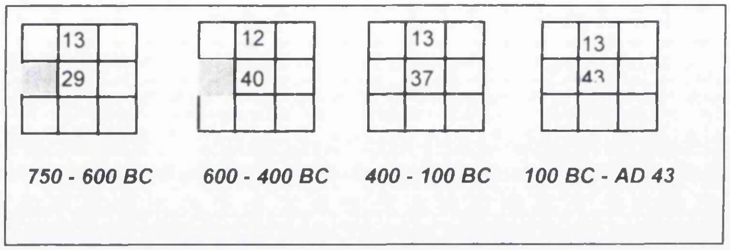


Figure 8.3 - The GDM from c750 BC - AD 43

A clear development occurred in the five or six generations from c750 to 600 BC, articulated in GDM terms as an up-density, up-centrality move, amounting to a nascent hierarchism. The network centrality moved toward the higher end of the *differential* band with a pull toward *insulated* and there it remained throughout. At the same time, the network density moved back into the *contingent* range and increased a little, settling fully in the *contingent* band after c 400 BC.

To recap on the evidence for the GDM of the 750 - 600 BC period, the up-density development is largely indicated by the evidence for investment in formal, specially ascribed places for inter-community aggregation and monumental architecture for limited sectors of society (at Harrow Hill E23 and Chanctonbury Ring E08). Also, for the first time in the study, there were bounded and restricted sites (the two aforementioned and the community settlement site at Highdown Hill E28) which are part of the justification for registering an up-centrality move. Whether intended or not, these developments represent new socio-cultural values to compete over, new positions, new rights to access and a clear delineation of membership by the separation of insiders from outsiders. That provided an arena for cultural ideas to become naturalised and apparently immutable and social norms more narrowly and consistently understood as a result. This was also an environment which could have provided a springboard for formalisation of centrality and institutionalisation of roles of legitimate authority.

By the 600 - 400 BC period, the special-function meeting places for selected sectors of society appear to have gone out of regular use and continuation of the principle of meeting for single function purposes is not indicated except, perhaps, at Muntham Court E39 and that is rather unsubstantiated conjecture based only on its use in early Romano-British times as a temple.

However, there is evidence for continued meeting at 'special places' and enclosed locations as well as activity on, or very near, three of the four sites which were to become the spectacular 'developed hillforts' of the 400 - 100 BC period (below). At Caburn E05 there is one (possibly two) large roundhouse(s) with a 'high status' assemblage in this pre-enclosure period, interpreted as a meeting place (pp. 153-154); the cross-ditch at Torberry E62 first annexed the promontory; community settlement sites were located immediately below the hill where Cissbury E10 was built in the next period and those included Park Brow E44 with its unusual large, two-aisled structure. Thus, it appears that those sites had become foci for inter-community meeting in this period, presaging their development as 'hillforts' in the next. The superstructure of community settlement sites in this period appeared to develop the earlier beginnings of emphasis on enclosure (e.g. at the continuing Highdown Hill E28, Goosehill E19, Hollingbury E29 and possibly Wolstonbury E60). There was probably some variation in the sizes of communities as settled (in terms of single or multiple domestic-units) and inter-community differentials indicate much the same level of centrality as the previous period, albeit articulated by different values and manifest in new ways. A slightly up-density development move is indicated by the increasing emphasis on boundedness of community settlement sites, echoing that of inter-community aggregation sites which began in the previous period and reached an apogee in 400 - 100 BC.

The settlement pattern changed considerably in the 400 - 100 BC period as the focus for community settlement sites moved away from the Downs and onto the Coastal Plain and possibly into the Weald. Balancing that move, each of the downland sectors became the home of a prominent enclosure ('developed hillfort'), stamping a marked impression on the natural landscape by the choice of dramatic locations embellished by carefully designed enhancement of natural features (Hamilton and Manley, 1997, 104). By this time the earlier hint of a style 'border', articulated in the archaeological record through ceramics (and, possibly, site form), became clearly apparent at the River Arun (pp. 166-167). Interestingly, there is an order of magnitude difference in the cost of building the massive Cissbury E10 enclosure when compared to the other three prominent enclosures and it is located in the Arun to Adur sector which is the most westerly before the style border (physically fairly central on the Downs as a whole) and in the sector which had been the home (in earlier periods) of the exclusive cattle-killing site at Harrow Hill E23, the 'religious' site at Chanctonbury Ring E08 and the pre-eminent community settlement at Highdown Hill E28. That does tend to suggest a long-standing hierarchy of power vested in the populations of the downland blocks, with the Arun to Adur sector consistently home to the controlling interest. The prominent enclosures of this period also indicate that differential power locally may have been sustained by allocation of resources (centralised storage of pits) and territory and boundaries were altogether more clearly marked suggesting that designation of membership had become more overt.

The emphasis of the truly informative sites of the 100 BC - AD 43 period shifts to those associated with iron extraction and smelting in the Weald, making direct comparison with earlier periods difficult. In the archaeological record, this looks like a complete break with cultural tradition yet the degree of centrality is predicated on a persistent degree of inter-community differences, bolstered by new evidence for formalised exchange (coinage, primarily) and specialisation to an extent amounting to full-time specialised production (especially ceramics and iron extraction). Density is articulated through the investment in inter-community aggregation sites in the Weald, echoing those of the 750 - 600 BC period in the sense that they appear to be for functionally-specialised sectors of society (in this case, those involved in iron extraction); that impression is boosted by the evidence for small 'religious' sites at Lancing Down E34 and in the new depositions at Money Mound E38, as well as the presence of an inter-community cremation cemetery at Westhampnett E67. Inscription of the landscape by territory and boundary markers may have been redundant in this period, as archaeologically visible evidence suggests that the Downs were not permanently settled in the main, although there are numerous find spots of Sussex Ouse ware (Hamilton, pers. comm.) but the question of the purpose and date of the Chichester Dykes remains an open issue (pp. 179-181). Although contemporaneity is not accepted for this analysis (erring on the side of caution), it is noteworthy that if they had been, that would have strengthened the degree of network density further.

The lack of complete inter-involvement of group members seen in the persistence of *contingent* density means that personal fission remained a practical option should the degree of inter-individual centrality have become too great to bear. Thus, the *contingent* network density provided the resistant pull down-centrality to an extent which tempered the potential for development of power differentials to a point great enough to allow inherited status and the possibility of coercion. In consequence, it can be tentatively posited that it is inherently more likely that maintaining the commonty depended more on agreement to perceived benefits of inter-involvement and the formalisation of legitimate authority toward those ends than on the coercion of some sectors of society by others.

The review of normative group dynamics is organised by the same scheme as the individualistic period (above), allowing easy comparison:

Value of membership

Inter-community investment in aggregation sites from c 750 BC and community investment in enclosing boundaries of settlement sites suggests greater emphasis on membership, inscribed in the building operation. For a building generation, the memory of who invested and who did not would be direct and would probably have the effect of ascribing membership status to those who contributed to the collective action (either personally or by their designated representative) and non-membership to those who did not. From that point, the right to claim membership may have become vested in whether it had been 'earned' or not and joining an established group of members may have required an explicitly defined investment by the incomer. Conversely, leaving may have been perceived as carrying a double cost in that the personal benefit of rights accrued in the past would be lost as well as the cost of joining a new group incurred. At all times, the physical representation of that equation subconsciously reminded the individual of the costs and privileges every day of life by literally surrounding people in the form of banks and ditches. Over time, then, the perceived value of membership may have ceased to be something rationally evaluated by the individual but rather part of the framework of commonty; of social norms to which s/he refers and which seem immutable.

Just as membership can become 'natural' so, too, can centrality. That is a gentle form of hierarchism, viewing what is natural as perverse but tolerant, differences as desirable and centrality vested in the 'naturally' more able (p. 222; Thompson et al, 1990, 26-27). Envy on the part of the many when directed to the few is deflected by a belief in the appropriateness of specialisation and the division of labour, typified by Thompson et al (1990, 61) as a belief that *'experts know best'*. The value of membership lies not only in the environmental, practical cost and benefit equation of leaving or resisting but also in the personal belief that one is gaining the benefit of access to all expertise and ability which surrounds one, vested in co-commontants.

Choice base

Higher density sustains a wider base of social norms providing a reference for behavioural choices and in an hierarchic environment the collective understanding of ideals and rules are inculcated both tacitly by habitus and overtly by education. If some roles were inherited then knowledge of some areas of expertise was restricted to particular children, automatically reproducing specialism and removing the possibility of self-sufficiency (in all 'essential' areas of needs as culturally construed).

Further, for an hierarchic worldview to dominate requires a fatalistic element of society; lack of resistance to high centrality in the hierarchic model requires tacit agreement that decisions and action are best left in the hands of 'experts' and belief that 'natural' ability deserves commensurate reward. That amounts to an apathy, ensuring that people do not act outside the sphere of competence assigned to them by their culturally-constructed role (Thompson et al, 1990, 65).

A number of possibilities for areas of specialised skills and valued positions were introduced as those for which one might compete in the period from the end of the second millennium to 750 BC, above, but reviewing the same possibilities in the context of the altered group dynamic highlights some areas of likely change:

Specialisation

There are any number of possibilities for the predicted increase in specialisation and the concept of expertise in this period and a sample of those which may be expected to have an element of corroboration in archaeological visibility are noted here, to develop a base for arguments made later in this work.

Artefact production

The case for increasing specialisation in ceramic production over this period is clear, developing from probable seasonal production in bulk at the beginning to professional production in workshops from c 400 BC onwards (Hamilton, 1993, 368-372). It is likely that other products requiring expertise to produce (e.g. finely spun woollen cloths, leather goods, brooches) would have become specialised, given this group dynamic, but there is little to confirm or deny that hypothesis in the Sussex evidence. Rather counter-intuitively, iron smithing skill was at a very basic level (Ehrenreich, 1994, 18) and, thus, there is little reason to suspect specialisation there.

Stock breeding

The suggestion that domestic livestock may have provided a source of wealth and involvement in specialist breeding in the earlier period receives rather more solid support in the 750 - 600 BC period, in the evidence of restricted participation in ritual surrounding cattle culls at Harrow Hill E23 (p. 152; Manning, 1995, 133-138). Furthermore, tangential evidence for the specialised breeding of horses and dogs may be tentatively posited as a result of Hill's (1995c) seminal work on analysing the secondary use of pits (i.e. when they have ceased to be used for grain storage and the argument is developed here in detail, for reference at several points. On discovery, some pits are filled with the natural soils surrounding them, either by natural silting over the years or, possibly, by deliberate in-filling at some point (no more than 20% at any site studied by Hill (1995c, 19, fig. 3.6b) and the higher figure is observed only at 'hillforts'). Others appear to have been filled with any material to hand, with no attention to sequence of fill. However, a very large proportion of pits which may appear to be 'rubbish-filled' to most commentators have been shown to have been filled so deliberately that Hill (1995c), in a detailed study of six sites of various types, has been able to demonstrate unequivocally that they are best described as being the archaeologically visible products of ritual practice. The sites studied were in Wessex (none in Sussex) but at site types which echo those in the Sussex dataset which includes a considerable number of excavations of pit contents which appear to suggest similar reasoning in the filling operation. The approach has subsequently been applied to a number of Sussex sites, confirming that position (Hamilton, in press). Layers of 'natural', 'background' material are interspersed with deliberately deposited single-class material and any other incorporations can be explained as accidental (Hill, 1995c, 42-44). The single-class material is often:-

- pottery (usually broken, carefully placed and covered)
- animal bone of a single species, often articulated or in associated groups and usually not mixed with pottery
- small artefacts which are usually broken (although metal ones are often entire) and often significantly associated with other exceptional layer deposits
- human remains which are usually in a layer of their own and partial (except neo-natal infants which are usually complete)
- whole, or almost whole, animal carcasses which are exclusively horse, dog or wild bird

(Hill, 1995c, 39-44).

Furthermore, there are statistically significant intra-site associations between some of these classes and, to a less extent, inter-site. Intra-site, some spatial clusters of particular and unusual associations occur e.g. kittiwake wings in a small area of Danebury F14 pits (Hill, 1995c, 63-64). In his sample, Hill (1995c, 45) notes that the layers in the lower and middle thirds were deposited over a short period of time (as there is no evidence for natural erosion or silting separating layers) but there may have been a significant delay before filling to the top and the top third fill in the 'average' pit is derived largely from old midden material, 'sweepings' and soil (Hill, 1995c, 53). The 25-33% of all pits in Hill's (1995c) study which contain human remains layers are filled such that the articulated animal bone layers are the bottom-most, the 'exceptional' bones, pottery and artefacts layers come next and the human bone is on top of those (at all sites except Danebury F14, where human corpses which are complete were buried first) (Hill, 1995c, 73). Horses and dogs are significantly associated and accorded special treatment in deposition and horses are particularly often found in pits which contain human bone (Hill, 1995c, 62).

Drawing that back to the main thrust of the argument, it has been posited (above) that membership was inscribed and that alterations in group membership may have required some formal readjustment of the group's environment. The normative practice for disposal of the dead is unknown throughout this period but is assumed to be a form of excarnation which leaves little in the archaeological record to detect (e.g. Wilson, 1981, 161-164; Cunliffe, 1991a, 507). However, disposal of physical flesh and bones is not all that there is to marking the passage from biological life to death and it may be that pits can be construed as 'personal', representing an individual's contribution to a group and her/his persona. If the structured deposition is looked at from this point of view, then it may be argued that each pit layer represents something of the event passing a departing (perhaps deceased) person's 'rights' to new members of the group. The bottom-most pit layer constitutes the articulated bones of commonplace animals (cattle, sheep and pigs) which could have been a sample of a feast deposited symbolically to represent passage. On top of these, the 'exceptional' bones, broken pottery and other artefacts may represent aspects of the departing member's personal identity, linking that to the event marking her/his change of status. That element of the pit fill often includes large articulated bone groups of horses and dogs which suggests that those animals may have been highly prized, personally-owned animals viewed as being different to animals from the common herd (but perhaps similar in status to neo-natal infants). If that were the case, then it could be assumed that the pit marked death of their owner and that they were sacrificed, suggesting that they were considered as though they were part of the owner's persona in life. Finally, the human bones may be 'samples' from the excarnated remains. Consequently, it is argued from a long and speculative chain of inference that dogs and horses may have been very personally owned and highly prized and, thus, breeding may have been a specialisation. There is corroboration for this hypothesis as it relates to dogs in Strabo's (*Geog.* IV. 5.2) contemporary account, commenting that '*These* [i.e. grain, cattle, gold, silver and iron] *are exported along with hides and slaves and dogs bred specifically for hunting* . . .' (Millett, 1992, 18).

Arable production

Specialisation in arable production was evidently more feasible from 750 BC onwards than before because the very large pits dug into the chalk of the Downs which typify most of the period were reliable enough for bulk storage of grain for at least 6 months (and probably more) if harvested with a reasonably low moisture content (Bowen and Wood, 1967, 10, fig. 11; Reynolds, 1974, 121). However, there is nothing in the distribution pattern of those pits or in their (secondary) fill contents, as seen in the archaeological record, to suggest that arable specialisation was a reality.

Iron extraction

Smelting of iron from the ore is evident in the Weald from some time c 400 BC onwards and is a candidate for specialisation as a high level of knowledge is required to achieve success (Ehrenreich, 1994, 18). Certainly, the evidence for greater investment in bounding of the Wealden sites involved in extraction and (from c 100 BC at least) suggests that the knowledge was treated as secret and restricted (p. 175).

Engineering and architecture

Although there is a general similarity in the construction techniques for enclosures and domestic structures from the start of this period, there is enough difference to suggest that each was designed and constructed with no engineering 'standard' in mind. However, the 'developed hillforts' of 400 BC onwards, particularly, were built to rather more exacting standards in order to support the greater demands of higher banks, deeper ditches, and the support of heavy structures *inter alia*. Furthermore, they may have been built with particular ideas of what constituted good defensive strongholds in some cases and the degree of engineering skill and the similarity of architecture over very large geographical areas has led Avery (1993, 21, 27, 152-159) to argue for the presence of specialist 'hillfort engineers'. Whilst that case cannot be proved as it stands, it does receive a degree of support in that this type of specialism would not be out of place given the group dynamic discussed here.

Valued property

Metalwork

Highdown Hill E28 persisted into this period (to c400 BC at the latest) but the detailed dating of the metalware assemblage has not been published; suffice to say that it is possible that this continued to constitute valued property in which to build holdings. In many areas of Southern Britain, metalwork holdings of c300 - 100 BC were in the form of iron 'currency bars' (Hingley, 1990, 92) and it is interesting that there are few, if any, in Sussex as can be seen in the distribution map for 'all types' (figure 8.4, below).

Ehrenreich (1994, 16-17) identified three rich sources of iron in Britain and has analysed the three bar types ('sword', 'spit' and 'plough' shapes) by source, using metallurgical analysis techniques and plotted the distribution of findspots by bar type (figure 8.4, below). He has identified the 'sword shape' bars as being made from the high-phosphorous ore from the Jurassic Ridge and distributed all the way along the Ridge and into 'Wessex' (excluding Sussex) and the 'spit shape' from the low phosphorous ores of the Forest of Dean and distributed locally. Thus, it is a small step to deduce that the 'plough-share' bars came from the third source which is the Weald and the known distribution (slight as it is) does concentrate to the North of the Weald and the West.

From that work, we can deduce that although iron was valued property in non-producing areas, it is likely to have been regarded more as available on demand in Sussex, as it was not deemed necessary to keep holdings of iron for future forging into useful items.

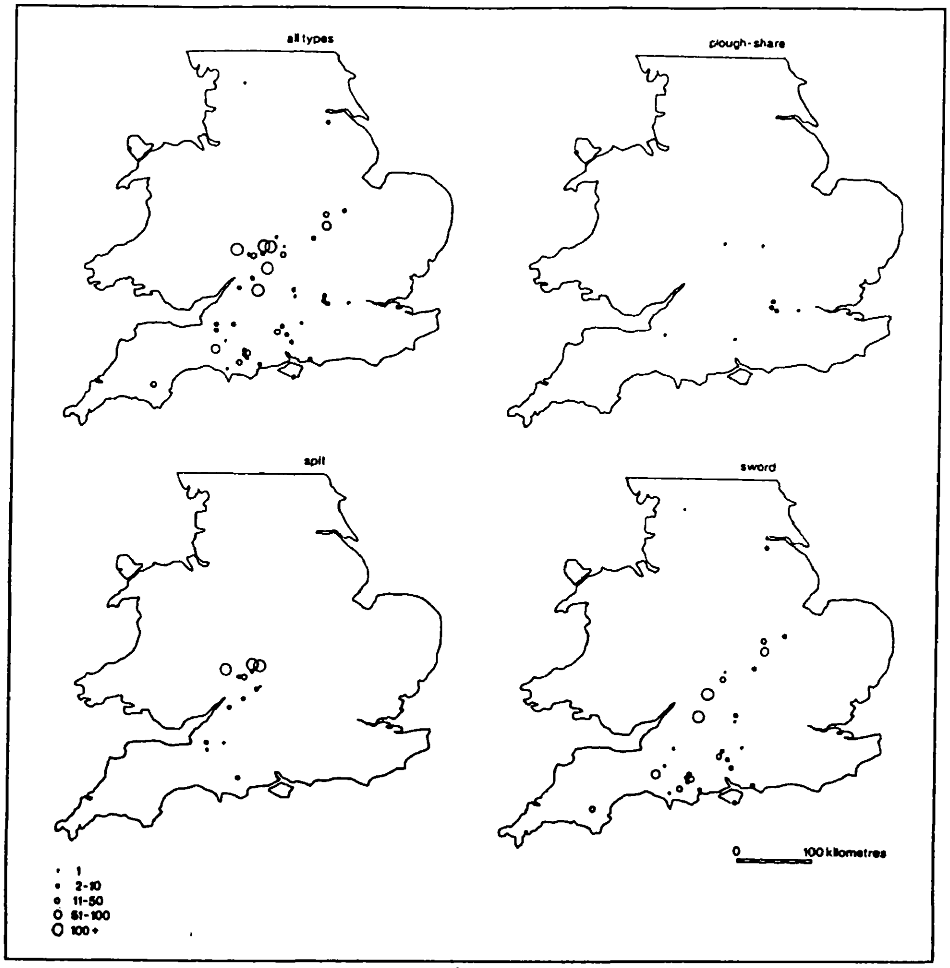


Figure 8.4 - Distribution of iron 'currency bars' (source: Hingley, 1990, fig. 1)

Arable produce

If arable products were considered valuable property of individuals or communities in the earlier parts of the period, they were unlikely to have been by the later as the focus of community settlements involved in arable exploitation shifted to lower-lying land where the yield was held above ground and, therefore, did not represent long-term holdings of bulk surplus. It has been noted that the relative ratio of above-ground storage to below-ground storage capacity declined fairly steadily from c750 BC onwards (e.g. Cunliffe, 1991a, 375; Rawlings, 1991, 90; Jefferies, 1979, 15) but a glance at a distribution map reveals that pits are preferentially distributed in areas on chalk (e.g. Gent, 1983, fig. 4). High moisture levels poison pit contents, making low-lying areas liable to flooding or soils which encourage water retention (e.g. clays) unreliable (Reynolds, 1974, 124). In Sussex, the bulk holdings (in below-ground storage pits) shifted to the inter-community 'developed hillfort' sites in the main during the 400 - 100 BC period; whilst that may have been primarily because storage in chalk-sunk pits is more reliable, it also fits the predicted attitude that '*the idea of resource scarcity is useful* . . [in furthering hierarchical relationships in society, as people] . . *can proceed to allocate physical quantities by direct, bureaucratic means.*' (Thompson et al, 1990, 62). Thus, on balance, if this type of holding was ever regarded as valuable property it is increasingly likely through time to have been considered communal rather than individual.

Physical prowess and social skills

It has been argued (above) that definition and inscription of group membership and centrality will tend to seem immutable after perhaps two or three generations, placing the events beyond living memory. It will come to seem as though the group has existed forever and, indeed, be a larger entity than any member with a resultant blurring of firm distinction between self and other. That will result in an emphasis on a long, group history expressed as a mythological past which can provide a '*loyal justificatory charter*' for present actions and rules (Douglas, 1978, 29). A long history tends to engender belief in a long future, such that the individual may believe that at- or after-death 'judgement' of personal behaviour in life establishes position within the parallel hierarchy of the world beyond biological death. If everyone is in the group for life and each sees time and death as transcended by the group's persistence then old age may be regarded as venerable (Douglas, 1978, 28-29), especially as expertise in many fields of endeavour can be said to increase with length of experience. Furthermore, sickness and health are issues around which group solidarity can be organised (Douglas, 1978, 30-32). Therefore, the putative emphasis on skills supporting representation of the individual as healthy, able and youthfully attractive (as culturally perceived) was unlikely to have persisted into this period.

In the c 750 - 600 BC period, inter-community aggregation tended to shift in emphasis, presenting not so much an opportunity for free mingling and 'showing off' personal skills but rather an orchestrated performance by the invited few for a particular reason (e.g. ceremonial, 'ritual' performance posited at Chanctonbury Ring E08 (pp. 151-152)). Nevertheless, there is every reason to believe that from c600 BC again (at least), gatherings were not so constrained and could involve large numbers of people, thus continuing the need and the opportunity for social skills to be demonstrated in entertainment situations. Indeed, the possibility of a mythical history for the group and the constraint of the range of the 'norms' for a group with increasing density may have provided the opportunity for the development of story telling, recitation, dancing and music making (*inter alia*) as respected and valued specialisms.

Although there is no evidence for large-scale communal feasting in Sussex on current knowledge (e.g. no discoveries of middens on the scale of East Chisenbury or Potterne, further to the west), it has been argued (above) that one viable interpretation of the 'ritual deposits' in closed pits may be as the remains of feasts associated with particular events. The vast majority of pits are not cut by others and at those sites where they appear in large numbers, at least, we can deduce that they must have been marked, sealing events in the memory by acting as reminders. When those pits are held inter-communally, (i.e. mainly from c 400 - 100 BC) an argument that they do represent feasts could be made, providing a potential showcase for personal attributes in the same way as discussed for the period from the end of the second millennium to 750 BC (above).

Hospitality and generosity

It has been argued (above) that enclosure events effect a census of membership and that the costs and benefits equations for leaving and joining groups are altered as a result. Leaving a group may have occurred whilst one was alive but may also have been culturally regarded as the effect of biological death. It is predicted that a myth of lives laid down for group survival would be a favourite of an hierarchical group (Douglas, 1978, 32) and that funerals would involve formal ceremony and rituals of warm support for the bereaved. However, the normative ritual for disposal of the body of the deceased is not detectable by the presence of bones in the archaeological record of the 750 - 100 BC period and most commentators assume an excarnation practise until c100 BC at least (above). Nevertheless, and on the other hand, the ritual deposition in pits could have been associated with funeral ceremony for the dead (although not mortuary practice). Times associated with death may have provided opportunities for hospitality and generosity and, indeed, that may have been required in order to 'earn' the right to take the deceased's place in the group.

The increase in inter-community investment in provision of aggregation points after c 600 BC tends to suggest that hospitality in the context of negotiating and maintaining relationships was rather more inter-communally provided than by the individual or community. However, that does not deny the possibility that these occasions could provide the backdrop for competitive generosity, albeit that there is no clear evidence for feasting on any particularly large scale in the Sussex dataset.

Roles of representation

In the earliest part of this period (c750 - 600 BC) the previous state of affairs for representation may have persisted, although it is likely that the forms of representation diversified. For example, the social sector which represented the wider group in activity associated with cattle killing at Harrow Hill E23 may not have been the same sector which participated in religious ceremony at Chanctonbury Ring E08; furthermore, it is quite possible that the people who represented their communities in decisions about land rights, retribution actions or marriages, *inter alia* were not those who fulfilled the representative roles in either of those 'specialised' sectors.

By the 600 - 400 BC period, 'special places' in the landscape began to be developed and marked, suggesting that they may have been venues for inter-communal meetings for decision-making by representatives. By the 400 - 100 BC period, at least four levels in the decision-making process are indicated, and possibly five (depending on one's view of the incomplete and speculative evidence for multiple-social-unit community settlement sites at e.g. Oving E43, North Bersted E41 and Lavant E35). Those could be intra-domestic-unit, intra-social-unit, possibly intra-community if that is applicable, inter-community at local level and inter-local-group (probably whole commonty) at Cissbury E10.

Even though there may have been the space to accommodate a large proportion of the commontant population at Cissbury E10, the decision-making process itself is likely to have involved too many people and too many levels to allow it to be auditable by any individual. Thus, formalisation of the legitimate authority to represent is likely and the form of political representation to have been simultaneous representation of the people (probably with democratic input, on the basis of trust vested in a belief in expertise, rather than audit). Respect for the wisdom and experience of old age is quite at home in an hierarchic society (above) so age is not excluded as a criterion for selection for representative roles in this period, whereas the group dynamics tend to contra-indicate that for the end second millennium - 750 BC individualistic society (above). Furthermore, there is sense in selecting those less able to participate in physical work like subsistence production to perform tasks like representation, in that their support by the labour of others can be perceived as earned by their labour in decision-making processes.

In sum, in an hierarchical society the formalised roles of legitimate authority probably burgeoned in the spirit of specialist representation by those most 'fit' to the task which could be to participate in decision-making, in detecting and punishing norm violators, in making 'spiritual interventions', in deciding upon retaliatory (or attacking) action, and more.

Reasons for conformance

A respect for those in authority and the norms that they represent can be inculcated in the individual as long as decisions are made by the 'right' people in the 'right' place. As culturally perceived, experts are expected to do the 'right' thing. To suggest that authority acted out of ignorance or self-interest would be to de-legitimise not only the decision but also the authorising system (Thompson et al, 1990, 63). Inculcation depends upon the strong perception of the value of group membership, the norm of the group myth of time past (tending toward immemorial) and the group future. Furthermore, there is likely to have been little squeamishness about effecting severe and physically painful punishment, held out as an example to the group as such (Douglas, 1978, 36) and this may be a part of the story accounting for the non-normative 'burial' of human bones assemblages in pits and ditches. Certainly, CE Wilson's (1981) study of 'burials' drawing from the dataset as known at 1981 identified four sites in Sussex which were all settlements (in contrast to the counties further west which had instances at 'hillforts') (Wilson, 1981, 151-152). It should be noted that Wilson's list is by no means comprehensive in 1998, but it is useful to examine a small example to show how burial evidence could be reinterpreted in the light of the normative dynamic. The instances are summarised in table 8.1:-

Site	***'Burial'** (all whole skeletons unless otherwise stated)*	***Period***	***Pits / enclosures?***
Bishopstone E03	1. Female and infant in ditch 2. Male in pit (bound)	c600 - 400 BC c400 - 100 BC	Pits; enclosure
North Bersted E41	Nine skull fragments in ditch (male) - same skull ?	c400 - 100 BC	No pits; enclosure
Park Brow E44	Cranium fragment in pit (female)	c600 - 400 BC	Pits; no enclosure
Slonk Hill E58	1. Female in grave (bound) 2. Male in pit	c400 - 100 BC c400 - 100 BC	Pits; no enclosure

Table 8.1 - Instances of non-normative 'burial' in Wilson's (1981, 151-160) dataset

From this small sample, an underlying schema to explain the data could be derived to create a plausible story. For example:-

- at those sites which did not have pits it could be suggested that a person responsible for a group member's departure from the group (e.g. by death) could be killed and suffer the indignity of the breaking of the skull and deposition in the enclosure ditch (i.e. North Bersted E41)
- at those sites which did have pits, revenge for responsibility for a member's departure could be exacted by murder, denial of the normative rite and burial in the member's 'commemorative' pit (i.e. Park Brow E44, Bishopstone E03 burial 2 and Slonk Hill E58 burial 2).
- a person punished by death for a violation other than causing a member's death could be buried in the enclosure ditch when it existed (Bishopstone E03 burial 1) or in a grave when it did not (Slonk Hill E58 burial 1). Additionally, these also represent the female burials which may have been a deciding point for differential treatment.

It is not suggested that this plausible story is what actually happened as that can never be known. However, it is a useful illustration of how an otherwise unsubstantiated argument has used inference at this sort of level (i.e. Wilson, 1981) and is given further credence by the weight of likelihood given the cultural context which would retrodict that the hard punishment of 'enemies of the group' would be supportable within this group dynamic.

Collective action

Joint works are likely to have been formally organised, with contribution requirements evaluated on the basis of all providing their input proportionately, based upon a cultural sense of what equivalent contributions should amount to amongst sectors of society. Building works including the inter-community monumental architecture and, possibly, the development of the linear ditch system (undated) demarcating territory are likely to have been the result of organised collective action, and the particularly ostentatious developments of the 400 - 100 BC period may amount to a celebration of the group and its longevity, as much as serving a functional purpose. Furthermore, the group are likely to have acted collectively in personal sacrifice for the sake of group survival if threatened and that may have included a limited distribution ethic, limiting exchange so as to limit losers (Thompson et al, 1990, 62). This may partly account for the inter-community central storage of produce in pits located at 'developed hillforts' in the 400 - 100 BC period.

Dynamism

The social network constituted a cultural environment which remained open to innovative and responsive change throughout this period, such that we might expect a change, as observed in the archaeological record (e.g. monumental enclosure of sites), to spread fast and fairly uniformly if adjudged to be useful in the climate of the times. However, the hierarchic tendency to depend on expertise will have limited that to some extent as a disposition to leave developments in the hands of appropriate 'experts' would tend to compartmentalise the identification of alternative approaches to a perceived problem.

Autonomy

Personal autonomy may have been reduced but opportunities for opposition may not have been sought as long as the individual did not feel disadvantaged to a degree greater than s/he would perceive as 'natural'. The delicate balance, resisting pulls up-density and up-centrality, required that the conduct of representation, of calls for personal contribution and of justice, remained transparently auditable and that the 'success' of 'experts' continued (thus not jolting the extant worldview). It is likely that no over-emphasis on an inherited expertise was encouraged, in order that a principle of 'natural' ability as the prime qualification to fill a valued role was maintained. Overt secrecy about an area of culturally-important knowledge may have been actively discouraged. However, an increasing degree of secrecy can be seen to surround iron extraction knowledge (in both site forms and in location in the Weald, not previously occupied on any large scale) from c 100 BC onwards. Localised conflict could still be avoided by moving between communities and all of these factors must have acted together to ensure that the individual felt satisfied with her/his place in the 'immutable' group and that leaving or opposing would have been too costly to contemplate.

The individual's experience

Over the 1200 years of the case study, the cultural context framing and influencing the limits of the typical individual's behavioural disposition has been analysed in terms of the normative group dynamics of an individualistic worldview over the period from the end of the second millennium to 750 BC period and an hierarchic from c750 BC - AD 43. Deducing and defining the individual's mindset amounts to deriving the internalised desire (meanings, tastes and preferences) which frame personal disposition. To summarise this chapter, and in preparation for considering cultural evolution in the final case study exercise (Chapter Eleven - Regional Variation), that disposition can be deconstructed by re-framing the key conclusions within an hierarchy of logical levels of personal viewpoint, such that the lowest level is the most amenable to a flexible attitude to change and the highest, the least:-

- One's place in the cosmos
- Sense of self (personal identity)
- Personal beliefs and values
- Personal capabilities
- Personal behaviours
- One's physical environment

One's personal range of options for behaviour is at a relatively low level and, thus, fairly flexible but how one may alter behaviour and the range of possible behaviours that one perceives as possible is framed and restricted by reference to the 'higher' levels of personal perception. That is to say that what one knows how to do (personal capabilities), the beliefs and values which one holds about what is possible (personal beliefs and values), one's idea of what is in keeping with one's sense of self (personal identity) and what one feels one ought to do to be in keeping with one's understanding of the rest of all worlds at all times (one's place in the cosmos) all act to limit one's conscious comprehension of what is possible; that is the critical input to decision-making.

This approach illuminates an interesting aspect of the group dynamics perspective in that it tends to belie the traditionally accepted tenet that accessing 'ideology' from the archaeological record in prehistory is at the top of Hawkes' (1954) scale of ascending difficulty in archaeological interpretation (as cited by Trigger, 1989, 266) by suggesting that 'ideology' is at the same level of inference as, for example, capability, given the group dynamics deduced from the dataset as a whole. The difference lies in the degree of direct evidence in the archaeological dataset available to confirm or deny a proposition. Social memory can be conservative (e.g. Fentress and Wickham, 1992; Connerton, 1989) and will tend to be more so at the levels of perception least responsive to change. Thus, predictions of mindset at those levels will tend to be more reliable the greater the cultural history available to the study; the first c200 years at the end of the second millennium BC have no history in this study but the last 200 can be contextualised by the cultural past of the previous 1000 years. The findings are summarised by the logical levels of perception in table 8.2:

End M 2nd - 750 BC		***750 BC - AD 43***
• Past = biological genealogy • Post-death future = not long	**ONE'S PLACE IN THE COSMOS**	• Past = myth of group origins • Post-death future = the group in perpetuity; the group in a parallel universe
• Personal success of greatest importance (selfishness) • Free	**PERSONAL IDENTITY**	• Personal success means performing one's role well • Co-dependent; member; contributor
• Compete to optimise gain for self • Envy is the spur of ambition • Ability (self-sufficiency) • Youth and beauty • Selfish rational choice • Prevention and rehabilitation preferred to punishment • Code of personal honour? • Each to their own	**BELIEFS AND VALUES**	• Contribute expertise and expect returns concomitant with personal success • Experts know what they are doing; trust them • Ability (skill, knowledge and expertise) • Age and wisdom • Social norms • Harsh, physical punishment (death?) • Accepted rules • Be prepared for personal sacrifice
• All-round • Trial and error learning • Within demographic breadth of community	**CAPABILITIES**	• Roles • Formal education (/ indoctrination) • Age sets?
• Make own arrangements to share risk • Body adornment for 'beauty' • Skills in incorporated practises (e.g. dancing, tale-spinning) • Personal generosity / hosting	**BEHAVIOURS**	• Contribute to collective risk sharing • Ideas of appropriate look and demeanour by age and status • Audience (unless specialist in this practice personally) • Contribution to arranged and formal celebrations; host own as required by norms
• Nature *benign*; a *cornucopia* - laissez faire	**ENVIRONMENT**	• Nature *perverse / tolerant* - insure against risk and carefully maintain balance

Table 8.2 - Behavioural disposition in first millennium BC Sussex

CHAPTER NINE - NORMATIVE GROUP DYNAMICS OF HAMPSHIRE

The detailed investigation to arrive at the GDM history of first millennium BC Hampshire has followed the proposed method in just the same way as the Sussex case and the work is recorded in Appendix I (The GDM of Hampshire). The cultural history of the county differs from that of Sussex through the first millennium BC, providing an interesting contrast not only for analysis of normative group dynamics but also for drawing comparisons and creating causal explanation for regional variation in the third, and final analysis exercise (Chapter Eleven - Regional Variation).

To set the scene, the Hampshire dataset is introduced in a brief overview of site patterning through the first millennium BC. Having introduced the Hampshire case, the GDM is compared with that of Sussex revealing similarity in the baseline and the latest periods, but highlighting that developments in two areas which are fairly similar in general archaeological terms show marked differences when examined in detail. The most important contributory lines of evidence to the GDM attribution are summarised by period and, where the Hampshire picture has a corollary in Sussex, the normative group dynamics are discussed by reference to the arguments developed in Chapter Eight (Normative Group Dynamics of Sussex) but where it does not they are developed in full in this chapter.

Hampshire site patterning

End M 2nd - 950 BC

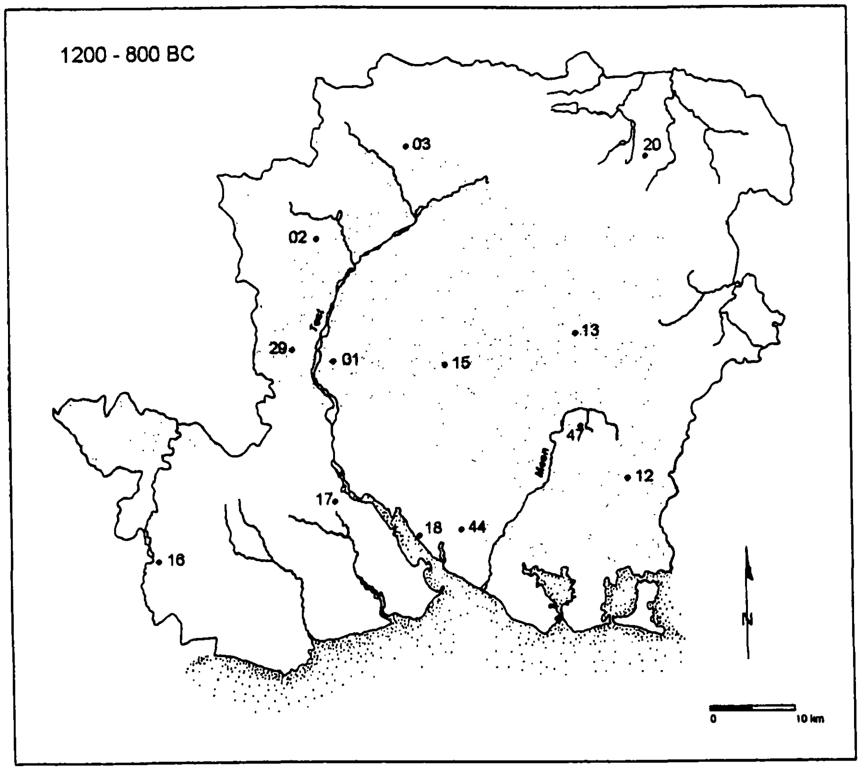


Figure 9.1 - Hampshire sites in the period end M 2nd - 800 BC

Legend

01: Ashley
02: Balksbury
03: Beacon Hill
12: Chalton 78
13: Cowdery's Down
15: Easton Lane/Winnall Down
16: Ellingham Farm
17: Franconia Drive, Nursling
18: Grange Road, Gosport
20: Hook
29: New Buildings
44: Swanwick
47: Westbury

The known sites for the baseline period are widely distributed and most are interpreted as very small, open settlements (table I.1). However, in the centre of the County, the Easton Lane / Winnall Down F15 community settlement site was a much more substantial agglomeration (of at least 10 roundhouses and 11 other structures in this period) and the site proves to be very important to GDM analysis throughout the millennium. Evidence for sites which are not community settlements at this time is slight, but it includes that of Beacon Hill F03, Balksbury F02 and New Buildings F29 (pp. 722-723). Beacon Hill F03 was a small enclosure on a hilltop which had been visited sporadically since the Neolithic and is so spectacularly sited as to suggest a role as a 'special place', especially as there are no field systems evident in the vicinity. Whilst it may have been a stock enclosure it is quite possible that it facilitated inter-community meeting for stock management or for other purposes, Balksbury F02 was enclosed on the same lines as the (later) Phase II development (c900 - 400 BC, below) and contained above-ground storage structures. Although the dimensions of the enclosure at this time have not been revealed by excavation it is thought to lie on the lines of the later, enclosing c 18 ha, and thus construction is thought likely to have required the involvement of more than one community. Therefore, it has tentatively been interpreted as an inter-community aggregation site for meeting for stock-related purposes. Finally, few details of the New Buildings F29 site have been published but as it was an unoccupied enclosure (size unknown) directly connected to a coaxial field system, a stock management function is likely. (pp. 722-723).

950 - 800 BC

On the evidence of excavated sites, the pattern of settlement would appear to have changed significantly but analysis is cautious as the excavated dataset is limited. The small, open settlements in the east of the county were abandoned by c 950 BC and the area remains un-represented in the dataset until c600 BC (table F.1). Again, most community settlement sites were small and open, with the exceptions of a new settlement on the site of old ring ditches at Cowdery's Down F13 and the Easton Lane / Winnall Down F15 site. At Cowdery's Down F13 there were perhaps three large roundhouses within the excavated area (but they could date to the following period) and Easton Lane / Winnall Down F15 was remodelled and shifted eastward, featuring four roundhouses in the area investigated. (pp. 735-736). Balksbury F02 may have been recut in this period or the following, but certainly remained in use and housed three roundhouses (not necessarily contemporary) of which one was very large. Consideration of the siting, the size, the features and the unusual aspects of the assemblage has led to adoption of a view that this was not a community settlement site but a stock-related aggregation facility for a restricted sector of society (p. 723). A limited excavation at Swanwick F44 investigated a 'ritual shaft' and hoards which could indicate inter-community involvement in ritual activity in some relation to water but, alternatively, they may simply indicate a nearby (open) settlement not discovered by this early excavation (p. 723).

800 - 600 BC

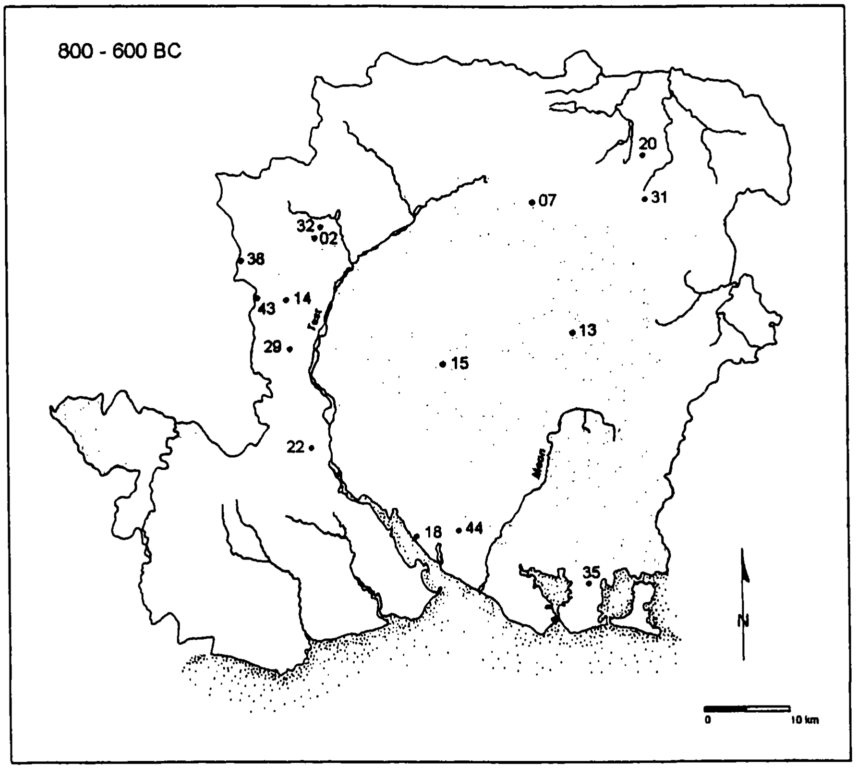


Figure 9.2 - Hampshire sites in the period 800 - 600 BC

Legend

02: Balksbury
07: Brighton Hill X/Y
13: Cowdery's Down
14: Danebury
15: Easton Lane/Winnall Down
18: Grange Road, Gosport
20: Hook
22: La Sagesse
29: New Buildings
31: Odiham
32: Old Down Farm
35: Portsdown I
38: Quarley Hill
43: Suddern Farm
44: Swanwick

Very small community settlement sites appear to have come and gone during this period but the Easton Lane / Winnall Down F15 settlement in the centre of the county was overlain by a small, enclosed site of up to eight roundhouses, over this period and the next. Whilst the sequence or degree of contemporaneity at this site is not certain, the large and elaborate roundhouse at the entrance is thought to be early; occupancy need not have been more extensive than two houses concurrently. Although the enclosure may have been built to impress the outsider in the first instance, the ditch was not maintained. The whole has been interpreted as an ostentatious farmstead in its early days. (p. 736). The earliest community settlement site in the dataset for the north-west of the county appeared in the form of the small enclosed site at Old Down Farm

F32, within which a large roundhouse was set close to the entrance in a manner resembling that of Easton Lane / Winnall Down F15. (pp. 736-737). Thus, although community settlement sites appear to have remained small in this period, the act of enclosure of communities was new and served to emphasise boundaries and assert the status of the communities thus housed.

The number of sites which are interpreted as serving inter-community aggregation increased considerably in this period, although they are almost exclusively in the west and the north-west of the county at this time. Ritual deposition associated with water is indicated at La Sagesse F22, but the possibility of a nearby open settlement site is not excluded (pp. 722-723). Some 16 ha of the Danebury F14 hilltop was first enclosed at this time (the 'outer' enclosure) and that act of enclosure emphasised the nodal position of the hill in a linear ditch system (connected to the New Buildings F29 site). Internally, the only features were five large 'ritual pits' set in an arc, together with a bronze hoard, and toward the end of this period an internal stockade may have been built on the line of the 'hillfort' which followed. Taking all lines of evidence, the site does not appear to have been permanently occupied at this time and it has been interpreted as an inter-community aggregation facility for stock-related activity. (p. 724). Further west, the Quarley Hill F38 enclosure was first built in the form of a stockade in this period, or the next, over a junction of linear ditches in a position analogous to that of Danebury F14 and the Suddern Farm F43 development is similarly located, although the site is a little smaller than the other two (p. 724).

600 - 400 BC

Movement back into the eastern area of the county is evident in this period and the number of known small community settlement sites increases considerably, especially in the north-easterly quarter (around modern Basingstoke). Most are small but the low-lying plateau hilltop at Winklebury F48 was enclosed in an elaborate manner annexing an area of c7.6 ha which contained at least five roundhouses in the 30% of total area excavated and of those one particularly large house was replaced at least twice. This has been interpreted as an unusually large and permanent community as has the community which settled within the Danebury F14 outer enclosure, building a smaller, elaborate enclosure within the perimeter and occupying it with a large number of roundhouses organised into zones and associated with large numbers of storage structures (both above and below ground) (p. 738).

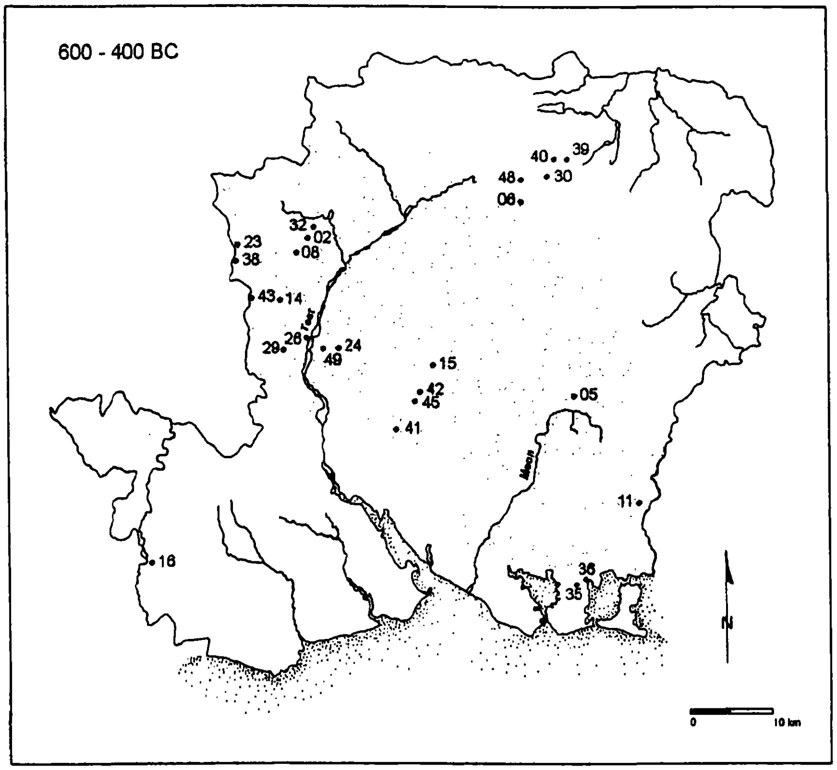


Figure 9.3 - Hampshire sites in the period 600 - 400 BC

Legend

02: Balksbury
05: Bramdean
06: Brighton Hill B/C and K
08: Bury Hill
11: Chalton 50
14: Danebury
15: Easton Lane/Winnall Down
16: Ellingham Farm
23: Lain's Farm
24: Little Somborne
26: Meon Hill
29: New Buildings
30: Oakridge
32: Old Down Farm
35: Portsdown I
36: Portsdown II
38: Quarley Hill
39: Rooksdown
40: Ructstalls Hill
41: Silkstead, Winchester
42: St. Catherine's Hill
43: Suddern Farm
45: Twyford Down
48: Winklebury
49: Woolbury

In a similar fashion to the north-east, the Danebury F14 site lies amongst a number of smaller settlements, both open (e.g. Little Somborne F24) and enclosed (e.g. Nettlebank Copse F28) and, again, the same is true of Quarley Hill F38 (connected by a linear ditch to Lain's Farm F23). However, the other 'nodal' site in the north-west quadrant at Suddern Farm F43 may have been temporarily abandoned as a venue for its earlier range of activity, becoming a focus for ritual activity involving excarnation of human bodies and burial in the quarry pit just outside the enclosure (p. 725). Remaining in the north-west, close to Balksbury F02 (which continued in this period) the impressive enclosure of c 8.9 ha at Bury Hill F08 was built but was probably not permanently occupied, and it has been interpreted as an inter-community aggregation facility for stock-related purposes which just may have been specifically geared toward the management of horses (p. 725). Finally, in the centre of the county, St. Catharine's Hill F42 was occupied as indicated by especially large pits but it was not enclosed at this time; further interpretation is not possible for this period (p. 725).

400 - 100 BC

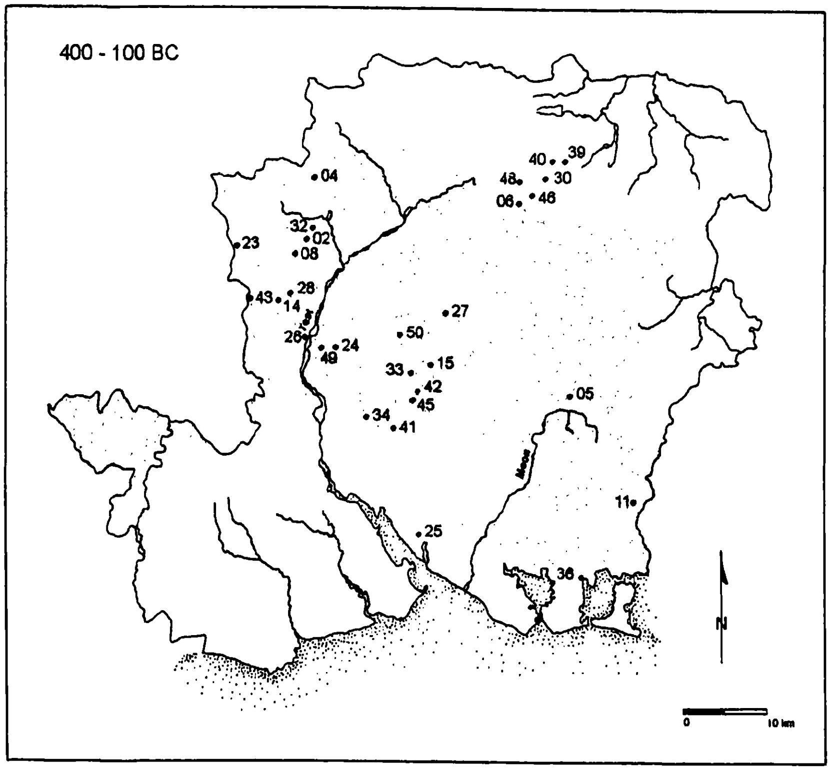


Figure 9.4 - Hampshire sites in the period 400 - 100 BC

Legend

02: Balksbury
04: Blagden Copse
05: Bramdean
06: Brighton Hill B/C and K
08: Bury Hill
11: Chalton 50
14: Danebury
15: Easton Lane/Winnall Down
23: Lain's Farm
24: Little Somborne
25: Maddison Street
26: Meon Hill
27: Micheldever Wood
28: Nettlebank Copse
30: Oakridge
32: Old Down Farm
33: Oram's Arbour
34: Owslebury
36: Portsdown II
39: Rooksdown
40: Ructstalls Hill
41: Silkstead, Winchester
42: St. Catherine's Hill
43: Suddern Farm
45: Twyford Down
46: Viables Farm
48: Winklebury
49: Woolbury
50: Worthy Down

Communities show signs of settling in the southern-most area again, in small enclosures, and the more long-standing loci of population were home to new developments. In the north-east, new community settlement sites were established both in open (e.g. Viables Farm F46) and enclosed (e.g. Ructstalls Hill F40) form. In the centre, after a period of some quiescence, the Easton Lane / Winnall Down F15 community expanded again in a clearly planned fashion, moving to an unenclosed area which probably housed four to eight roundhouses at any one time and which almost certainly extended westwards under an unexcavated area. (pp. 740-741). A number of smaller settlements were developed and continued in its immediate neighbourhood, but the most significant site is the comparatively huge community settlement site built at Oram's Arbour F33 enclosing c 20 ha and sited on an important crossing point of the River Itchen. Opposite that, on the eastern bank of the River, the prominent landmark hill was fully encircled and dramatically enclosed (St. Catharine's Hill F42) and this site has been interpreted as an inter-community aggregation site. (pp. 741, 726). In the north-west area, the substantial refurbishment of Suddern Farm F43 and the new enclosure at Woolbury F49 (a possible new 'nodal' point of the linear ditch system) are the most noteworthy developments. Finally, this period saw the beginning of the 'banjo' enclosure complex form. The investment in superstructure does not appear great, but all three examples in the dataset (Blagden Copse F04, Bramdean F05 and Micheldever Wood F27) were linked into contemporary linear ditch systems and a further two (unexcavated) would appear to be also. The same is true of eastern Wiltshire (pp. 725-727). On the grounds of the inter-site similarity of 'unusual' assemblages, features and morphology, it has been posited that the 'banjo' form may have been for aggregation for performance of a particular ritual function and the hint that they may be located between main concentrations of settlement gives rise to the suspicion that they had a role in hosting inter-community meeting and decision-making events (pp. 726-727).

100 BC - AD 43

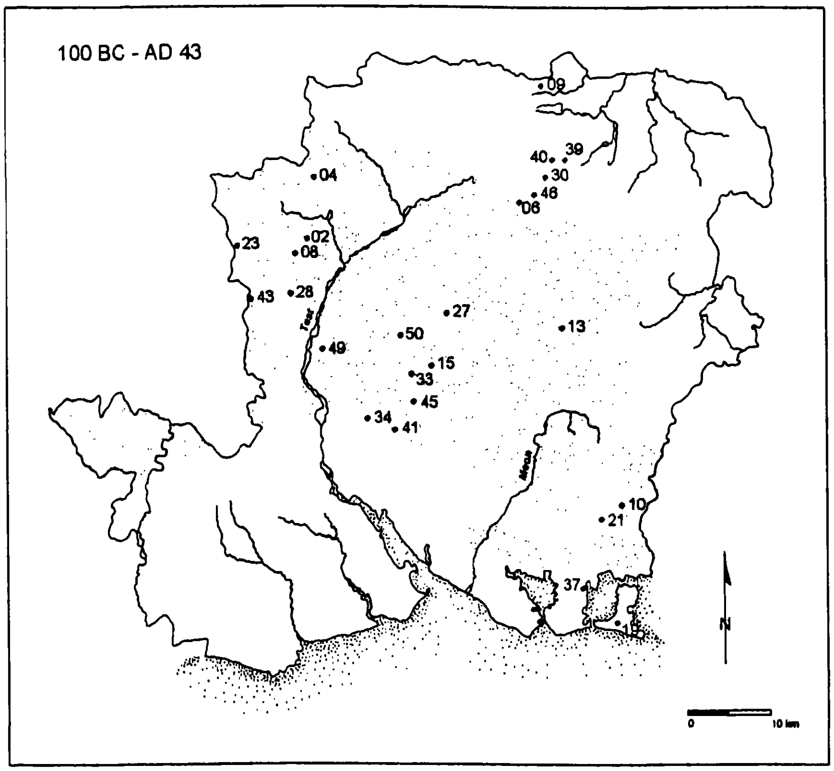


Figure 9.5 - Hampshire sites in the period 100 BC - AD 43

Legend

02: Balksbury
04: Blagden Copse
06: Brighton Hill B/C and K
08: Bury Hill
09: Calleva
10: Chalton 15
13: Cowdery's Down
15: Easton Lane/Winnall Down
19: Hayling Island
21: Horndean
23: Lain's Farm
27: Micheldever Wood
28: Nettlebank Copse
30: Oakridge
33: Oram's Arbour
34: Owslebury
37: Portsdown III
39: Rooksdown
40: Ructstalls Hill
41: Silkstead, Winchester
43: Suddern Farm
45: Twyford Farm
46: Viables Farm
49: Woolbury
50: Worthy Down

The final period of the case study saw substantial changes in community life, as can be seen by abandonment of some long-standing sites and the building of new and different forms of site in new areas. In the north-east, the larger Winklebury F48 community settlement site was abandoned and a number of small sites may have been refurbished, (e.g. Brighton Hill B/C and K F06, Oakridge F30, Ructstalls Hill F40 and Viables Farm F46), after a considerable period of abandonment in some cases (e.g. Cowdery's Down F13, newly enclosed). Around the central area dense settlement of the large Oram's Arbour F33 enclosure ended, but settlement at a number of smaller sites continued and no new sites are known to have been built. The non-settlement enclosure on St. Catharine's Hill F42 was fiercely burned at c100 BC and it is thought possible that aggressive action caused the apparent depopulation (pp. 741-742). In the north-west, the large Danebury F14 community settlement was also abandoned, but the nearby Bury Hill F08 site, a stock-related aggregation point for centuries, was substantially refurbished and may have been permanently occupied in this period as were Suddern Farm F43 and, on a smaller scale, Woolbury F49. (pp. 742-743). Finally, in the north of the county, the comparatively massive community settlement at Calleva F09 was built *de novo* and is regarded as the most certain of the pre-Roman *oppida* sites mooted for this time. Interestingly, there is evidence for a range of small 'ritual' sites built in this period (especially Hayling Island F19 and Blagden Copse F04) but Suddern Farm F43 seems to have bucked the trend, as the quarry burial practice ceased (p. 727). The 'banjo' enclosure complex sites persisted and a new one was built at Nettlebank Copse F28.

Site distribution summary

The outline site distribution maps are shown in summary in figure 9.7, below. Over the millennium, fairly clear trends can be picked out of the distribution and details of sites, fully recorded in Appendix F - Hampshire Dataset and Appendix I - The GDM of Hampshire. In brief, from a baseline of idiosyncratic site form, but typified by communities which settled in small, open farmsteads amongst their fields (with an important exception at Easton Lane / Winnall Down F15 in the centre of the county), there was the development of a more widespread uniformity of morphology, characterised by enclosure of farmsteads in the 800 - 600 BC period. The north-west of the County was the locus for a phase of enclosure to demarcate hill tops which appear to have been junction points of linear ditches at this time (Danebury F14, Quarley F38 and Suddern Farm F43) and the east appears to have been largely depopulated until c600 BC at the earliest. From 600 - 400 BC, the number of small community settlement sites increased considerably, especially in the north-east, which was also the home of the new larger community settled in the Winklebury F48 enclosure. The pattern of a larger community settlement amongst a dense agglomeration of smaller sites was repeated in the north-west, where Danebury F14 was developed and settled, and in the following period (400 - 100 BC) in the centre, where Easton Lane / Winnall Down F15 was expanded and Oram's Arbour F33 built *de novo*. The 'nodal' pattern of hilltop enclosures in the west and north-west was developed on its periphery in the 600 - 400 BC period, with the addition of Bury Hill F08 and, perhaps in the centre, at the strategically placed St. Catharine's Hill F42. Again, in the 400 - 100 BC period it may have been extended by Woolbury F49. That period also signalled the development of 'banjo' enclosures (not in the east). The final period saw a transformation in settlement patterns following a clear hiatus at c100 BC, seen in the abandonment of the stronger 'hillforts' (especially St. Catharine's Hill F42 and Danebury F14), the dispersal or depopulation of the larger communities (at e.g. Winklebury F48 and Oram's Arbour F33), the refurbishment of erstwhile abandoned smaller community settlement sites (especially in the north-east but also, to a degree, in the west and north-west) and the development of the entirely new site at Calleva F09, in an area not traditionally a centre of settlement in the first millennium BC.

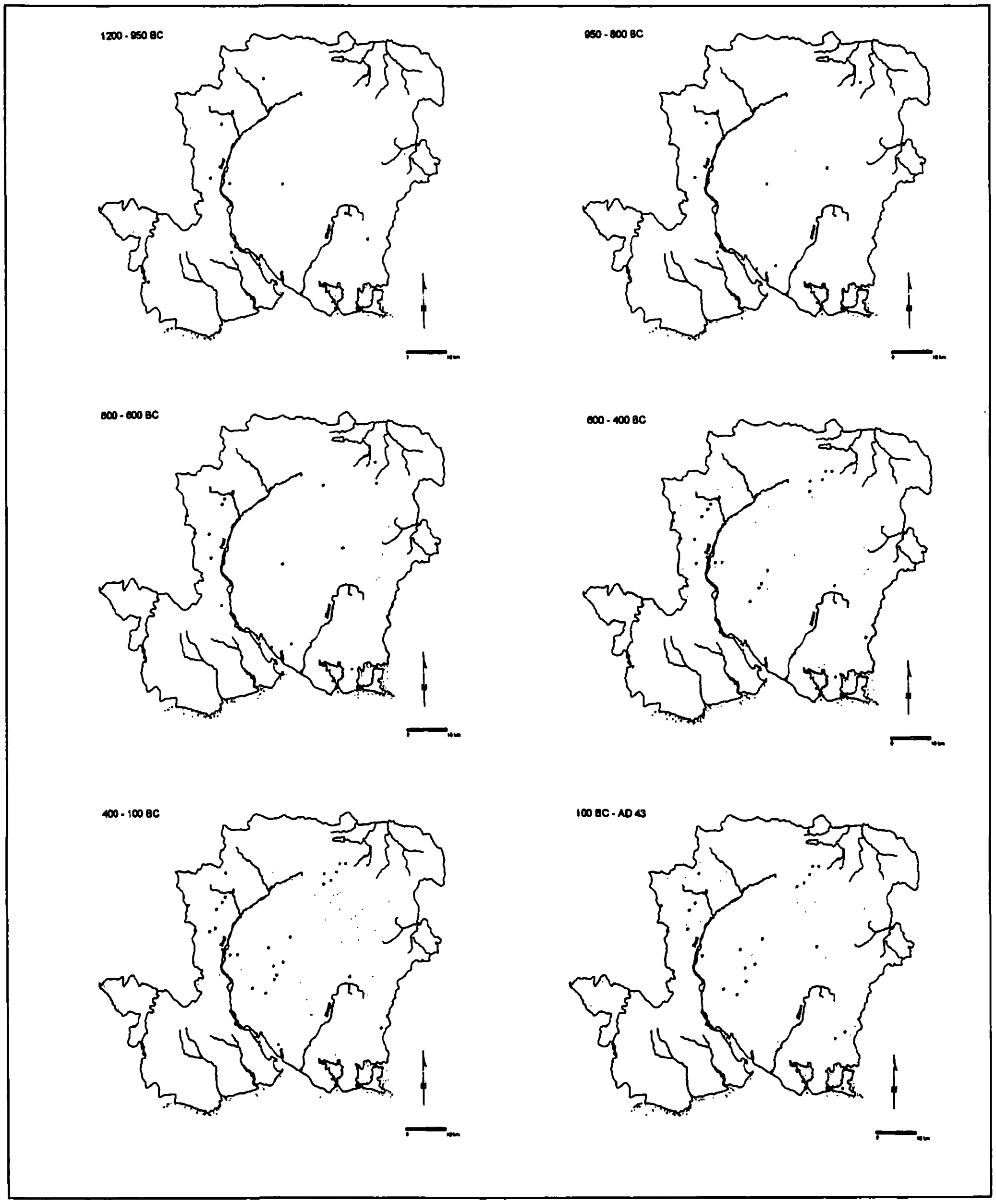


Figure 9.6 - Hampshire site distribution through the first millennium BC

The GDM analysis results

In contrast to the clear change in the Sussex GDM, which moved from a predominantly individualistic worldview to a dominant hierarchism from c750 BC, the Hampshire picture reveals a story of a more oscillating change over time:

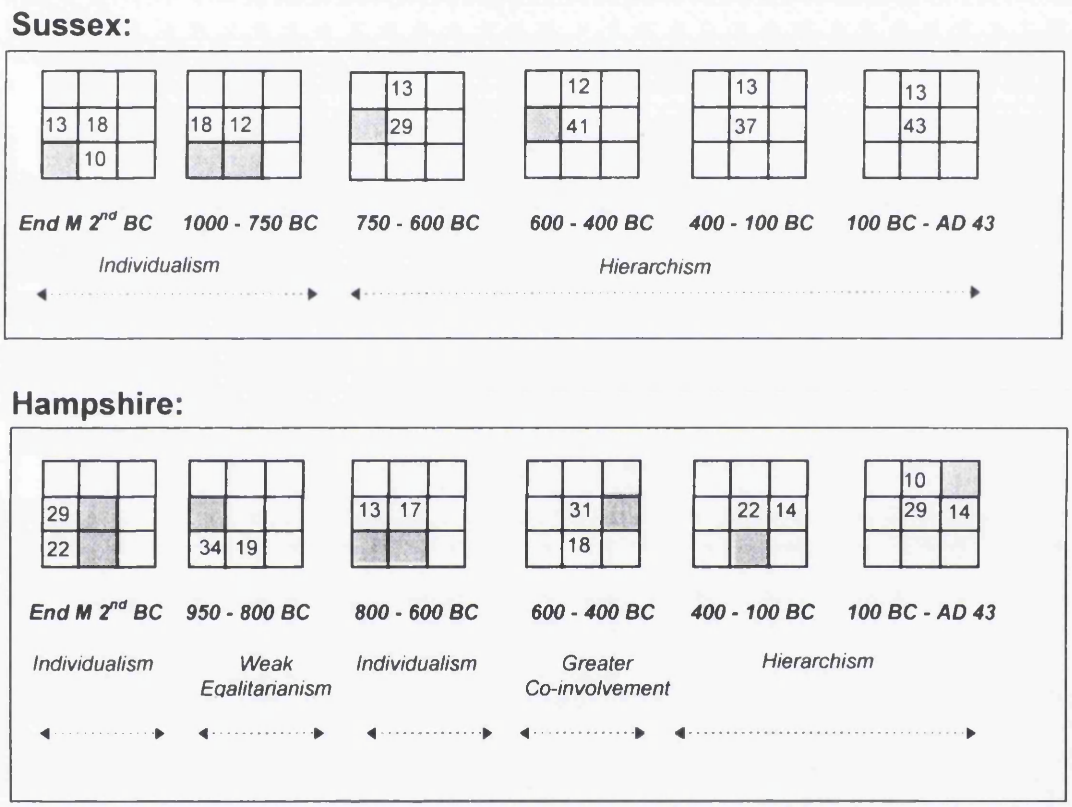


Figure 9.7 - The GDM of first millennium BC Hampshire compared with Sussex

The early, opportunistic individualism was countered by an assertion of equal-outcome egalitarianism in the context of a slight up-density development in the c950 - 800 BC period; that was evidently ineffective long-term as is seen in the prevalence of *differential* centrality again by the c800 - 600 BC. However, that period also saw the beginning of an up-density trend which continued until at least c100 BC, and possibly to the end of the millennium, whilst sustaining a degree of centrality which was no stronger than *differential* until c100 BC onward. After a swing back in the direction of a more egalitarian ethos in the context of greater network density in the c600 - 400 BC period, a minimum of a *differential* degree of centrality within a further increasing network density heralds a group-serving hierarchism from 400 BC - AD 43.

Those developments are reviewed in turn by a brief summary of the key analysis indicators for the GDM position and an exposition of the normative group dynamics which ensue. Where the Hampshire picture has a corollary in Sussex, the normative group dynamics are discussed by reference to the arguments developed in Chapter Eight (Normative Group Dynamics of Sussex) but where it does not (especially *egalitarianism*) they are developed in full in this chapter.

Opportunistic individualism from end M 2nd - 950 BC

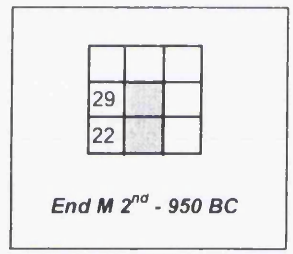


Figure 9.8 - The GDM from end M 2nd - 950 BC

The GDM for the last centuries of the second millennium BC in Hampshire bears a marked similarity to that of Sussex in that the social structure provided the clear potential for 'selfish' individualists to actualise inherent inter-personal differences, with even less to counter them in Hampshire as the network density falls more firmly in the *circumstantial* range.

Review of the GDM analysis

The few sites dated to this period show a patterning in morphology by location. In the east and south of the county small, open communities of just one or two domestic-units associated with localised small field systems are typical. However, Easton Lane / Winnall Down F15 in the centre is a group of domestic-units within an area bounded by a linear ditch system, and sites in the north and the north-west comprise enclosures which appear neither to be associated with settled communities nor with linear ditch systems. The north-west of the county abuts the Salisbury Plain area of north-east Wiltshire, which was the subject of a detailed study (pp. 745-782; Bradley et al, 1994), revealing that the land was widely and systematically parcelled by linear ditch systems, many of which may not have been constructed until the following period (below). The integrated system was based on lines demarcated by burial monuments and natural landmarks which were extant in this period, suggesting continuity of understanding of territorial boundaries (Bradley et al, 1994, 137-142; p. 748). Communities settled in single-domestic-unit open sites set in areas of land demarcated by linear ditches, and they also occurred outside the annexed areas (Bradley et al, 1994, 137-142; pp. 745-747). Given that the sites were very small and rather uniquely preserved by virtue of the land-use history of Salisbury Plain, it is likely that the (undated) linear ditch systems of north-west Hampshire were similarly early and associated with settlement scatters not uncovered for inclusion in the dataset. That would explain the apparent absence of community settlement sites in an area which does include stock enclosures. Overall, all sites except Easton Lane / Winnall Down F15 suggest a *circumstantial* density network of small, self-sufficient communities fairly unconcerned about protection of people or resources and satisfactorily provisioned by their own efforts.

The Easton Lane / Winnall Down F15 settlement housed a larger community of multiple social-units and its full extent has not been recovered archaeologically. Not only is that site central in the modern county of Hampshire, but it is also situated in such a way that it has been considered central to channels of resource movement (whatever these resources may have been) and thus to wider society at this time (Fasham et al, 1989, 147; p. 735). Nevertheless, there is no reason to suppose that it was in any sense a regular meeting point for the population at this time as the site morphology appears to be simply a multiple of smaller open settlements and, if it were not for the hint that it represents a controlling point or a 'border' between commonties, it may not have been as exceptional as it first appears, as it is possible that other, apparently smaller, sites extend past the areas excavated (e.g. Neal, 1980, 98; Table I.6).

No formally defined public space is indicated at this time, although later construction in areas showing substantial evidence for visitation in this period suggest that 'special places' may have been venues for occasional social interaction incidents which would be essential for maintaining an adequate personal network in this widespread group (e.g. Beacon Hill F03). To summarise, the social network which included commontants of the Hampshire area and into north-east Wiltshire (at least) is typically seen through indicators of *circumstantial* density in this dataset, with some latitude for apparent exceptions.

The lines of evidence which contribute to centrality analysis may have an inherent tendency to understate the case when the results are negative findings in this dataset. This occurs frequently, especially as the subsequent history of land-use in the main areas of settlement concentration in Hampshire has had a widespread tendency to destroy almost all evidence of artefactual assemblages. For example, specialisation (at various levels) is an important issue and none is detected at this time, but that is an explicit finding only in the case of ceramic evidence which is clearly locally produced (p. 772). Not only do the circumstances of later use of the sites tend to prevent useful recovery of artefacts for analysis but also specialisation may have been evident in materials or roles which have left no archaeological trace. In particular, findings for status symbols, weights and measures and the mortuary practice lines of evidence are all *null* (pp. 771, 774). Of especial importance could be the absence of any positive evidence for storage (i.e. few pits and/or above-ground storage structures) which could suggest that all storage was within roundhouses, and therefore private, to a degree which would weakly indicate *differential* centrality. That weak assumption has not been made in GDM analysis yet it would tend to widen the narrow difference between *equal* and *differential* if it had. The Easton Lane / Winnall Down F15 site seems exceptional, but there has been a fairly strong dependence on its contribution to centrality analysis to discern *differential* centrality in residential architecture and some inter-domestic-unit concern for privacy (designated *weak*) (pp. 764-767). Nevertheless, there was no apparent concern to bound communities in such a way as to limit access at this site or any other.

The normative group dynamics

The combination of network density in the *circumstantial* density range and centrality tending toward a weak *differential* suggests a dominantly individualistic population, as does the Sussex evidence for this period (above). Recapping on the normative group dynamics as argued for Sussex (pp. 227-236), the perceived value of membership would be fairly low, and the choice base that of self-serving subjective rationality, articulated through a society of self-sufficient individuals who did not tend to look toward specialisation to gain an advantage. Competition may have been geared toward building holdings of valued property, although it is rather less clear what those may have been in Hampshire than it is in Sussex. As with Sussex though, animals are a strong possibility, especially in the centre and the north-west into Wiltshire, where the markers of territory acting as precursors to the linear ditch systems are observed. Almost certainly, competition was articulated through physical prowess and social skills, and may have been through hospitality which could have been offered at special places (e.g. Beacon Hill F03 and other, archaeologically invisible, sites) as well as proffered by personal hosting and generosity. Representation by democratic authority probably gave rise to opportunities for actualisation of inter-individual differential talents by filling roles of legitimate authority, but those positions would not have been inherited. Others may have included the formal, institutionalised functions of policing, ensuring conformance and justice systems fulfilled by collective action. It is possible that the Easton Lane / Winnall Down F15 community did hold an especially privileged position within the network as a whole, although the basis of that is a little uncertain with only vaguely defined possibilities posited, including control of access into the interior of the county from the coast (and perhaps the east) arising because of its favourable position in the landscape (Fasham et al, 1989, 147).

To summarise, the individual's experience was framed by the normative group dynamic of an *individualistic* worldview as argued for the earliest centuries in the Sussex study (pp. 227-236, 256).

150 years of egalitarian ethos (950 - 800 BC)

The key change in this period is the down-centrality development to *equal* centrality and that is complemented by a slight up-density development.

34	19	

950 - 800 BC

Figure 9.9 - The GDM from c950 - 800 BC

The dissolution of centrality is seen in two areas. Firstly, the earlier disparity in community settlement sites (analysed in the 'community site patterns' line of evidence (pp. 734-736)) disappeared as the Easton Lane / Winnall Down F15 community contracted and was balanced by new multi-domestic-unit sites elsewhere in this period. Secondly, the intra-community domestic wealth disparity observed earlier evened up as is seen most clearly at the Easton Lane / Winnall Down F15 site, again (pp. 764-765). All other lines of evidence remain *equal* as no specialisation is detectable at any level of analysis and there is no inter-community investment in aggregation sites (pp. 719, 723, 743), with the exception of the analysis of the degree of boundedness which remains at *differential*, on the strength of the nature of the roundhouse, and the inherent secrecy offered by the porch, seen at all sites except Grange Road F18 (where that absence is counterbalanced by the orientation of roundhouses which face away from each other) (pp. 766-767). The slight up-density development is predicated on just one line of evidence in that the examination of the distribution of ceramics style shows that a regional area of fineware developed, coinciding with a wholly new range of vessel sizes, suggesting that a cultural corollary associated with the change (e.g. new dining behaviours) was held in common (Woodward, 1995, 199-201; pp. 728-729).

The egalitarian ethos suggested by *equal* centrality requires that there is not only equal opportunity for all but also equal outcome (p. 211). Viewing nature as ephemeral engenders a personal expectation that one cannot expect to prosper and that, in the long run, ways of life which are based on competition rather than co-operation will surely fail (p. 221; Thompson et al, 1990, 26-27). That can arise either from a perception that the outcome for the group is more important than one's own ambition (which would normally be associated with a higher network density than this) or from a feeling akin to fatalism, whereby one feels dis-empowered to succeed personally or, indeed, to have any influence on 'fate' (p. 222). Thus, the idea of equality of outcome can be re-framed to see that it requires either tacit agreement to self-restraint for the perceived good of all or, alternatively, the absence of any opportunity to gain personal advantage. In a social network with density as low as this, there may be an element of both, if equality is to be maintained. Both are examined here, following the group dynamic predictions of Chapter Seven (Normative Group Dynamics), in the same way as for the Sussex analysis (Chapter Eight, above), which did not uncover any example of egalitarianism.

Equality is always difficult to assert from archaeological data, in that it can be argued that any new find could be evidence of the differentials which had not been discovered previously. In that sense, it is more akin to a negative conclusion (absence of any evidence for an unequal life) than a positive. All the lines of evidence which are construed as tending to argue for that equality have contributed to the GDM analysis. Thus, *egalitarianism* as a normative group dynamic represents a second stage of inference which <u>cannot</u> be supported further by the archaeological data, unlike the other dispositions discussed in this work.

Value of membership

The individual is likely to have been fairly uncommitted to the wider network, perceiving value of membership more in terms of the value of belonging to the social-unit of the home community (as earlier). In particular localities (especially the centre and north-west) that membership may have been made explicit at the point of time when the partitioning of land by linear ditches was agreed, and possibly co-operative effort was involved in building the system. At that point, a personal view of mutual commitment is likely to have extended to include geographically-near neighbours. Once an idea of one's rights in the localised network was overtly revitalised in this way, and imbued with an egalitarian ethos, then it would have been a small matter to persuade oneself that it would be safer to be a part of the group, and participate in the costs and benefits that accrue from the agreed way of life, than to venture out into the (perceptually dangerous) unknown (p. 221), with the effect that *'schismatic tendencies'* may be dampened (Thompson et al, 1990, 63). In the north-east the excavated evidence is more for a continuation of maintenance of territorial limits by reference to the past (e.g. Cowdery's Down F13 on the site of early Bronze Age ring barrows).

Doubtless, movements of people from a home base of one community to another (e.g. to live with mating partners) will have maintained relationships over a wider area, as articulated in the archaeological record in the style of ceramics outlining a geographically-limited area of distribution and understanding of commonty. At first glance, the territorial and style developments could be interpreted as an argument for the new settlement of 'pioneers' in the earlier period, continuing into this. However, it can be equally well understood as resulting from inception of sedentism in those areas with a longer tradition of territorial understanding of the landscape (i.e. in the centre, the north-west and the north-east at a minimum). Overall, it was probably a mix, with the east and its hinterland representing incomers to hitherto unclaimed territory. Sedentism tends to raise the individual's perception of the cost of leaving which may account for the slight up-density development.

Choice base

Network density is not great, and thus equal outcome is more likely to be established and maintained by selfishly-rational agreement to contribute and benefit equally with all others than by reference to social norms, in the early days at least (p. 205). *Equal* centrality in the absence of any strongly-felt group loyalty may have been predicated upon a belief that equality was the best way to manage a particular situation. Once the process has started, it has every chance of continuing, in so far as the complicit group is self-defined and self-maintained with the concomitant effect of creating a sharp division between insiders and outsiders. Those who do not subscribe to the ethos may be swiftly identified and defined as *'enemies of the group'* (Thompson et al, 1990, 60). Nevertheless, at a low network density it seems likely that the self-identifying complicit group will have been numerous and widely spread, and that suggests the possibility that there were openings for some members to get away with defaulting on their obligations, with personal benefit. Yet equality was maintained for some six generations, so the possibility that opportunities simply did not present themselves must also be considered. The egalitarian ethic has some elasticity which can allow a degree of variation without tacitly acknowledging it. If inter-individual differences are considered illegitimate, the question may be less one of differences in access to resources and more one of whether those differences are viewed as right or wrong, natural or unnatural (Thompson et al, 1990, 61). Thus, it is quite possible that a certain latitude was accorded individuals on the basis of age or gender, or holdings of culturally less-valued resources. However, allowing or encouraging abundance (whether individually or communally held) makes it more difficult to maintain equality (Thompson et al, 1990, 61) thus limiting the potential for actualisation of personal ambition. If sharing was the norm, then the potential personal advantage would be entirely dissipated, in that not only would the superior holding not be held to personal account but also the demonstration of personal ability and acquisitiveness would deviate from the group belief that abundance is undesirable, thus inviting social opprobrium. As a result, what may appear to be alternatives at first glance prove, on closer inspection, to be two faces of the same coin.

It is illuminating to examine the negative here, which is to consider how each field of endeavour, identified as being a possibility for building differential capital in the earlier individualistic society (above), could have been suppressed in this.

Valued property

Artefacts

As in the earlier period, no evidence for especially valued artefacts has been found in the record. However, access to resources and land holdings may also be assumed to be less amenable to cultural evaluation as capital. So, for example, land holdings as defined by linear ditches were probably equally allocated, perhaps only large enough to satisfy the needs of the community and certainly not exaggerated or emphasised in any degree greater than deemed functionally essential.

Animals

There is every possibility of differentials in the size of community holdings yet they appear broadly similar (e.g. as shown in figure I.8 - the 'Salisbury Plain Study Area') and it seems likely that there would have been sharing of surplus production and risk. However, the very presence of the linear ditch systems suggests that herds were not merged in order to share fully. Bradley, Entwistle and Raymond (1994, 141) contend that *'the function of the earthworks* [i.e. linear ditches] *remains elusive but we can no longer regard them as a device solely for the management of livestock, made necessary by a greater emphasis on pastoral resources'*, and argue that their morphology is such that they would neither have served to provide a physical barrier to the movement of people nor as a barrier to cultural interaction. However, it is possible that they have missed the potential for effective protection of the agricultural resources contained against the possible threat of large-scale theft, in that herd-driving would be barred, as would the passage of cartage on a scale great enough to effect the removal of large quantities of arable produce. Furthermore, livestock may have been contained effectively enough to prevent unintended herd-mixing and breeding. Given that extensive tracts of potentially productive land remained unsettled, there is little reason to suppose that population pressure on resources motivated the demarcation of allotments (Bradley et al, 1994, 142). Thus, there is no need for the pessimistic view that the function is incapable of interpretation (above), as suggestions of scenarios that do fit the facts can be made. Notwithstanding the original purpose of bounding tracts of land by linear ditches, as a method of formalising existing territorial distinctions, the definition of those boundaries by marked features impeding normal progress across the land would almost certainly have had a significant impact on the cultural perception of boundary, ownership and social identity over time.

People

As in the earlier period, there is no evidence for enslavement. However, in this it would be very unlikely as an egalitarian ethos would clearly rate people as nominally equal and that is quite at odds with any form of slavery.

Physical prowess and social skills

Making equal outcome felt in a fairly low density network requires some conscious decision-making on what the norms are to be, complemented by a strong sanctioning mechanism to ensure that those of another persuasion are kept in check. Thus, whilst the agreed beliefs and values probably supported an egalitarian ethic, the practice may have had to be consciously controlled by the group as a whole.

The attitude that time is in short supply is likely to have persisted, and an ethos based upon equal contribution grown from one of self-sufficiency is likely to continue favouring youth and active contribution over age and incapacity. However, it is quite possible that formal roles requiring less physical input were filled by those who were unable to make an equal contribution to the labour involved in making a living. Thus, incapacity to perform due to old age or infirmity may not have been the stigma that it was in the earlier period, although the posited discomfort in the face of physical or mental infirmity in the young probably would have continued with this shift in dynamic. Interestingly, Douglas (1978, 28-29) posits that old age is a convenient principle for settling dilemmas about precedence in a strongly egalitarian society, becoming a source of status in itself, and this study provides a possible explanation of how that could develop from a lower density network structure. Douglas (1978, 30-32) also suggests that in a strongly egalitarian society, sickness and infirmity provide an exploitable opportunity to organise group solidarity, giving opportunity to muster support for the afflicted and a peg for censuring those who fail to offer sympathy and help. Although the network as observed does not exhibit strong density, the small but dense communities could muster support on a practical level, if they felt so inclined, as surplus (whether labour or produce) was stored locally.

The 'selfish' self is not overtly to the fore, although the fairly low density suggests that the distinction between self and other would retain importance, with the theoretical result that a genealogical emphasis on presenting one's credentials would have been less important than before. It takes time to mythologise history and habit and whilst there may have been some room for developing and sustaining an 'origin myth', it is likely to have had a perceptible historical base in this short period. In an egalitarian cultural environment, which prizes self-controlled equal contribution, impressing others with one's physical attributes will not be as effective as stressing one's own active part (and that of one's ancestors) in that history. Thus competition, in the area of physical prowess, is likely to have eased. Turning to the ideas of the future, the slight up-density development would lengthen the 'shadow of the future' with the effect of lengthening the individual's perception of her/his place in the world, as there is a sense in which investment in relationships can be seen as having cultural, as well as biological, inheritance potential, and it is possible that indebtedness positions were carried forward to younger generations following an individual's biological death.

It has been argued that self-sufficiency as a principle for subsistence may have extended to the wider local community (the 'local group') as the production unit, rather than the domestic-unit. In this way, effort could be reduced to some degree as surplus could be produced and calculated for the group as a whole. However, there was still no permanent storage on a large scale at this time and thus a network of relationships for risk pooling is likely, and they may have been negotiated at inter-local-group rather than inter-domestic-unit (community) level. Whilst inter-community aggregation for feasting can provide a levelling mechanism when it comes to surplus distribution, the posited tradition of feasts as an opportunity to build personal social capital, by generosity and social skills, suggests that they cannot have continued in the same way into this period. If domestic-units combined into small local groups then it is probable that they provided a joint presence and joint contribution to local feasts, with the result that personal contributions to those events would have been anonymised. Taken together with the posited escalation of negotiation relationship to the community level, the opportunities for personal shows of superior talent in valued skills would be diminished. Furthermore, if representation was at community level (see below) then there may have been limited attendance at aggregations, with the result that the personal opportunity for gain was reduced yet further.

Hospitality

As discussed above, it is probable that inter-community as well as intra-community differentials in contribution would be made anonymous and dampened by a system of agreed contribution.

Roles of representation

The individual is drawn into feeling part of a collective greater than her/his own domestic-unit and may be motivated to take a fair turn at local responsibilities in return for the input of others to the same tasks. Those may include, for example, keeping watch, reporting suspicious movements and contributing to sanctions against offenders *inter alia*. Thus, an individual could adopt several roles of practice in society, such as 'representative', 'contributor', 'scout', 'detective' and 'punisher' *inter alia*, as well as those of gender, age, relatedness and genealogical connection. However, it is unlikely that any role was able to confer superior status on any individual for any length of time and it would seem that social opprobrium, randomising and anonymising practices would be needed to suppress realisation of latent social capital based on those roles. It is difficult to see how that could have been maintained at low network density, even over this comparatively short length of time, given continuity from the previous period and the cultural history of communal meetings and commonty valuing these kinds of skills in the recent past. However, it is possible that, in the light of the posited collective action (above), there was representation to some degree at some of those meetings, which in turn allows room for some annexation of roles by erstwhile culturally 'extraneous' commontants (e.g. the elderly). This would certainly have been a way to redress the balance of superior skill and talent in those wishing to build personal reputations, and that would have an equalising effect for the 'more privileged', in that those positions of legitimate authority would be open to all (should they reach sufficient age) and unlikely to last long, as tenure will, inevitably, be terminated by death. Nevertheless meetings may still have been informally structured and, with the archaeologist's benefit of hindsight, by looking ahead to the next period when clear network centrality becomes apparent, it is possible to surmise that measures for maintenance of equality may have been weak and rather ineffectual.

Reasons for conformance

Ensuring equal contribution in an environment where people are rationally choosing whether to conform or not on a 'selfish' basis requires that there is considerable benefit to the individual in contributing a fair share to the common pool of resource. That benefit can be seen both as positive advantages (e.g. economies of scale; spreading of risk) and in avoiding the high cost of failing to conform. That cost can be raised by collective action on the part of all to monitor individual input and to detect and punish defaulters. That is likely to engender a permanent climate of suspicion, paralleled by the view of the natural way of the world as ephemeral, terrifying and unforgiving where the least mistake, or step out of line, may cause disaster (Thompson et al, 1990, 26-27). Nervous anxiety and suspicion may become manifest in searches for contamination from '*secret enemies within the group*' and ideas of witchcraft and polluters, when seeking blame apportionment and redress for problems and shortfalls which occur (Thompson et al, 1990, 60).

Expulsion from the community and the concomitant loss of accrued rights may have been sufficient punishment for offenders at low network density when leaving to join another group remained a ready option at all times. However, the foregrounding of a concept of insiders and outsiders in the climate of egalitarian ethos may have been sufficient over time to become something of a social norm. A hardening of attitudes to punishment of those who 'harm' the group may have become acceptable, so that physically painful punishment could be justified, and similarly resource-levelling mechanisms may incite idealistic and stern judgements on those who purloin resources for private enjoyment (Douglas, 1978, 35-36).

Collective action

As in the previous period, collective action was likely, but it almost certainly prescribed the individual contribution and required the participation of all who were deemed eligible for a task (culturally speaking), with a resultant emphasis on turn-taking as opposed to vestment of legitimate authority in particular individuals.

Dynamism

Children probably continued to learn within the domestic-unit but, as network density grew, it is likely that they became exposed to the experience of the wider community which would, necessarily, become gradually more homogeneous, and thus the learning experience would have become less the trial and error of self-expression and more the indoctrination of skills, beliefs and values, by rote and by limited experience. If inter-community 'business' was conducted by representation to any degree (as posited above) then the child's exposure to a variety of experience would have been comparatively limited, with an accelerating effect on the development of less-inventive social norms, over time, as a basis for decision-making. Furthermore there is just a hint that there may have been a division of labour within the community or domestic-unit (above), which would have further reduced the child's personal range of skills, although the level of skill for a particular task could increase.

Autonomy

Personal autonomy may not have been high, in that equal outcome requires conformance to one's role within a prescribed set of rules, but personal contribution to the decision-making process would have balanced that, as all decisions require democratic input and must be fully auditable.

Return of individualism (800 - 600 BC)

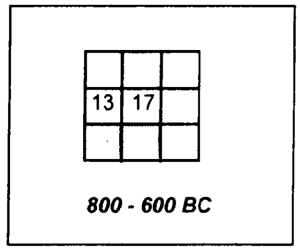


Figure 9.10 - The GDM from c800 - 600 BC

In this period it appears that society ceded to the inherent selfish 'pull' to maximisation of personal centrality within the commonty's social network, returning to a dominantly individualistic worldview after six generations of suppression of inter-individual difference, but articulated through a network organised on new lines a little up-density to earlier times.

The up-density development disguises a number of contradicting lines of evidence. This period saw the first of the large-scale investments in prominently located enclosures interpreted as inter-community aggregation facility sites at Balksbury F03, Danebury F14, Suddern Farm F43 and, probably, Quarley Hill F38 (pp. 723-724), which are all in the north-west of the county, and part of a phenomenon which certainly occurred in the east and north-east of Wiltshire, in Dorset and in Berkshire, and which is suspected in unexcavated Hampshire sites in the north (e.g. Ladle Hill - unfinished) and the west (e.g. Whitsbury) (Bradley et al, 1994, 143-144, 146-147; p. 750). Inter-community investment in monumental architecture on this scale suggests an up-density development to *contingent* (from the earlier *circumstantial*) at least. Furthermore, the spread of the early All Cannings Cross ceramic style is wider and more consistent than any earlier, connecting the Hampshire sites to a wider sphere. That wider community inclusion in one style is interpreted as an emblemic signal of a degree great enough to indicate an increase in network density (p. 729). The down-density indications are much slighter and difficult to interpret with confidence, with the net result of the up-density development suggested by the final GDM (above). Most importantly, the previous linear ditch systems can be seen to have been abandoned in parts, and a new concept of managing division of the landscape and relationships between neighbours is hinted at in the placement of the enclosures at nodal points of the integrated ditch system (Bradley et al, 1994, 144) seen in the Hampshire dataset at Suddern Farm F43, Danebury F14 and Quarley Hill F38 (pp. 750-751). By itself, that could be seen as an up-density development, if Bradley et al's (1994, 144) interpretation of this as a concern for regional visibility is correct, but in Hampshire it is balanced overall by the reduction in the size of community settlement sites to single-domestic-units in the main, some of which are clearly bounded by enclosure (Old Down Farm F32 and Easton Lane / Winnall Down F15). This is interpreted as representing the self-sufficiency and maximal spacing which suggests low density network (with exceptions at Cowdery's Down F13 and Easton Lane / Winnall Down F15 to 700 BC) (pp. 750-751, table I.6). The whole posits that the single GDM result is masking a period of transition with varying trajectories by times, place and degree across Hampshire, but which cannot be more closely tracked than the 200 year period which chronological resolution allows. The net result can be seen with the benefit of hindsight in that *contingent* network density was firmly established by the following period (below).

The up-centrality development is much clearer and is most obviously seen in the prominent enclosures. The two largest (Danebury F14 'outer' phase and Balksbury F03) could have housed large numbers of people, yet they both included an inner, second layer of privacy seen in an exceptionally large roundhouse at Balksbury F03 and an inner stockade at Danebury F14 (pp. 723-724; 743-744). Although the details of the Danebury F14 outer phase are not well known, it is clear that Balksbury F03's superstructure was far more substantial than would have been necessary if it had just been intended to manage stock That may have been to compensate for its lack of prominence in terms of siting but, nevertheless, shows a concern for advertisement of the site, underlining the difference between insiders and outsiders, as well as ensuring that internal activity was private from the perspective of an outsider (pp. 723-724). Both are interpreted as sites for meeting between members of a restricted sector of society for purposes that may have related to stock (pp. 743-744). The second up-centrality signal is from an entirely different quarter, namely a degree of specialisation evident for the first time in this dataset, and manifest in the small quantities and wide distribution of the technically competent and distinctively-styled red-haematite-coated fineware ceramics. Argued as representing specialist production, the skill is likely to have been vested in individuals rather than specialised communities, and there appears to be no annexation of distribution control by any known site (Morris, 1994a, 376-377; p. 772). The third up-centrality change is technically a negative, as the observed lack of differentials in domestic wealth in the earlier period (above) could not be tracked in this, as by unfortunate coincidence, almost all sites as they have been excavated detail only one roundhouse at one time, thus preventing intra-community comparison and rendering the result *null* (pp. 758-759). However an argument, thought to be too tenuous to have been included in GDM analysis, could be made for differentials in domestic wealth between the single-domestic-unit settlements which were enclosed in this period and those which were not. If that had been used it would have been interpreted as suggesting an up-centrality development and that provides a comfort factor for the net up-centrality effect of a *null* attribution.

Overall, there are clear openings in the social environment for individuals to gain differential social capital in this period but, in contrast to the individualism of the period at the end of the second millennium to c950 BC (above), it seems likely that those differentials were articulated through membership of rarefied social sectors and representation of the community at meetings of those sectors, because that *differential* centrality was in the context of a more dense social network and meetings were located at probable junctions of territorial (perhaps commontant) divisions in some cases. The medium through which social standing was articulated may have been specialism(s) of some kind (perhaps stock) and/or positions of legitimate authority in negotiating and maintaining relationships and in the decision-making process. In all respects, the cultural environment framing the individual's perception can be described as that for the period from the end of the second millennium to c950 BC (above), but the slant on the information provided by the archaeological record for this period is useful for analysis of change both in terms of developments from the egalitarian phase (950 - 800 BC) and in providing the context for understanding the up-density developments of the remainder of the millennium.

A stronger co-involvement in 600 - 400 BC

	31	
	18	

600 - 400 BC

Figure 9.11 - The GDM from c 600 - 400 BC

In the 600 - 400 BC period, the oscillation between prevalence of a self-serving individualism and egalitarian self-restraint echoed back toward the suppression of inter-individual difference in the context of an increased network density, which makes the more natural 'home' of effective egalitarianism. Yet it was a lesser echo than that of the earlier period and did not ultimately result in full-blown collectivism in which the individual is wholly subsumed by the group.

The up-density developments are marked and manifest in changes to the overall pattern of settlement in the study area. Not only did the earlier trend of building enclosures on nodal points in the landscape of linear ditches continue (e.g. at Woolbury F49 and Bury Hill F08) but also some of the earlier enclosures were refurbished, elaborated and enhanced (e.g. Danebury F14 and Quarley Hill F38), earlier territorial markers were 'renewed' or 'revitalised' by new deposits (e.g. horse skull deposit at Sidbury Hill in north-east Wiltshire) and some of the linear ditches were recut (e.g. Devil's Ditch in north-east Wiltshire). The whole suggests a pattern (in the north-west of the county, at least) of prominent enclosures occupying valleys and coombes associated with main rivers, being placed on the edges and overlooking them (Bradley et al, 1994, 147; Cunliffe, 1991a, fig. 14.26; pp. 751-752). There is a sense in which this indicates wider-scale agreement of territories and boundaries than heretofore, integrated into larger units of area with a hint of inter-territory relationships of responsibility, which is interpreted as an up-density development (pp. 751-753). Furthermore, that development is echoed in the phenomenon of much larger community settlement sites (in terms of resident numbers) (e.g. Danebury F14 was settled at this time and the large Winklebury F48 settlement site was built) and those show signs of overall organisation of the resident population in a relatively unbounded form, seen in zoning and layout planning (pp. 768-769), and includes provision for within-community public spaces for the first time in this dataset, as seen at Easton Lane / Winnall Down F15, Danebury F14 and Winklebury F48) (pp. 755-756). The spatial arrangements within the larger communities tended to avoid maximal spacing on the whole, although some sites exhibit clumping of domestic-units into social-units, interpreted as an up-density development to *strong contingent* or, perhaps, *weak corporate* levels (p. 762). The level of investment seen in monumental architecture for between-community facilities remained at levels roughly the same as the previous period, but there was still none in the north-east of the county at this time, so the attribution remains at *contingent* density for this line of evidence (pp. 756-757).

Centrality decreased overall in this period but the result masks a number of up- and down-centrality factors. The change in community site patterns outlined above represents something of an up-centrality development, in that it can be seen as the heterotaxic pattern of large sites and smaller satellites of *differential* centrality. This is emphatically not an hierarchic pattern, as there is absolutely no evidence of differential status or specialised site function, but differentials in community size inherently result in inter-individual differences in access to social network resources (pp. 737-738). Larger communities mean that it has been possible to analyse intra-community lines of evidence in this period, where they were *null* in the previous (i.e. domestic wealth, storage and domestic-/social-unit specialisation), but the results spread over the *differential* and *equal* centrality bands in a proportion similar to other lines of evidence for centrality, suggesting little distortion (pp. 765-766, 768-771). Boundedness is slightly down-centrality, also, as the evidence shows rather less concern for domestic-unit boundedness than the earlier multi-domestic-unit sites, especially at Danebury F14 and Old Down Farm F32 (pp. 767-768).

In summary, network density clearly increased showing greater co-involvement of individuals and, through them communities in a settlement pattern which appears to suggest orchestrated agreement on how best to utilise, share and protect the land over large tracts of the county and beyond. Fresh agreement, or renewal and adjudication of earlier traditions of entitlement and practice, suggests co-operative relationships aiming at a broadly equal outcome. However, although centrality appears to have decreased to a considerable extent in this period, society did not return to the full egalitarianism of the earlier. This would seem to indicate that the new arrangements were made by common consent to representation, and that the legitimate authority vested in individuals became a form of weak hierarchism which was the base for the following up-centrality developments to the end of the millennium. In contrast to the earlier period, the signs are that concern for equal outcome was motivated by a belief that the best personal benefit would come from the best group outcome, without the undertone of a personally-felt 'helplessness' to affect the outcome suggested by the low network density of the earlier period. Equal outcome is not the dominant result in this period but the 'pull' is toward it, suggesting an idealistic desire for equality and against selfishness, but not an actualisation of equality for all. Membership was highly valued and decisions on who was entitled to that membership were made explicit again in this period by deliberate community planning and inter-community agreement of territory and relationships. The membership baseline was effectively consciously reassessed, just as it was in the earlier manifestation of egalitarianism, but communities were larger and probably more locally fulfilling with respect to personal network needs. Although it is mooted that conscious decisions were made in the early days (probably decisions made by subjectively selfish rational choice), the higher network density would allow a swift development of a 'reference set' of social norms, and in a short time they could be expected to frame perception in individual choice. As discussed for the previous period, there is room for some variation in individual access to resources and the formal group-serving roles, and cultural norms of differentials accorded individuals by virtue of their age and gender are likely to have continued. Formal agreement to community settlement layouts and inter-community aggregation arrangements would tend to dilute existing differentials at the point of action. Thus it amounts to a conscious contribution to a new social baseline, but in the context of accepted cultural practise. This would appear to be an example of the egalitarian ethos in spirit but not practice, formalising an hitherto accepted hierarchy in group-serving roles as the norm from which hierarchism will be seen to build in the remainder of the millennium.

Hierarchism develops from 400 BC onwards

From c400 BC the commontant network density increased yet further then remained fairly steady at that level through to AD 43. Centrality also became more marked and there is some registration of *insulated* centrality indications by c100 BC.

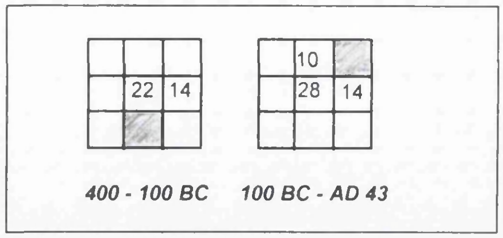


Figure 9.12 - The GDM from c 400 BC - AD 43

The 400 - 100 BC period is typified by a flurry of activity in large-scale enclosure building and refurbishing work, seen in the substantial construction episodes at Suddern Farm F43 and Quarley Hill F38 in the north-west, and centrally seen in enclosure of the St. Catharine's Hill F42 hilltop overlooking the Itchen (to the east) and the massive enclosed community settlement site at Oram's Arbour F33 on the west bank of the Itchen. The effort involved and the sheer size of some of these sites justify an increase in the network density, suggested by monumental architecture, to a possibility of *corporate* as well as *contingent* (from *contingent* alone) (p. 757). That impression is strengthened by the overall pattern of attention to territory and boundaries, some of which were renewed and others realigned, all in the context of clear use of natural divisions in the landscape to mark territory (Bradley et al, 1994, 147-148; 753-755). Furthermore, the population appears to have concentrated at four sites and their immediate environs, namely Danebury F14 and Winklebury F48 (both enclosures on high ground), Oram's Arbour F33 and Easton Lane / Winnall Down F15 (open again at this period but perhaps 'supernaturally' bounded, as indicated by human burials or bones in the linear ditches). That alone would suggest a continuation of at least a *contingent* degree of network density, but it has been posited that the poorly-understood 'banjo' enclosure complexes of this period may have acted as inter-community meeting points between major population centres (pp. 754, 726) and that tips the balance toward the comparatively strong possibility of *corporate* density. Finally, the study of the distribution of ceramic style suggests more homogeneity all over the study area (and beyond) in the St. Catharine's Hill - Worthy Down type developments (p. 730).

The years around 100 BC saw substantial change which may have been the result of a concerted period of negotiating new relationships and understandings of territory (possibly under duress). Rapid abandonment of some sites and facilities is indicated (e.g. the inter-community aggregation site at St. Catharine's Hill F42 severely burned; the particularly populous community settlement sites at Danebury F14, Winklebury F48 and probably Oram's Arbour F33 abandoned), and that is balanced by elaboration, refurbishment and settlement of some older non-settlement sites (e.g. Suddern Farm F43 and Bury Hill F08) and what appears to have been a flurry of developments of new, small community settlement sites (e.g. Little Somborne F24, Meon Hill F26, Twyford Down F45). Balancing all of these de-federation developments, the enormous new community settlement site at Calleva F09 was established and new, small, purpose-built ritual-associated sites appeared for the first time (i.e. those associated with 'banjo' enclosures and Hayling Island F19). It is most unfortunate that the details of these developments are not understood well enough at present to allow detailed GDM interpretation of territory and boundaries and intra-community comparative lines of evidence. Those have been accorded a *null* attribution and this has a net effect of a slight down-density change from the earlier period as they were previously overlapping into *corporate* density. In all other categories, the analysis remains broadly the same as for the c400 - 100 BC period.

Turning back to the c400 - 100 BC period to review centrality developments, in contrast to the concentrated building activity at some sites, others saw some neglect (e.g. Balksbury F02, Suddern Farm F43 for a while, Bury Hill F08) thus reducing the effectiveness of their boundaries in rendering internal activity exclusive and, indeed, some 'ritual' practice was within the full public gaze (e.g. the 'quarry cemetery' at Suddern Farm F43). That results in a slight down-centrality attribution for the whole study area - access line of evidence (albeit balanced out somewhat by the hidden, small 'banjo' enclosures) (p. 744). However, several other lines of evidence suggest an increase. Study of intra-community assemblages reveals differentials in residential architecture at the majority of multi-domestic-unit settlements (although not at Winklebury F48), resulting in a slight up-centrality attribution (p. 766). Similarly, analysis of storage patterns shows a general up-centrality trend although drawn from a variability in the evidence. Some sites have storage zones but they are freely accessible (e.g. Danebury F14 and Easton Lane / Winnall Down F15) whereas others have very weak differentials between storage per domestic-unit (e.g. Winklebury F48), and the inter-community aggregation of storage in quantity at prominent enclosures (e.g. Balksbury F02, St. Catharine's Hill F42 and Suddern Farm F43) strengthens the indication of communal control of stored produce (pp. 769-770). The presence of a weight standard over much of the county in this period further indicates the possibility of specialism, sharing and trading of produce and the centrality opportunities ensuing (p. 774). Finally, analysis of artefact assemblages shows that ceramic production (of the 'saucepan pot' continuum) is likely to have been specialised (Morris, 1994a, 379-381), and petrological and textural analysis suggests that standardisation is to such a degree as to suggest manufacture (Wandibba, 1980; Morris, 1994a, 379), yet no production sites have been found and production may yet have been the remit of individual specialists (Morris, 1994a, 379-381). The GDM implication is for a strengthened centrality to a level on the border between *differential* and *insulated* (pp. 772-773).

The further increase in centrality in the 100 BC - AD 43 period may be partly due to *null* results in fields of data which had been analysed in previous periods, but which are not available for contribution to understanding this. In particular, the coincidental lack of any excavated sites which allow detailed examination of intra-community assemblages means that domestic wealth, boundedness and storage comparisons cannot be made. As they provided lines of evidence spread between the *equal* and *differential* centrality ranges in the 400 - 100 BC period (pp. 766-770), making them *null* has a slight up-centrality effect. Nevertheless, there were a number of occurrences of especially-valued artefacts, (especially imports and maybe the products of the 'industry' at Oram's Arbour F33), and that observation could be used as circumstantial evidence for the slight up-centrality result arising from the *null* effect. Specialisation is clearly indicated in this period in a variety of ways, but the up-centrality effect is accorded a *weak* rating only as evidence is uncertain; Bury Hill F08 may have specialised in horse-related practise, Oram's Arbour F33 in 'industry' (details not published), coins were produced at Calleva F09 and their distribution and use may have been associated with special products and, finally, imported wares and wheel-thrown pottery were widely available (pp. 733, 773).

A fairly weak hierarchism prevailed in Sussex all the way through from c 750 BC - AD 43, but the comparatively late manifestation in Hampshire is much stronger, particularly due to the higher network density in the period from 400 BC onwards. The perceived value of membership of the self-identifying group is high and may have resulted in individuals risking their lives in the name of the group, when placed under threat in the period around 100 BC, that is if the hints of violence in the archaeological record are a true indication. Just as discussed for Sussex, the act of contributing to building community settlement sites and inter-community sites will have had the effect of inscribing membership as a point of reference for social memory. Similarly, just as membership can have been naturalised, so too could centrality, and particularly with respect to group-serving roles. However, as network density is higher than that of Sussex, the potential for individual resistance to coercive power on the part of power-holders is rather less as the cost of leaving may have been comparatively higher. Indeed, that is quite possibly the driving force behind individual decisions to 'stay and fight' rather than 'flee and save oneself' in violent times. Nevertheless, the development toward *insulated* centrality in the 100 BC - AD 43 period need not have been an exercise in coercive power-wielding, so much as the development of new ways to build social capital articulated through valued property, particularly including imports, and inheritance of roles allowing the accumulation of that capital from generation to generation. Inheritance may have developed 'naturally' on the back of conditions such as valued personal reputations, built in times of strife, either arising from service as war leaders or as negotiators suing for peace. These are questions to carry forward to the analysis of causal explanations for change developed in Chapter Eleven (Regional Variation).

The Individual's experience

Some periods of the millennium of the cultural environment in Hampshire have been reviewed by reference to the normative group dynamics as argued in detail for Sussex in Chapter Eight, and the group dynamics of more *egalitarian* periods discussed fully in this chapter. To pull it all together, the hierarchy of logical levels of personal perception, which was detailed for Sussex in table 8.2 (above), is tailored and extended for the Hampshire case to provide a summary drawing together all threads, in table 9.1:

Table 9.1

End M 2nd - 950 BC → *800 - 600 BC* ←		*950 - 800 BC*
• Past = biological genealogy • Post-death future = not long	**ONE'S PLACE IN THE COSMOS**	• Past = group history • Post-death future = longer (inherited indebtedness?)
• Personal success of greatest importance (selfishness) • Free	**PERSONAL IDENTITY**	• Personal success means making a fair contribution • Debts and dues
• Compete to optimise gain for self • Envy is the spur of ambition • Ability (self-sufficiency) • Youth and beauty • Selfish rational choice • Prevention and rehabilitation preferred to punishment • Code of personal honour? • Each to their own	**BELIEFS AND VALUES**	• Do what is required and no more • To cheat, or to purloin resources is to be an enemy of the group • Ability (be a 'good' member; conform) • 'Act your age'; responsibilities • Selfish rational choice within frame of overt rules • Social opprobrium; witchcraft and pollution accusations and remedies; physically painful punishment; expulsion • Self-effacement • Conform to cultural expectations
• All-round • Trial and error learning • Within demographic breadth of community	**CAPABILITIES**	• Defined role and appropriate tasks within domestic-unit • Indoctrination • Within domestic-unit and possibly wider, local group
• Make own arrangements to share risk • Body adornment for 'beauty' • Skills in incorporated practises (e.g. dancing, tale-spinning) • Personal generosity / hosting	**BEHAVIOURS**	• Contribute to localised collective risk sharing • Ideas of appropriate look and demeanour by age • Suppression of personal talents • Participation in local group celebrations, as required
• Nature *benign*; a *cornucopia* - laissez faire	**ENVIRONMENT**	• Nature *ephemeral* - treat with caution and use no more resources than necessary; 'outside' is dangerous

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Table 9.1 (continued)

800 - 600 BC		***600 - 400 BC***
• Past = biological genealogy • Post-death future = not long	**ONE'S PLACE IN THE COSMOS**	• Past = group history • Post-death future = the group in perpetuity; the group in a parallel universe
• Personal success of greatest importance (selfishness • Free	**PERSONAL IDENTITY**	• Personal success means performing one's role well • Co-dependent; member; contributor
• Compete to optimise gain for self • Envy is the spur of ambition • Ability (self-sufficiency) • Youth and beauty • Selfish rational choice • Punish by ostracism / casting out • Code of personal honour? • Each to their own	**BELIEFS AND VALUES**	• Contribute expertise and expect returns concomitant with personal success • To 'cheat', or purloin resources is to be an enemy of the group • Ability (skill, knowledge and expertise) • 'Act your age'; responsibilities • Social norms • Social opprobrium; witchcraft and pollution accusations and remedies; physically painful punishment; expulsion • Accepted rules • Conform to cultural expectations
• All-round • Trial and error learning • Within demographic breadth of community	**CAPABILITIES**	• Roles • Formal education (/indoctrination) • Age sets?
• Make own arrangements to share risk • Body adornment for 'beauty' • Skills in incorporated practises (e.g. dancing, tale-spinning) • Personal generosity / hosting	**BEHAVIOURS**	• Contribute to collective risk sharing • Ideas of appropriate look and demeanour by age • Audience (unless specialist in practise personally) • Contribution to arranged and formal celebrations; host own as required by norms
• Nature *benign*; a *comucopia* - laissez faire	**ENVIRONMENT**	• Nature *ephemeral* - treat with caution and use no more resources than necessary; 'outside is dangerous'

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Table 9.1 (continued)

600 - 400 BC		*400 BC - AD 43*
• Past = group history • Post-death future = the group in perpetuity; the group in a parallel universe	**ONE'S PLACE IN THE COSMOS**	• Past = myth of group origins • Post-death future = the group in perpetuity; the group in a parallel universe
• Personal success means performing one's role well • Co-dependent; member; contributor	**PERSONAL IDENTITY**	• Personal success means performing one's role well • Co-dependent; member; contributor
• Contribute expertise and expect returns concomitant with personal success in that • To 'cheat', or purloin resources is to be an enemy of the group • Ability (skill, knowledge and expertise) • 'Act your age'; responsibilities • Social norms • Social opprobrium; witchcraft and pollution accusations and remedies; physically painful punishment; expulsion • Accepted rules • Conform to cultural expectations	**BELIEFS AND VALUES**	• Contribute expertise and expect returns concomitant with personal success • Experts know what they are doing; trust them • Ability (skill, knowledge and expertise) • Age and wisdom • Social norms • Harsh physical punishment (death?) • Accepted rules • Be prepared for personal sacrifice
• Roles • Formal education (/indoctrination) • Age sets?	**CAPABILITIES**	• Roles • Formal education (/indoctrination) • Age sets?
• Contribute to collective risk sharing • Ideas of appropriate look and demeanour by age • Audience (unless specialist in practise personally) • Contribution to arranged and formal celebrations; host own as required by norms	**BEHAVIOURS**	• Contribute to collective risk sharing • Ideas of appropriate look and demeanour by age • Audience (unless specialist in practise personally) • Contribution to arranged and formal celebrations; host own as required by norms
• Nature *ephemeral* - treat with caution and use no more resources than necessary; 'outside is dangerous'	**ENVIRONMENT**	• Nature *perverse* / tolerant - insure against risk and carefully maintain balance

Table 9.1 - Behavioural disposition in first millennium BC Hampshire

CHAPTER TEN - EVOLVING GROUP DYNAMICS

The 'freeze-frame' GDM model of social structure may reveal change in the key dimensions over time; that change can be described as an indication that aspects of the 'typical' behavioural repertoire of a dominant majority altered to such a degree that the aggregate outcome shifted. Putting it in evolutionary terms, a novel behavioural variant, or one which was previously present to a minor degree, had spread to the extent that it became the normative practice. Naturally, relative proportions of preference for each behavioural variant in the population ebb and flow, as unique individuals and relationships are born, live and die; social stasis identified in the terms of the GDM model of social structure is never truly static but oscillating.

This Chapter explores the evolving nature of behaviour, how it appears in the aggregate and the dynamics of inter-individual action to arrive at an aggregate outcome, establishing an approach to creating explanatory, causal models for change over time. To that end, the ways in which novel behaviours may arise are reviewed briefly, followed by a more lengthy consideration of how behavioural variants spread and the effects of intentionality on that process. Finally, the whole is applied to the two key dimensions of social structure and an approach to deriving causal models outlined, for demonstration by application to the case study in Chapter Eleven (Regional Variation), below.

Behavioural Evolution

An individual's behaviour may change by virtue of being entirely novel or by adoption of an existing cultural variant in place of what s/he has done in the past. Changes in the relative proportions of behavioural variants in the population can be thought of as the 'spread' of some behaviours throughout and may be not only a question of individual choice but also of the ways in which other people's actions affect personal perception of situations and possibilities. Drawing from Boyd and Richerson's (1985) formalised view of cultural evolution, novel behaviour and spread are examined and then work from the social sciences is applied to develop key dynamics involved in individual decisions to alter behaviour, exploring spread in more depth.

Novel behaviour

Novel behaviour can be said to arise in three ways. Firstly, as a result of mistaken belief, forgotten practice or error in execution of an action, random variation may occur (c.f. 'genetic mutation') (Boyd & Richerson, 1985, 67-68). That is more likely the lower the network density and concomitant heterogeneity of experience but, unless the 'inventor' is especially socially visible with influence as a cultural progenitor (i.e. at least *differential* centrality), this is fairly unlikely to spread in the population. Secondly, and drawing from the first point, when a small population is isolated from the commonty some behavioural variants may be mis-remembered or not represented in the population ('cultural drift') (Boyd and Richerson, 1985, 9). That is a possibility amongst rather higher density networks and does not require centrality to 'spread'. Finally, and most commonly perhaps, rational choice decisions will vary as a result of adaptation to changes in the environment ('guided variation') (Boyd and Richerson, 1985, 9). Simultaneous invention of the same novel behaviours could occur but this is altogether more likely the lower the network density and the greater the resulting heterogeneity (pp. 208-209).

Spread of a behaviour variant

Irrespective of how (or whether) novel behaviour arises, spread and change in balance of behavioural variants in the population may occur by virtue of rational choice or social norm effects. Taking rational choice first, Boyd and Richerson (1985, 10-11) observe that a new variant may be selected because of the properties of the variant itself ('direct bias'). That may be in response to the availability of a new variant (e.g. a new tool fit to perform a task) or, more to the point when considering social behaviour, when an individual experiences a sufficient 'surprise' (or series of anomalies) to jolt her/him into questioning whether a previously held belief is true (subjectively speaking). Thus, for example, if an individualist (believing that nature is benign - p. 221) experienced total collapse of her/his valued world, or a system acting on that world, then s/he may undergo a worldview shift to that of the egalitarian having recognised that nature has proved ephemeral i.e. delicate (p. 221; Thompson et al, 1990, 76). Alternatively, if the experience were of partial collapse then it is possible that the individual would be amenable to the idea of accepting a degree of management as appropriate and necessary ('bureaucratisation'), tantamount to a shift to the hierarchist worldview of nature as perverse yet tolerant (Thompson et al, 1990, 71-77; p. 222). The catalyst presenting sufficient 'surprise' for that change may operate on one person only but, very commonly, it will affect groups of people inculcated with the same, or similar values and perceptions. Responses will vary for the reasons rehearsed in Chapter Seven (Normative Group Dynamics) yet the net result may be a shift in relative proportions of adherents to a view amongst the commontant population as a whole.

Turning to spread by social norm effects, Boyd and Richerson (1985, 10-11) argue that an individual may make a decision to do whatever most others are doing in order to be like the rest, irrespective of subjectively-rational evaluation of whether the behaviour is best for self (frequency dependent bias). Alternatively, s/he may make a decision to adopt a behaviour which s/he associates with an admired other in the hope or expectation that the action will result in similar effects for self (again, 'bypassing' subjective rational choice) (c.f. Boyd & Richerson's (1985, 10-11) 'indirect bias'). Thus, for example, if one of one's intimates had experienced a shift of worldview then it is rather likely that your close relationship will make you more amenable to persuasion to their new way of thinking. Similarly, a shift in worldview of someone more central than oneself could be influential in that there may be a tendency to associate the worldview with the comparative centrality, irrespective of whether it was causal to the individual's success.

Decisions on action are rarely made in complete isolation from what others are doing around you and the cultural environment can dynamically affect the outcome so that it may neither be as the individual had intended nor hoped. Furthermore, the spread of a behavioural variant may be constrained by an inherent limit which may be either a finite capacity or a threshold requiring a 'critical mass' to be passed. Finally, the pace of spread of a variant may vary, indeed accelerate, as more people adopt it.

Individual choice; aggregate outcome

Critical mass thresholds

Outcome may not be as intended because the individual may dynamically change her/his personal decision-making factors in reaction to the totality of which s/he is a part. Reaction to the environment is part of the environment. In application to studies of human behaviour, Schelling (1978) has coined the generic term 'critical mass' for behaviours whereby each person's action depends upon how many others are already behaving that way.

A simple example can be offered by borrowing Glance and Huberman's (1994) model of a dining group intending to share the bill for a meal equally. Suppose that each diner has a choice between an 'expensive' order and a 'cheap' one and they order in turn; in a group of eight diners, one might hypothesise that once three had ordered expensively (say), the fourth would be less likely to stint her/himself than if s/he had been the first to order, and order expensively even if her/his original intention had been parsimony. The number of people who must be already behaving in one way before Ego will join in is known as her/his 'critical threshold' for an action and may vary between people as a result of any number of factors (e.g. situational, personality, cultural, personal goals and motives, marginal utility, *inter alia*). The effect of the spread of thresholds in one case may be such that non-action results and yet the analyst has no measure of the shortfall in satisfied participants at any point (i.e. a 'near miss', but by how much?). Extending the dining group example to illustrate, the diners may have thresholds of the number of others who must order expensively before they do as shown in figure 10.1:

	Amy	*Bill*	*Con*	*Dave*	*Ella*	*Frank*	*Gail*	*Hal*
Expensive order threshold	2	3	1	3	2	6	4	1
Choice Made (Cheap or expensive)	Cheap	Cheap	Cheap	Cheap	Cheap	Cheap	Cheap	Cheap

Figure 10.1 - The diners' hopes and their orders

Nobody had a threshold of zero in this case, so nobody was prepared to start the ball rolling by ordering expensively. Seven out of the eight diners would have preferred the expensive menu (thresholds of four or less) yet the outcome is a cheap selection for everyone, preferred only by Frank (the sixth to order). Even if everybody's threshold had been only 1, the result would have been the same. To generalise, it can be said that it is possible to have a unanimously chosen outcome yet that may not be the preferred one (Schelling, 1978, 98-99).

The dynamics of joining in

The focus of Schelling's (1978) critical mass model work has been on how individual behaviour influences others to create aggregate outcomes and that is complemented by the work of Granovetter (1978), a sociologist concerned with understanding collective action like riots and strikes, who has concentrated on understanding how critical mass thresholds form and the dynamism of action in specific situations. Up to a point, Granovetter's (1978) theoretical work independently echoed Schelling's (1978) in creating concepts of thresholds for joining in events as they occur, which depend on how many others are already behaving that way. So, for example, British voting patterns show that some people always vote for the same party, irrespective of performance and policies, others are influenced by performance of the contending parties but a third group are concerned to vote with the winning side to avoid 'wasting a vote'. The latter may vary in their thresholds of perceived support for a party (e.g. as expressed in opinion polls) before they will offer their own vote in support which may then appear to accelerate (the 'bandwagon effect'). (Granovetter, 1978, 1422).

To generalise the effect, it can be said that it is possible that some (one) individual has a threshold of nil (so, in an evolutionary sense, this person could be considered to be the novel strategy) and other(s) may have a threshold of 100% (i.e. in evolutionary terms a 'dysfunctional' individual who will never co-operate). In between those extremes, people may require the safety of seeing their own threshold of others join before they will take action themselves (Granovetter, 1978, 1425-1428).

The dimension added by Granovetter's work for our purpose arises from his further ideas and observations about how people's thresholds may be dynamically influenced by the situation. He criticises game theory models for behaving as though all participants were strangers and suggests that people exaggerate the population of 'joiners' if they contain a number of friends (Granovetter, 1978, 1428-1430); psychology's 'attribution theory' would support that view (Eiser, 1990, 235-255). Exaggerated perception of numbers would have the net effect of dynamically influencing the individual's threshold and, in theoretical models, Granovetter has established that when as few as 25% of the 'joining' population are friends of the non-joiners it can have a dramatic snowballing effect (Granovetter, 1978, 1428-1430).

In a similar vein, Granovetter touches on the point that an implicit assumption of connectedness is inappropriate in game theory models (Granovetter, 1978, 1431). Glance and Huberman (1993) have developed this point in an analysis of the relative influence of the anti-social behaviour of near neighbours compared to that of people randomly in a spatially-wide context. Tangentially, Oliver and Marwell (1988) also touch upon this in their critical mass approach to understanding what motivates people to take collective political action. They take issue with Olson's (1971) widely-accepted argument that co-operation requires a small group size, arguing that the position is more complicated than that (Oliver and Marwell, 1988, 1-6). They point out that when a fixed amount of a resource is required for the 'general good' it is more likely to be provided by <u>fewer</u> people the larger the population of potential contributors (Oliver and Marwell, 1988, 1-6). That is to say, when groups are heterogeneous then the larger the group, the smaller the critical mass for collective action. Heterogeneity is the clue to this apparent paradox, in that if individual contributions may vary then the larger the group, the greater the probability that a few people will be both willing and able to provide comparatively more. As they point out, there may be a number of 'free riders' but that does not matter to the achievement of the outcome (Oliver and Marwell 1988, 6-8). By comparison, the game theory approaches inherently take the view that the action of each individual counts equally towards the outcome.

Behaviour change?

Models of critical mass phenomena complement game theory models in that they tackle the questions of interdependence of decisions and the effects of heterogeneous individual preferences whilst also revealing dynamic, situation-specific modifications to behaviour. However, only Granovetter's (1978) work has directly tackled the question of whether people's behaviour (and/or thresholds for joining in should an occasion occur again) is permanently altered as a result of participation in a specific event. Despite the potential for situation-specific adjustments to people's dispositions, he argues that there is personal pre- and post-situation continuity, except in extreme cases like some religious conversion experiences (Granovetter, 1978, 1436) and takes it as read that those dispositions play a significant part in the establishment of an individual's initial critical threshold.

However, social and political scientists usually gear their work toward finding courses of action for optimum outcomes and generally lack the opportunity to consider longer time depth. In contrast, archaeologists are able to identify outcomes, whether optimal or not, and attempt to derive a course of actions which may have had the observed result; furthermore, many observed outcomes may have been social pathologies which can scarcely be considered optimal for those concerned. Thus, there is a limit to the extent to which these modern findings can be applied to the past. Clearly, individual participation in collective action has often resulted in change in habitus and/or commonty in such a way that subsequent behaviour, viewed in the aggregate, has been affected. Whilst it is useful to know that participation in riots, for example, may make no overall difference to the population's disposition to riot a second time, we can fairly safely say that joining in the building of large enclosures (for whatever reason) in the past is likely to have engendered strong feelings of membership and entitlement in the following few generations, at least.

Constraints (on spread of new behaviour)

The spread of a behavioural variant may be constrained by an inherent limit which could be either a critical mass threshold (introduced above) or a finite capacity. To illustrate finite capacity first, by an example of physical capacity constraint and demonstrating a 'diminishing return' effect, consider the case of a commontant who may be motivated to make the gesture of installing a park bench for the use of the public at large in memory of a revered, deceased relative (an individual monument, so to speak) and who will gain much by way of social capital for doing this. The second person so motivated will receive just a little less social capital, and so on, until the *n*th park bench donor will attract social opprobrium instead, perhaps standing accused of cluttering up the park to an extent that it is difficult to walk around, enjoying the scene. Park bench donation is likely to cease for a while, but when the park bench supply starts to deteriorate, donation may become a socially estimable gesture, again. Behavioural 'cycling' is typical of the finite capacity case and has been generalised by a model of 'fluid social structure' (Glance and Huberman, 1993, 2-17) which simulates the constraint of a finite limit to group size for co-operation (albeit with some inter-individual threshold variation), recognising that whilst people may co-operate in a small group they may be increasingly tempted to defect as the group becomes larger, both because the efficacy of monitoring all others for trustworthiness decreases and the chance of detection of personal defection decreases as well. The model demonstrates that effects over time are such that co-operation tends to 'cycle', appearing quite suddenly and spontaneously in small clusters, spreading through the population such that a co-operative cluster grows, the co-operative cluster becomes too large to sustain so that some break away and people thus withdraw, reducing the co-operative cluster size to a point where it begins to become attractive for the drop-out 'loners' to join again (Glance and Huberman, 1993, 10-13, fig. 4).

The second type of constraint is the phenomenon of requiring a critical mass threshold to be reached for a behaviour to be self-sustaining. This was touched upon in the social dining example (above) but a more extended example taken from Schelling (1978) is useful for a more generalised understanding of behavioural equilibria. Schelling (1978, 102-105) proposes a fictitious set of data for people's variable personal thresholds for attending a (mooted) regular gathering, expressed as the number of people who would attend if the number expected to attend reached a certain level as shown in figure 10.2 (below). In this example, there are two possible equilibria:-

i) Zero attendance - the behaviour is short-lived at most. Nobody will attend the gathering at all, unless a few people are expected. If less than 40 people attend, some will be disappointed and drop out of further meetings, lowering subsequent attendance with the effect that those previously comfortable will drop out, and so on, until the zero equilibrium is reached. (Schelling, 1978, 102-105).

ii) High attendance (85 or more people regularly) - a widespread, routine behaviour. If more than 85 people are expected, 85 will attend and nobody will be disappointed so the attendance behaviour is self-sustaining. If more than 40 people attend from the outset, all will be satisfied and more people will be attracted until attendance reaches c85 people, when equilibrium is reached. (Schelling, 1978, 102-105).

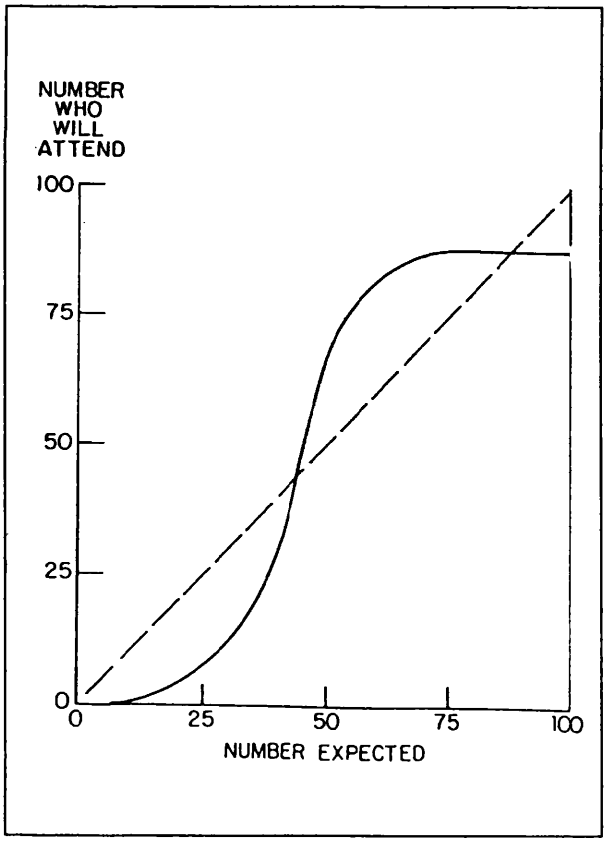


Figure 10.2 - Critical mass thresholds for attending a regular gathering example (source: Schelling, 1978, 104, fig. 1)

There are circumstances in which individual thresholds for behaviour may alter in response to environmental effects (e.g. the misjudgement of the population of 'joiners' if they include a proportion of one's friends), discussed above.

Individual thresholds for adopting change may vary; for example, it is possible that a privileged individual may feel the cost of adopting a new behaviour relatively small for the potential gain, if they have a large holding in the 'currency' in which the cost is expressed to start with and, therefore, the risk is lessened. The under-privileged may also adopt a 'nothing to lose' stance (comparatively over-emphasising the potential gain) but those in the middle may prove more resistant because they recognise the potential damage to what they could regard as a precarious social position.

A commontant population may be well aware of an optimal solution to a problem yet be constrained in the range of responses regarded as practicable. In many cases, capacity (including geographical) will be circumscribed by neighbouring groups. Options might include assimilation or negotiation with neighbours, rationing, aggression and/or population management. The comparative valuation of those constraints is likely to be culturally influenced and guided by the critical mass effects of individual thresholds for change. A proud membership may find negotiation unpalatable collectively, or the neighbouring group may be unassailable; those individuals who are more capable may be able to selfishly negotiate passage or assimilation with neighbouring commonties, leaving the remaining population with slightly less pressure on resources but with fewer choices. Members of the dense commonty may be less likely to attempt such a negotiation, choosing instead to 'stand or fall' together even to the extent of voluntary group-wide suicide to avoid group dispersal. Some commontants may collectively find population control by selective murder comparatively acceptable whereas others might feel this a last resort option; the same might be said of self-restraint, or of aggression. Individual thresholds and critical mass effects affect the outcome in any particular case.

Constraints may not only simply limit existing cultural behaviour but also reduce the scope for potential behavioural change in the future. For example, building a formal ceremonial centre may not only orchestrate the movements of the participants in the first place but physical limits to capacity, access paths, division of actors and spectators, insiders and outsiders set limits to all future action. Furthermore, even when a ceremonial practice is so long-forgotten that the original meaning of its extant monument is unknown and unknowable, it is still part of the environment and may continue to constrain behavioural choice in perpetuity, unless destroyed.

Accelerators (of spread of new behaviour)

Decision-making on the basis of social norms bypasses probabilistic reasoning, thus underwriting the possibility of behavioural selection which is maladaptive to the individual. If a social sector is prestigious from the point-of-view of one individual in relation to another then that individual may elect to imitate a feature of the admired sector in the hope of uprating her/his own prestige status. The indicator trait may not be that which confers prestige on an individual *per se* but that which is preferred by virtue of its association with prestigious people (Boyd and Richerson, 1985, 243-245). Emulation reduces the social distance between the two by an amount which may be infinitesimally small, yet if the behaviour spreads in the population the cumulative effect is to devalue the prestige of the status-holder. To counteract the effect, the socially prestigious must either exaggerate the trait or introduce a new behavioural variant to reinstate and retain the extent of the 'social gap'. In turn, the new variant is an obvious target for the socially envious and the emulative cycle may continue. This is the accelerating effect on cultural evolution which Boyd and Richerson (1985, 267) term the 'runaway effect' (which is commonly known as the 'evolutionary arms race' (e.g. Dawkins, 1989; Dennett, 1995) and which Ridley (1994, title) calls the 'Red Queen' effect).

As an illustration of the trait exaggeration accelerator, Boyd and Richerson (1985, 269-271) document the example of the yam-donation base of men's prestige amongst the Ponapae people of Micronesia. Amongst many 'normal' food donations, men donate yams of massive proportions to chiefs' feasts and personal prestige is judged on the size of those yams (equated with traits including generosity, skill, farming ability and dutiful love and respect for social superiors) despite the practical inefficiency in producing them (*vis-à-vis* their food content) and despite equivalent or indeed, exceeding food contributions of other foods, even 'normal' yams. Consistent contribution of large yams is rewarded by deference from the social majority and by preference from the chief. They are clearly exaggerated markers and Boyd and Richerson argue (1985, 269-271) that this has arisen from a process of imitation of admired others in the belief that imitating those who produce large yams will increase personal chance of becoming a successful farmer. When the practices which lead to larger yam production in the population increase, so too does admiration for the ability to grow them.

Exaggeration will accelerate until restrained. In the yam case, for example, the constraint could be loss of food value (although this would not, necessarily, make the difference) and other examples include the competitive exchange and destruction cycles of 'potlatch' systems and the competitive feasting of 'Big Man' groups. In both of these cases, it is quantity of an item which is most valued and terminating the cycle by reduction of the 'stock' allows build-up to begin again from a lower baseline; that is quite unlike restriction of access to intrinsically-valued items which tends to increase the value of each.

Returning to the ceremonial environment example introduced above, the inherent constraints to change may, paradoxically, act as accelerators given change in other variables. For example, if a commontant population outgrows the capacity of a structure, the proportion of the population excluded from the ceremony, or parts of it, will also grow; the social distance between 'insiders' and 'outsiders' will grow as a result, unless checked by collective action to extend, replace or duplicate the ceremonial environment. The commonty's cultural learning environment will tend to 'naturalise' those changes within a generation or two, rendering conscious objection unlikely and the rate of change may gather momentum as a result.

Selfishly rational decision-makers will choose to maximise their use of resources accessible by all, even when they risk exhaustion of those resources as a whole; individual voluntary restraint invites others to take a 'free ride' at one's own expense. Thus, even if collective agreement to rationing were to provide the greatest average return that is not possible except in the cultural environment where collective co-operation without defect is sustainable (see Chapter Two, above). This is the '*Tragedy of the Commons*', first articulated formally by Garrett Hardin (1968) in the context of an examination of the dynamics of unchecked population growth, expressed in terms of a metaphor from pastoral herd management. As resources diminish, each self-serving individual is motivated to put more and more into extracting as much as s/he can of the resource, thus accelerating its failure. If the process goes unchecked, it might be argued that it is likely that cultural behaviour alteration in the form of breakdown of relationships between individuals will accelerate as a direct result.

Causality

Underlying a model of cultural evolution is the premise that all change to group dynamics in the aggregate is the sum of altered behavioural decisions on the part of some individuals and, possibly, stasis on the part of others. The likelihood of one individual's action being causal to an altering group dynamic is greater for the network centrality dimension than the network density. Network centrality measures the extent to which there is inter-individual differential influence, so each person who can assert or who rescinds influence is likely to alter the commonty's centrality. In contrast, network density measures the extent to which the average relationship is transitive and thus one individual, whether highly social or antisocial, is unlikely to make a significant difference to the overall measure, suggesting that change requires collective action, albeit that that is the sum of individual decisions on the part of a substantial proportion of the commontants. Thus, in general terms causal explanations for centrality change are likely to be couched in terms of *action of* individuals and density change in *action on*. The *action of* one individual is action in her/his lifetime and can only be said to influence the 'permanency' of ascription. Conversely, there is a sense in which the response to *action on* an individual is more likely to influence future generations, both in terms of its effects on her/his procreation decisions and the resultant demographic changes and her/his cultural legacy of disposition and personal social network.

Stasis and change

When an individual's up-centrality strain toward increasing the degree of power differential (intentional, or otherwise) and the down-centrality pull of resistance are balanced, there is stasis but when one is asserted more strongly than the other, social structure changes may result.

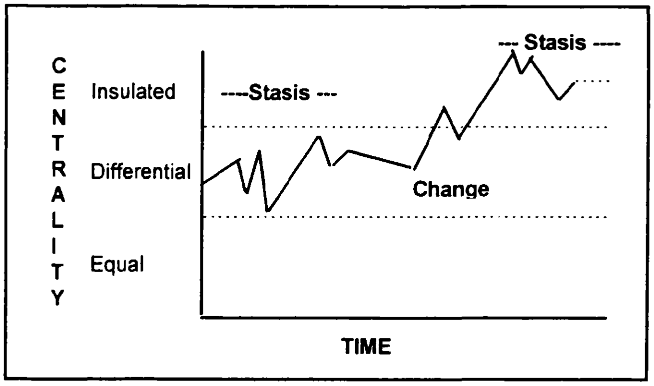


Figure 10.3 - Examples of stasis and change in centrality

There is always a degree of differential influence at any one time in a network but that tends to be vested in individual personalities and will seldom exceed one lifetime. Therefore, stasis is better understood as oscillation within a range of inter-individual variation.

Network density potential is limited by perceived need and capacity on one hand and the commontant population size on the other. Whilst it is possible to imagine why large proportions of a population may increase or decrease their network needs *en masse* (e.g. widespread reduction in time available for relationship maintenance), it is rather more obvious that demographic and environmental factors could result in change over long timescales. As a commontant population increases, density decreases if individual preferences remain the same and *vice versa*. Given the wide range of each density band on the GDM, change to social structure is likely to evolve slowly (over many generations) maintaining a semblance of stasis unless there is a sudden 'disaster' (reducing the population dramatically) or a jolt to the dominant worldview substantial enough to cause large-scale fission, dispersal or fusion with other large populations. Factors like disease or warfare may cause downturns in population numbers with effects echoing over a few generations and sustained improvement of weather conditions for harvests may cause upturns. Those fluctuations within the range of a density category amount to 'oscillating stasis' just as for centrality, but with rather longer cycle lengths to play out, as a general rule.

Intentionality

Behaviour is motivated by personal goals and those need not take account of a vision of how one's decision may affect others. For example one may choose a tall person, or a short one to father one's children but no part of that decision is motivated by how one's choice will affect the frequency distribution of height in the next generation; nevertheless, the height of the next generation is affected by one's decision (Schelling, 1978, 24). Thus, there need not be any intention to participate in, or cause a change.

Intentionality is probably more prevalent in decisions where the *action of* one has an effect on, and causes a response in another (i.e. with respect to the centrality dimension) than those in response to *action on* an individual (i.e. with respect to the density dimension), since 'success' often does depend upon doing better than the next person, culturally speaking. Even up-centrality evolution does not have to be predicated upon intention; for example, random variation in network size alone amounts to some inter-individual differentiation and should that happen to coincide with a special talent at the time it is needed, then preferential access to resources may ensue.

When there is intention, the outcome may not be as anticipated. That is a common effect of a critical mass for action type situation (above), or one requiring collective action, but must always arise when there is competition between two or more people when a risk strategy to gain personal success may prove to have a compound down-side in the event of failure. For example, if there are two competitors for the position of cultural superior then lobbying others to persuade them to one's own point of view may result in a broadly equal outcome, but may occasionally result in the compounded effect of one gaining all of the 'votes' and the other losing all erstwhile supportive relationships when put to this test; the distance between them is in the order of twice the average outcome anticipated.

Causal models of change

Whilst it is not practical to provide a *pro forma* for all possible causes and effects of change, the empathetic process of using the imagination to develop causal models for developments in the past can be directed and controlled by using a method based on behavioural evolution theory, the environment framework, the GDM profile and the normative group dynamics history of a particular case. The best approach for any particular case depends upon the nature of the evidence, the duration of the study and the depth of explanation sought. The approach to analysing and presenting causal models for change in this work has been tailored for the purpose of providing a wide-ranging demonstration of efficacy for this work, as outlined below.

Bias of the approach

In the case study for this work, the effective duration is rather long in that a group dynamics history covering at least 1,250 years divided into six periods each for two datasets has been analysed and presented. Explanation for change over the case study is geared toward seeking broad causal explanations which maximise the time depth available and which demonstrate the utility of the group dynamics approach by tackling the question of regional variation from a similar base. Furthermore, the GDM results show clear changes at the end of the late Bronze Age and the beginning of the Iron Age and, thus, the group dynamics approach can usefully examine the nature of that transition. Finally, some of the important issues in Iron Age study, particularly, concern the nature and purpose of hillforts and the reality (or otherwise) of warfare, but explanations offered to date are rarely (if ever) grounded in a model of evolutionary development to a point at which warfare could occur. Taken together, illustration of utility of the approach in illuminating these three types of question should convincingly demonstrate that the archaeology of group dynamics can add value to the interpreted dataset.

With these three challenges in mind, the approach to causal explanation used in this case favours modelling the long duree at the expense of examining and weighting all possibilities for localised and comparatively short-term change. Thus, for example, whilst it could be argued that one possible causal explanation for the increase in network density in Sussex from c 750 BC could have been the result of a reduction in levels of the commontant population (which, in turn, could have been as the result of e.g. famine resulting from production failure or fission to avoid targeted aggression), there is no evidence to suggest that the population was reduced and it is neither strongly suggested by the group dynamics of the period nor, indeed, any model by another commentator. Therefore, although theoretically possible, it is not presented in this work as an alternative. If the focus had been on studying changes from just one period to another, then the full range of possibilities could have been analysed and compared, limited only by the imagination but the need for brevity in this work precludes that stretch in this case.

In order that each causal model can be compared, integrated and evaluated, a formal method has been employed in the analysis. The whole stems around a view of potential catalysts from the environment which is reviewed before the full method is detailed.

Catalysts

The catalysts for evolution of the cultural behaviour environment (and, therefore, the group dynamic) can be said generally to be changes in the commontant environment arising from *action of* an individual or *action on* the group. However, whilst 'the environment' is a term adequate to encompass all forces which may act on an individual in decision-making, it is useful to clarify arguments by breaking that down into three types of environment about which some generalisations can be made. These are shown in figure 10.4:

The environment

Cultural behaviour	Norms, manners and customs and the distribution of worldviews
Manufactured	The environment experienced as culturally constructed at the cultural present.
Natural	That element of the environment which is independent of human alteration at the cultural present.

Figure 10.4 - Classes of environment

Examples of each occur in the Case Study (Chapter Eleven - Regional Variation), so these are used to illustrate here.

Natural environment catalysts (for evolved cultural behaviour)

Responses to changes in the natural environment, particularly climate and survival resources, may involve new survival strategies such as farming and sedentism or fission and relocation, and social changes such as greater protection from the weather and/or predators (human and animal), each with obvious and dramatic potential effects on group dynamics. The evidence for a downturn in the climate in the first half of the first millennium BC and a subsequent upturn in the second half (pp. 125-127) is unequivocal. The downturn, particularly, is fairly likely to have been noticed as the unpredictable, stormy weather may have had the effect of severe failure of one or more harvests. It will be argued that this could have resulted in some of the changes seen in the group dynamics through time, as a result of the introduction and spread of new behaviours such as increasing social storage, increasing physical storage and collective action to combat theft (Chapter Eleven, below). To say that it could have had those effects is not to say that it actually did; alternative causal explanations are possible and weighted according to likelihood (Chapter Eleven, below). Conversely, it is recognised that severe production failure could have resulted from illness or disease of plants and animals which left no markers in the archaeological record to show that it had ever occurred. The production failure model still applies in that case but the cause is regarded as less likely than the climatic downturn as there is no evidence for it.

Manufactured environment catalysts (for evolved cultural behaviour)

New technologies are obvious changes to the manufactured environment and where they are adopted there can be little doubt that the ramifications on cultural behaviour can be considerable. For example, modern communications and the motor car are elements of the causal chain in the rapid social developments of increased social mobility, extension of social networks at a distance and resultant reduction in the density of networks of local communities in Britain in the last generation or two. New sources, new materials, new production techniques and new forms all have the potential for causing behavioural change by altering availability profiles, by extending or restricting specialised knowledge or access to resources, by re-valuing elements of cultural capital and by undermining symbolic and social meaning of that capital.

The example of change in the manufactured environment potentially resulting in cultural behavior change modelled in this work is that of 'inscription', the restructuring of the landscape by deliberate human intervention (e.g. symbolic territorial markers, linear ditch systems, enclosure of community settlement sites, enclosed 'special function' sites, massive 'developed hillforts') which may act as a catalyst for resultant behavioural change even when the action is intended to encapsulate contemporary practice with a view to fixing it, possibly unalterably. For example, a practice like ceremonial performance may be inscribed in the environment by building a structure, or a landscape, designed to produce a permanent '*choreography of authority*' (per Connerton, 1989) by common consent. That ceremonial setting can act as a catalyst for cultural behaviour change by virtue of the fact that inscribing practice in this way makes improvisation difficult; whilst a certain behavioural flexibility may have been the erstwhile norm, innovation will tend to become institutionalised in the inscribed environment (Connerton, 1989, 75). An actor may find her/his contribution proscribed as, for example, in Western business culture where an individual's perceived ability to speak freely is constrained by the 'chaired' meeting practice (emphasised by choreographed room layout as well as the norms of meeting practice), by comparison with the informal, non-structured 'seminar' layout; at a minimum all that differs is the orientation of one particular seat relative to the others yet the restriction of individual freedom is considerable. In the first millennium BC, themes of evolved cultural behaviour as a result of inscription are developed in recognising that the act of enclosure, for example, must have required that decisions were made on just who were 'members' and what their contribution and rights should be. Thus, it is posited that the act of enclosure had the effect of recording the event in the landscape, promoting social memory of those rights and responsibilities, and the model of behavioural evolution resulting touches on retrodiction of the effects of 'fixing' membership, the rights and values of members and the 'rules' for changing membership and for sanctioning those who fail to be 'good members' (Chapter Eleven, below).

Cultural behaviour environment catalysts (for evolved cultural behaviour)

A change in the cultural behaviour of one individual is most likely to influence the balance of behavioural variants in a population when it involves fission from the group, or fusion with another, at an individual or a domestic-unit level and that may be prompted by any number of changes which could include, for example, internal conflict, environmental change, actions of one group circumscribing those of another, and more. There are inherently a number of examples of cultural behaviour environment catalysts running through all of the causal models developed for this work but three have been developed quite separately to examine their full causal potential.

The model most supported by archaeological evidence is that which starts in intentional *action on* behaviour by a few individuals who are prepared to subsidise 'production' of a targeted and valued resource by theft and predicts an evolutionary path to the collaborative effort of many individuals in mounting violent campaigns against other groups by the time of the 'developed hillforts' (c 400 BC). The model of 'targeted aggression' covers the full first millennium BC period and posits a causal chain of evolving cultural behaviour predicated on an initial population of thieves and accounting in some degree for all group dynamics developments throughout, thus throwing considerable light on some of the questions of 'warfare' at that time, particularly (Chapter Eleven, below). As people in both Hampshire and Sussex ended the second millennium BC in an individualistic cultural environment, the group dynamic baseline for each is similar and collective action posited in other models suggests that the individual's subjectively rational choice would be to contribute to representation and the vestment of legitimate authority in others from time to time. That is developed as a model of the retrodicted result of representation and is vested entirely in the evidence of the normative group dynamics in this case (Chapter Eleven, below).

Thus, in total, four models specifically relating to the Case Study are developed in Chapter Eleven (Regional Variation) and those include examples of catalysts from each of the three classes of environment. The models are Targeted Aggression, Inscription, Representation and

Production Failure and these are used to illustrate some key points of the method employed for deriving causal explanation for behavioural evolution.

The five stage strategy

The analysis has been formalised in five stages:-

Stage		***Input***	***Output***
1.	Identify potential catalysts for change	• Palaeo-environmental data • archaeological data • normative group dynamics	Catalysts by environment
Then, for each catalyst:			
2.	Identify potential responses		Dynamics of potential responses
3.	Contextualise the potential responses by reference to the dataset	• Dynamics of potential responses. • Dataset.	Model over time mapped by evidence
4.	Contextualise the model by group dynamics	• Model over time mapped by evidence. • GDM history. • Normative group dynamics.	Potential causal model for change observed over time.
Then, for all potential causal models:			
5.	Weight potential causal models and integrate where appropriate, evaluating alternatives.	Potential causal models for change observed over time	Final causal models.

Table 10.1 - The five stage approach to development of causal models

Stage 1 - Potential catalysts

For the three classes of the environment, potential catalysts for change may be sought in the palaeo-environmental and archaeological data. Some types of evidence may offer primary indication of a catalyst for potential change (e.g. climatic change) whereas others may be secondary (e.g. enclosure of sites - inscription). The normative group dynamics is a further line of input to deriving potential catalysts from within the cultural behaviour environment, for which there may be little by way of material evidence. For example, competitive behaviour is predicted for low density, medium centrality (individualistic) networks as are seen in the earliest years of the case study both in Hampshire and Sussex but the actual presence of competitive practice is supported only weakly, ambiguously and tangentially in the archaeological evidence itself (e.g. in personal weaponry and feast sites). In some cases there is no material evidence as, for example, in the assumption of representation within all but *equal* centrality networks. It is important to attempt to capture both primary and secondary potential catalysts, as it may not be possible to build a causal chain through all environments and a partial picture is more illuminating than entirely ignoring a possibility. Even if there has been no change in position in the GDM space over time, analysing potential catalysts for change is essential to developing causal models for maintenance of stasis.

Stage 2 - Potential responses

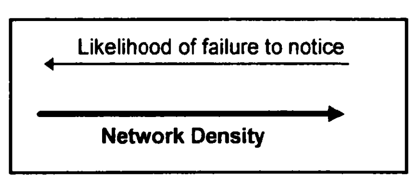
For every potential catalyst for change identified, the possible responses of an individual should be considered in preparation for building contextualised models. Those may be generalised:-

Fails to notice or to be informed

If a change is of a long-term nature from the individual's point-of-view then s/he may neither know nor notice. For example, population increase takes at least a generation to make any appreciable impact at all; the individual may have completed her/his family before a significant change becomes evident and the child growing up in the environment of the greater population density knows no other. There may be no early point at which an individual realises the problem in time to take any action (i.e. no 'foresight').

Taking acceleration of specialisation as a second example, a new specialisation in a grandparent's generation may have become everyday in a parent's and then inherited in Ego's. Ego may neither notice the change nor foresee any difficulty if s/he does. Whilst Ego's parents are more likely to notice, they may think of specialisation as a norm and may fail to notice the potential for differential advantage by restriction access to the knowledge of a process. Only Ego's grandparents are likely to realise what has happened and what this could mean to dependent consumers of the specialised product, passing that information on if they've survived thus far.

Although the individual is exposed to a comparatively wide variety of experience in *circumstantial* density network, that

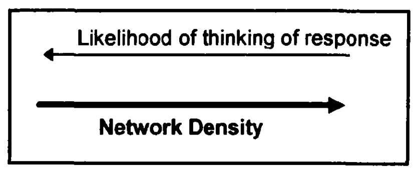


is a slower conduit for dissemination of information than in *corporate.* Thus, if one *corporate* commontant does notice or foresee a problem, then the high density nature of the network will ensure that all others soon know. Therefore, the distribution of those who fail to notice a problem or are not informed varies with network density.

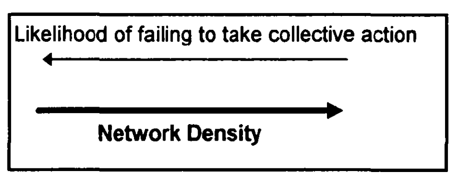
Realise, but make no response

If no response is made then that must be because the individual's evaluation of the costs and benefits of each potential response does not favourably alter the equation. Commonly, lack of response will come down to the failure to achieve the critical mass required for collective action to be 'economical' for the individual. Occasionally, it may be that the only possible responses are so hard for an individual to bear that, to all intents and purposes, no response is possible. Finally, the individual may simply make the mistake of not thinking of a particular viable response.

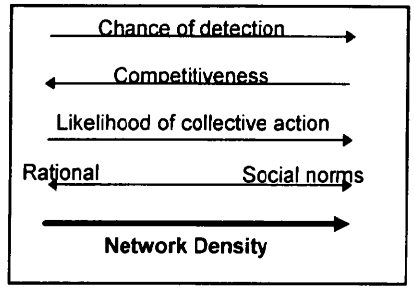
The likelihood of the individual making no response because no suitable response occurs to her/him is greater in the climate of rather stagnant conservatism deriving from the social norm base for decision-making of *corporate* density network commonty than it is in innovative *circumstantial.*



However, where a potential response would require collective action to succeed, then the chance of not achieving that may be somewhat greater at the competitive, low density *circumstantial* end of the scale than the *corporate* as is the willingness to share the cost; therefore, the potential risk to self (arising from the possibility of defection of others) is also greater at *circumstantial* density. As a result, despite the greater chance of realising the possibility of a response to a problem at the *circumstantial* density end of the scale, the likelihood of taking the necessary action is less when that involves collective action.



Realise and respond



If the change is the *action of* an individual, then s/he has recognised and taken advantage of opportunities to realise differential talents. It has been argued that the individual is more likely to seek opportunities to gain competitive advantage in the subjectively rational climate of low-density commonty. When it is *action on* then the individual evaluation of the problem has resulted in a decision to participate in action to overcome it. The two important things to remember in this exercise in imagination are firstly that the individual's perception of the problem and prediction of resolution may be faulty, so it is sensible to include possible responses which would actually result in failure and secondly that the individual may have been (self-servingly) considering her/his own lifetime, only

Having considered whether, or not, the individual is likely to respond to the environmental catalysts for change, when response is predicted the distribution of each response in the population can be approximated (in comparative terms) by reference to the normative group dynamics (Chapter Seven, above) for the commonty's position in the GDM space. Given a variety of possible responses, normative group dynamics make some more likely than others, albeit that there may be inter-individual differences in response. Cultural contextualisation must be considered for each.

For each potential response, potential causal chains must be developed by analysing how accelerators and constraints in the evolution of the cultural behaviour pattern in response to one catalyst can, in turn, act as catalysts for further responses. Those chains are presented as tables modelling responses in terms of the behavioural variant, accelerators of and constraints on spread in the cultural behaviour environment, formalised by definitions as in figure 10.5:

Catalysts and responses

Enablers:	Alterations to subjective rational choice evaluations on the benefit side in response to a catalyst i.e. making a behaviour more attractive to the individual
Constraints:	Alterations to subjective rational choice evaluations on the cost side i.e. reducing the attraction of a behaviour to the individual.
Accelerators:	Factors which encourage rapid and extensive spread of one behavioural variant in the population.

Figure 10.5 - Modelling the spread of evolved behavioural variants

The results are discussed in full but also presented in abbreviated form making reference to phenomena such as finite capacity, the critical mass effect, the 'Prisoner's Dilemma', the 'Tragedy of the Commons' and the 'Red Queen' effect (above). An example of one potential response drawn from the model of targeted aggression is shown here to illustrate the interpretation of the abbreviated recording approach:-

A component of table 11.1

Enabler	Accelerator	Constraint
Subsidise by pragmatic violation *- change one's point of view from the moral to the amoral*	Threshold for being prepared to exploit others when the chance arises decreases as:- a) more do; a critical mass for action will accelerate the rate of joining the *amoral* element of the population and people are increasingly more likely to join as they see their intimates persuaded to the *amoral* point-of-view. b) the *moral* exhaust their in-relations and have less to lose by defection, particularly as there may be no alternative in some cases (e.g. if subsistence resources exhausted) c) the *moral* cannot fulfil their out-relations Imperfect knowledge could result in the 'Tragedy of the Commons'	Finite capacity - there must be enough 'production' to satisfy the essential needs of the whole commonty population (whether *moral* or *amoral*, producers or not). (When the critical failure point is reached: .....)
Amnesty and forgiveness *- change one's point of view from the amoral to the moral*	....	....

Table 10.2 - Example of table of potential responses linked in causal chain

This example can be used to illustrate some of the points. The first *enabler* assumes that something has occurred which makes behaviour previously thought reprehensible a little more palatable to the individual. The details and hypotheses leading to that conclusion are developed in the full model in Chapter Eleven (below) but suffice to say that some of the things which could tip the balance of the decision to change one's mind from the culturally *moral* to the culturally *amoral* point-of-view include the actions of other people in this case. For example, the 'accelerator' column includes the hypothesis ('a') *inter alia* that the rate of increase of the spread of *amoral* behaviour will accelerate because as more do take up *amoral* behaviour, the reducing numbers of the *moral* are each at a greater average risk of becoming a victim (thus reducing the *moral* individual's threshold for joining in with *amoral* behaviour by an amount). That column also notes the hypothesis that imperfect knowledge could result in the 'Tragedy of the Commons' in that so many people may be behaving in the *amoral* fashion that the person who remains inclined to *moral* behaviour by preference may feel that s/he has no option but to engage in *amoral* behaviour, even if by so doing s/he gains no actual benefit but instead, in fact, makes the average person's situation (including her/himself) worse. The 'constraints' column highlights that there is a finite limit to the comparative attractions of *amoral* behaviour, in that the potential advantage in joining in is eroded by each new convert to the *amoral* point-of-view, to a point where it becomes a comparatively disadvantageous behaviour (in this case because there is not enough of the valued target of aggression still being 'produced' and, thus, to provide potential targets for the *amoral*).

Stage 3 - Contextualise causal chain by dataset

Initially anchored in some evidence from a period early in a case study, a causal chain can become 'detached' from the evidence over time and the posited chain must be linked back to the observed developments to suggest the pace of change and to add substance to the arguments. Naturally, there may be some ambiguity in the evidence and the interpretation which best fits this causal chain should be explored. For example, within the targeted aggression causal model which is developed in Chapter Eleven, below, positing early theft action and defence against that in the case study requires that linear ditches be interpreted as preventing theft on any large scale, by preventing the driving of a herd. That premise need not be true and, indeed, need not be the best explanation for the facts but making the inference overt and clear is essential input to making the comparative analysis of likelihood in stage 5, below.

Stage 4 - Contextualise causal chain by group dynamics

Mapping the potential causal change to archaeological evidence at stage 3 creates a plausible hypothetical history of the evolution of the posited behaviour over the case study period but full explanation requires that it be mapped against the GDM history of social change to show how it can have accounted for the observed developments and to highlight where the case for causality is strong and where it is weak and suggests that further explanation is required.

Stage 5 - Evaluate and integrate

Each of the causal chain models, contextualised by archaeological evidence and by the GDM history, has been assessed for its strengths and weaknesses as though it were mono-causal explanation. Where there are weaknesses, the models must be integrated if possible to strengthen the overall explanation and where there are alternative explanations for the same effects they must be compared and weighted on the balance of likelihood. The balance of likelihood may be accessible by evaluating further supportive evidence, by identifying where they could reasonably have been expected to have supportive evidence yet have none and where they are unlikely to have left any evidence. The final causal models may be equally plausible as explanation and alternatives must suffice but this exercise can provide input to further research specifications in that evidence which would differentiate between alternative causal models for change can be specified and a strategy for its retrieval defined.

Assessing evolving group dynamics as explanation

Far from denying the value of empathetic analysis of past societies, the approach utilises that human skill in a controlled manner directed toward ensuring a comprehensive and open-minded review of the potential causes of change in the past and expressed as an understanding deriving from individual decision-making. Naturally, there is the risk that some possibilities may be beyond the scope both of the analyst's imagination and of the evidence. Putative explanations must be generalised to some degree; for example, whilst it may be possible to argue for 'supernatural sanctions' it is rather unlikely that the nature of the belief can be divined at this temporal distance and, similarly, arguing for 'privileged roles' may be reasonable yet we may be incapable of supporting any derivation of the nature of the brief or the activities involved.

Nevertheless, interpretation is anchored in evidence whilst not falling into the trap of assuming that no evidence equates to no event. In Chapter Eleven (Regional Variation), below, the value as interpretation is explored by application to a number of themes in the development of regional variation between Hampshire and Sussex in the first millennium BC, to prepare a basis for assessing both the viability and the utility of the approach as explanation. It will be argued that the result is a considerable improvement on single-story causal explanation. Furthermore, the interpretative process provides a framework for assessing the balance of likelihood of alternatives when contextually evaluated using normative group dynamics theory and all stages are recorded and, therefore, repeatable. Finally, working to a procedure and within a defined framework, deriving measured and recorded conclusions allows the Archaeology of Group Dynamics to be applied comparatively, across both space and time.

CHAPTER ELEVEN - REGIONAL VARIATION

The nature of the interpretation

In the closing century of the first millennium BC in Southern Britain, the archaeological indications of regionalisation (e.g. ceramic styles, architectural forms) are strengthened by numismatic evidence which makes it quite clear that some groups identified themselves as named polities. That is further corroborated by Roman literary sources attesting both to the reality of several named, coin-issuing 'leaders' and to the probable 'tribal' names used by those self-identifying groups. (Millett, 1992, 12-23). Archaeological and historical specialists in the areas of cross-culturation between the Roman and the British spheres of influence, and in the Romano-British period in Britain, tend to emphasise difference and cite the varying dynamics of relationships between peoples and Rome's representatives as importantly causal in the observed outcomes (especially Millett, 1992). By contrast, those who study the Iron Age, particularly, often acknowledge that there may have been regional differences in social structure and many problematise that (e.g. Cunliffe, 1991a; Bradley, 1991; Hingley, 1984), yet few actually model the nature of the differences on any local level or, indeed, question how nascent differences could have evolved into the full regionalisation seen at the end of the millennium.

The same is true of the transition from the Bronze Age to the Iron Age, but is even clearer in that field of study as there is no proto-historical evidence for regionality at that time, so the focus tends more toward broad areas of practice (e.g. deposition of bronze, orientation of roundhouses) rather than how, or why, that varies except in the most general terms.

Hampshire and Sussex show distinct similarities in social structure in the baseline period at the end of the second millennium BC but they clearly diverged, as is seen in the GDM history, through the millennium. Those alternative trajectories of change from similar baselines occurred in spite of the similarity of many areas of life glimpsed in the archaeological evidence, indicating that many points of habitus were held in common between the two (or more) commonties, throughout. This chapter explores that variation and derives tentative explanatory models vested in evolutionary theory of descent with modification espoused in Chapter Ten (Evolving Group Dynamics), contextualising developments within those two different histories of group dynamics, to highlight regional variation and to hypothesise how it may have evolved.

Four models are developed, namely 'Targeted Aggression', 'Inscription', 'Representation' and 'Production Failure'. They have been selected to demonstrate a variety of facets of the approach to interpreting change observed in the record by virtue of their differing time ranges (e.g. the Targeted Aggression model spans more than 1200 years, the Production Failure model centres around the c1000 - 600 BC period and the Representation and Inscription models can be expected to apply in circumstances which occurred sporadically throughout), their representation of each of the environment classes (cultural behaviour, the natural and the manufactured environments) and in that some may be considered primarily causal (e.g. Targeted Aggression and Production Failure) and the others secondary. At least two of the four tackle areas which analysts have examined in recent decades and, therefore, prove useful for the final evaluation of the efficacy of the Group Dynamics approach to interpretation (Chapter Twelve - Evaluation, below). For clarity of explanation, stages 1 - 4 for each of the four models is developed as a whole. Each model is discussed as though it were causal, so eradicating the need to interrupt the flow of the argument with *caveats* to an excessive degree. The Targeted Aggression model is developed first as it is not only the largest model but it also proves to be potentially causal for two of the three others. Stage 5 briefly draws all themes together and evaluates the relative merits of alternative models, arriving at a summary of this substantively new approach to interpretation of aspects of the first millennium BC in Hampshire and Sussex and illustrating how regional variation within habitus can develop over the long term.

There are a number of important, established interpretations of aspects of the areas of behaviour discussed in the models which follow. However, the purpose of this work, as a whole, is to demonstrate the utility of the group dynamics approach by showing what it can add to current interpretation. Thus, discussion within the context of established interpretations and evaluation of the success of the venture is left to Chapter Twelve (Evaluation).

The Targeted Aggression model

Targeted aggression model stage 1 - the catalyst

In the last 30 years of archaeological interpretation we may have been guilty of *'pacifying the past'* without adequate justification (Keeley, 1996, 3-24) and must reconsider. Aggression may take forms which include both theft and violence and may be directed at a number of targets. Theft is certainly a feasible strategy for obtaining a living, property and partners, especially in circumstances where there is an ethos of personal ownership. Similarly, whilst there is little reason to suspect that violence, without a subjectively desirable end in mind, would be at all common, the potential social role of violence is revealed by a considerable body of ethnographic evidence for people seeking opportunities to demonstrate valour as a way of bolstering social capital, whether that be articulated as a hunger for glory or revenge, portrayal of self as saviour, a way of retaining the good opinion of peers, or to gain the notice of those with more social capital than oneself. Theft may be overt or covert and may use violence or not. In this interpretative causal model, both are examined together under the umbrella term 'targeted aggression' for the sake of brevity and, as will be demonstrated, the tenor of targeted aggression, the motives and the nature of the targets may have evolved over time.

Modelling the social and cultural dynamics of targeted aggression as a series of potential catalysts and responses for behavioural evolution in the first millennium BC requires a base assumption that it was likely to have been an element in an individual's decision-making considerations. Both Hampshire and Sussex demonstrate individualism at the end of the second millennium BC and it has been argued that personal decisions were made mainly by reference to subjectively rational choice with selfish desired outcomes and, therefore, action decisions were likely to include the potential for benefiting personally by defection, particularly when the chance of detection was slim (pp. 205, 227). Thus, theft is a clear option and it is rather likely that targeted aggression would be an example of behaviour which would spread by direct bias (p. 299). If not restrained by norms of justice and fair exchange and if the benefits of victory were great enough to outweigh the risks and consequences of violence, then both the will and the skill pertained as may be seen in the evidence for persistence of hunting (albeit probably as sport) which can also be read as evidence for the skills of tracking and killing using weapons. Furthermore, competition articulated through displays of physical prowess has been retrodicted as the normative group dynamic for the early periods (pp. 230-232, 272-273) and admiration of the social persona of the physically violent individual is indicated in the warrior graves, weaponry and axes of the Bronze Age.

Should the reality of the will be in any doubt, then turning to the evidence of cross-cultural studies should convince the most sceptical. Three independent studies of more than 50 non-state societies reveal that only c 5-10% do not participate in any warfare or raiding activities and all of these are nomadic groups of very small numbers living in the most isolated regions and with low population densities (Keeley, 1996, 27-29). Underlining this point by example, the !Kung San, often thought of as peaceable, experienced a homicide rate four times that of the US in the period 1920 - 55 and between twenty and eighty times that of any major industrial nation during the 1950s - 60s (Keeley, 1996, 29-30). That action usually took the form of small-scale raids and prolonged feuds between bands and against Tswana herders (Keeley, 1996, 29-30).

When personal rights to produce from a land lot are introduced, in combination with an agricultural subsistence base, the option of flight from attack becomes more costly and the cost of investing in adequate defences comparatively more justifiable. Whilst the best prevention of violence may be a norm of moral distaste combined with co-operative action to detect and punish offenders, it has been argued that the likelihood of effective norms and collective action depends, to some degree, on the structure of the social network itself (pp. 205-207). In summary, '*whilst it is not inevitable, war is universally common and usual*' (Keeley, 1996, 32).

Developing these points about the likelihood of violence, three studies on the frequency of warfare showed that 66% of a sample of 50 non-state societies were at war <u>every</u> year and 70 - 90% at least every 5 years (Keeley, 1996, 20, 32-33). However, motives were by no means always vested in obtaining subsistence and truces to tend crops are rather commonplace (Keeley, 1996, 30). Similarly, 'wars of attrition' (frequent low-casualty battles and raids and occasional surprise massacres) are rather more common than total war strategies involving plunder of wealth and food, destruction of houses, fields and other means of production and the killing or capture of adults and children (Keeley, 1996, 32, 48).

The evidence provides an incontrovertible argument for assuming that targeted aggression was not only possible but probable. In first millennium BC studies, the role of 'hillforts' in warfare (or not) and the cultural role and meaning of depositions of the 'warrior' accoutrements of middle to late Bronze Age burials and hoards have been popular areas of study. Yet these are rarely (if ever) synthesised over the full first millennium BC and the causal chain, developments and oscillations of targeted aggression can be appreciated more fully by cultural contextualisation.

Targeted aggression model stage 2 - potential responses

In considering the dynamics of the spread of targeted aggression behaviour at the expense of peaceable living, or *vice versa*, in a population we need to consider individual choices and acts from two points-of-view. The first is that of those who have not succumbed to any temptation to 'defect' upon social norms of fair exchange and justice, who co-operate with each other simply by virtue of subscribing to cultural ideas of 'ownership' of valued property (whether of one's person, animate or inanimate, fixed or portable goods and chattels *inter alia*) and respecting the right of others to do the same. Whilst fully recognising that the morality to which people subscribed in the first millennium BC is unlikely to have been the same as ours today and, indeed, that it is likely to have changed over time within the case study period, it will be convenient to consider those with the co-operative and mutually respectful attitude as holding the *moral* viewpoint. The extent to which the moral high ground may shift in the face of targeted aggression is problematised in this model. In contrast, the point-of-view of those who did not live by the morals of the day and who were prepared to act as perpetrators of targeted aggression from time-to-time, violating cultural norms of fair exchange by exploiting others to gain personal advantage, will be referred to as the *amoral* stance.

The first step in retrodicting the dynamics of targeted aggression is to consider the likelihood of the risk coming to an individual's notice and, if it is likely, whether s/he would respond (pp. 318-320). The model starts in the baseline period when the network density in both Hampshire and Sussex populations was fairly low (p. 269). Naturally, *amoral* individuals would be well aware of the risk of suffering violation by targeted aggression but the *moral* member of a very low density social network may not realise that others have suffered, as communication channels may be fairly slow (p. 209). However, if the practice is at all common the *moral* individual must become aware of the risk and once realised, it is highly likely that anyone would respond in all cultural contexts.

Simply responding is not enough to cause change *de facto*; change requires that the proportions of people's thresholds for turning to *moral* or *amoral* behaviour in the population swing in number, in one direction or the other. Each generation will comprise representatives of each disposition in similar proportions to the last unless the environment acts upon them in such a way as to change their views. Thus, to understand targeted aggression and responses as causal to change requires that we demonstrate the feasibility of people's thresholds for one or the other behaviour changing in considerable numbers, but generally in the same direction.

Considering a spread of targeted aggression first, both the *moral* and the *amoral* risk being victims of targeted aggression behaviour, but only the *moral* need to be considered when searching for the dynamics of the further spread of that viewpoint. What could make them change their minds? The actual victim of violation may simply be left with such a shortfall of the valued resource that s/he is left with little choice but to obtain the minimum requirement, at least, by turning to targeted aggression her/himself. However, it would be usual to expect the *moral* victim to first seek to satisfy her/his personal needs by calling in in-relations. Thus, it is only at the point that they cannot oblige, or where there are none left to turn to, that a change of mind is likely to result. The potential victim, on the other hand, can respond by making preparation in readiness for the possible eventuality of suffering at the hands of an aggressor. Those preparations may include taking action to defend one's property and interests and to seek out the perpetrators of aggression, and dissipating risk by transacting reciprocal social storage arrangements with others at a geographical distance, as the chance of the sharer being targeted at the same time as self would be thus reduced. Any, or all of those responses could be actioned personally or by collaboration with others but all of the potential benefits can be accrued only at cost to self (e.g. all require personal time and effort; extending social storage requires that one makes more personal commitments to one's risk-sharing partners). Whilst these actions may not directly affect the balance of the *moral* and the *amoral* viewpoints in society, it will be shown that they may introduce new behaviours with concomitant effects on the social environment (e.g. the subject matter of the Inscription and the Representation models, below). Furthermore, they may result in a cultural shift of the very norms of justice and fair exchange which 'first' defined what had been considered morality.

Looking at the potential for change in the reverse direction, the costs of defending and insuring against risk from targeted aggression could become so great that the remaining, entrenched *moral* see it as being to personal benefit to offer amnesty to the *amoral* and, indeed, the *amoral* are not immune to the potential of being victims in their turn. Thus, should targeted aggression behaviour become so widespread as to render 'producing' the valued target too risky to seem worthwhile, then all will suffer a lack of the resource and the *amoral* may be tempted to revert to the *moral* viewpoint when they see the mutual co-operation required as being to personal advantage.

In summary, the evolutionary effects of targeted aggression behaviour upon the cultural behaviour environment can be seen as grouping into two categories for convenient discussion.

Firstly, the evolutionary dynamics of the spread of the relative proportions of *moral* and *amoral* viewpoints and behaviours are modelled and that is followed by detailed modelling of the ramifications for and of the new behaviours which could have resulted from the responses to the perceived threat of targeted aggression.

Spread of the *moral* and *amoral* behaviour variants

Enabler	Accelerator	Constraint
Subsidise by pragmatic violation *- change one's point of view from the moral to the amoral*	Threshold for being prepared to exploit others when the chance arises decreases as:- a) more do; a critical mass for action will accelerate the rate of joining the *amoral* element of the population and people are increasingly more likely to join as they see their intimates persuaded to the *amoral* point-of-view. b) the *moral* exhaust their in-relations and have less to lose by defection, particularly as there may be no alternative in some cases (e.g. if subsistence resources exhausted) c) the *moral* cannot fulfil their out-relations imperfect knowledge could result in the 'Tragedy of the Commons'	Finite capacity - there must be enough 'production' to satisfy the essential needs of the whole commonty population (whether *moral* or *amoral*, producers or not). (When the critical failure point is reached:)
Amnesty and forgiveness *- change one's point of view from the amoral to the moral*	Threshold for joining in decreases as:- a) there are more successful examples of re-assimilation (those outside the system are comparatively more at risk) b) the 'inviting' population includes more of the non-joiner's intimates	'Prisoner's dilemma' situation which can be resolved by reaching a critical mass for co-operative action.

Table 11.1 - The dynamics of the spread of the *moral* and *amoral* behavioural variants

Although the *moral* individual may hold a fairly high personal threshold for giving up long-standing rights and relationships, that reluctance is likely to decrease as more people are prepared to engage in targeted aggression behaviour and the chance of becoming a victim increases. Acceleration of the wearing down of any innate resistance to turning to *amoral* behaviour oneself is expected as:

a. more of one's intimates are persuaded to the *amoral* point-of-view
b. more of one's in-relations are persuaded to the *amoral* point-of-view and, as a result, shake one's confidence in their support and fulfilment of obligations in the event that one becomes a victim
c. one is unable to fulfil one's out-relation obligations. A number of related reasons could include having suffered personally as a victim and/or having taken on greater levels of obligation in the hope of dissipating one's own level of risk

Thus, there is likely to be a trickle movement towards a critical mass threshold and acceleration beyond that:

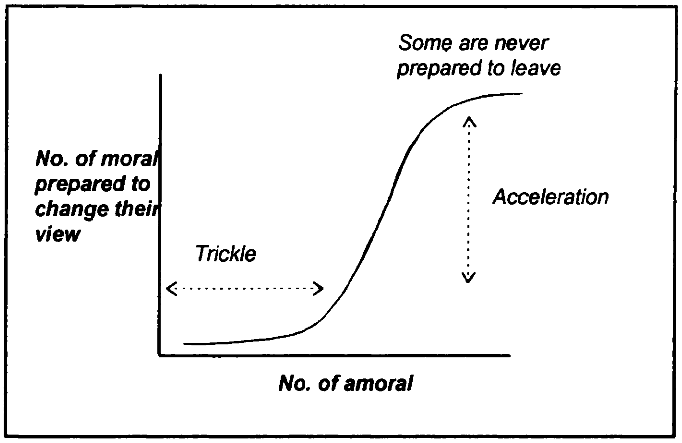


Figure 11.1 - Adopting an *amoral* point-of-view - accelerating effect of critical mass for action

As more are prepared to join in with targeted aggression behaviour as the result of the spread of the *amoral* viewpoint, the *moral* individual's choice is likely to become increasingly constrained by the possibility of reaching a critical point of finite capacity; If being prepared to live by targeted aggression means that more actually do so, then the risk to those who do not increases. For example, physical production of a targeted resource (e.g. a food crop) may reduce overall as fewer put in the work. A second example might be gaining partners by capturing them; again, those who are not prepared to join in that behaviour may find that fewer potential partners are available to them. As fewer obtain <u>all</u> of their needs by 'production' and more subsidise by targeted aggression behaviour, there is an increasing risk that the individual will not achieve the 'necessary' subsistence level of the valued target whichever way s/he goes and the behavioural balance may result in a critical failure to 'produce' enough:-

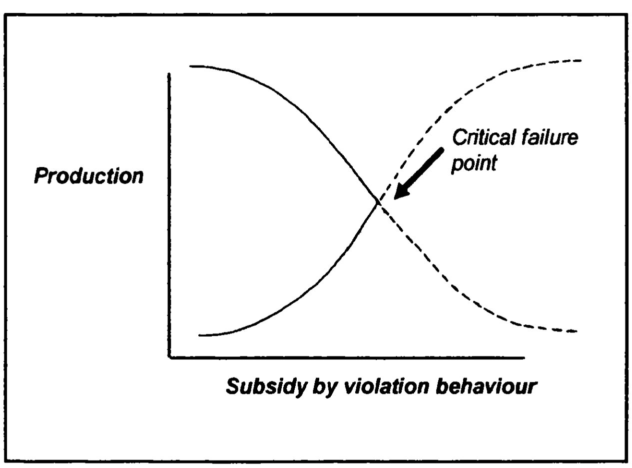


Figure 11.2 - Adopting an *amoral* point-of-view - constraining effect of finite capacity

As the critical failure point is approached (and passed), a 'Tragedy of the Commons' situation will arise, as the individual would have almost no choice but to try to maximise her/his personal position by 'subsidising' her/his own 'production' by the fruits of targeted aggression action, even though it is inevitable that by so doing some will fail completely. Whilst the sage individual would foresee an avalanche taking society past the critical failure point, the chance of persuading others to co-operate to avoid it may be dependent upon the cultural context. Nobody could forecast the timing of the critical failure point, as the level of violating activity would be difficult to approximate due to the secrecy inherent in the practice, and the risk of ambush on journeys would tend to reduce the extent and speed of inter-community communications in dangerous times.

As a critical failure becomes apparent to the population at large, the relative costs and benefits of 'producing' more and relying on one's own ability to make up the balance by targeted aggression will tend to adjust and disadvantaged individuals in that equation may seek to persuade the *amoral* to the *moral* way of life again. Similarly, the *amoral* would also have little choice but to consider co-operating by acting in such a way as to earn trust again, within the protection of amnesty from the consequences of past misdemeanour. That amnesty in local pockets would need to be framed in such a manner as to allow the mutual co-operation of the 'Prisoner's Dilemma' model and that is likely to be constrained by the need to reach a critical mass threshold beyond which the joint local group is 'stronger' than others which have not taken this course.

		Moral	
		Co-operate	***Defect***
Amoral	***Co-operate***	No risk; minimum effort (both)	Reduced risk; reduced effort *(moral)*
	Defect	Reduced risk; reduced effort *(amoral)*	Maximum risk; maximum effort (both)

Figure 11.3 - Adopting a *moral* point-of-view - constraining effect of the 'Prisoner's Dilemma'

The additional benefit of 'strength' may depend upon the introduction of new behavioural variants aimed at bolstering protection by avoiding victimisation, by improving one's chances of defeating an actual attack and by increasing the 'insurance' to be gained from instrumental relations further afield (discussed below).

To participate in amnesty action, one needs to feel able to trust others not to defect on the local arrangement the moment that the costs and benefits of defection readjust. That trust may need to be founded on further co-operative ventures to 'police' the system. The local group which does co-operate in this way will be comparatively safer than others which do not. As more do re-assimilate and are observably successful, the threshold for joining in is likely to be lowered, with an accelerating effect on the spread of the behaviour. The individual who is outside the system will perceive that s/he is more exposed than those within, and as the amnesty groups increase they are more likely to include more of her/his intimates. If that readjustment is made, the potential benefits of defecting to secretive, violation behaviour become more attractive to the erstwhile more successful perpetrators of targeted aggression again; the two behaviours are likely to cycle over a long period.

Novel behaviour - defence and alliance building

Enabler	**Accelerator**	**Constraint**
Small community defend property	Those which do not are at greater risk as more do, as they are easier targets	As more communities take this action, risk differentials will reduce and the community members will need to redouble their efforts in order to stay ahead. The time available has a finite limit. (Jolt to worldview or finite time limit reached)
Collaborate with others in negotiating and maintaining defensive alliances	As more subscribe to the collaborative system, those outside face increasing personal risk.	a) Prisoner's Dilemma' situation which can be resolved by reaching a critical mass for action b) The 'Red Queen' effect - co-operative effort may need to be escalated in order to remain effective in ensuring safety

Table 11.2 - The dynamics of defence and alliance building behaviours

While mounting of a community defence of settlement and property is not universal, it will reduce their own comparative risk as undefended others will be more attractive potential victims to perpetrators of aggressive action. Furthermore, that may allow property 'owners' within the community to gain further advantage over others by increasing the 'price' of any surplus holding of the targeted resource to victims of targeted aggression behaviour. Those benefits should prove to be short-lived as non-defenders will soon recognise that they are disadvantaged as a result and act to redress the balance; the spread of defence behaviour is likely to accelerate. If the defences are effective in repelling targeted aggression action then there need be no evolutionary effects on behaviour from that point. However, if the perpetrators of aggression take action to breach those defences (below), the differential advantage of the defending community will be eroded as more subscribe to this behaviour. Increasing defences locally to regain an advantage will require more time (e.g. building work, watch-keeping) and the time available from community members has a finite capacity, which is lower the smaller the community. When that limit is reached or, indeed, foreseen, the small community may choose to ally itself with another, or others, to gain the advantage of mutual co-operation in defence action by, for example, forming larger defensive communities to gain 'economies of scale' in watch-keeping and building defences, or by the introduction of mutual intelligence systems to warn of threats and to secure support.

The contributor to defensive behaviour may find it worthwhile to include the seeking out of perpetrators, or suspected perpetrators and the punishment of those individuals according to the social norms of justice. Attack (perhaps in the name of retaliation for a perceived wrong) may be considered the best form of defence. Just as with actual defensive actions, attacking and retaliatory actions may be differentially effective if they are conducted by collaborative alliances of small communities.

Co-operation to defend may be expected to be local in the first instance, for logistical reasons. To collaborate with another community requires mutual trust to share information and to inspire confidence that each will, indeed, come to the other's aid in the event of attack. That is a 'Prisoner's Dilemma' situation requiring the establishment of co-operation, but that enterprise may be aided by a history of neighbourliness meaning that people in each community are likely to know each other and may have something of a shared history.

Escalation of defence and retaliation behaviours may result in new levels of co-operation between communities which can communicate in a speedy manner, and then beyond between community groups and so on:

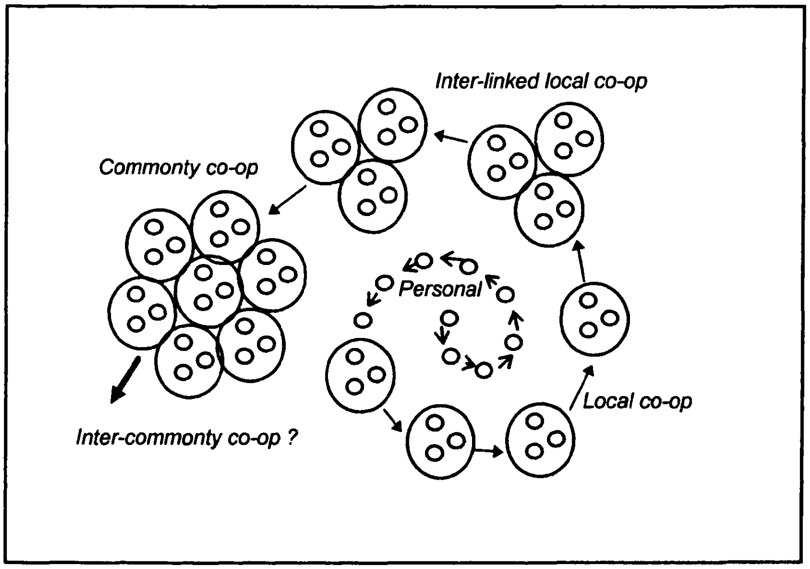


Figure 11.4 - ***Collaborative retaliation*** **response to targeted aggression - constraining effect of escalation**

As the geographical extent of alliances widens, we might predict that the 'easy' co-operation that seems likely between close neighbours, with shared knowledge and history, would become less and less attainable and that the establishment of co-operation would become a more difficult exercise involving negotiation of new relationships.

Evolutionary effects of targeted aggression responses

As long as a population is seeded with a few people who have are prepared to take advantage of others by living by *amoral* behaviour when the situation allows, the first element of this model (i.e. 'subsidise by pragmatic violation' and 'amnesty and forgiveness' actions) can apply; the relative proportions of those subscribing to *moral* and *amoral* behaviour would cycle. However, that would amount to a non-evolutionary oscillating stasis were it not for the possibility that some *moral* individuals might see benefit in investing in personal defence (i.e. 'small community defend property' action) and experience a differential degree of success great enough for others to notice that they are suffering by comparison. Should that point be reached, it has been argued that an escalation of defensive action could ensue (i.e. 'collaborate with others' action) resulting in ever wider alliances.

As alliances grow stronger, by virtue of extending more widely and by building a mutual history of co-operation sponsoring a trust and lengthening the 'shadow of the future', individual potential perpetrators would find it increasingly more difficult to find opportunities for successful aggressive action. However, new potential behaviours may develop in that the norms of fair exchange and justice may shift in the culture of the negotiated 'new' alliances. The members of groups within an alliance may feel it to their personal benefit to persuade others to co-operate to take advantage of the size and strength of the alliance to attack (perhaps in the name of defence by cutting off the potential for others to act against them) which is, of course, targeted aggression by another name. To any individual endowed with hindsight, the goals of aggressive action will have shifted beyond recognition. Perhaps the strategies employed may have evolved from the secretive, personal action of the 'sneak thief' to 'wars of attrition' of larger and larger groups of allies and the concept of personally anonymous enemies may have been introduced whilst the original real or imagined wrongs were lost in the mists of time. New ways of wronging others will arise (e.g. defaulting on a mutual promise to come to another's aid in the event of attack). The key dynamic of targeted aggression may no longer be concerned with the relative proportions of the *moral* and *amoral* behavioural variants in the population but, rather, with something like the *brave* and the *cowardly* or the *loyal* and the *disloyal*.

Nevertheless, if we simply ignore the semantics and think of the *moral* as those who do not subscribe to targeted aggression and the *amoral* as those who do, then we can see that the first model still applies. However, the units of action have increased from the individual to the allied group, albeit that individual decisions made by reference to the culturally current norms of justice and fair exchange are still the driving force for that aggregate outcome. The alliance which engages in targeted aggression against another for the first time represents a new recruit from the *moral* behaviour population to the *amoral,* and if too many turn to *amoral* behaviour then a critical failure point is reached at which there may be too little of the valued target to go round. This is likely to result in a perceived need to co-operate in suing for peace and negotiating amnesty. That amnesty need never be overtly and explicitly discussed and agreed (Axelrod, 1990, 73-87) yet could involve evolution of the actual aggressive behaviour to more ritualistic, perhaps even symbolic 'battles' between old enemies. Supposed wrongs which may have fuelled earlier aggressive behaviour may be forgotten and the battle ground shifted to antagonistic exchanges vested in myths of group history.

Targeted aggression model stage 3 - contextualised responses (dataset)

The model for the full cycle of behavioural responses to targeted aggression proposed in stage 2, above, may not have occurred in the first millennium BC at all, or it may have occurred several times or just once. Furthermore, at the baseline point of this study (the end of the second millennium BC) the commonties of Hampshire and Sussex could have been at any point in the cycle. Broadly speaking, there are six categories of patterns in the archaeological evidence which, with input from the normative group dynamics (Chapters Eight and Nine) can be interpreted in such a way as to throw light on the presence or absence of potential responses to targeted aggression in this model:-

1. Period of 'no man's land' between Hampshire and Sussex
2. Weaponry and armour (bronze)
3. Physical as opposed to symbolic boundaries (i.e. linear ditches / cross-ridge dykes)
4. Stock enclosures
5. Substantially enclosed settlements
6. Developed hillforts

They vary by time and by general geographical region and the important areas which make the main points for this case are mapped against the evidence categories by time band in figure 11.5:

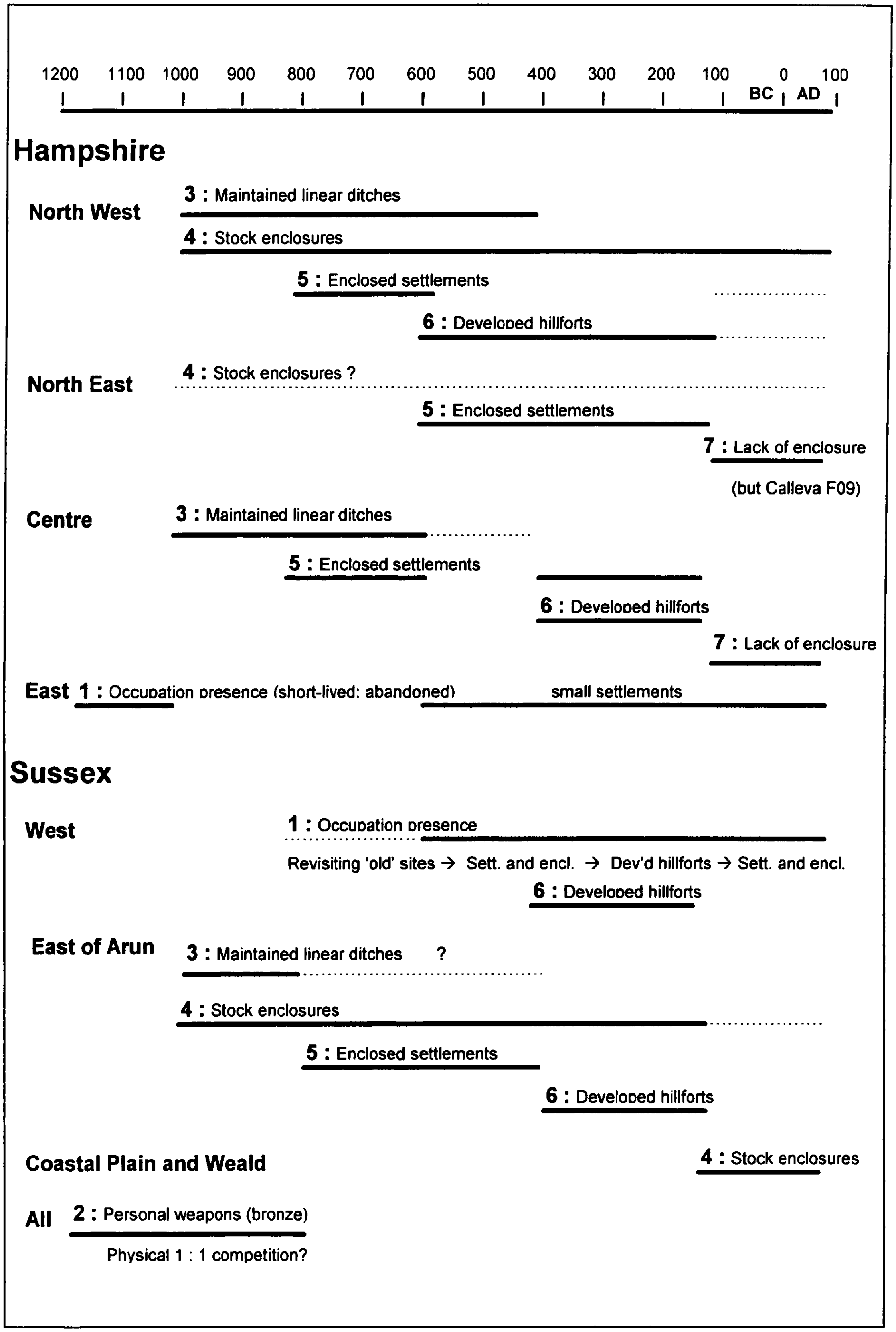


Figure 11.5 - Evidence for potential responses to targeted aggression by region and time band

Period of 'no-man's land' (1)

The excavated dataset suggests that the area west of the river Adur and into eastern Hampshire was either unsettled for a 400 year period between c 1000 - 600 BC or settled in a manner more archaeologically invisible than other areas. Explanation for the avoidance of lower-lying land could lie in environmental factors relating to the downturn in the climate and its posited effects (pp. 125-127) but that does not explain the absence of settlement on the downland.

The few sites which have been located and which date to the end of the second millennium BC were all very small, unbounded and probably short-lived and at least one (Chalton 78 F12) was hastily abandoned. If it were accepted that the apparent avoidance was real, then two behavioural explanations immediately present themselves. Firstly, there may have been a tension between two populations with the result that people did not dare to breach the 'safe' gap between them. Secondly, and alternatively, the area may have been traditionally used in another way; whilst that may have been another subsistence approach (e.g. transhumance), it could equally have been an area occupied by a low population of those cast out from society, and those may have included perpetrators of targeted aggression who had been caught, or exposed and in hiding. The individualism of both counties in the years leading to the turn of the first millennium BC suggests that severe punishment would have been rejected in favour of a more humanitarian approach (p. 235) and such an area could have provided a home. If so, the area could rapidly acquire a reputation for being the lair of 'dangerous' people which would ensure avoidance by the peaceable. Once earned, the reputation would be all that was required to leave the area unsettled and un-breached even if that reputation did not reflect reality.

Weaponry and armour (bronze) (2)

It has been argued that competition in the early, individualistic period in both Counties may have been expressed in a range of ways, one of which could have been one-to-one fighting competition, and that personal weaponry may have represented previous success and standards of ability (pp. 232, 272-273). There is no reason to suspect any larger-scale violent activity at this time.

Symbolic boundaries made physical (3)

It has been argued that symbolic boundaries may have been made physical by constructing linear ditches (a.k.a. cross-ridge dykes) for the purpose of protection against the possible threat of large-scale theft, in that attempts at stealthy, undetected, herd-driving and movements of heavy cartage would be deterred by their presence (pp.747-748). Although linear ditches in the earliest days tended to separate single-domestic-unit communities (where dating is known), they clearly allowed the passage of others across the enclosed land for access to water *inter alia* and the layout must have been co-operatively agreed (pp. 177-178) although alliances would have been comparatively local and small scale (i.e. the 'local co-operation' of fig. 11.4, above). Whilst that is asserted with some confidence for north-east Wiltshire, west, north-west and central Hampshire, the Sussex examples have not been archaeologically examined in anything approaching the same degree of detail and the developments posited must be regarded as tenuous as they are only made by analogy with the Salisbury Plain Study case there (pp. 176-178).

Stock enclosure (4)

Lightly bounded, non-settlement enclosures first appear at c1000/950 BC and examples appear in all following periods. They have been interpreted as stock enclosures (pp. 149-150, 723) with banks and ditches to provide the greater barrier necessary to keep sheep in and wolves out. However, the bank and ditch would also have been effective against raiders who would need to drive animals or achieve a break from the herd, neither of which can be achieved when the herd is confined. They would not have been effective against mass attack but could have provided protection against sneak thieves, as all of the animals could have been guarded at the same time (e.g. by guard dogs and watches).

If any part of the intention were defence against targeted aggression then each is likely to have been mounted by the efforts of one of the very small communities of the early period, thus offering evidence for the 'small community defence' response.

Substantially enclosed settlements (5)

Enclosure of small settlement sites by banks, ditches and stockades may represent the defences of small communities in the face of a perceived threat. In all areas where both enclosed settlements and 'developed hillforts' occurred in the excavated dataset, it is interesting to note that the first enclosed settlement phase preceded that of the hillforts and that settlement enclosure ceased to be maintained when a 'developed hillfort' was built in the region. That does provide tangential evidence for the mooted escalation from local defence by small communities to the negotiation of ever-greater alliances of communities co-involved in defensive action. The north-east of Hampshire was comparatively late in developing enclosed settlements and may never have been involved in the construction of a 'developed hillfort' (depending on the view taken of Winklebury F48's role and function (pp. 737-741)).

Developed hillforts (6)

Elaborate hillfort development appears to have started earliest in north-west Hampshire (c600 BC) and spread to all downland regions (except north-east Hampshire) during the 400 - 100 BC period. In north-west and west Hampshire, the trajectory of development detectable in the evidence could be construed as marking each of the mooted levels of alliance for defence and retaliation posited in figure 11.4, above, as follows (site patterning details noted especially on pp. 736-741, 745-755):-

Table 11.3

Period	***Site pattern***	***Level of alliance***
800 - 600 BC	Junctions of linear ditches marked by building of structures on high locations; not all necessarily defensible as such, but sited high, allowing long-distance views (of e.g. pasturing herds) and very tentatively suggesting possibility of meeting to negotiate and maintain relationships and practical role in keeping watch and warning systems. • Danebury F14 - outer, then inner stockade • Quarley Hill F36 - stockade • Suddern Farm F43 - stockade • Ladle Hill, Hampshire (never finished) • Examples in Wiltshire	Local co-operation ***Local co-operation***

Table 11.3 (Continued)		
600 - 400 BC	Sites noted above continued and St. Catharine's Hill F42 in the centre of the County is just possibly another example. Additionally, Danebury F14's inner circuit was developed as a fully defensible site and it was occupied and Quarley Hill F36 was probably 'strengthened' by earthen banks and ditches at this time. Additions to the pattern in both the subject area (e.g. the unexcavated Figsbury) and the neighbouring east / north-east Wiltshire (e.g. Sidbury, Lidbury, Chisenbury Trendle, Casterley Camp and Coombe Down) are sited so as to suggest strategic placement for inter-visibility and views of main rivers in the region (Bradley et al, 1994, 147; Cunliffe, 1991a, fig. 14.26).	Local co-operation spread and strengthened. The effect appears to have gathered pace and from c500 BC onwards could be described as indicative of inter-linked local co-operation or, perhaps, commonty-wide alliance (but the actual extent of commonty cannot be known). ***Local co-operation behaviour spreads; inter-linked local co-operation develops from c500 BC***
400 -.100 BC	New hilltop sites developed on ditch junctions, extending the area of concentration of that behaviour: • Woolbury F49 • St. Catharine's Hill F42 (if not earlier) Existing sites greatly 'strengthened' defences: • Suddern Farm F43 • Danebury F14	The resolution of the site distribution pattern in this period into discernible concentrations of community settlement sites and 'hillforts' in the north-west and the centre, at least, and probably settlement sites only in the north-east does suggest that this could be commonty-wide collaboration for defence. ***Commonty-wide ?***

Table 11.3 - Interpretation of Hampshire site patterns as indicative of levels of political alliance for defence

In contrast, the communities of Sussex do not appear to have engaged in collaborative alliances on anything like that scale, yet in the 400 - 100 BC period the massive and impressive Cissbury E10 hillfort was built, dwarfing all others in both Counties of the dataset. At 24 ha, with banks and ditches taking advantage of steeply inclined hill slopes to the west, south and south-east, it seems quite massive from the outside. It is particularly interesting that Cissbury E10 site is located in the Arun to Adur sector of the Sussex Downs, with its posited history of special, perhaps single-purpose site importance (i.e. Harrow Hill E23 - cattle cull and ritual; Chanctonbury Ring E08 - possibly religious significance; Highdown Hill E28 - the first fortified high-status settlement which may also have had some influence in bronze circulation) (pp. 151-153). Given its huge size, its location in the downland sector bordering what may have been 'no-man's land' in earlier times (above) and a style border at the River Arun from c 400 BC onward (pp. 166-167), it may represent a comparatively rapid escalation of co-operation for retaliation to targeted aggression in Sussex organised more as a vertical 'hierarchy' of a 'call to arms' (i.e. probably an inter-commonty alliance from the outset) rather than the horizontal interconnectedness seen in more westerly Hampshire and Wiltshire.

Thus far, it has been tacitly assumed that 'developed hillforts', engineered to look impressive and to suggest strength, defensibility and readiness for violence were, indeed, intended as suitable defence of people and property against threatened targeted aggression and that they are examples of collaboration to retaliate. That is by no means accepted by all interpretations of the Iron Age and it is examined here to check the feasibility, given the archaeological evidence. Firstly, obvious alternatives should be considered and discarded:-

1. Most 'developed hillforts' in the study area do not appear to have been permanently occupied at this time, yet some can be seen to be quite unsuitable for stock enclosure. For example, the Caburn E05 is a dome too steeply banked for free movement within (especially of cattle) and is very exposed to the elements, of which wind, particularly, would disturb animals.
2. The siting could be interpreted simply as being good for lookout beacons, given the high degree of site inter-visibility observed (Hamilton, pers. comm.), but the degree of enclosure and elaboration of entrances would be excessive for such a purpose, it does not explain the number of pits within, no consistent finds of large areas of burning have been located despite having been actively sought (e.g. at Caburn E05) and several (if not most) of the sites have a long history of earlier use in other ways.

Thus, it seems likely that they were built either for inter-community aggregation (of some social sectors, at least) for purposes not associated with targeted aggression and retaliation, or they were designed as defensible places of safety. One of the most important arguments for the latter is certainly that they look like defendable positions and structures. All were sited on high ground with extensive views outward and all had exaggerated banks, ditches and entrances but not all required a great labour investment and there is a wide range. V-shaped ditches were more common at this time and reduced the building effort considerably but also had the benefit of making attack more difficult (especially *glacis* style). Furthermore, they were commonly built on very steep slopes, exaggerating the size of the 'defences' to the eye of the outsider (e.g. Caburn E05 and Torberry E62) and conferring additional height advantage to the putative defender and some were 'false-crested' thus belying the reality of ineffectiveness for defence to the individual with no inside knowledge (e.g. Caburn E05). However, not all were absolutely ideal for defence and could have been better placed at other local sites. Developing the example of the Caburn E05 in more detail brings out most of the points.

The domed crest of the Caburn E05 site is steep enough to make passing from one side to the other something of a scramble and the hill drops steeply to the east, the south and the south-west at a pitch too great to climb easily, to stand, or for animals to graze. It is joined by a high saddle ridge to Ranscombe Hill to the west which has a drop either side but is approachable by skirting the Caburn hilltop to the north. The natural approach to the site is a steady climb from the Ouse Valley bottom. A person approaching by that route would not be seen until they were up on the ridge, approaching from the north, almost on a level with the site and the entrance is oriented to this track. The entrance itself was impressive, funnelling from c3.8 metres wide at the outside to c2.5 metres between the gateposts, lined with timber set in slots, and at least 7.5 metres long flanked by ditches; thus it is fairly well engineered for defence. Up to a point, the siting is suitable for defence in that aggressors would find it very difficult to approach unheralded in any numbers as long as a lookout was kept, and that approach is limited to no more than 135 degrees. However, anyone who did succeed in getting close or who had exceptional eyesight would have a clear view of the interior of the enclosure as it is higher than the top of the enclosing bank (as is true of other sites, e.g. St. Catharine's Hill F42) (Hamilton, pers. comm.). Thus, defenders would need to position themselves within the shelter of the bank to avoid being in sight and movement would have to be around the circumference of the site rather than across the top. On the other hand, the way in which the enclosure takes advantage of the slope to provide a longer drop could give a false impression of strength to the outsider looking on and act as a deterrent in itself. Finally, limited evidence for the intention to defend can be claimed from the discovery of some 570 beach pebbles of sling-stone size, of which 469 were buried in five pits, four of which were adjacent to the entrance and the other to the South of the enclosure (Curwen and Curwen, 1927, 20, pl. 1) although alternative explanations could be suggested (e.g. stones for casting votes).

Naturally, the act of inscribing the hilltop by a defensible enclosure in a dramatic, obvious and emphasising manner need not preclude evolution of function from its original purpose. As Keeley (1996, 36) remarks *'A house designed by a famous architect may be a status symbol but* *it remains an habitation, too'.* Whether or not there was ever any call to use the site as a fortified refuge, the fact of its presence and intended purpose may have underlined the long history of treating the hilltop as a special place and imbued it with an aura of more symbolic protection properties. Indeed, it is possible that the very choice of that location was because of a history of symbolic protection associated with the place (i.e. supernatural enhancement of its naturally defensible properties). An impressive structure in a dramatic location is more symbolically valuable than a less impressive, visible or dramatic alternative and the most symbolically useful fortifications may well be those which have actually withstood attack on some occasion (Keeley, 1996, 37). Either way, whether used in earnest or not, once an enclosure was established with a defensive purpose in mind, then its very presence would have influenced the course of social life and this theme is developed in the 'Inscription' catalyst model (below). The fact that some defendable refuges were used in earnest is clearly evident in a number of episodes of substantial burning (especially at entrances) dating to a time centring on c100 BC (e.g. Danebury F14; St. Catharine's Hill F42) but there are none in Sussex, although it is just possible that the middle Iron Age slighting episode at Torberry E62 indicates aggressive action.

Lack of evidence for any response to targeted aggression (7)

It is noteworthy that the period from c 100 BC hints at a clear lack of any evidence for responses to perceived threat in all areas except north-west Hampshire. Peace appears to have broken out all over and there was a widespread move away from the 'developed hillforts' and larger communities and a return to life organised in small, undefended communities in the traditionally occupied landscape with one new, comparatively huge and different settlement at Calleva F09 (which may represent a new and self-contained population in Hampshire - the 'Belgae') and just possibly a second in a locale associated with the Chichester Dykes (pp. 180-181). In Sussex, there was a substantial move into the Weald at this time and some Wealden sites may have been defendable but they have been interpreted as 'defending' special practice and expert knowledge of iron smelting by secrecy, rather than as defending against targeted aggression of any violent kind (pp. 157-160). Only north-west Hampshire shows any continuity and even that involves moving away from the 'traditional' developed hillforts and a corresponding expansion and refurbishment of earlier hilltop sites which had not been thus developed before (e.g. Bury

Hill F08 and Suddern Farm F43). Nevertheless, those moves could represent a continued tension in that region in a way which is not understood at the moment.

Why regional variation?

If the lines of evidence discussed above are brought together and summarised through time, a distinct pattern over space emerges:

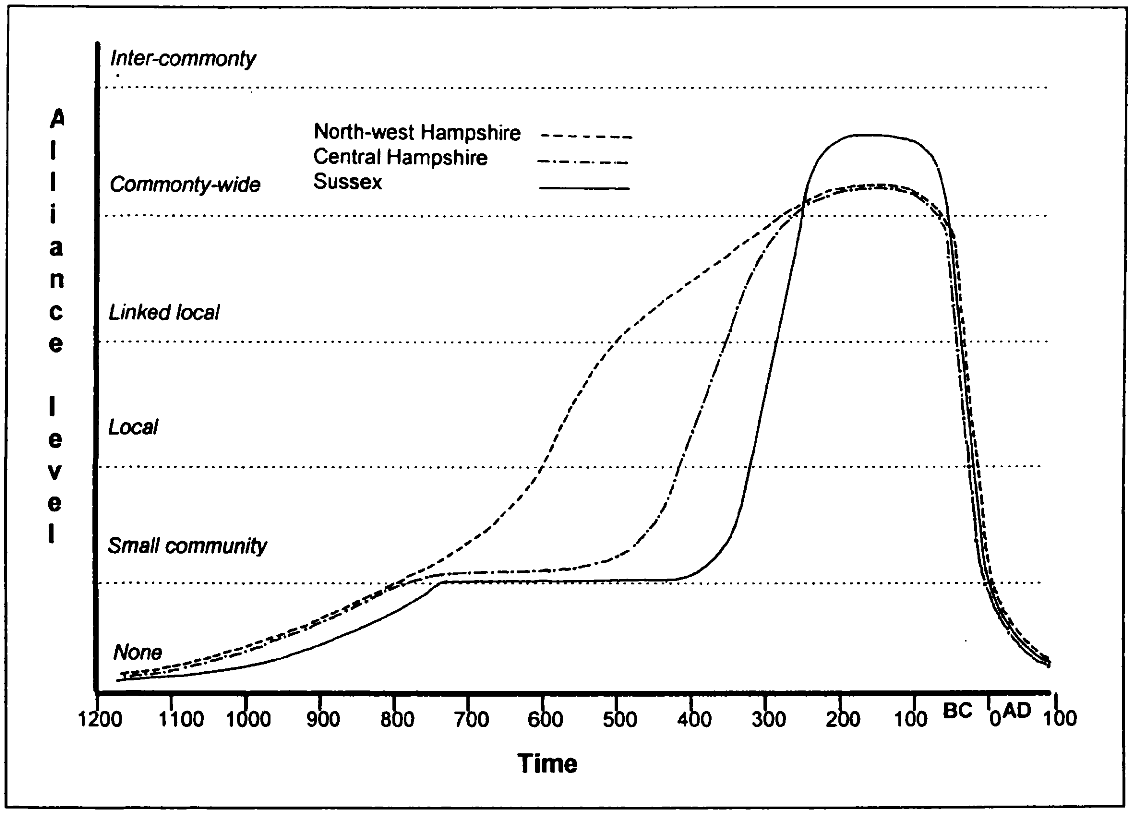


Figure 11.6 - Targeted aggression developments through the first millennium BC

The earlier escalation of collaborative alliance to defend, attack (perhaps in the name of defence) and retaliate in the north-west quarter of Hampshire does suggest that the spread of *amoral* behaviour occurred earliest in that region of the Case Study area. Oscillations of the behavioural balance are likely but almost invisible in the archaeological record but escalation does suggest that the amnesty and forgiveness response option was either ineffective or simply ignored in favour of negotiating alliances to defend by physical means over time. It is possible that the level of aggressive activity 'required' of any individual may have increased as a result of a culturally perceived need to gain advantage over other groups, rather than simply to defend.

Some may have felt the cost too high to bear, choosing instead to leave their home territory altogether. Refugees in any number would certainly have alerted people living in comparatively less volatile areas to the risks and dangers of targeted aggression behaviour, as would news of greater alliances and a shift in the arena in which aggression was played out. Either, or both of those effects would communicate to others in such a way as to act a catalyst by compounding the perception of danger. However, Sussex populations may have felt at less risk, perhaps feeling distanced by virtue of the putative 'no-man's land' area between the counties, largely left unoccupied until c600 BC on present evidence. They clearly did not feel the need to take any significant action until some four to eight generations later. When they did, the response appears to have been rapid and wholesale; Cissbury E10 may have been the first line of defence for the whole area, usefully placed to face and head off potential attack from the west before the anticipated advance could reach the more vulnerable easterly facilities which could, therefore, be regarded as the (weaker) second line of defence in the Sussex Downs on this understanding. In practice, it seems rather unlikely that any threat felt in Sussex ever materialised as there is no archaeological evidence for violent incidents on the scale seen in Hampshire.

Motives and targets over time

In the earliest periods, when the model retrodicts that there was a spread of *amoral* behaviour in a trickle, the defensive measures recognisable in the record tend to suggest a threat to growing crops and herds, rather than to people or small, fixed personal property. People who were caught, or who feared being caught, in possession of stolen property were probably mobile and may have 'escaped' to areas far from the concentrations of settlement which are seen in the archaeological record (above). However, most will probably have escaped detection by needing to rely only upon their closest intimates in the very small communities prevalent at the time to keep the proceeds of targeted aggression secret. The small community defence measures do seem to signal concerns for safety closer to home and that may suggest that the target had shifted toward the person and that small, fixed property that would be kept on a settlement. However, by the time that the more extreme measures for collaborative retaliation and attack measures are manifest, it is quite possible that the motive was more vested in a myth of each group's origins and responsibility and in identification of enemies of the group (i.e. enmity, taken together) and, thus, directed arbitrarily at the person as a living member of an enemy group for the sake of destroying 'enemies' and gaining personal social esteem for thus doing. That suggestion is at home with trophy-taking behaviour (e.g. skulls strung over entrance at Danebury F14) and with the tentative hypothesis for the rationale behind pit-filling and sealing ritual developed in the normative group dynamics model (pp. 242-244).

Targeted aggression model stage 4 - contextualised responses (GDM)

To recap on stage 3, by using the model of the dynamics for targeted aggression and the archaeological evidence it has been possible to create a plausible hypothetical history of the advance of targeted aggression over the first millennium BC, representing one full cycle of the model (broadly speaking) but which advanced at different paces in different regions. That model must be mapped against the recorded group dynamics developments to derive causal explanation and to identify areas where its value as explanation is weak and further catalysts must be sought to create a more full story. The more complex trajectory of change in Hampshire is tackled first, followed by Sussex.

Hampshire

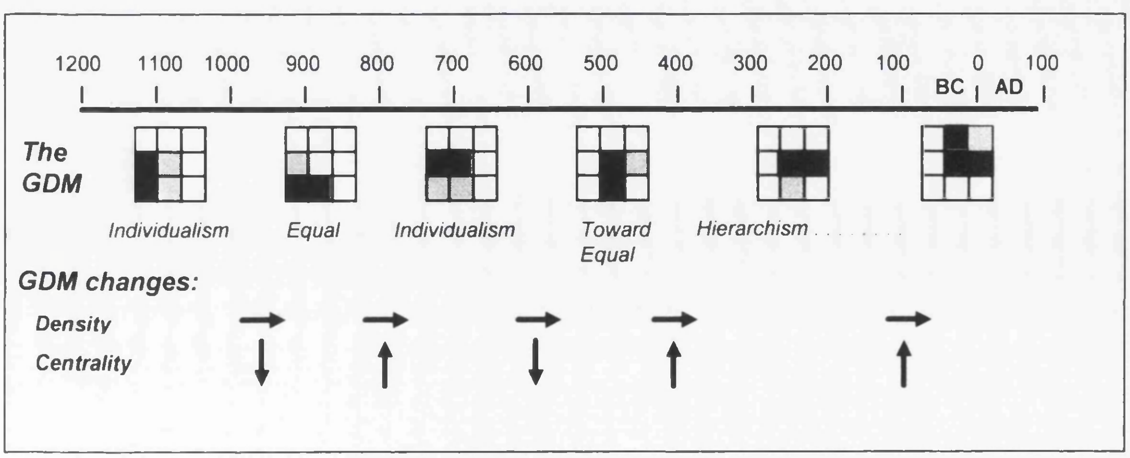


Figure 11.7 - Summary of the group dynamics history of Hampshire

It is likely that there was some co-operation to agree the layout and entitlements to land defined by linear ditches and this may have been on an equal share basis, suggesting the down-centrality development to *equal* centrality. However, that change in the GDM is mainly predicated on the evidence of the diminishment of Easton Lane / Winnall Down F15's differential status when compared with other sites (pp. 274-275; 736-737) and, therefore, it is not wholly convincing as explanation and that may be better sought in other models. Turning to network density, though, the establishment of co-operative implementation of the linear ditch divisions and living space between is likely to have had an inscribing effect on the commontant population which does strongly support up-density increase as a result; that theme is developed in the 'Inscription' model, (below).

Not all participated in the co-operative linear ditch scheme, and those that did may have found it ineffective as the *amoral* viewpoint spread in the commontant population. Some invested in small community action to retaliate by protecting their own and probably gained differential advantage by so doing, which would directly account for the up-centrality development of the 800 - 600 BC period. In the early days of co-operative response in the 800 - 600 BC period, it is likely that contribution and entitlements were established on an equal-share basis as Hampshire had no history of any dominant hierarchist ethos from the baseline period to that time. Thus, the down-centrality trend in the direction of *equality* is readily explicable but the successful collaboration is likely to have gained advantage vis-à-vis the less successful, an effect which could compound back to *differential* centrality. Furthermore, larger-scale co-operation involving strategy and logistics in a lower density network social environment is often seen as being best co-ordinated by individuals with legitimate authority to act on behalf of others (pp. 205-207) and that would tend to create an up-centrality pull, a theme which is developed in the 'Representation' model, below. On the density side, the greater the co-involvement in collaborative action and the more that differential success (perhaps even survival) depends on the number of people involved (e.g. in attack and defence action) then the more the value that the individual will place on membership of the group and the costlier leaving becomes. Over time, inter-group movement would diminish and network density increase, as a result. Thus, by the 400 - 100 BC period, when the 'developed hillfort' phenomenon was at its height, in the context of a high degree of political alliance, personal prowess in violent action may have become a 'valued holding' on which social standing depended. At a moderately high network density, a personal ethic of service to the group is likely and, indeed, the myth of a group history is likely to sustain a belief in group survival and sublimation of personal interests to that. It is quite possible that targeted aggression evolved from a pragmatic cycle of attack and response to gain holdings in one 'valued target' into one vested in a view of outsiders as enemies of the group, and the 'valued target' simply group survival.

Violent events clearly reached a peak at around 100 BC and the 'critical failure' point may have provided the environment in which individuals would be prepared to elect apparently benevolent 'paramount leaders' for expediency in violent campaigns (e.g. a 'war council') and allow autonomous decision-making on behalf of the represented. In the turmoil which followed, opportunists may have seized chances to gain further differentials in power- and prestige-supporting capital, extending *differential* centrality to the point of verging on *insulated*. Those points can readily explain the further up-centrality developments and the model is developed in some detail (in 'Representation', below).

Sussex

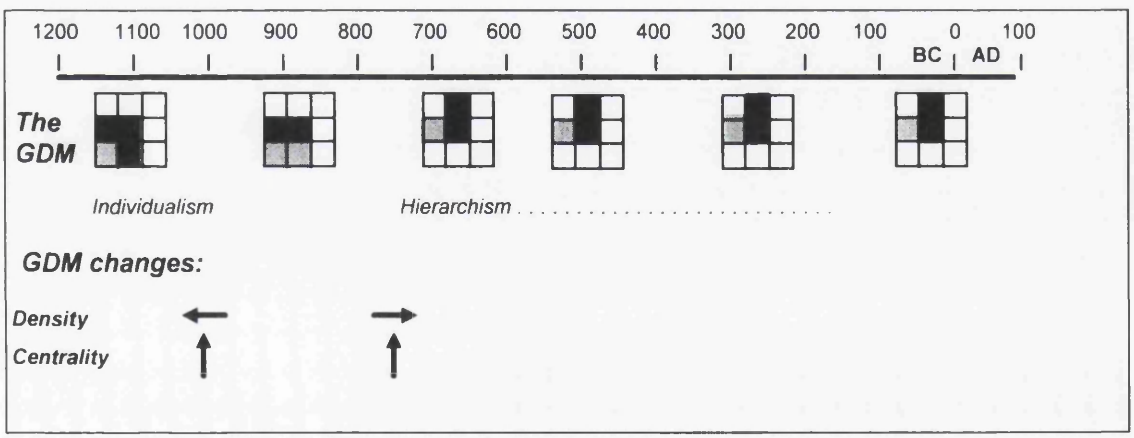


Figure 11.8 - Summary of the group dynamics history of Sussex

At some time around 1000 BC there was a slight down-density development and that could indicate a fracturing of communities, dispersing as a result of suffering violation or, indeed, as the result of differences of opinion (i.e. of individual thresholds for action) on the relative merits of *amoral* behaviour. If the incidence of targeted aggression action was perceived as increasing, then the community may have seen their chance of surviving it as greater if they split and each lost less (i.e. a type of spreading of risk and improving social storage by dispersal).

The dramatic development in group dynamics was the up-density, up-centrality move at around 750 BC. That break suggests community action to defend, which could have clear up-centrality consequences by resulting in differential success at the small community level. However, differentials between much the same communities probably existed prior to defensive developments in Sussex and a more primary cause must be sought; that is explored in the 'Inscription' and 'Representation' models (below).

From 600 BC onwards the move was up-density again but remained fairly constant after that, as did centrality from c 750 BC. Obviously, success in defence at a community level would alter the individual's perception of the value of belonging to a particular group, reducing the likelihood of her/him leaving to join another and, furthermore, s/he would be increasingly likely to be met with hostility if a personal attempt to leave and join a different group were made. It has been argued that the evidence from storage pits within the group dynamic context could, indeed, suggest careful and ritual attention to altering group membership rights and obligations at this time (pp. 242-244).

Although the degree of centrality did not alter significantly it has been argued that the basis for inter-individual differential access to resources may have shifted from that vested more in property to that vested in social role and the legitimate authority responsibilities accruing from performance of that role and tending toward inheritance of role as a personal right and the ethos of specialisation rather than personal self-sufficiency. Of the two faces of expertise, specialisation by sectors of society is likely to have come before specialisation in roles of legitimate authority as the latter would tend to burgeon only when there was co-operation to retaliate (/attack) if targeted aggression were mono-causal. However, the weakly hierarchist members of Sussex society from c 750 BC onwards, engendered from and entrenched in the normative idea of the 'naturalness' of specialisation, would require no jolt to worldview to appoint 'experts' to roles of managing, co-ordinating and controlling collaborative retaliation strategies and those may have quickly developed into inherited roles, given personal success.

Nevertheless, that might simply compound inter-individual differentials which it would be anticipated would result in an up-centrality development but that did not occur.

It is possible that the predicted up-centrality development was resisted when the shock of the reality of the aggression (perhaps in news from Hampshire?) was felt. For example, the aware hierarchist, concerned with receiving a fair share according to role, may have collaborated with others to resist by making an unequal contribution a condition of membership of 'safer' and therefore more 'attractive' co-operation. Thus, perhaps each who had built a differential holding of valued property was required to contribute according to their means. Interestingly, hierarchism is such that expertise is highly valued and those who, erstwhile, had larger holdings may have been able to 'trade' the contribution of more against the claim to the new positions of legitimate authority. After all, differentially large holdings can be argued as having resulted from differentially high capability within that ethos. Thus, apparent stasis can be explained both within the targeted aggression model and the group dynamic.

Summary

In summary, the targeted aggression model would adequately explain all developments in Hampshire, as a primary catalyst for all that followed (albeit that it is aided in that by the models of 'Inscription' and 'Representation' which follow). The trajectory would have been rapid by comparison with Sussex and it has been suggested that there was a space-time element to the spread of aggressive behaviour, with its origins at a point coming through Hampshire to threaten those in Sussex from the west. If the real threat were not felt until much later in Sussex then the model would adequately explain later developments in that county. However, it is not strongly indicated as causal for the big change that is observed at around 750 BC, although it may have been a contributory factor.

The Inscription model

Inscription model stage 1 - the catalyst

Even cursory examination of the patterns of change in the dataset reveals that there are distinct phases of enclosure of particular types of sites and that these vary, geographically. Inscription as a catalyst was introduced in an example in Chapter Ten (Evolving Group Dynamics) and it is argued that structuring the environment may engender change in group dynamics in that the exercise itself requires that roles, functions, contributions and contributors are explicitly defined by reference to the commontant view of what is entailed in performing the job and what a 'fair' contribution and outcome for each individual amounts to. Ideas of behaviour which may have had a degree of latitude in terms of acceptable variants are strictly defined for the single project and are implied by the initiation of a substantial building exercise. The rules of that exercise are inscribed in the living memory of the building population by the very presence of the standing symbol of the agreement. Thus, contemporary practice is fixed and unalterable as the structure produces a permanent '*choreography of authority*' and innovation has become institutionalised in the inscribed environment (Connerton, 1989, 75).

The actual creative project can be seen as *action of* individuals to formalise social norms but the presence of the monument to the building event exercises an *action on* the population for as long as it is extant. Whilst the individual's understanding of the meaning of the monument may evolve over time the original meaning may be entirely lost; it becomes part of the natural environment of commonty and may continue to constrain behavioural choice in perpetuity (p. 315). It is important to evaluate the two elements of the effect of the inscription catalyst in order to advance the model of the group dynamics of the first millennium BC.

Inscription model stage 2 - Potential responses

Those who participated in large building exercises knew the costs to themselves and the benefits which they expected to accrue as a return on their investment but as time passed the original purpose may have been lost to memory; earthworks may have decayed to a point past utility yet still be upstanding, serving to 'remind' the current generation of the 'history' of 'their' group. From time-to-time, they may have been refurbished, revitalising their inscribing effects in the minds of the renewing generation. The meanings and intentions of refurbishment events may have differed from those of the original building generation, yet the effects on group dynamics, particularly the individual's conscious perception of the value of membership, could be similar. Thus, there may have been cycles of building and letting lie, of conscious intention to change in one episode followed by generations subliminally recognising a 'history' in the inscribed environment but failing to notice any continuing *action on* social life by the creation and reinforcement of a myth of group origin and by orchestrating action.

Enabler	Accelerator	Constraint
Action of individuals in building generation - *- Co-operate to build*	Threshold for joining in decreases as more do (lower contribution required; perceived benefits of membership)	a) Finite capacity - size, structure, purpose *inter alia* b) Prisoner's dilemma (resolved by defining cost of membership, rights of membership and identifying members)
Action on individuals arising from an inscribed landscape *- Seek rights to membership of inscribed group*	'Price' of joining escalates as more want to	a) Finite capacity - population which can be accommodated b) Finite capacity - membership criteria specify eligibility conditions (If not able to join:)

Table 11.4 - Potential responses to the action of individuals in a building generation

Responses to *action of* individuals in building generation

An individual who foresees benefit in joining in with a group which intends to build (benefit usually seen as the 'purpose' of the building) and, thus, define itself, may choose to earn a place by contributing to the building work or to seek membership of a group at the post-building stage and pay the 'price' of joining (in whichever 'currency' pertains). The potential responses to the *action of* a desire to belong to a physically inscribed group are outlined in table 11.4 (above).

Action on individuals arising from an inscribed landscape

The act of inscription is not likely to be a primary causal catalyst in its own right as it is likely to arise in response to a more immediately determining need, but it may still have an effect on group dynamics. By a building episode, founding membership and the conditions of membership are defined as are the rights intended to accrue from membership. That sets an expectation of value for the member which provides a basis for deciding whether reality meets expectation and, as a result, whether it is better to stay or leave. It also establishes a perceived value of membership for the non-member and that influences whether they would like to join, or not. Competition for places could 'inflate' the 'price' of joining.

Immediate potential consequences of these effects in the group dynamics of the building and subsequent generations can be identified. Firstly, defining membership, rights, conditions and value creates a specific set of 'rules' which, therefore, gives rise to the potential for disputes and the need for arbitration and may be resolved by democratic representation or by empowerment of individuals to act on behalf of the group. Secondly, a defined group provides the potential for gaining perceived 'economies' by acting as a node in the commontant social network and negotiating relationships as a group (as opposed to the individual making personal arrangements). Again, that could result in new roles of representation and legitimate authority to act on behalf of the group. Thus, inscription can act as a catalyst for further social change and the issues and predicted consequences are discussed in the 'Representation' model, below.

Inscription model stage 3 - contextualised responses (dataset)

Phases of inscription of co-operative events in the landscape can be detected almost throughout the first millennium BC. The events motivating the action are best explored by other models in this work but the archaeological evidence is reviewed here from the point of view of inscription effects only and for what that implies about the structure of society at each time. The inscribing acts include:

1. maintenance of symbolic boundaries (probably by reference to ancestors and suggested by special deposits of 'ancient' human bones in earlier, currently non-maintained boundaries and by territoriality defined by reference to 'ancient' burial monuments).
2. linear ditch systems, seen as indicative of inscription of rights of passage and rights of ownership of land.
3. stock enclosures, inscribing rights of ownership of stock and land.
4. community settlement sites, inscribing membership of the community.
5. sites for inter-community aggregation of specialised sectors of society for a particular, specialised purpose, inscribing membership of a social sector.
6. sites for inter-community aggregation for generalised purposes, inscribing membership of a group comprising more than one community.

The archaeological evidence for each type of inscribing activity can be analysed by county dataset by period with the result as shown in figure 11.9, below. The *ditch labour cost* method of establishing a measure of building investment (Appendix G2) which is comparable across enclosed site types and periods gives a very rough picture of trends of relative effort in inscribing practice over time, albeit that investment in some sites and the linear ditch systems cannot be calculated from the published record and are not included.

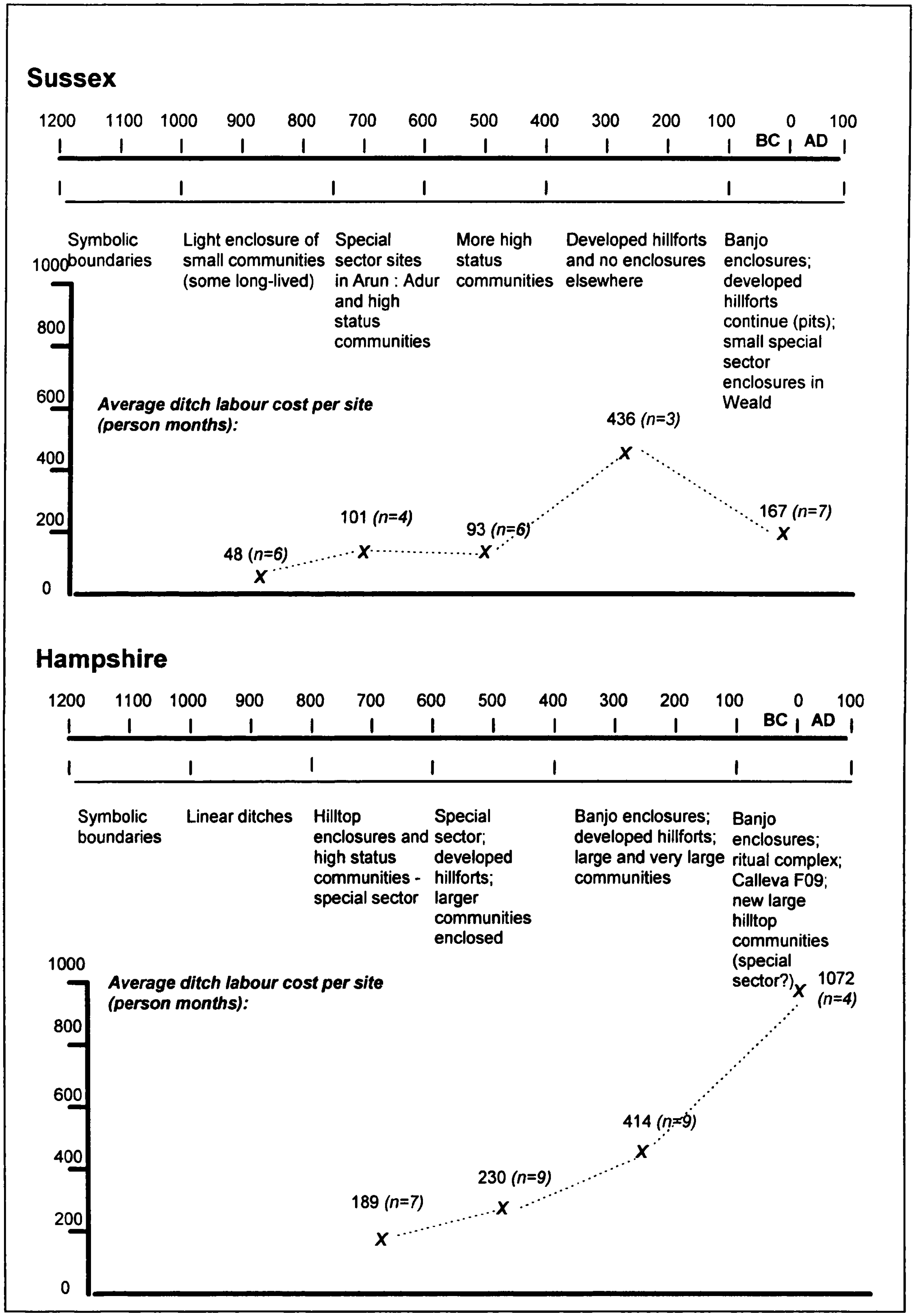


Figure 11.9 - Evidence for inscription and relative investment, by county and time band

The Hampshire case reveals a compounding effect of inscribing practice from a fairly early date, both in the increasing range of types of site enclosed and in the steady increase of average investment in enclosing structures. In the period from 800 to 400 BC (and possibly earlier) enclosure had the effect of defining and setting apart sectors of society. By 100 BC enclosure-building behaviour had spread to the extent that almost all people lived and worked in and around demarcated space. From 100 BC, enclosure was still important in Hampshire but the high average investment disguises the fact that its popularity may have declined, returning to practice associated with special sectors of society, albeit that the composition of the membership of those sectors had transformed by comparison with the earlier phase and, indeed, the range of ways in which one might have been a member of a special sector had burgeoned.

The compounding effect may have arisen from a resistance on the part of the individual to 'paying' an inflated 'price' for membership, choosing instead to co-operate with other non-members to create a new group. Over time, as the number of groups increased and as proportionately more of the commontant population inscribed membership by enclosure, it may have seemed socially essential to be able to claim a personal history of contributions and entitlement to group membership, articulated through inscribing ritual, in order to have a social identity worthy of the trust of others.

The Sussex case provides something of a contrast, in that it shows a fairly steady but small investment in inscribing structures over time. The lack of compounding effects suggests an antipathy to co-operative effort which may have been due to an individual perception that personal status could be lost by reducing autonomous status vested in membership of one (small) group to contribute to another (larger). The exception is the 400 - 100 BC period when a clear change is signalled by enclosure effort directed at inter-community co-operation to build 'developed hillforts' at the same time as all other (i.e. community-based) endeavour ceased. Thus, it is likely that the individual had never consciously considered membership of the wider group and what that meant in terms of costs and benefits until that time. If it is accepted that the ritual surrounding a pit's life at 'developed hillfort' locations can be construed as representing group membership changes (pp. 243-244) then the perceived value of membership of the groups who had articulated their identity in building those sites probably continued past the 100 BC point, as evidenced by the continued pit deposition practice there.

In summary, the evidence suggests that large investments in inscribing practice started earlier in Hampshire than in Sussex (for reasons explored in other models) and that probably accounts for the compounding effect such that it had spread and become an important social norm for a large proportion of the commontant population by the time of the hiatus in c 100 BC. In Sussex, the practice remained focused on sectors of society and, possibly, related to competition to maintain inter-personal differentials in status; thus, an individual's decision to risk diluting those differentials in order to gain by co-operative effort was a larger step not perceived as justifiable until the events of the 400 - 100 BC period.

Inscription model stage 4 - contextualised responses (GDM)

Several of the lines of evidence which contributed to the GDM history analysis are also called upon in modelling inscription as potential causal explanation so it is scarcely surprising that a broad correlation with network density developments can be found, but that is not the sum total of contribution.

Hampshire

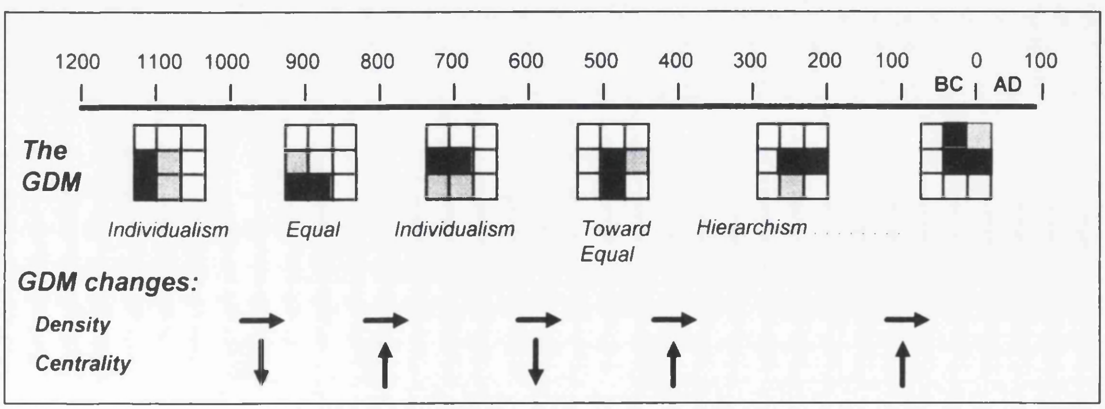


Figure 11.10 - Hampshire social network developments to be explained

The individualism of the period from the end of the second millennium to c950 BC suggests that each potential building participant for the linear ditch construction projects may have sought ways of gaining personal, differential advantage from the project. However, with little or no institutionalisation and few social norms, the basis for fair exchange as culturally perceived (and, therefore, fair contribution) can have been little more than equal contribution and equal shares. The layout must have been mutually agreed, the units are broadly similar, and by no means all of the occupied landscape was thus demarcated and that reinforces the picture of equality in practice. Thus, it can be argued that the project is likely to have been causal in the down-centrality social developments of the 950 - 800 BC period, in the areas where linear ditches were built. Additionally, making a contribution had the effect of fixing membership and benefits accruing from that both by defining it and by physically inscribing those rights in the ground; non-participants could no longer freely access the defined areas and participants could not so readily leave. Over time, value may have been added to geographically-local social networks as the individuals participating became more fixed and the 'shadow of the future' longer. This effect could readily explain the slight up-density developments of the 950 - 800 BC period as social networks took on a more clumped form, resulting in increased network density in local pockets with the concomitant effect of increasing network density overall. However, the up-density trend was limited to those communities who participated in linear ditch projects and many evidently decided to remain outside that system, thus suggesting that the decision whether to join in or not was fairly marginal.

The complexion of the inscribing developments in the 800 - 600 BC period appears quite different to the earlier projects and it cannot convincingly be argued that they grew from that practice. The hilltop enclosures and comparatively 'high status' communities suggest motives vested more in inter-community aggregation and competition and readily explain the stronger up-density developments as the practice became more widespread. However, the model of inscription does not explain the up-centrality developments of this period directly unless explanation lies in the possibility that people took the chance to gain personal advantage by filling roles of legitimate authority arising from the management of the projects and representation of communities and that is the remit of the 'Representation' model, below. Taking advantage of personal opportunities in this way is not comfortable within the egalitarian ethos of the 950 - 800 BC period and tends to suggest that a catalyst should be sought for jolting personal worldview at this time.

The special sector enclosures, 'developed hillforts' and enclosed larger communities of the 600 - 400 BC period suggest that group membership, earned and maintained by contribution to enclosure, had developed an impetus of its own. The practice could have inscribed a group history and a group future in perpetuity in the landscape, with the effect that the individual would consider her/his range of choices by reference to a social norm of self as co-dependent, member and contributor and identify her/himself by reference to group membership. As more time goes by, social identification by group membership will come to define the individual's history and ancestry with the effect of coming to seem immutable, escalating efforts in the name of the group and intensifying the perceived desire to be a group member, causing the up-network-density trend to continue without any further stimulus. It could be argued that the putative role of 'banjo' enclosures as inter-local-group meeting places (pp. 726-727) reflect that escalation directly.

As the network density increased, the relative value of staying increased and the cost of leaving and joining any other group escalated further. A point may have been reached whereby identity by group membership behaviour was so widespread that the opportunities for co-operating to create an alternative group *de novo* reduced, slowing the rate of the up-density trend. That saturation point may have been reached at around 100 BC from which point the GDM history reveals a slight down-density trend representing the fracturing of some networks and re-assembly and re-establishment of groups in smaller units than before. The 'price' of group membership may have become too high for the individual to bear without question, the benefits revealed as falling short of individual expectation, or the valued aspects of membership demonstrated to be a mirage *inter alia*. Whichever challenge to personal values occurred, it is unlikely to have been as a result of inscription practice itself and, thus, the up-centrality and down-density developments are probably better explained by the 'Targeted Aggression' and 'Representation' models.

Sussex

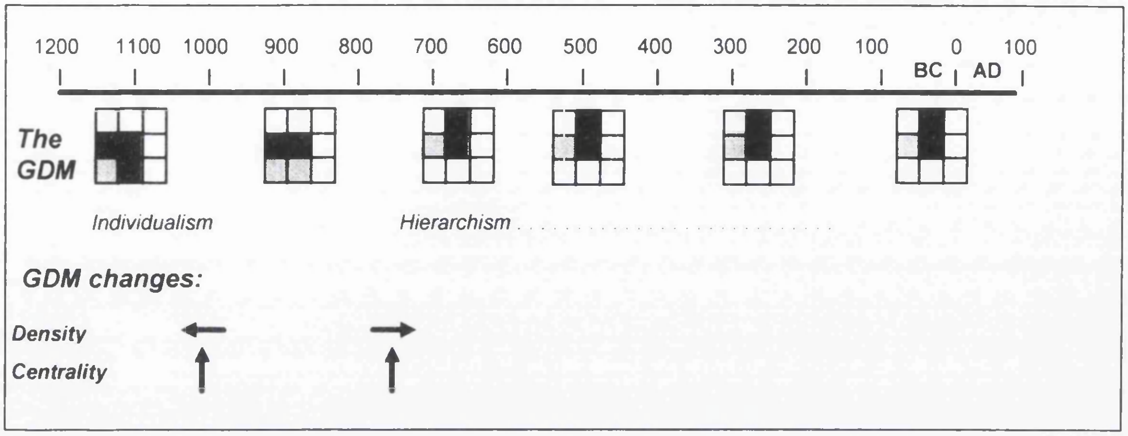


Figure 11.11 - Sussex social network developments to be explained

The Sussex inscription developments appear more purposive than those of Hampshire, as though each individual took each case for construction on its merits by rational choice, with less recourse to social norms. So, for example, special social sector and high status community sites were established in one downland sector (Arun : Adur) in the 750 - 600 BC period and more enclosed community settlement sites were added in the period from 600 - 400 BC. Those sites inscribed only community membership and the practice was never more than a minority one in the Sussex dataset. Thus, inscription may have sustained social sector and community differential centrality but does not seem to have had any further ramifications, as network density remained fairly constant from that point.

The 400 - 100 BC period saw the building of 'developed hillforts' and it has been argued that pits and ritual behaviour surrounding them could have sustained ideas and values of group membership in that period and, possibly, beyond but it did not result in increased network density *per se*. As the new inscribing practice was balanced by the absence of inscription anywhere else at this time, it may have defined a membership simply too wide to cause an escalation in joining and leaving costs to the individual. Certainly, by the 100 BC - AD 43 period, inscribing practice had devolved to special sector and small communities only. Thus, like Hampshire, it would appear that the values of group membership had been challenged and found wanting but this may have been less of a 'surprise' in Sussex, as network density had not been as high of that of Hampshire for 500 or 600 years and, consequently, the individual never so dependent upon group membership.

Summary

In summary, it would appear that inscribing practice in Sussex had never been more than expedient whereas it may have started thus in Hampshire but identity by reference to group membership behaviour spread to the extent that inscription became self-sustaining there.

The Representation model

Representation model stage 1 - the catalyst

It has been argued that responses posited to the Targeted Aggression and the Inscription models (above) could give rise to circumstances whereby individuals may choose to contribute to action to allow a group to be represented by individuals vested with authority to act on their behalf and in their name. For example, the Inscription model posits that defining membership will give rise to the potential for disputes and the need for arbitration, to resolve which one choice is representation. A second example might be that the individual perceives 'economies' of personal effort as possible should s/he co-operate in negotiation of relationships as a group and, again, could vest that authority in another.

Whenever there is a perceived need for collective action, in circumstances ranging from everyday decision-making, to managing distribution of a shared resource, to co-ordination of defence action *inter alia*, that need may be seen as being best served by vestment of representative authority ('legitimate authority') in individuals. Over time, the elected 'representative' may expand her/his personal network over a broader spectrum of society than the 'represented' does, if her/his range of duties requires it.

As soon as there is a degree of differential authority vested in an individual, or a role, then there is the potential for developments in group dynamics caused by the *action of* the *representative* and responded to by the *represented*. Whilst the new relationships to which the *representative* has access may be comparatively weak, they place her/him in the strong position of information broker, not only having access to wide-ranging information sources but also being less accessible in terms of observation by others (pp. 79-80).

Representation model stage 2 - Potential responses

Enabler	**Accelerator**	**Constraint**
The represented:		
Co-operate to vest legitimate authority in democratic representatives	a) Once auditably successful, threshold for trusting *representative* individuals in the role may drop b) If threshold drops for one role, threshold for trusting individuals in new roles may drop c) If grows to unauditable point, escalates need for legitimate *representatives* to 'police' the behaviour of other *representatives*.	a) Finite capacity - un-auditable if > 200 *represented* (Appendix C1) b) 'Prisoner's Dilemma' - between *represented* and *representative* - need to trust to co-operate if democracy to be maintained c) 'Turn-taking' option dilutes opportunities for maximising power on part of *representative*
The representative:		
Seeks opportunities to maximise personal power over others	Evolution into inherited authority:- a) no resistance, in the name of gratitude for a service cultural view that offspring inherit skills and talents of parent	a) *Represented* resists by co-operating with others to expose motive and disempower; critical mass for action required. OR a) *Represented* decides to leave - fission
Exercises coercive power over represented ***OR:*** ***Collaborates with other representatives to exercise coercive power as a social sector of representatives***	a) The cost of opposition by fission increases as network density increases. b) The more coercive power that a *representative* can muster, the more s/he can annexe resources.	a) *Represented* resists by co-operating with others to expose motive and disempower; critical mass for action required OR a) *Represented* decides to leave - fission

Table 11.5 - Potential responses to perceived need for representation

Represented vests authority in *representative*

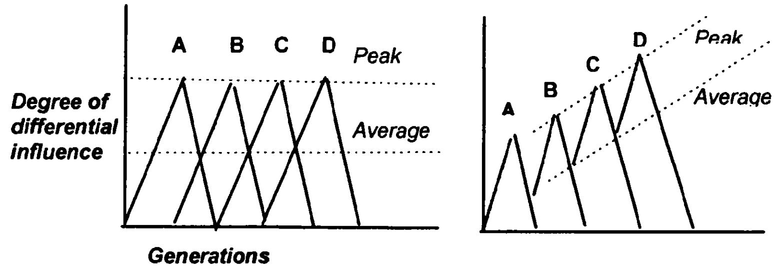
When individuals co-operate to appoint *representatives* to act on their behalf, whether explicitly or by customary right (e.g. by virtue of position in kinship relations) it is fairly unlikely that any will have the objective viewpoint or the foresight to recognise that empowering another in that way could have social consequences, potentially reducing the *represented's* personal autonomy over time; the outcome of action thought expedient may be unexpected and irreversible. The extent to which a particular *representative* would actually maximise the potential of the position depends upon personality, cultural history and the social and political climate of the times.

Representative seeks maximisation of *power over* others

The story of both Hampshire and Sussex begins in an individualistic climate of competition to maximise personal centrality and that suggests that an individual who has a potential advantage if appointed *representative* would try to realise that potential. Conversely, the similarly-motivated *represented* may empathise, recognising the potential advantage of the *representative* role, and attempt to ensure that it cannot be realised either by ensuring auditability or by contributing to representation on the basis of turn-taking, giving all an equal chance. If mutual trust can be established then roles of representation may escalate, in the interests of maintaining auditability, policing and sanctioning conduct. That is tantamount to tacit acceptance of *differential* centrality and, indeed, there may be circumstances in which democratic representation (sequential hierarchy) is simply too slow to respond to the need (e.g. a 'war council'), thus tempting the *represented* individual to agree to undemocratic representation without resistance.

Should there be reaction to contain the extent of differential influence accorded *representatives*, it has been argued that in *circumstantial* density commonty reaction is most likely to be centralised and formal, and decentralised in *corporate* (pp. 205-206). If resistance is centralised, then new roles of representation are likely to be added (to co-ordinate the response) which will increase the number of people with potentially differential power, with the effect of diluting the personal degree of centrality of existing *representatives*. That is unlikely to result in *equal* centrality but may prevent a down-centrality development for a time, at least.

As long as positions of legitimate authority are not inherited, the degree of centrality will remain broadly constant (figure 11.12a):-



a. Representative's differential influence over time

b. Influence effects of inherited position

Figure 11.12 - Extent of differential influence over time

However, the authority of *representation* could evolve into inherited authority (*insulated* centrality) in a number of ways which include:-

- no resistance, in the name of gratitude for a service or to a charismatic individual
- the belief that greater skill or knowledge can be brought to the role by vesting it in the offspring of the *representative* on the grounds that they will have inherited the skills and talents of their parents and their parents' networks
- because the *representative* builds such a power difference that there may be no one individual who both recognises the problem and who has sufficient voice to persuade a critical mass of others to resist.

Inherent centrality is compounded by inheritance of position as reduction in the auditability of action and in reduction of viable alternatives amount to an accelerating effect on the influence of the *representative* (figure 11.12 b).

Representative exercises coercive power over *represented*

The greater the influence, the higher the 'price' the *representative* can place upon access to resources the s/he can control; the more important the resource, the costlier is action to oppose and the more likely that coercive demands on the part of the empowered may result. This could result in prestige rankings within commonty at the least and the power of exacting compliance is possible. It has been argued that compliance is more likely the stronger network density (pp. 207-208) and thus, whilst action against differential power would be most effective in *corporate* density networks, once centrality is introduced in those cases, acceleration of the degree of centrality is more likely.

It is evident that the potential for the ability of one social sector to command another to act at its behest (coercive power) presupposes differential influence and annexation of resources perceived as invaluable (whether social, cultural, economic, ideological or political). By definition, coercive practice is simultaneous hierarchy (pp. 214) and the difference between coercion and legitimate authority rests on the requirement that all attempts to revoke that power can be quelled.

Broadly speaking, realisation of that potential can occur in two ways. Firstly, personal ambition on the part of individual(s) in a privileged sector with legitimate authority can isolate access to the resource and act to prevent opposition. An opposition tactic may be as straightforward as leaving the commonty but the personal cost of that action increases with the density of the network as the stronger the density the more limited the opportunities for fission, the stronger the internalisation of social norms of group solidarity, boundedness and personal co-involvement and the greater the likelihood that covert factions will be detected and exposed. Thus, the likelihood of success of a coercive power bid (whether overt or otherwise) increases with network density. Secondly, power may be seized by overt action to capture an invaluable resource and to protect it by further resources able to inflict heavy costs on defaulters. The difference between this case and the former lies in the expectation that all subordinated individuals are likely to share an ideology of opposition at the same time (i.e. a 'surprise' which jolts an accepted norm of compliance with authority). The basis for collective action to oppose, reducing the individual cost of resistance is laid. Hence, costs escalate on the side of the super-ordinate *representatives* (presumed to be numerically fewer) and the likelihood of success of retaliation by the *represented* increases. The balance between those is the determining factor in the outcome. In summary, the former case is likely to challenge stasis of a *differential* centrality structure, but the latter could arise in either the *equal* or the *differential* case.

Representation model stage 3 - contextualised responses (dataset)

There are almost no symbols of power vested in individuals in the dataset *per se* but specialised sectors of society are especially evident in the 800/750 - 600 BC and 100 BC - AD 43 periods in both Sussex and Hampshire and in-between those periods in Hampshire. In the earlier, those social sectors appear to have been mostly engaged in activity relating to stock (e.g. cattle at Harrow Hill E23 and possibly horses at Bury Hill F08) and also to 'religion' and other ritual performance (e.g. Chanctonbury Ring E08 and, possibly, Danebury F14). Whilst the focus of meetings may have been on stock and ritual surrounding animal culling, exchanging, breeding and competing *inter alia*, the purpose and, indeed, outcome may have been negotiation and maintenance of relationships by representing others, simply articulated through stock practice and religion.

After that early period, the nature of inter-community aggregation seems to have been qualitatively different in both counties and may have been generally associated with feasting and practice represented by pit management ritual (including practical concerns like distribution of seed corn, planning the next season's requirements and evaluating this season's production as well as the posited marking of passage of members (pp. 240-242). Furthermore, the posited hierarchy of the 'developed hillforts' in Sussex and the possibility that 'banjo enclosures' acted as a level in meeting hierarchy in Hampshire suggest levels of representation indicative of simultaneous hierarchy.

Thus, whilst there is no explicit evidence for the degree or nature of legitimate authority in the archaeological dataset, there surely must have been some representation as inter-community aggregation sites, at least, could not have accommodated all of the population which would be required for full democracy and *equal* centrality.

Representation model stage 4 - contextualised responses (GDM)

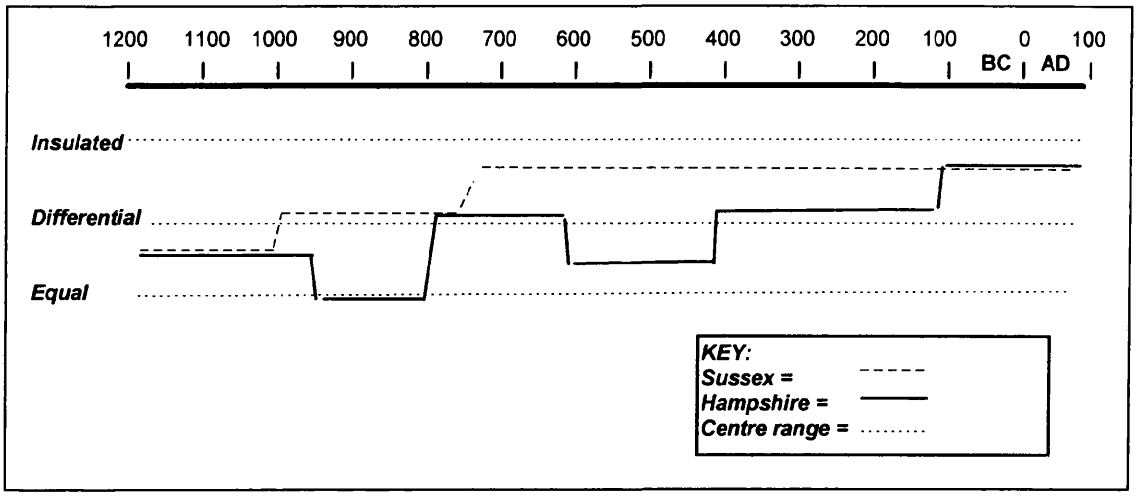


Figure 11.13 - Network centrality degree through the first millennium BC

Sussex

The individualistic social climate of the early periods is likely to have prompted individuals to think of terms of minimising their costs (and maximising benefits) by contributing to collective action to institutionalise roles seen as useful by many like, for example, policing and sanctioning violations of social 'rules'. Those roles could already have been vested in comparatively powerful sectors of the commontant population like the community at Highdown Hill E28 who may have exercised differential power over others by virtue of the control of bronze and what that stood for and/or who had important social contacts further afield, as did the C 9th BC Shinewater E57 community. Thus, the *represented* may have seen it as natural that some had a 'benevolent' role of legitimate authority, vested in the accepted practice of generations.

However, in the Arun : Adur downland sector it would appear that representation evolved into other specialised areas, in which individuals who may have had a mild degree of power over their home communities saw their chance to 'capitalise' on a small differential by representing small groups (perhaps home communities) at gatherings overtly for stock-related purposes at which relationships were negotiated and maintained. Furthermore, Chanctonbury Ring E08 could represent a balancing 'resistance' to the annexation of power in this way, intended as a place for aggregation for the commontant population at large for ritual and ceremonial performance, yet in practice allowing 'insider' *representatives* to annexe their own power vis-à-vis that of the onlookers. Those power-over : power-to ratios do not change in absolute terms after c750 BC. Hierarchy was clearly a social norm and the hierarchist ethos is one of valuing 'expertise' so that, whilst some inheritance of roles seen as 'natural' on the grounds of inherited talent was likely, we suspect that no one ambitious individual was ever able to 'roll up' multiple responsibilities under her/his sole remit. Network density never touched on a *corporate* degree in the GDM history, so the *represented* individual was never so co-dependent nor so imbued by a norm of sublimation to the group that the threat of leaving in opposition to over-ambitious *representatives* was impossible or empty.

Hampshire

The developments in representation in Hampshire show a very different course to those of Sussex. Inter-community aggregation was earlier, it appears less specialised and there were no obviously high-status settlements after the decline of Easton Lane / Winnall Down F15 (and that community's differential status is not certain). The network was less dense than that of Sussex at first, but a period of *equal* centrality from c 950 - 800 BC suggests that the county had no long history of naturalised differential rights and responsibilities and, indeed, probably sustained an ethos of opposition to the differential authority of some individuals over others. The up-centrality development between the 950 - 800 BC and 800 - 600 BC periods could be explained, in part at least, by the collective, co-operative decision to gain 'economies' of effort by democratic sequential representation and the increasing network density will have increased the possibility that a nascent norm of equality and opposition to individual centrality fully developed into a broadly egalitarian norm of personal duty to take a turn at group *representative* roles. Those roles may have evolved in content and responsibilities over time (e.g. perhaps for 'war councils' or 'provisioning') and by the 400 - 100 BC period the *represented* may have found it difficult to oppose by leaving the group given the strong network density, but a long-standing norm of, perhaps, openness, consultation and ideals of justice sustained by strong network density may have made auditing strong and collective action for opposition viable. Interestingly, after some 1100 years of centrality no greater than *differential*, it overlapped the *insulated* bracket only when density touched the *corporate* range. Just as predicted, the development was swift when network density was strong. The centrality increase may have occurred as a result of investiture of unusual rights in individuals to lead and co-ordinate action in a time of strife (resulting in the 'collapse' of old social networks and the birth of re-negotiated new at c 100 BC) but it may equally have been action of opportunists seeing their chance in the turmoil and seizing it.

Summary

In summary, the development of inherited power in Sussex may have had its roots in naturalised 'personal' power differentials going back to the middle Bronze Age (or earlier) which were extended, unopposed, in the C 8th BC into new areas of negotiation between groups and justified by the long-standing cultural perception that those best fit for particular tasks are those with the necessary expertise (and, tacitly, that the expertise runs in 'families'). By contrast, Hampshire habitants appear to have had no such long-standing cultural perception and a probable tradition of openness and auditable vestment of legitimate authority in *representatives* on a basis of turn-taking. Personal esteem probably accrued from serving the group well rather than self until a time of substantial social turmoil, when some individuals gained power over others more akin to coercion or inherited rights to roles.

The Production Failure model

Production failure model stage 1 - the catalyst

The palaeoenvironmental evidence for significant climatic change has been discussed in some detail (pp. 125-127) and it can be viewed as comprising two parts, namely a downturn and an upturn. The upturn posited from c600 BC onwards is likely to have been reasonably smooth and probably imperceptible to the individual in her/his lifetime although, of course, it may have had unintended and unrecognised effects on health and longevity and, thus, population levels and demographics over time. Naturally, that could have resulted in developments in social structure but no model for that possibility is presented, not only because of the need for brevity but also because there appears to be little in the site patterning to suggest population increase on any significant scale. The effects of the downturn were probably manifest from c1000 BC when the temperature dropped a little, wind direction probably changed and the weather is thought to have got wetter, stormier and more unpredictable and those effects probably accelerated in the period c 850 - 600 BC. A number of possible effects on life as lived at that time can be posited:-

- Reduction in harvest yield (by c 5 weeks growing time) (Lamb, 1981, 55)
- Reduced predictability of harvest
- Less suitable growing area available
- A greater unpredictability, absence and / or reduction of levels of some wild species of plants and animals.
- Reduction in levels of confidence placed in those responsible for ensuring good yields by relationships with the supernatural, although those types of belief are rather unlikely in the context of the individualistic dynamic, as commonly-held beliefs are not readily sustained in low density network and personal views of time future and past are likely to have been limited to genealogical issues (p. 230).

Of these, the first two are important enough to make plausible catalysts for change and they are taken to the next stage, modelled on the wider basis of 'production failure' to allow that the effects could not only arise in response to catastrophic weather conditions but also to disease affecting an important crop or a herd. Climatic conditions did not get steadily poorer in a predictable fashion but, rather, got increasingly more unpredictable due to storms, winds, sea level changes and reduced growing seasons. Thus, it is the possibility of localised subsistence production failure on one or more occasions which is viewed as a catalyst for change, rather than simply reduced yields overall. The same would apply in the event of a disease fatal to crops or herds. The <u>change</u> in weather conditions was probably felt most keenly in the 1000 - 800/750 BC period; unpredictability would almost certainly have been regarded as the norm after a few generations, by the 800/750 - 600 BC period.

Production failure model stage 2 - potential responses

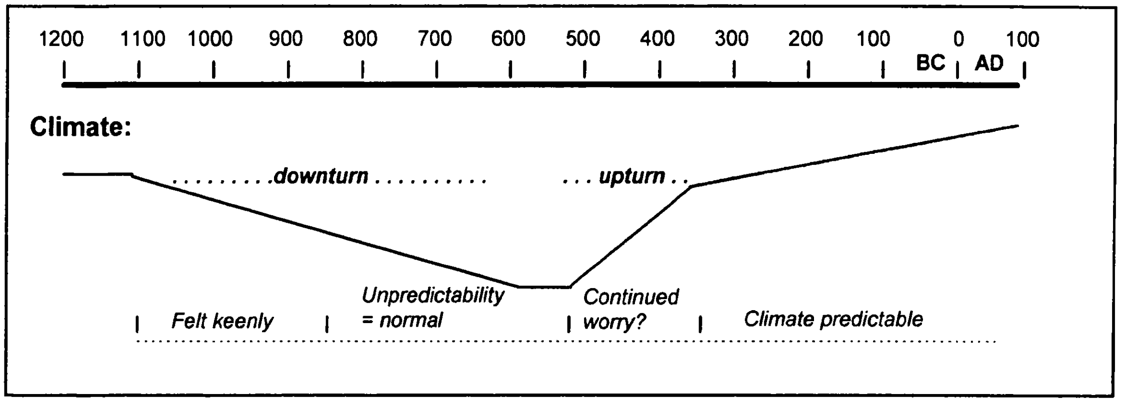


Figure 11.14 - Individual's perception of climatic change

In the early days of increased unpredictability, it is reasonably unlikely that any individual would realise the increased risk to production levels and, indeed, any failure (whether due to climate or illness or disease affecting subsistence products) may have been experienced as a localised calamitous surprise. If the individual suffered so substantially that her/his subsistence requirements were not met, then a socially evolutionary chain of events could have been set in train. The individual's first response is likely to have been to attempt to overcome the immediate shortfall by calling in in-relations. Should that fail, s/he may have decided to negotiate new positions of indebtedness and/or leave the community for a better resource elsewhere. However, if failure was widespread, more desperate measures may have been required, which could have included exercising self-restraint and sharing, preventing others from partaking of their full 'share' or, indeed, stealing. Once a calamity was successfully overcome, or once an individual who had not suffered personally foresaw the risk to self in the future, s/he would be likely to consider action to protect against the possibility of personal failure in the future by producing more and storing it (either physically or socially). Increasing production could be achieved by investing more personal time, by technological developments to gain a better return on time and/or by using the labour of others. The dynamics of the potential responses are outlined in table 11.6 and detailed below:

Enabler	Accelerator	Constraint
Immediate response to calamity ('have nots'):		
Call in in-relations	As more call in in-relations, the greater the chance of personal in-relations being exhausted. As more personal in-relations are exhausted, more calls will be made on those remaining.	Finite capacity - as long as calamity is localised it is likely that all will be fulfilled, resulting in no significant change but a critical failure point will occur when calls cannot be met OR
Negotiate new positions of indebtedness	The more that attempt to find new sources, the fewer the new sources that will remain available and the greater the competition for those.	Finite capacity - actual surplus available. If not enough to go round:
OR: Leave community for better resource elsewhere	The more that attempt to find new sources, the fewer the new sources that will remain available and the greater the competition for those.	Finite capacity - as more do this, the apparently better resource may worsen and the home resource improve. Finite capacity - actual resources available. If not enough to go round:
Immediate response to calamity ('haves'):		
Inflate 'price' of uncommitted surplus	'Competitive generosity' (below)	
Critical failure point reached:		
Co-operate to share and restrain self for good of all	Once a critical mass for action is reached, then any *have* who remains outside the sharing system may risk being the victim of social opprobrium (or physically more harsh) sanctions i.e. a degree of coercion by the sharing group may be possible.	a) Finite capacity - actual surplus available (and failure may be localised so that it may involve moving (above)). b) Prisoner's dilemma situation between the *haves* and the *have nots.* Critical mass for action required to resolve and that may be dependent on group-dynamics.
OR : Prevent others from partaking of full share	As more do, the pressure on the individual resistant to this behaviour will increase as s/he becomes comparatively more disadvantaged.	To do so is likely to force the disadvantaged to *leave community for better resource elsewhere* action with a net effect as noted above.
OR: Steal *- The Targeted Aggression model (above)*	The *haves* stolen from: a) exhaust their in-relations and have less to lose by defection b) suffer greater unpredictability and must take action as a result (e.g. defence or turning to theft themselves)	Self-limiting; there must be some *haves* to steal from.
Planning/protection for future:		
Negotiate more social storage / extend further afield	Competition to 'get an edge' at inflated 'values'	Self-limiting if all do it but production remains the same
Produce more and be 'generous'	To keep ahead of others, must produce even more and be more generous (the 'Red Queen' effect).	Finite capacity on time available
Produce more for same labour		Only likely way given evidence is supplementing by theft (the Targeted Aggression model, above.
Produce more for more effort (by enslavement)	Opportunity for greater 'generosity' because new source of 'wealth' i.e.	a) Resistance to enslavement on part of potential victims Self-limiting - costs of capturing, guarding and feeding slaves.

Table 11.6 - Potential responses to production failure and unpredictability

Calamity - responses

Social storage practice is intended to provide insurance against production failure and calling in in-relations would resolve the occasional personal difficulty, with no ramifications for the social structure, as long as calamity did not occur frequently and it was localised. However, if in-relations are exhausted or default, then the individual must find new sources, possibly by establishing new relations of indebtedness by borrowing from (or exchanging with) those who have a surplus. If all did this and production remained the same, the action would be self-limiting in that it is subject to the finite capacity limit of the amount produced.

The greater the number of those who suffer failure (the *'have nots'*), the greater the opportunity for those who have a surplus (the *'haves'*) to increase their personal centrality by negotiating at inflated exchange values, in whatever 'currency' pertains. As well as (or instead of) negotiating new relationships of indebtedness, the *have not* may have chosen to leave home and seek a better resource elsewhere. However, the more that do that, the greater the demand on the better source; over time, those calls will reduce its surplus and, at the same time, the reduction of calls on the home resource will improve its potential again; the net effect could be an equalisation of the productivity of the two resources.

Critical failure point reached

If people perceive that there is not enough to go round in a particular year (and that may be a localised effect) then they may choose to co-operate to reduce their own intake and share with others, in order that all should have some. Sharing may not be equal and, indeed, the disadvantaged in an unequal share-out may have to leave the community to seek a better resource elsewhere (above). Sharing to any degree requires that the *haves* sacrifice some of their comfort for the benefit of the *have nots*, which they may do for social or cultural reasons or because they are compelled. The latter point verges on the 'targeted aggression' model (above) in that compulsion could include the threat of violence and theft is a clear option open to the *have nots*. Thus, any natural 'disaster' of an unpredicted nature could cause a rapid spread of the *amoral* behavioural variant and the unpredictability of harvest due to the climatic downturn makes a likely causal candidate. The potential consequences have been examined in the Targeted Aggression model, above.

Protection and planning

Whether individuals personally suffer calamity or not, once they realise that calamity has occurred and are able to foresee the possibility of a recurrence affecting them, they are likely to consider their protection strategies and adjust them with a view to extending their safety net. That may be by extension of one's network of social storage partners, both in terms of numbers and distance; the more 'insurance' that one has, the greater the likelihood of partners producing enough surplus to fulfil their obligations to self in the event of production failure and that protection may be seen as compounded if the 'new' partners are at a greater distance (perhaps a different ecological niche). However, difficulty may arise in transacting payment of 'debts' when called in from a distance; meetings may be arranged at 'special places' or produce taken directly from the source to the consumer (or *vice versa*) but transport of cereals, especially, is cumbersome, slow and risky in an environment where stealing is a possibility. The greater the distance and the more predictable the date of exchange, the riskier that journey will be. Thus, there is some reason to surmise that central meetings on known dates would be dropped in favour of less predictable arrangements to reduce that risk. Similarly, the risk could be reduced by providing that payment of debts in a more speedily transportable form, particularly as livestock and especially cattle and, perhaps, horses for their optimal meat value by ease of movement. Thirdly, risk could be reduced by mounting a guard on the movements of produce.

If we assume that each individual thought it to her/his best advantage to establish exchange relationships further afield and wished to minimise the risks associated with transporting produce to fulfil obligations, then we can see that there would have been real advantage in co-operating with near neighbours to share the costs and the risks with a similar group elsewhere. The cost of fulfilling obligations when called would be spread by sharing in this way, the arrangements for meeting to facilitate 'payment' simplified and the personal contribution to mounting an effective guard or watch on movements similarly spread by co-operating in the endeavour (as well as the maintenance of protection of the community whilst away from home).

Negotiating relationships and fulfilling obligations on a locale to locale basis may be viewed as best tackled by vesting individuals with legitimate authority to act on behalf of the groups and the effects of that action are modelled in the 'Representation' model, above. If production remained the same, then there is the possibility that the *haves* at a critical time could effectively invite an inflationary competition to maximise the 'value' of the surplus goods in their holding over and above their out-relation commitments. Alternatively, if production is increased and greater surpluses stored, in order to be able to fulfil a greater number of out-relations concomitant with increased social storage should that be called upon, then the surplus must be stored. That may be physically, but perishable produce could not be stored year-on-year (until c 750 BC) or by conversion into social capital by contribution to inter-community feasts.

This is termed the 'competitive generosity' effect, as an individual may deliberately invest in production of a surplus in order to outdo others with a showing of 'generosity' at those events. Such an investment could involve not only Ego's labour but also that of the whole domestic-unit and of any labour which s/he could coerce (e.g. by enslavement or corvée in lieu of defaulted in-relations). If the individual can contribute unequally to the feast to a degree which is noticeably 'generous' (i.e. a significant multiplier of the typical contribution) then s/he can further build social capital by being seen to be open-handed and successful and that effect is compounded if it can be achieved year-on-year. However, once people start to notice and decide to compete by producing more themselves, the average surplus increases and the differentials between competing individuals (or groups) will tend to decrease as a result, despite maintenance of an above-average effort. Thus, the competing individual (or group) must produce even more if s/he wishes to stay ahead, resulting in an accelerating effect on the production rate (the 'Red Queen' effect). As more join in, all work harder but for less gain and the point may come where people no longer feel it worth their while (and, indeed, may have no more production capacity). Alternatively, given one exceptionally bad year, the 'generous' individual is likely to find that all of her/his effort is simply absorbed in filling out-relation obligations. Thus, in the case of a major failure, social capital may still rise in terms of in-relations but that will be little motive for continuing a 'generosity' strategy of hard work in difficult times.

Production failure model stage 3 - contextualised responses (dataset)

This model differs from the others in that there is fairly clear evidence for the reality of the potential catalyst (downturn in weather conditions), but rather less for the potential responses, and that which there is is tangential.

Immediate responses to calamity

Of the potential immediate responses to calamity (i.e. calling in in-relations, negotiating new positions of indebtedness and leaving the community for better resources elsewhere) there is almost no corroborative evidence. Although the earlier periods seem to be characterised by shorter-lived sites than later periods, most of those examples are dated to the end of the second millennium BC (e.g. Itford Hill E31, Black Patch E04 and Heathy Brow E25 in Sussex, Chalton 78 F12 and Westbury F47 in Hampshire) which is too early to support attribution to the climate effects. Shinewater E57 in Sussex was occupied for only a century at the most (probably C 9th BC) but the effects of the weather were all too direct there, in that it is likely that abandonment was due to sea water inundation.

Critical failure point reached

Storage arrangements could throw some light on the propensity to co-operate to share and restrain consumption for the good-of-all response. In Sussex, there appears to have been some fairly open and communal storage at sites which were not settlements from c 1000 BC onwards and the only detailed example of storage at a community settlement site at the 'downturn' time (Hollingbury E29 in the 600 - 400 BC period) suggests communal access to storage (pp. 194-196). Turning to Hampshire, there is no useful data for this line of enquiry prior to 600 BC but in the 600 - 400 BC period there are three clear examples of communities which had zoned storage to a degree great enough to suggest considerable communal access (i.e. Winklebury F48, Old Down Farm F32 and Danebury F14) (pp. 769-770). Overall, the evidence provides weak evidence for communal sharing of produce stored from c600 BC, just when the climate is likely to have been on the turn, and it may have been the practice in the period from c 1000 BC. None of the evidence suggests that any prevented others from partaking of a full share but it is rather hard to imagine what clear evidence for that practice would constitute. The evidence for the predicted results of stealing to subsidise production effort is reviewed fully in the 'Targeted Aggression' model, above.

Planning and protection for future

To negotiate more social storage and/or to extend it further afield does not strictly require that one produces more, as the greater insurance may be gained simply by spreading the risk further afield, in smaller amounts. However, any attempt to extend it, to build one's own surplus for personal use in the event of local failure, or to compete by 'generosity' does require that physical storage capacity and length of time for which food can be stored should be increased. The development of large below-ground, long-term storage capacity in pits started at around 750 BC and it is likely that average pit size continued to increase from that point onward (e.g. Cunliffe, 1991a, 375; Rawlings, 1979, 90; Jefferies, 1979, 15). At the same time, the erstwhile popular above-ground storage structures declined slowly but steadily through the remainder of the first millennium BC (Gent, 1983, 245, fig.1), thus suggesting that the trend toward longer-term storage continued throughout. However, the capacity of above-ground storage structures cannot be calculated (as their purposes were probably various) and, thus, no capacity comparisons can be made. Although other explanations could be imagined, it is certainly possible that this is evidence for the response of producing more surplus and keeping it longer-term. Continuance past the point of the return to fairer conditions may have been more a matter of cultural habit than direct need.

Producing more for the same labour could be indicated by new technology giving economies of effort but that is largely absent except, perhaps, in that the superior strength of iron may have had a role to play in that at around 750 BC onwards. The possibility of producing more for more effort, including by enslavement, leaves no indication in the record as it stands.

In summary, the main evidence for the potential responses to production failure suggests that individuals may have turned to stealing in the event of crisis (Targeted Aggression model, above) and may have made provision for the unpredictable future by producing more and storing surplus longer term.

Production failure stage 4 - contextualised responses (GDM)

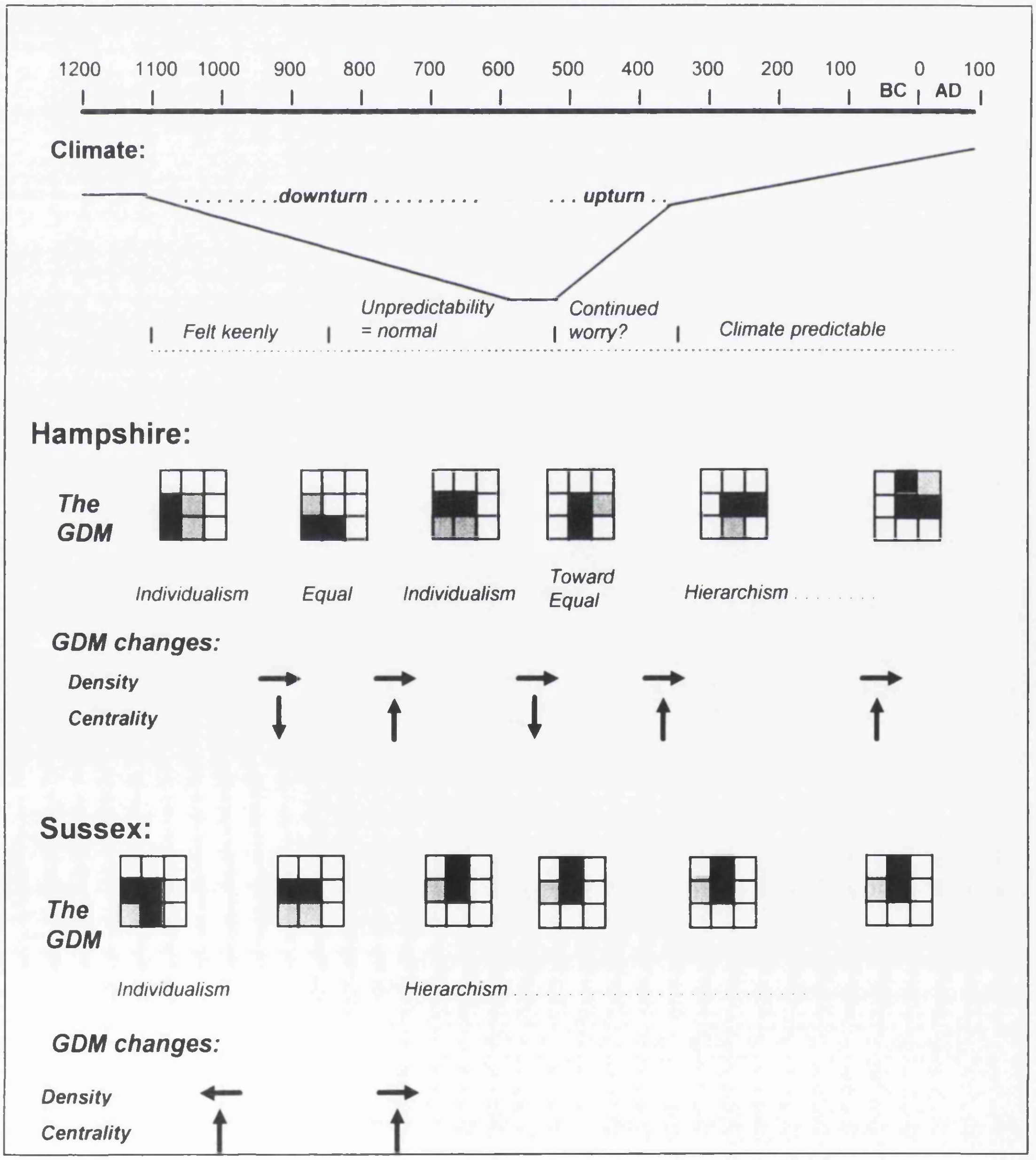


Figure 11.15 - Climatic change and group dynamics history

In the early first millennium BC, when the climatic downturn was probably felt keenly, centrality in Hampshire reduced to *equal* and that could certainly support the potential sharing response to a localised calamity. However, the attribution to *equal* centrality is on the basis of the linear ditch systems layout, as well as the comparative diminishment in differential status of the Easton Lane / Winnall Down E15 site at that time and those developments were not, apparently, accompanied by any obvious communal storage facilities in the immediate environs. Thus, the *equal* centrality must have been fairly weak and that could be explained by a selfishly-rational base for decisions to share on an equal basis vested in a previously individualistic society. Certainly, with the benefit of the archaeologist's hindsight, we can say that the *equal* centrality did not last long, returning to an individualistic *differential* centrality at fairly low density in the following period. Sussex showed no such developments, but may already have shared on a communal basis to some degree prior to the downturn (as indicated by communal storage, above).

During the time that unpredictability had become 'normal', Sussex group dynamics moved further upwards, overlapping into the *insulated* band, which suggests that possibility that certain sectors of society could have annexed some responsibility to the benefit of their own social standing and that could have arisen from appointment to roles of legitimate representation in association with protection and planning responses to production failure. That is discussed more fully in the 'Representation' model, above.

In contrast, Hampshire society moved rather more up-density than Sussex but centrality still tended toward the *equal* side of *differential*, suggesting that people had begun to feel more benefit from co-operating with others but had not lost their reluctance to relinquish personal autonomy. That co-operation may have been as a response to targeted aggression which, it has been demonstrated (above) could have rapidly accelerated as a result of a few calamitous production failures over a generation or two. The possible trajectories are discussed more fully in the 'Targeted Aggression' model, above.

After c 500 BC, the climate began to improve and the earlier developments could be said to have set in train their own sets of responses.

Stage 5 - Evaluation and integration

The Targeted Aggression model has been presented first in this Chapter and makes the case that the responses retrodicted could have been causal to the Representation and the Inscription models which follow, although it need not have been. There are other possible causal reasons for both inscription (e.g. to prevent stock from inter-mixing) and representation (e.g. to arrange exchanges). Furthermore, the Representation model is invoked by the Inscription model. The Inscription model enjoys the advantage of direct archaeological evidence for enclosure building which *de facto* inscribes. If normative group dynamics are accepted as a line of evidence then we can also say that the Representation model enjoys the direct evidence of the GDM history but that is at a second level of inference from the data. Thus, these two models stand alone but are, in a sense, unsatisfactory as explanation in that they are incomplete without identification of a primary catalyst.

The Targeted Aggression model is strongly supported by this interpretation of the archaeological evidence and requires only the presence of a few *amoral* individuals in the population to seed an evolutionary train of events in the manner hypothesised and ethnographic evidence strongly argues for the likelihood of their presence, as detailed in the model's stage 1 discussion (above). Certainly, the model is string as an explanation for the group dynamics developments as observed and, indeed, from c600 - 400 BC at least, the element of the model dealing with escalation of political alliance is strongly supported by the observed group dynamics developments. However, there could easily have been an oscillating stasis involving smaller cycles of the spread of pragmatic violation behaviour, a critical point and a phase of amnesty and forgiveness, unless something happened to prompt further developments. It has been argued that that further catalyst could have been simply new cultural behaviour to defend rather than re-assimilate, thus introducing differential advantage to the situation. However, unpredictable production failure as a result of the climatic downturn in the first part of the first millennium BC is a strong 'external' candidate. The climatic effects are undeniable but need not have caused collapse but, as the Production Failure model has shown, they may have acted on cultural behaviour to a degree great enough to accelerate the spread of and the desperation involved in targeted aggression behaviour.

In summary, the Targeted Aggression model presents an evolutionary account of cultural behaviour developments which sits comfortably with all lines of evidence and which would have acted as a catalyst for both the Inscription and the Representation behaviours hypothesised, which are supported well by the archaeological evidence in the first case and the normative group dynamics in the second. Targeted Aggression need not have been accelerated by Production Failure but it could have been. Thus, all of the models developed in this work could stand separately or together and none is invalidated by any other.

The whole does, in a sense, add up to more than the sum of the parts in that it provides a coherent hypothesis of the causality and evolution of regional variation between Hampshire and Sussex in the first millennium BC, based on an understanding of aggregate outcomes as the result of individual decision-making and supported by both the archaeological evidence and the normative group dynamics.

CHAPTER TWELVE - EVALUATION

This work has studied and identified patterns underlying how people behave today by reviewing observation and experiment from a number of specialist disciplines, and extrapolating from those to develop a model of social structure which identifies two key dimensions of the social environment. Their intersection tells us enough about the individual's social placement to allow some prediction of behaviour (as seen in the aggregate). That model of social structure (the Group Dynamics Matrix) has shown itself to be a useful tool in illuminating the past, using a method based on archaeological lines of evidence. A primary purpose of demonstration by case study is to show that each component of the method for application to an archaeological dataset is practicable, and that the method is both versatile and sensitive to change over time (pp. 118-122). That much is clear, and it has proved possible to identify the outcomes which have ensued as the aggregate of many past individual decisions and actions, and to infer the cultural factors which may have influenced those, as well as providing a basis for inferring the direction that changing cultural influences on individual behaviour may have taken, and deriving evolutionary causal models as a result. The development of group dynamics theory has been presented in three parts, each demonstrated by application to the case study:

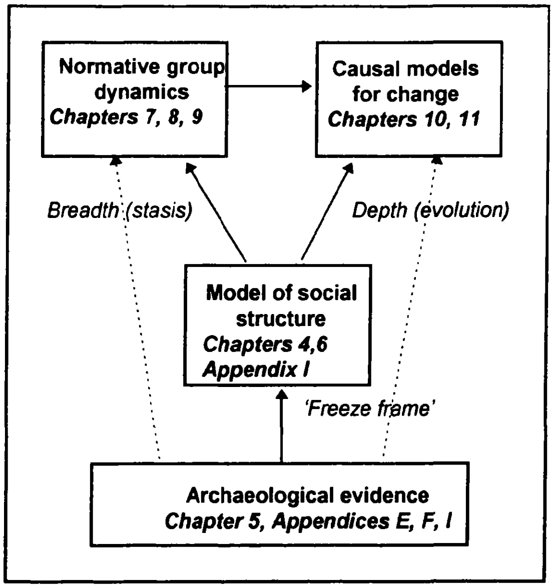


Figure 12.1 - The development and demonstration of the chain of inference presented in this work

The thesis argued by this work is that the information value of archaeological data is improved by an interpretation of both stasis and change, which is extended by understanding the dynamics of the inter-dependency of the individual and the group in decision-making and action choices ('group dynamics') (pp. 30-31). It remains to consider the success of the argument by considering how the interpretative value of the case study dataset, seen in a group dynamics light, has been extended. In line with the presentation of the work as a whole, the degree of satisfaction of the argument is most clearly demonstrated by considering each methodological component separately.

Modelling social structure

The GDM provides a link between theoretical work and the data in a manner which operates on full datasets, uses multiple lines of evidence and allows subjective weighting of findings. Taking any single line of evidence, the method does not derive wholly new interpretative insights to the data itself. For example, it does not extract new information in the way that Hill (1995c) does for ritual deposition in pits, although some are proposed in smaller ways (e.g. style analysis - not applied to its potential extent in this study; *ditch labour cost* approach to comparison). However, it is able to take advantage of useful approaches which others do invent, as it can use most available categories of evidence.

Using multiple lines of evidence resolves a number of acknowledged difficulties. As Collis (1994a, 33) points out, a major problem in studying social aspects of British prehistory is that evidence changes its character over time (e.g. putting it in a simplified manner: from ceremonial and burial sites in the Neolithic, to burials and hoards in the Bronze Age, to settlements, earthworks and pits in the Iron Age). Drawing from multiple lines of evidence allows periods with dissimilar data characteristics to be directly compared, thus providing a platform for 'transition' studies and those of the long duree, and that is helped by categorising data in GDM evidential terms (primarily 'community settlement sites' and 'inter-community aggregation sites') which avoids period-specific biases. Subjective weighting enhances that yet further, as relatively weak and strong occurrences of data (both in space and time) can be evened out between two datasets, again allowing comparability where that may otherwise have been inadvisable.

Explicit specification of the contribution of each line of evidence allows analysis of the robustness or fragility of a conclusion from the point of view of the confidence which can be placed in the reported data (e.g. as demonstrated for the Sussex 'population' line of evidence (pp. 202-203, Appendix H2). Thus, far from being fazed by new lines of evidence or, indeed, the discrediting of old, we can directly assess how they alter our perception of the position without having to reconsider all others. So, for example, the impact of a new site discovery can be directly estimated and the dataset and derivation of social structure from that easily updated. Completely new interpretations can be incorporated in the same way. For example, Andrew Fitzpatrick's new work positing the interpretation of some late Iron Age artefacts as 'priestly regalia' (presented as work in progress at the Iron Age Seminar at Cardiff University, 1997) could be readily assimilated and its impact assessed, should the initial hypothesis bear up to scrutiny as it is developed. Furthermore, as has been clearly evident in the case study, it is not necessary to extract subsets of the dataset due to the extent of excavation; whilst it cannot be denied that modern excavations are likely to contribute more than older ones, the contribution of a single site excavated to a modern standard need not dominate the findings disproportionately.

That applies not only within a dataset but also between, as has been shown in this exercise of smoothing the Hampshire and Sussex datasets, despite qualitative and quantitative variation in the total dataset size (i.e. Sussex greater than Hampshire), in the concentration of excavation effort over time (i.e. Hampshire more modern than Sussex) and the balance between settlement and 'hillfort' data contributions (Sussex has a greater hillfort : settlement sites excavated ratio) (pp. 131-135).

The GDM method as applied to this case study has been rather site-oriented, as the incidence of physical recovery of artefacts in Hampshire and Sussex is rather less than in other areas (e.g. depositions in the Thames and in burials in the North East of England). Lines of evidence are not borrowed from other areas, as the approach problematises difference rather than seeks similarity. Thus, although there are artefact-specific studies (e.g. bow brooches - Hull and Hawkes (1987)), they are only useful where they contain sufficient data examples from the study areas to allow confident local conclusions to be drawn. Problematising difference has shown a sharp contrast in the trajectories of social change in Hampshire and Sussex, (compare the GDM results as shown on p. 269), and this highlights a clear advantage of the approach. Whereas similarity is indicated by the general morphology of sites, the detailed analysis of all lines of evidence shows important differences both in space and time. For example, Cunliffe (1991a, fig. 20.6) identifies wide regionalisation at c150 BC on the basis of settlement types, and Hampshire and Sussex both fall within the *'hillfort dominated zone'*. Although analysis of distribution of similar structures is important to some aspects of interpretation, (e.g. it helps to understand the extent of habitus), it entirely disguises the possibility of variance in the ways in which commonties might 'exapt' a repertoire of habitant structures to articulate and incorporate their own attitudes and action. Conversely, considering categorised structures independently of human action and history fails to reveal potential similarities of purpose between disparate types. For example, it has been argued that population may have concentrated around four Hampshire sites in the dataset from 400 - 100 BC, of which two were enclosures on high ground (which Cunliffe probably included as 'hillforts' in his analysis, above), one was a very large enclosure on low ground by a river crossing area and the fourth was a long-standing settlement, unbounded at this time (p. 290 *inter alia*). The important effect to be noted is the 'concentration of population' development, rather than the site morphology; from the position of seeing the difference in morphology, it is interesting to enquire into the reasons why those concentrated populations may have felt that different site forms best suited their local needs.

Narrow analysis based upon the rigid equation of similarity of site morphology and site function persists despite the wide challenge to the erstwhile pervasive pan-Celtic model of European Iron Age society (articulated in e.g. Haselgrove, 1994, 1; Collis, 1994a, 31-32; Hill, 1995b, 51-54). The only systematic attempt to counter that has been the recent study of Sussex 'prominent enclosures' by Hamilton and Manley (1997), albeit that a challenge to the 'Celticist' 'hillforts as central, elite strongholds' interpretation has been rather more long-standing, (e.g. especially Hill (1995a, 45-56) but drawing on important contributions which include Guilbert (1975), Bowden and McOmish (1987, 1989), Marchant (1989) and Stopford (1991)).

In summary, the GDM model of social structure allows the formal evaluation of large datasets, using multiple lines of evidence and thus allowing comparisons of quite dissimilar characteristics over both space and time, whilst also providing a way of assessing the confidence which can be placed in the findings. Formalising interpretation in this way tends to cut across traditional site classification systems, opening the mind to seeking difference as well as similarity which, taken with group dynamics emphasis on people and action rather than objects and co-variation of contexts (below), has resulted in a new range of emphases and has the potential to prompt an entirely fresh way of looking at some traditional 'problems' e.g. not 'what were hillforts for?' but 'why did some congregations of people choose hillforts and others not?'.

Normative group dynamics - adding breadth to interpretation

Given a particular period which can be fixed upon by the chronological resolution of the data, the GDM provides a platform for inferring personal attitudes and actions which would normally result from the relationship between the individual and her/his social environment. Predicting those attitudes has been the key theme of the normative group dynamics element of theory and has been summed up as the 'typical' mindset, framing personal dispositions of Sussex and Hampshire residents over the first millennium BC (p. 256 and pp. 294-296, respectively). Interestingly, at this level of inference, prediction of likely ideological attitudes to one's place in the cosmos is on a par with prediction of the likely range of personal capabilities *inter alia* (pp. 254-255).

Many (if not most) of the case study conclusions derived from that work are novel. Wholly new findings necessarily add interpretative value to the dataset, but confident claim to success requires that we demonstrate that this new slant on the evidence is useful. Briefly examining the ways in which the viewpoint is new, and how it can serve the agenda in the field, should make the case adequately.

In 1994, Haselgrove introduced an important volume with the remark that *'we know little for certain about the social organisation of* [Wessex'] *Iron Age inhabitants'* and went on to lay the 'blame' directly at the feet of the all-pervasive pan-Celtic model, claiming that *'where archaeologists have considered social organisation at all, it usually has been by extrapolating details from texts relating to other Celtic-speaking peoples'* (Haselgrove, 1994, 1). Whilst his view may seem to have been a little harsh, it is clearly reiterated elsewhere by leaders in the field (e.g. Collis, 1994a, 31-32; Hill, 1995b, 51-53, 72-74). The example often used is the 'standard text', Cunliffe's *tour de force*, now in its third edition (Cunliffe, 1991a) and still emphasising social organisation in the south as politically centralised, with power vested in 'chiefs' living at elite residences (hillforts) referred to as 'power centres' (e.g. Cunliffe, 1991a, 259-260). That view was greatly influenced by the uni-linear social evolutionism of the 1970s and 1980s, applied rather uncritically in the first edition (Cunliffe, 1978), but, it must be stressed, somewhat tempered by the third. The influence of the earlier editions, in the intellectual climate of the times and 'supported' by the 'Celtic' literature (albeit mainly drawn from Irish early Medieval accounts (Hill, 1995a, 46)), was wide-ranging and pervasive, with few dissenters and even fewer attempts to develop alternatives. Notably, however, Bradley (e.g. 1984, 1991) did challenge that view, developing a *'social archaeology'* ranging over 3 ½ millennia of prehistory, drawing comparisons between the Thames Valley region and Wessex, seeking the *'social foundations'* (Bradley, 1984, title) of variation both in space and time. That work divides the time period at a resolution of the 'Three Age' chronological reckoning and, for each period, is concerned with seeking *'common processes'* of subsistence and pattern of settlement, ideology and the treatment of the dead, territorial organisation, warfare and the uses of weaponry, long-distance exchange and conspicuous consumption (Bradley, 1991, 62-71). Findings are expressed at a high level so, for example, 'high-status' settlements are equated with productivity of surrounding land (cf. Ellison (1981)) and greater social distinctions in the 1400 - 700 BC period, and those are seen to have been manifest in martial symbolism and a competitive character to the large-scale destruction of wealth as a source of prestige (Bradley, 1991, 56-58). The point of selecting this example is neither to challenge nor to concur with the findings, but to demonstrate that the group dynamics approach not only dissects those types of inferences into more specific units of space and time, but also that the normative group dynamics theory adds to what can be said about articulation of social relationships. Taking just one small example, the case study has argued not only that martial symbolism may have been important, but has also contextualised that, suggesting why that might be and where and when. In this case, in the varying periods of lower-density, medium-centrality individualism in Hampshire and Sussex when social esteem may have been earned (in part) by competitive demonstrations of physical prowess, it has been posited that weaponry and armour could stand as 'trophies' symbolising instances of social-capital-earning superior strength and skill, both of self and, possibly, of biological ancestors (pp. 231-232). It is important to note the probabilistic element of normative group dynamics; many do not mention it, but all inference can only be that which is most likely, given what is known of the circumstances; the potentially conservative effect of habitant (indeed, commontant) history can influence that.

A handful of studies have struck away from the more traditional models of the first millennium BC and deliberately sought real alternative interpretative approaches. For example, Hingley's (1984) study of settlement patterns in the Upper Thames Valley from c400 - 0 BC attempted to provide theory to relate spatial relationships and social organisation by arguing that the social relations of production were organised by kinship principles, and that spatial organisation reflected those kinship relations (1984, 76). Whilst the group dynamics perspective does not depend upon understanding kinship relations, the conclusions which Hingley (1984, 85) derives are expressed in terms of a contrast between *'communalistic'* societies of the Oxford Clay Vale and *'individualistic'* social groups on the Uplands, a distinction vested in density and boundedness of settlement patterns. We have not attempted to analyse this region in GDM terms so cannot know the extent to which these would correlate with the network density dimension but the important point to note for this review is that Hingley (1984) makes no attempt to derive any line of inference which would be regarded as equivalent to the normative group dynamic. Although a social analysis, people remain missing.

It must be said that Hingley's work was very much grounded in the Celticism of the day (1984, 75-76) but no such constraint has fettered Hill's (1994, 1995a, 1995b, 1995c) important and influential rethinking of Iron Age interpretation a decade later. He identifies the dialectical relationship between the social and the spatial as of key importance, pulling together the views of a range of smaller studies, from the previous two years, to build a case for the importance of recognising symbolic as well as functional principles of spatial organisation (Hill, 1995a, 49). Although Hill's analysis is not based upon a systematic method, being rather impressionistic, he finds parallels between aspects of Hingley's (1984) work and the Wessex case, and builds on those to consider the contrasting dynamics. For example, he suggests that the *'individual, dispersed upland societies, as in Wessex, would have had much less daily face-to-face interaction outside the individual farmstead'* and that *'corporately organised conglomerated lowland social groups still contained an emphasis on the independent household, yet the greater independence and co-operation in such societies does point to a greater degree of communal interaction'* (Hill, 1995a, 54). However, those thoughts are developed no further in terms of just what that would say about social life, except in so far as they are directed at Hill's important finding that the role and purpose of 'hillforts' varied widely, a conclusion expressed as a strong recommendation that they can be said only to have been *'not farmsteads'* (Hill, 1995a, 54-56). Thus, although that work falls short of the GDM perspective, it is certainly motivated by some similar ideas on the dynamic viewpoint, but that is not the point of emphasis there.

Overall, it seems clear that normative group dynamics theory does offer a concentrated package of wholly new ideas to the interpretative repertoire, and that many aspects of this theory are likely to prove useful just as they are. However, they can be used in other ways to expand and contextualise existing ideas. A few varied examples should be all that is required to make the case. The 'martial symbolism' example has already been cited but similar contributions could include a challenge to Drewett's (1982b, 341-345) position that elders may have held power in Sussex at the end of the second millennium BC, on the grounds that this is really more likely in higher network density periods (pp. 233, 250-251). More can be added to some interpretations. For example Bradley (1991, 56-58) argues for competitive generosity in the 1400 - 700 BC period, and group dynamics theory would agree with that interpretation in part, differing only in suggesting that this is rather less likely in Hampshire after c 950 BC (pp. 233, 281). New interpretation can be offered for erstwhile 'inexplicable' data so that, for example, it has been posited that the few child burials found in the early periods could represent the less able who failed to thrive in life, and who may even have been murdered at a time when ability was at the heart of the culturally-admired social persona (pp. 230-232). On a different tack, the evidence of normative group dynamics theory could tend to belie some interpretations. This requires a more extended example to illustrate. Hill (1995c) has convincingly argued that structured deposition in large storage pits represents ritual practice, and it has long been assumed that this represents some form of belief in intervention by digging into the earth to communicate with a chthonic deity. In a recent update of this interpretation, Cunliffe (1993b, 17-23) has summed it up as beginning with the large-scale storage of seed corn in pits as a practice motivated by a desire to come within the realm of chthonic deities for a liminal period when seed is dormant (Cunliffe, 1993b, 21), and 'offerings' placed in the emptied pits to *'solicit the goodwill of the protecting power to ensure a good yield'* (Cunliffe, 1993b, 22). Whilst there is little wrong with that explanation as such, contextualising by the prevailing group dynamic shows that it is rather unlikely. Large-scale pit storage began toward the end of a period for which it has been argued that one's view of nature would have been *laissez-faire* in both Hampshire and Sussex and when low network density suggests that a widely-held, homogenous and common understanding of the cosmos would be unlikely (p. 256). An alternative is proposed, grounded in concepts of inscribed group membership, namely that pit deposition marks the transfer of rights from a departing group member (perhaps deceased) to another. It is argued that this is a more likely explanation, given the group dynamic context (pp. 242-244).

In summary, interpretation from the point of view of inference of the normative group dynamics for a particular GDM link to the past not only adds many new insights but also provides another line of evidence to interpretations from other quarters, either to confirm, to deny or to temper and contextualise probability by space and time. Considering the world from the individual's point-of-view enlivens the interpretation, bringing people to the fore and placing objects in the contextual background. That is something of a shift in perspective on interpretation, bringing rich rewards by adding breadth to the understandings which can be derived from the dataset for any and every period amenable to GDM analysis.

Evolving group dynamics - adding depth to interpretation

Making a case for additional interpretative value predicated on the evolving group dynamics element of theory is a little more challenging as it is obvious that the archaeologist's project has been much more focused on explaining change over time than adding breadth to the knowledge of any particular period. Several decades of intellectual effort have been invested in explanation couched more in terms of people and action than of Darwinian 'technological progress' and the inevitability of selection of the 'superior' 'product'. The formal nature of the group dynamics approach can provide useful corroboration for the usually subjective explanatory models. For example, Bradley's (1984, 124-127) hugely influential hypothesis that material culture change may have had social origin, arising as a result of the 'collapse' of the culturally-valued bronze, is certainly borne out in so far as there is a clear social structure change at the 'point' of the Bronze Age - Iron Age transition at c800/750 BC in both Sussex and Hampshire (pp. 203, 775). However, that social structure change varied between those two counties and that is new information, to be explained. Furthermore, part of the explanation may surely lie in the divergent histories of social structure between the two counties and that, in turn, demands explanation.

Almost without doubt the bronze 'collapse' is part of the story, but was it causal, or was it an effect? If it was causal, then to what degree? If it was an effect, then why was it? The evolutionary view of group dynamics invites a multivariate approach to explanation - a deeper understanding vested in the individual's predispositions and perceptions of the environment, and how those influence decision-making for action.

The additional value added by this perspective is best demonstrated by an example and the one which might best suit is that of the Targeted Aggression catalyst model, chosen as the example for full development in Chapter Eleven (Regional Variation) and which could be useful input to the recent recurrence of interest in the nature and reality of 'warfare' in the first millennium BC. The widely-appreciated interpretative analysis offered by Sharples (1991a) has seen warfare as causal to change in Wessex in the C 7^{th} BC - AD 43 period, and that makes a useful comparative study.

The case study developed in this work extends back further than Sharples' (1991a) study but he steps back a little to seek motive. Although more extended in terms of time, this work is a little hampered in making comparisons as it draws data from a smaller area than that from which he drew as Sharples' (1991a, 80) uses all of Wessex (especially Dorset). However, the arguments for the validity of seeking wide similarity and substituting data of one area to stand for all have been rehearsed above and are not reiterated here as analysis is restricted to general points. In looking for a baseline 'motive' for killing practice, Sharples (1991a, 84) argues that control over bronze exchange networks would provide a principal cause of conflict, and that competition to develop alliances and debts (i.e. centrality due to size of network and in-relations) would result in a demand for weapons and armour, so that individuals could muster a following to kill resource-holders and thereby acquire 'wealth' and concomitant status. Whilst this might appear reasonable at first glance, we can see that it still appears to be a practice which 'arrived' out of the blue. In contrast, the Targeted Aggression model proposes that grouping for targeted killing may have developed from origins of action which was not necessarily intended to be violent, and which may have been better described as theft by stealth, and that, from those origins, responses and counter-responses could escalate the action to a violent level. Although the group dynamics analysis of this period certainly corroborates the suggestion that motives for action may have lain in competition, the low network density has prompted an alternative interpretation of the role of bronze weaponry and armour as more symbolic than indicative of 'warfare' (above, p. 232). The Targeted Aggression model has not been restricted to considering warfare only, but on Sharples' (1991a, 80) definition of warfare as *'organised, purposeful group action, directed against another group, that may or may not be organised for similar action, involving the actual or potential application of lethal force'* that has been seen as rather unlikely until at least c600 BC in Hampshire and possibly as late as c400 BC in Sussex (pp. 349-351).

In the early Iron Age, Sharples (1991a, 84-85) argues that the motive for warfare shifted to the control over agricultural production, and the land capable of supporting a large community; citing the appearance of 'hillforts', their siting and the storage capacity as key lines of evidence. As most specific examples are from Dorset we cannot argue with that, but the group dynamics perspective adds an extra dimension by studying social effects of co-operative action arising primarily from the inscribing effects of enclosure building, and the management of those projects, as well as identifying and offering explanation for variance in those between Hampshire and Sussex (Targeted Aggression model - pp. 327-354, Inscription model - pp. 355-364, Representation model - pp. 365-373).

By c C 3rd BC, Sharples (1991a, 85-86) posits an escalation in the level of social grouping for warfare from *'between local kin based communities competing for access to local resources to warfare between the occupants of geographically defined territories'* and comments that there may have been a deliberate suppression of inter-individual differentials in access to material culture at this time (i.e. down-centrality). Ignoring the question of kin, as discussed above, we have argued that escalation of this type may, again, have been causal in some of the social effects noted (in the assessment of which we disagree with Sharples' analysis). Additionally, the motive need not have been 'functional' as the cycle of attack and retaliation in a context of increasing network density could have become self-sustaining to all intents and purposes. The 'original' motives are likely to have become buried in the mists of the myth of group origins (pp. 350-354).

In summary, there are key points of this interpretation which are certainly supported by the 'targeted aggression' model but others are cast into some doubt. By illustration with just a few of those, it is quite clear that the whole explanatory framework can be greatly enhanced by contextualisation within the GDM history.

Image-enhancing group dynamics

Archaeological data can be organised and framed by a model of social structure which is sensitive to change over time. That static picture is the basis for a second level of inference which provides interpretative information built from observation of the inter-relationship between individual action and aggregate outcomes. Not only does that 'sharpen' the image but it also enriches and enlivens the view of both oscillating stasis and evolutionary change by adding people and action to the picture. The tools for the task have been presented in this work and their use demonstrated by application to a substantial case study spanning more than a millennium of prehistory, using a dataset of 119 sites and numerous other lines of evidence in two counties.

The archaeology of group dynamics has proved demonstrably practicable, innovative and useful, inviting confidence that application in other areas of both space and time will be equally successful. Brightening and foregrounding the people in the picture and dimming the background of material culture has the effect of significantly enhancing the images that we can capture of the past: images that focus on the people who are the common denominator of all human pasts, all presents and all places.

AN ARCHAEOLOGY OF GROUP DYNAMICS

Katherine Mary Gregory

VOLUME TWO - APPENDICES AND BIBLIOGRAPHY

APPENDIX A - MODELS AND DEFINITIONS

The Data Model

The model of the formal terms used to refer to important entities and relationships between them, together with definitions.

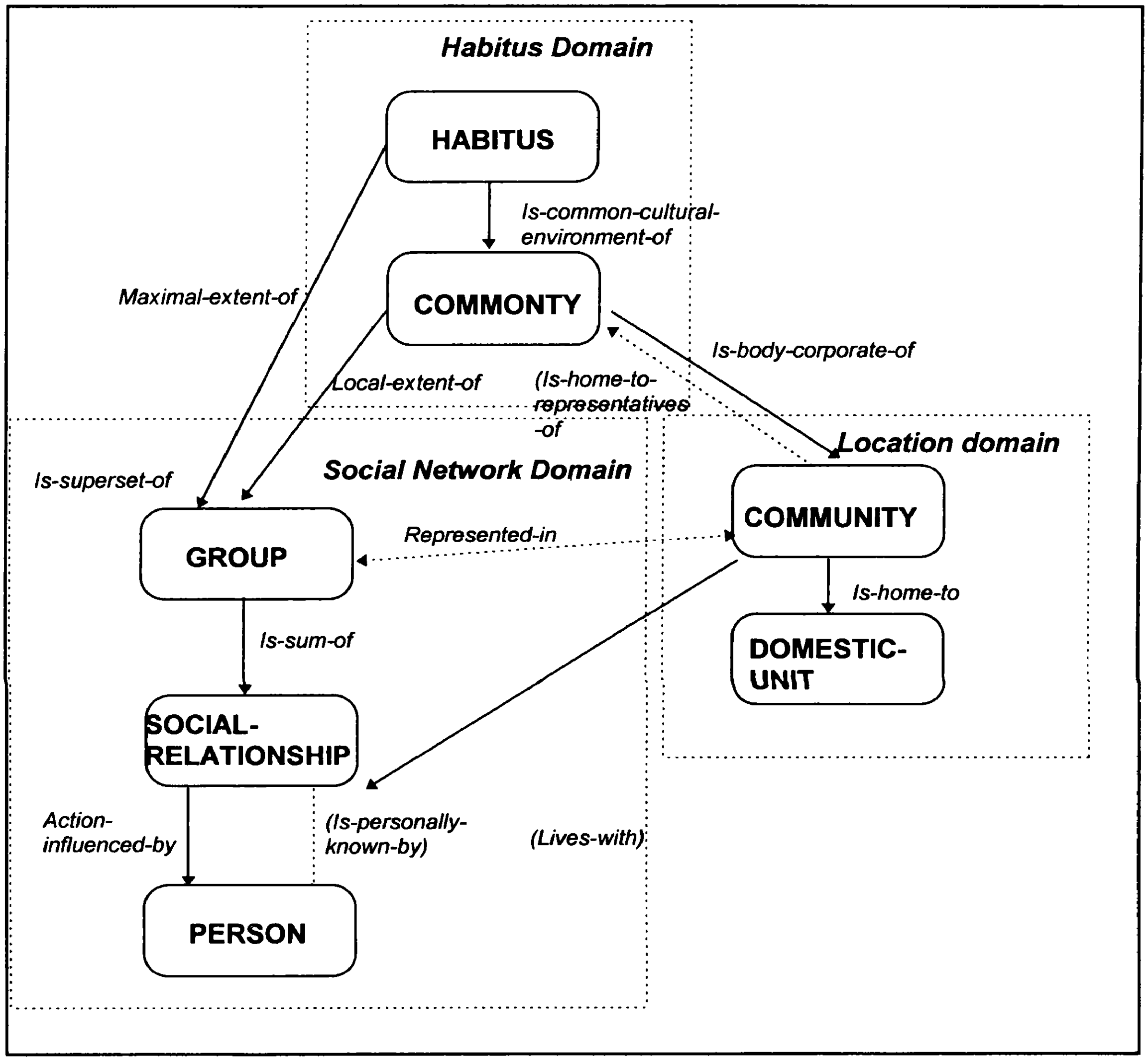


Figure A.1 - The Data Model

HABITUS:

The system of durable, transposable dispositions; the product of the work of inculcation and appropriation necessary in order for those products of collective history, the objective structures, to succeed in reproducing themselves. (Taken from Bentley (1987, 28)).

(and **Habitants:**

The population inculcated by the habitus.)

COMMONTY

The self-governing body corporate.

(and **Commontants:**

The self-identifying members of the commonty)

GROUP:

A social unit which the members perceive as being a unit and in which there is a pressure from face-to-face situations to draw the same boundaries and accept the alignment of insiders and outsiders.
(i.e. as defined by Douglas (1978, 7))

SOCIAL RELATIONSHIP:

The way in which two people know each other; the degree of involvement in each other's lives.

PERSON:

An individual social actor, responsible for his/her own behaviour (i.e. not a dependent child).

COMMUNITY:

The largest population who live and work together as suggested by co-residence in a permanent settlement or who travel together and co-reside in temporary camps.

DOMESTIC-UNIT:

The normative smallest unit of the population who live together and who share food, on an everyday basis.

The Group Dynamics Matrix

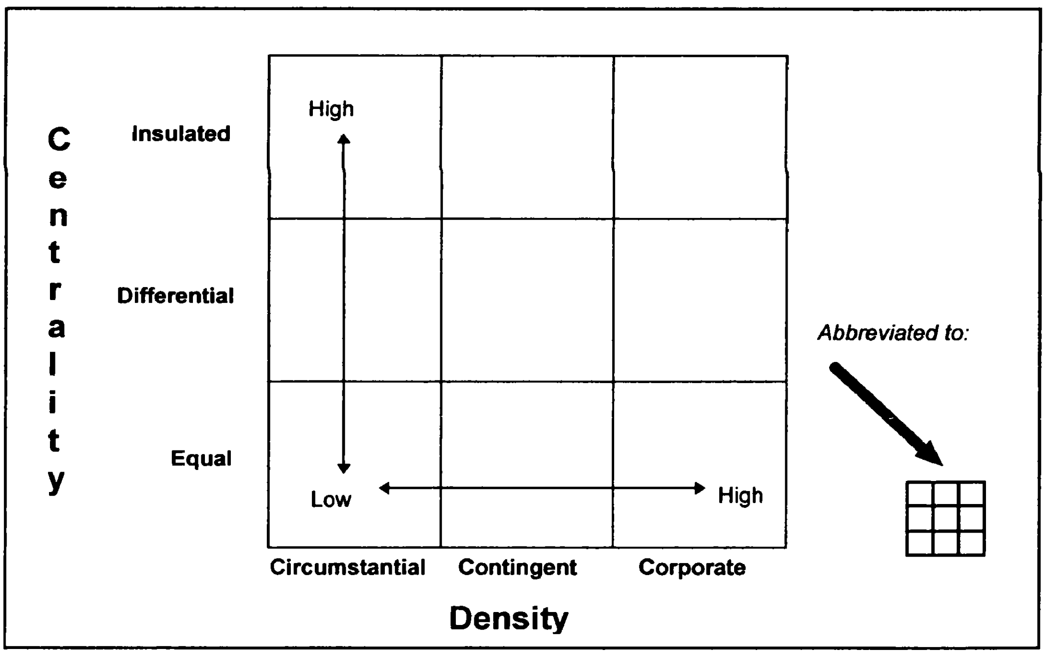


Figure A.2 - The Group Dynamics Matrix

Density dimension:	Measures cultural influences on individual action by reference to network density of the commontants, categorised into three broad bands.
CIRCUMSTANTIAL	Range >0 - 10%; median c5% Individuals are at the centre of networks of their own making, therefore they are related by force of circumstances only, typically by virtue of where they live and with whom they work.
CONTINGENT	Range 10 - 50%; median 20% The individual is free to join any associations; little is prescribed by custom and should individual behaviour give rise to internal conflict, the degree of mutual implication in life support is likely to be weak enough to allow fission as a practical solution.
CORPORATE	Range 50 - 100%; Median 80% A person is implicated with most others in the majority of facets of life, especially common residence, shared work, shared resources (technology and / or food) and shared recreation. Most aspects of life are prescribed by custom and personal fission is an impractical solution to internal conflict.

Centrality dimension:	Measures individual influences on cultural behaviour patterns by reference to centrality of the commontants' network, categorised into three broad bands.
EQUAL	Personal autonomy except to the extent that realisation of inter-individual difference is opposed by suppression of competition.
DIFFERENTIAL	Inter-individual differences are not suppressed (horizontal and/or vertical), to the extent that all valued positions are available to all with sufficient talent to fulfil them (except where limited by gender).
INSULATED	Inter-individual differentials in access to valued positions are ascribed at birth.

Figure A.3 - Density and Centrality dimensions

Douglas' Grid-group categories : Group Dynamics Matrix

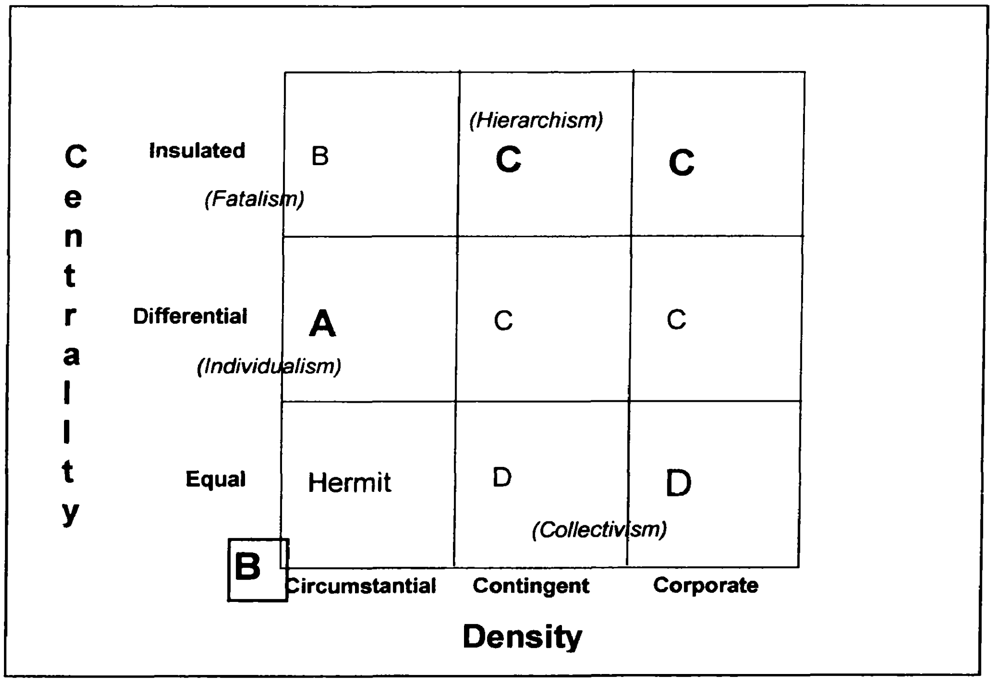


Figure A.4 - Douglas' (1978) grid-group categories: Group Dynamics Matrix

Archaeological analysis - Group Dynamics Matrix

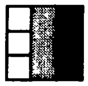
Level of detail	Analysis	Centrality?	Density?
Whole study area			
	Population		✔
	Style		✔
	Specialisation	✔	✔
	Community site patterning	✔	
	Access	✔	
Community architecture			
	Territory and boundaries		✔
	Public spaces		✔
	Monumental architecture		✔
	Memorials (people and events)		✔
Intra-community assemblages			
	Intra-community spatial patterning		✔
	Domestic wealth	✔	
	Boundedness	✔	
	Storage	✔	
	Domestic-/social-unit specialisation	✔	
Artefactual			
	Status symbols	✔	
	Specialisation	✔	
	Weights and measures	✔	
The Individual			
	Mortuary	✔	

Figure A.5 - GDM Analysis lines of evidence

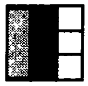
Whole study area

Population:

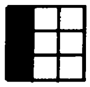
Adult commontants < 900



Adult commontants < 4200 > 900

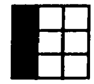


Adult commontants > 4200

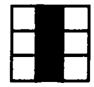


Style:

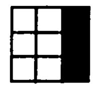
Personal identity emphasised (assertive style). No emblemic.



Emblemic at a range greater than community level. No local community emblemic.

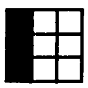


Emblemic at community level (and, possibly, at habitus-wide)

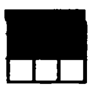


Specialisation:

Market facility - public location, serving the commontants.



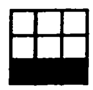
Specialisation inter-community.



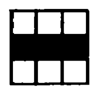
No inter-community specialisation.

Community site patterning:

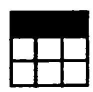
All communities equal



Heterotaxic patterns (especially *sequential hierarchy*)



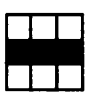
Large, wealthy sites and smaller / poorer satellites



Access:

Unbounded and unrestricted

Lightly bounded and restricted



Bounded and restricted

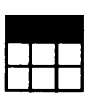
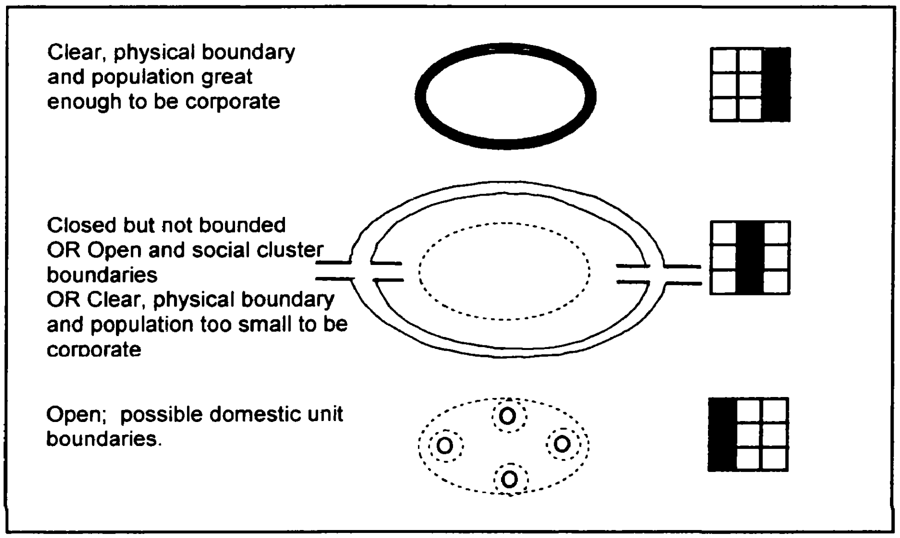


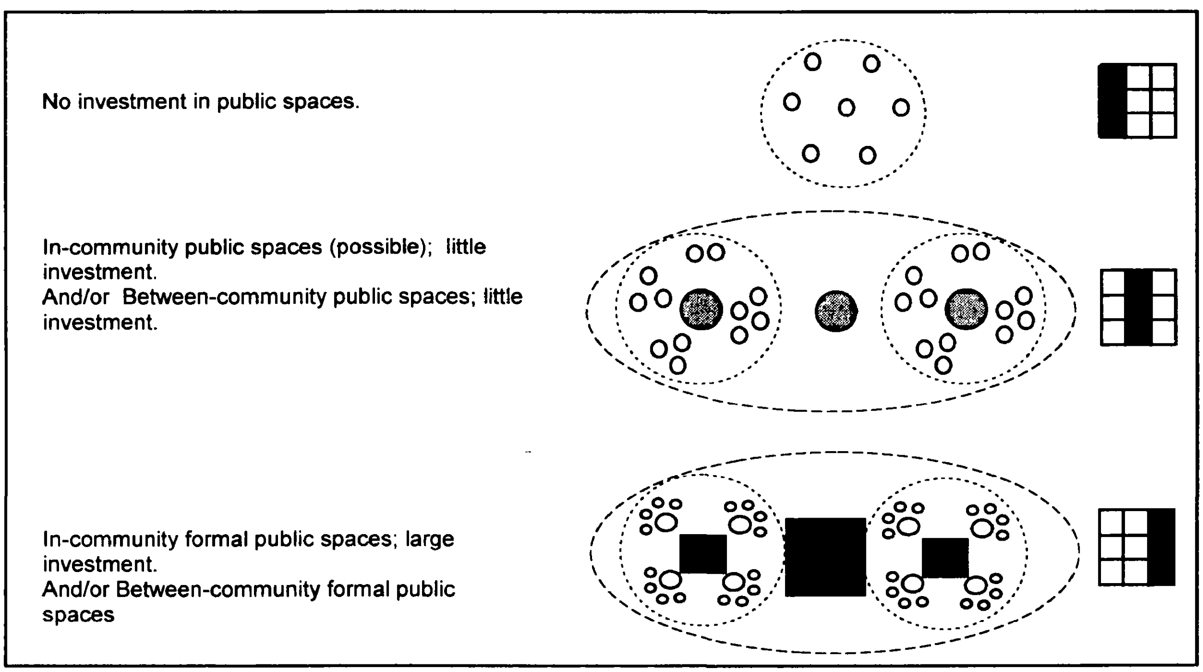
Figure A.6 - Whole study area analysis

Community architecture

Territory and boundaries

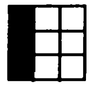


Public spaces

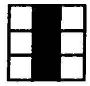


Monumental architecture:

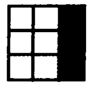
No monumental architecture.



In-community monumental architecture (possible); little investment
and/or Between-community monumental architecture; little investment.

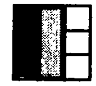


In-community monumental architecture; large investment
and/or Between-community monumental architecture

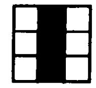


Memorials:

Private; individual donor and/or remembered.



Memorial to communal events; community level not habitus-wide.



Memorial to communal events; habitus-wide.

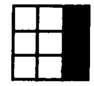
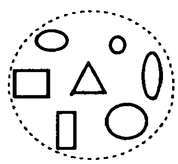


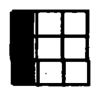
Figure A.7 - Community architecture analysis

Intra-community assemblages

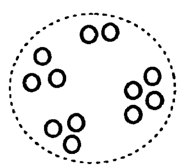
Intra-community spatial patterning:

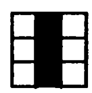
Maximal spacing; irregularity



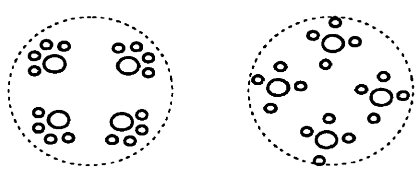


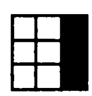
Clumping





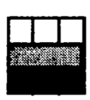
Close spacing; regularity; recurrent themes of patterning



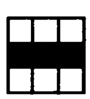


Domestic wealth:

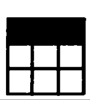
Residential architecture = homogeneous; equality of energetics of production; equality of 'wealth' in assemblage.



Differential energetics of production of short-lived emphasis (architecture and/or domestic-unit assemblage); personalised.



Differential energetics of production large enough to suggest inheritance (architecture and/or domestic-unit assemblage).



Boundedness:

Open and invitational; little inter-domestic-unit secrecy / privacy.

Closed and private.

Storage:

Domestic-/social-unit specialisation:

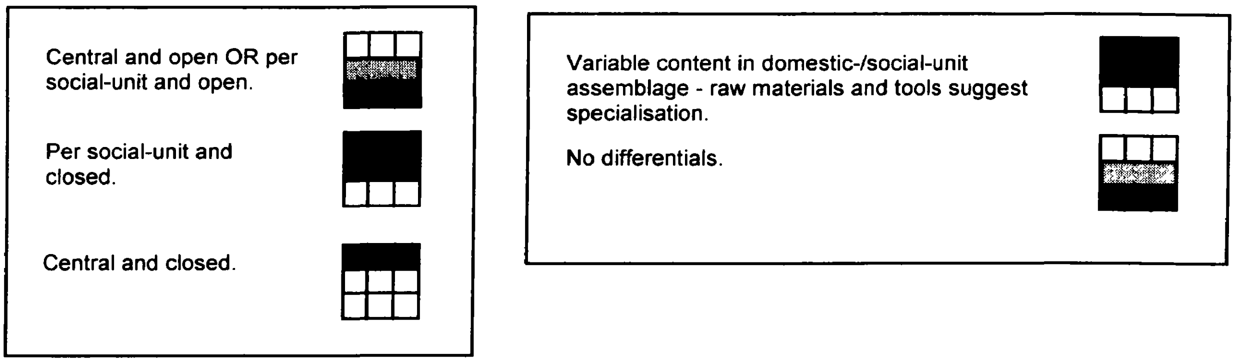


Figure A.8 - Intra-community assemblage analysis

Artefactual analysis

Status symbols:

Specialisation:

Weights/measures

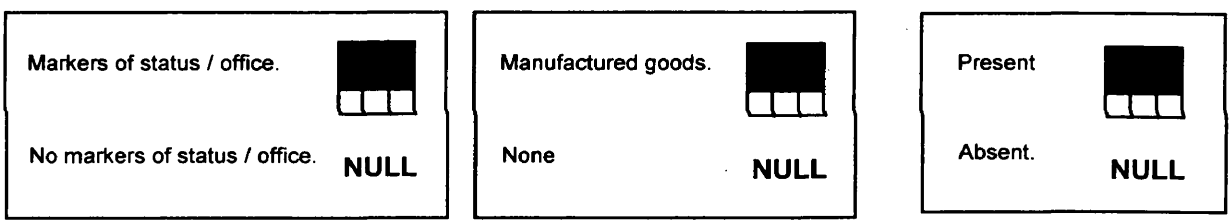


Figure A.9 - Artefactual analysis

The Individual

Mortuary:

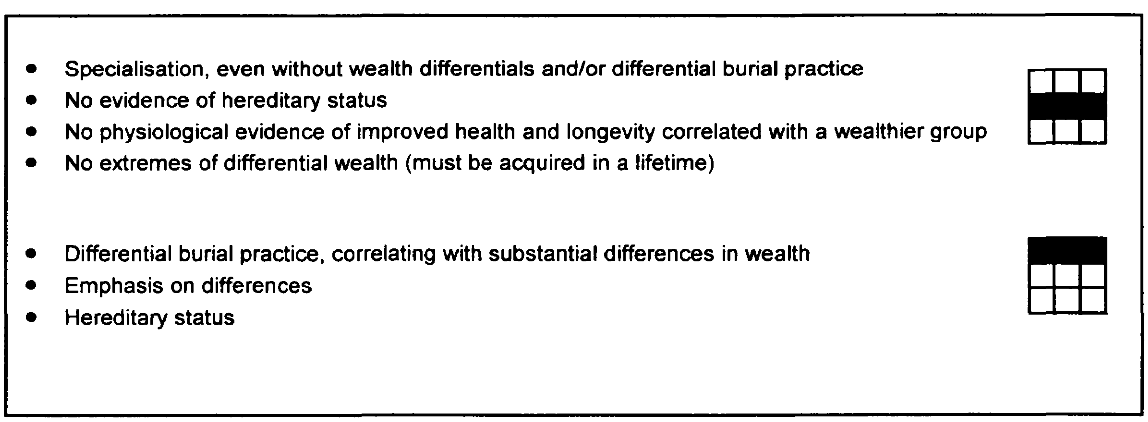
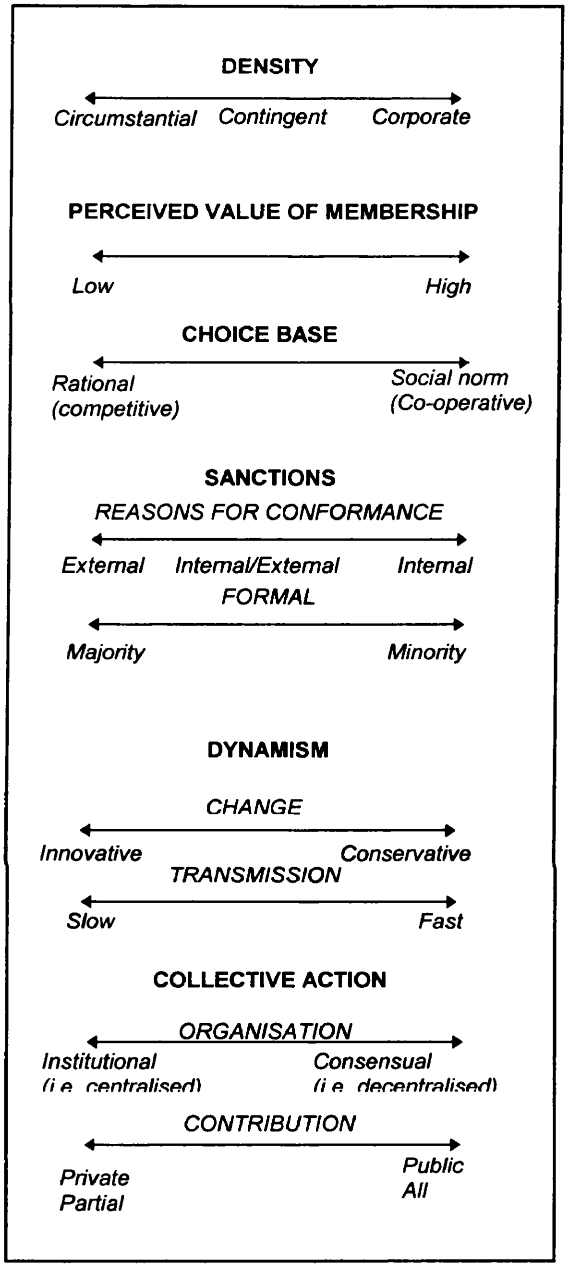


Figure A.10 - The Individual analysis

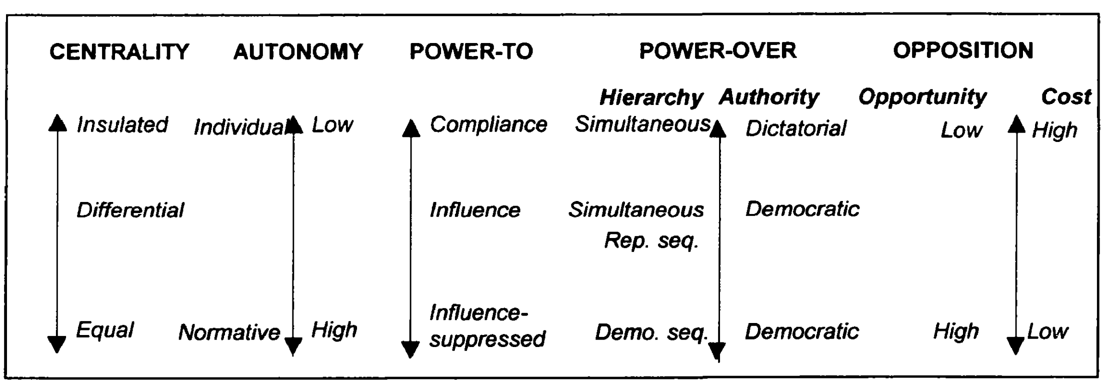
Normative Group Dynamics



Density

Figure A.11 - Normative Group Dynamics

Centrality



Analysing change

The following breakdown of the environment is used in analysing change:

The environment	
Cultural behaviour	Norms, manners and customs and the distribution of worldviews
Manufactured	The environment experienced as culturally constructed at the cultural present.
Natural	That element of the environment which is independent of human alteration at the cultural present.

and evolving dynamics are expressed in terms of:

Catalysts and responses	
Enablers:	Alterations to subjective rational choice evaluations on the benefit side in response to a catalyst i.e. making a behaviour more attractive to the individual.
Constraints:	Alterations to subjective rational choice evaluations on the cost side i.e. reducing the attraction of a behaviour to the individual.
Accelerators:	Factors which encourage rapid and extensive spread of one behavioural variant in the population.

Figure A.12 - Analysing Change

APPENDIX B - BEHAVIOURAL STUDIES

International survey - The Hofstede study

Between 1967 and 1973, Geert Hofstede designed and conducted a survey of the attitudes of the personnel working for an international organisation (code-named 'Hermes') which took 6 years to complete, eliciting 117,000 responses from 67 countries (reduced to 40 when data reliability was assessed) (Hofstede, 1980, 54-63). The 126 questions asked included not only those aimed at evaluating demographics, satisfactions (i.e. How satisfied are you with . . . ?) and perceptions (e.g. How often does your manager expect a large amount of work from you?) but also questions about personal goals and beliefs (Hofstede, 1980, 66). The latter were not about the job, as such, but rather about personal hopes and expectations (e.g. How important is it for you to have a job with high earnings?) and interpersonal attitudes (e.g. Does competition between employees usually do more harm than good?) (Hofstede, 1980, 66). That style of questioning allowed the construction of a cross-cultural analysis of societal norms (i.e. the value systems of major groups of the population). Notwithstanding the bias inherent in targeting corporate employees, operating within a world-wide corporate climate of rules and controls, the results do retain some indicative validity in that the country organisations employed almost entirely nationals, except in the set-up years (Hofstede, 1980, 55).

There has been no other survey on this scale either before or since and Hofstede's 'Country Individualism Index' (extract reproduced in figure B.1 below) has become the baseline for data selection for the design of many following studies. Those include Parks and Vu's (1994) experimental study of the extent to which the cultural degree of individualism affects disposition to co-operate in American subjects compared to South Vietnamese American citizens and Wheeler, Reis and Bond's (1989) observational study of the same effect between Chinese subjects (from Hong Kong, Singapore and Taiwan) and Americans. Both of these are discussed in more detail, below. Furthermore, the ideas and indices used have sponsored a number of smaller, more specifically targeted survey research projects including, for example, the work of Triandis et al (1988) probing collectivism and individualism in Japan, Puerto Rico and America.

Country	*IDV*	*Country*	*IDV*
USA	91	Argentina	46
Australia	90	Iran	41
Great Britain	89	Brazil	38
Canada	80	Turkey	37
Netherlands	80	Greece	35
New Zealand	79	Philippines	32
Italy	76	Mexico	30
Belgium	75	Portugal	27
Denmark	74	Hong Kong	25
Sweden	71	Chile	23
France	71	Singapore	20
Ireland	70	Thailand	20
Norway	69	Taiwan	17
Switzerland	68	Peru	16
Germany (F.R.)	67	Pakistan	14
South Africa	65	Colombia	13
Finland	63	Venezuela	12
Austria	55	***Mean of 39 countries (Hermes)***	51
Israel	54	Yugoslavia (same industry)	27
Spain	51		
India	48		
Japan	46		

Figure B.1 - Country Individualism Index (IDV) values (after Hofstede, 1980, fig. 5.1)

Controlled experiment ('laboratory study')

With a view to improving co-operation in negotiation and conflict situations, social psychologists have built a considerable bank of data from experimental research in controlled conditions, examining behaviour in social dilemma scenarios (often referred to as 'mixed motive' research). Komorita and Parks (1995, 183-207) provide a useful review of the last 15 years work in this field. Techniques and research objectives have been many and varied but the majority of those studies have used American born subjects (Parks & Vu, 1994, 709). Triandis et al (1988, 326-327) provide a (necessarily) brief review of the work which has specifically tackled the cross-cultural individualism question.

Cross-cultural work has shown some surprising, unpredicted results. For example, Hofstede's 'Country Individualism Index' (see figure B.1 above) ranks Japan in the middle of the range of IDV yet controlled studies (e.g. the work of Yamagishi (1988a, 1988b) cited by Parks & Vu

(1994, 709)) do not concur with that finding. Even though there is supporting evidence from survey and observation work for the assertion that the Japanese do emphasise the group over the individual, it is clear that both individualism and collectivism are important in Japanese culture and posited that the dichotomy must arise either because controlled experiment in novel situations is not fine-grained enough to observe any consistently greater rate of co-operation reflecting that, or that the Japanese do not de-emphasise individualism enough to affect co-operative behaviour norms (Parks & Vu, 1994, 709-710).

Parks and Vu have been concerned with discovering the extent of the posited correlation between co-operation and collectivism and, to that end, have recently conducted two controlled studies examining the difference in social dilemma behaviour between an highly individualistic group (American citizens) and an highly collectivist one (South Vietnamese subjects). Although no IDV value was measured for the South Vietnamese, they are argued to represent a high degree of collectivism by virtue of association with other Asian cultures and because of the rural community economic base which is also strongly correlated with collectivism. (Parks and Vu, 1994, 710-711). These well-designed studies are detailed as a good example of rigorously controlled experiment, in a modern tradition which has benefited from some 25 years experience in research of this type.

Study 1:

(Parks & Vu, 1994, 710-713)

Method: Subjects selected were 40 American undergraduates and 40 recent immigrants from South Vietnam (affiliated with a Vietnamese Catholic church in Boston); much the same ages.

Materials: A five-person resource dilemma and a five-person public goods game. Points awarded transferable at a local restaurant.

Procedure: Thirty trials of each scenario; subjects do not know this.

Public goods condition - subjects decide whether to contribute toward provision of a good. Each round, they are told the number of contributors and their personal payoff.

Resource dilemma - they decide how much to take from the pool - they are told the total harvest size and the new size of the pool.

Results: Co-operation rate was very much higher for South Vietnamese and consistently so, too, as the decline over time was less severe than for the Americans. This is consistent with cultural norms; the collectivists, who emphasise group, were much more co-operative than the individualists, who emphasise the person.

Study 2:

(Parks & Vu, 1994, 714-718)

Purpose: To probe resilience of the difference.

Method: 80 participants drawn from same population as study 1. Two-person Prisoner's Dilemma game. Subjects competed against one of four strategies: All-C (always co-operate); All-D (always defect); TFT (co-operate on first round; reciprocate thereafter); DC Lag (reciprocation of co-operation is delayed one trial - has been shown to produce significant decrements in co-operation compared to TFT).

***Results*:** Vietnamese much more co-operative and decline over time less severe that Americans. Vietnamese less susceptible to systematic choice strategies by partner.

Observational studies

Working from a theoretical understanding of collectivism extended by Triandis et al (1988), Wheeler, Reis and Bond (1989) designed an observational study of people in their everyday environment to examine the nature of difference in social phenomena arising from the degree of individualism. Their predictions were:

a. that people in a collectivist society would be members of less groups than individualists
b. that collectivists would interact more at group level than personal level (as people in individualist cultures must, of necessity, be more gregarious)
c. that interactions would be longer and more task-related in the collectivist group
d. that familiarity with the group suggests that collectivists may expect more intimate disclosure in interactions. (Wheeler et al, 1989, 79-81).

The subjects were 96 senior students from the American University of Rochester, selected at random, and 68 social psychology students from the Chinese University of Hong Kong. The participants kept records for 14 days or more, logging data about all social interactions of 10 minutes or more, recording the number and length of interactions, a profile of the others involved, a quality assessment (on a range from unpleasant to pleasant), initiation details and the nature of the event. (Wheeler et al, 1989, 80-81).

Showing a strong correlation with prediction, the Chinese had the fewer interactions but a higher proportion of those were in groups and more task- than pleasure-related; irrespective of the nature of the interaction, the Chinese reported a higher amount of intimate disclosure, again bearing out the prediction (Wheeler et al, 1989, 80-85). However, the latter point reveals the weakness in subjective evaluation in that it is impossible to tell whether the degree of intimate disclosure is rated comparatively higher by the Chinese subjects (e.g. because norms dictate a higher degree of personal reserve, so that intimate disclosure is rated comparatively higher) or there is truly more intimate disclosure (Wheeler et al, 1989, 84). Clearly resolution of that type of problem provides impetus for further experimental and observational work.

APPENDIX C - NETWORK SIZING STUDIES

C1 Key sizing parameters

C2 Minimum commontant population by network density table

C3 Ethnographic analysis of network density

Appendix C1 - Key sizing parameters

Experiment and observation studies within the social sciences and anthropology provide data about social networks and their maintenance, from which some key dimensions can be drawn. Those are reviewed in this Appendix and data is extrapolated on the size of the 'typical' personal network, network density and how it varies, and relationship maintenance.

Number of nodes

Attempts to ascertain the extent of a personal network are limited by a number of factors, both across and within disciplines, particularly:-

- The difficulty of obtaining, validating and processing the large volume of data required, resulting in a paucity of studies.
- Failure to recognise that this varies cross-culturally, especially by the network density dimension.
- Failure to allow for variation over an individual's lifespan. A study of 1,534 respondents in the USA in the mid-1980s produced results as presented diagrammatically in figure C1.1 (Burt, 1991, 10-11):

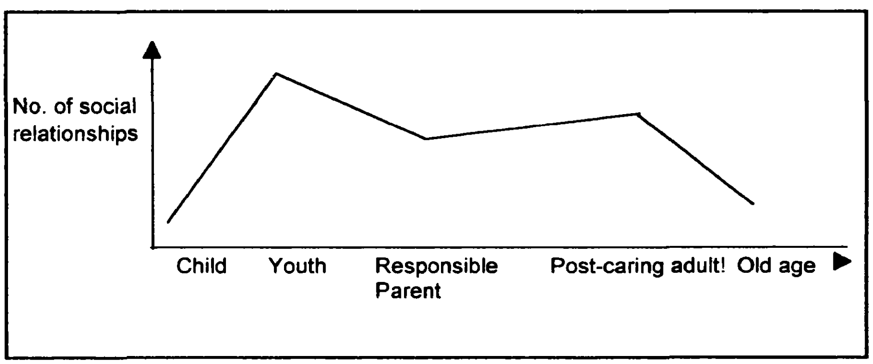


Figure C1.1 - Lifespan and social relations (source: Burt, 1991, 10-11, fig. 2)

- Subjects are often university students and, although age is not recorded, it is likely that a disproportionate number of them would fall into the age range from 'youth' to 'responsible parent' category (e.g. Wheeler et al's (1989) study; Dunbar's (1993) study).
- Failure to allow for differential social positions. For example, Boissevain's (1974) invaluable study of two full Maltese networks features Cecil, who is an ex-Jesuit-priest, re-entering

Maltese society following a period abroad with a missionary order and Pietru, who is an acknowledged patron in his local village (Boissevain, 1974, 117). Neither are 'typical'.

- Perhaps most importantly, there is a real problem with defining the types of relationship which should fall into each network structure category. For example, Wellman's 1978 East York study defines relationships as 'Active' or 'Inactive' and 'Intimate', 'Routine' or 'Other' (Wellman 1982, 76, tab 3.2). Boissevain's Maltese study (1974) used subjective assessment of relationships in assignment to five intimacy zones (Boissevain, 1974, 117). Commonly, 'extended zone' is used to mean personal acquaintances in some cases, friends and acquaintances of friends and acquaintances in others and both of these in yet other cases.
- Many studies depend upon extrapolation from subsets of measured and recorded data. Cross-location (and, indeed, cross-cultural) comparisons are rare and replication to evaluate margins of error seldom attempted. See Campbell and Lee (1991, 203-221) for extended discussion of this point.

Personal global network

For obvious reasons of practicability, very few studies of personal global networks (i.e. including extended network) have been attempted; those commonly cited are outlined in table C1.1, below:-

Prime reference for study	***Study Method***	***Result***	***Reference***
J Boissevain (1974)	Empirical - 2 full personal networks	Malta - 1. Pietru - 1751 2. Cecil - 638	Boissevain (1974)
Killworth, Johnsen, Bernard, Shelley & McCarty (1990)	Random names from telephone directory. respondents id. people they know with the same surname and extrapolate out.	US - 1700 +/- 400 Mexico - 570 +/- 460	Killworth, Johnsen, Bernard, Shelley & McCarty (1990)
Johnsen et al (1989)	National data on likelihood of informants knowing homicide victims	US - 1526	Killworth, Johnsen, Bernard, Shelley & McCarty (1990, 306)
Freeman and Thompson (1989)	Phone directory extrapolation - Re-evaluation after 5 years	US - 2025 US - 1806 +/- 10%	Killworth, Johnsen, Bernard, Shelley & McCarty (1990) Killworth, Johnsen, Bernard, Shelley & McCarty (1990, 303-304)
Bernard et al (1989)		Mexico - 664 (range 173 - 810)	Killworth, Johnsen, Bernard, Shelley & McCarty (1990)

Table C1.1 - Global network studies

The most important thing that may be said about a person's global network is that the size can vary widely, by reason of factors which include personality differences, e.g. need for affiliation and intimacy (Argyle, 1991, 205-209) and situational determinants. Perhaps foremost of the latter is the extent of the population from whom a network can be drawn; without modern communications that may be greatly limited.

The modern studies (table C1.1, above) suggest that the range is 110 - 2,100 and, although the number of respondents used in each analysis is not given, the mean is in the region of 1,500 - 1,700. Exact figures are not important here, but these studies do provide a useful indicator for upper limits which are important to study of personal capacity for knowing others. There is limited support for relating these studies to face-to-face societies, in that Dunbar's (1993, 684) analysis of mean population sizes of thirteen 'tribes' of modern hunter-gatherers reveals a range of 413 - 2,693 (mean 1,155); if the upper limit is c2,000 people, then in all but two of these cases, any one individual could name and recognise any of the others, albeit that the relationship may extend no further than that. Dunbar's 'tribe' is a population who identify themselves with the same group identification and, thus, constitutes a commonty in the terms of this work. Wobst's (1974, 1976) argument for a minimum viable mating network size of c175 people places a lower limit on the 'typical' range for a global network.

Knowing others in global network terms is not the same as being on exchange terms with them. For example, Boissevain reveals that one of his subjects, Pietru, considers every member of his village (adult population = 850) as part of his global network yet he ignores, or only nods to some 84% of them when encountered (Boissevain, 1974, 116, table 5.8).

Populating one's network

Given an idea of the size of a typical personal network and its degree of transitivity (i.e. personal network density), the minimum population from which that network can derive can be calculated, if the full network had the same density:-

Minimum Population influenced by the Commonty (Min PIC) = Personal network size (PNS) / Density (D)
[Derived from: D = Total actual relations / Total possible relations
*= (PNS * (Min PIC - 1)) / (Min PIC * (Min PIC - 1))*
= PNS / Min PIC
Therefore Min PIC = PNS / D)

It is very unlikely that it would ever be possible to be able to derive accurate ideas of personal network size archaeologically. However, it may be reasonable to expect that an estimate for community size could be estimated in some circumstances. If a particular case indicates a community size less than the minimum commontant population, then it is reasonable to posit that there is likely to have been contact further afield, even if sites are not discovered. Thus, it should be possible to vary analysis more sensitively with respect to the density dimension of social structure.

The network size element of the equation need only include the relationships which offer personal support (i.e. intimate, effective and extended); those very weak relationships which comprise the remainder of the global network are more an indication of cognitive capacity than essential to social life.

'Typical' personal network

Data is drawn both from measured studies and from studies of interactions between people over a time period. Neither type can be reproduced without interpretation; many of the former require realignment to a common set of terms and the latter must be extrapolated to estimate network populations from the data.

'Measured' studies

Boissevain's (1974) study of Malta:

	Cecil	***Pietru***
INTIMATE	10	10
EFFECTIVE	20	20
EXTENDED	157	827

Note: The 'extended' figures are restricted to those with whom they exchange visits and/or have conversation (Boissevain, 1974, 108, 116-117, tab. 5.8)

Wellman's 'East York' study (Wellman et al, 1988, 141, tab. 6.2):

This study measured 'intimate' relationships of 33 respondents, arriving at a range of 1 - 14 with a median of 6. Note that there appears to be a discrepancy in Milardo's (1992, 450, tab. 1) citation of this case - the figures quoted are from the source.

Killworth, Bernard and McCarty's (1984) 'Reverse Small World' study:

Forty respondents were asked about their first contact point for getting a message to 500 mythical targets, 100 of whom were US citizens and the remainder spread around the world, balanced between rural and urban locations (Killworth et al, 1984, 382-383). Whilst they did not aim to elicit the names of everyone that the respondents knew, they posit that the number of different choices tailed off in such a way that the curve would have levelled at c250 people (with a wide variation), had there been enough targets. Although criticised by some commentators as falling short of the whole network (Killworth et al, 1984, 392-395), it may come somewhere close to the figure for the extended network, as people are less likely to cite those particularly 'close' to them, as the higher degree of the intimate/effective network would tend to mean 'redundancy' in passing a message to an outsider (c.f. Granovetter's (1973) 'strength of weak ties' argument). Even then, it is bound to be an <u>underestimate</u> of the average extended network.

Evaluation

Following Milardo's (1992) approach to tabulating studies and findings by network strength, adding data as discussed above and subtracting studies which are unlikely to demonstrate typical values (i.e. one relating to maritally separated adults and one on lesbian couples):-

Study	***Subjects***	***Result***
INTIMATE network studies:		
Boissevain's Malta study	1 1	10 10
Fischer and Shavit's (1995) Haifa Study	262 Israeli Jews 107 Israeli Jews	4.9 3.1
Fischer's (1982) NCCS study cited Fischer and Shavit (1995, 134-138)	1,031	7
Wellman's East York study	33	1-14; median 6

Table C1.2 (continued)		
INTIMATE network studies (continued):		
Bernard et al (1990) cited Milardo (1992, 450)	98 US 99 Mexico	Mean 6.88 Mean 2.95
Johnson & Milardo (1984) " "	434	5.8
Marsden (1987) " "	1,531	3.01
van Sonderen et al (1990) " "	304 Dutch	5.18
Wellman (1979) " "	845	4.7
	MEAN OF MEANS	**4.8**
	95%ile RANGE	**c 3 - 10**
EFFECTIVE network studies:		
Fischer and Shavit (1995) Haifa Study	262 Israeli Jews 107 Israeli Jews	9.1 7.9
Boissevain's (1974) Malta study	1 1	20 20
Fischer (1982) cited by Fischer and Shavit (1995)	1,031	11.4
Bernard et al (1990) cited by Milardo (1992, 450)	98 US 99 Mexico	21.8 10.05
Milardo (1989) cited by Milardo (1992, 450)	50	22.8
van Sonderen et al (1990) cited by Milardo (1992, 450)	304 - Dutch	20.7
	MEAN OF MEANS	**13.1**
	95%ile range	**c10 - 22**
EXTENDED network studies:		
Boissevain's (1974) Malta study	1 1	157 827
Killworth et al's (1984) 'reverse small world' study	40	250 +
	MEAN OF MEANS	**399 ?**
	95%ile range	**150 - 750 ?**

Table C1.2 - Observational studies of network size

Summary - Typical Personal Network

Network extent	*Range*	*Strength*	*Range*	*Most frequent*
INTIMATE	3 - 10			
		STRONG	13 - 32	18
EFFECTIVE	10 - 22			
EXTENDED	150 - 750	WEAK	150 - 750	400
		TOTALS:	**163 - 782**	**418**

Table C1.3 - Typical personal network sizes

Minimum Commontant population

The typical personal network ranges can be used to extrapolate, calculating the minimum population from which the personal network's population can be derived at a particular network density, shown as a table in Appendix C2 (below) and with the population figures for the 'most frequent' points shown in the graph in figure C1.2:

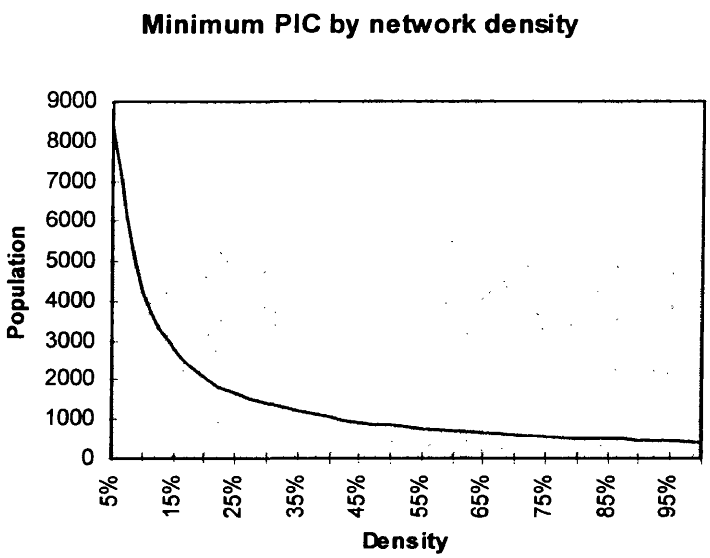


Figure C1.2 - Minimum commontant population (PIC) by network density

Network density

The only record of a density analysis found is Boissevain's 'Malta' study (Boissevain, 1974, 97-146) which is barely satisfactory in this respect as the respondents are both atypical. Nevertheless, Boissevain has calculated that Cecil's network is 5.2% dense (note that he lives in an anonymous, large town community) whereas Pietru's is 23.7% dense, if the 100% density of his village community is taken into account and 5.4% dense if that is excluded (Boissevain, 1974, 112-113, 122).

The ethnographic analysis exercise

In a high technology society, the gap between the minimum commontant population and the actual population is greatly extended. Modern small-scale societies may be a better indicator of network density in that populations are generally low, but this is counterbalanced by the possibility that conscription by larger, dominant populations could have the effect of maintaining those societies at artificially low population levels when compared to those that we may expect in the past. Nevertheless, ethnographic study does appear to contribute.

Results

Dunbar (1993, tab 1) has summarised the 'tribal' level population details for several small-scale societies (ethnographically recorded over the last 100 years) and where data has been available these have been analysed by density category, as have a number of other cases where population data is available. The case notes and analysis results are included as Appendix C2, below.

To ascertain the network density for each case, the 'tribe' figure is looked-up on the *Minimum commontant population by density table* (Appendix C2, below) and the range of density percentage for which the population falls within the total minimum and maximum range noted, together with the density percentage whose midpoint is closest to the case in point. The results are recorded in figure C1.3, below:-

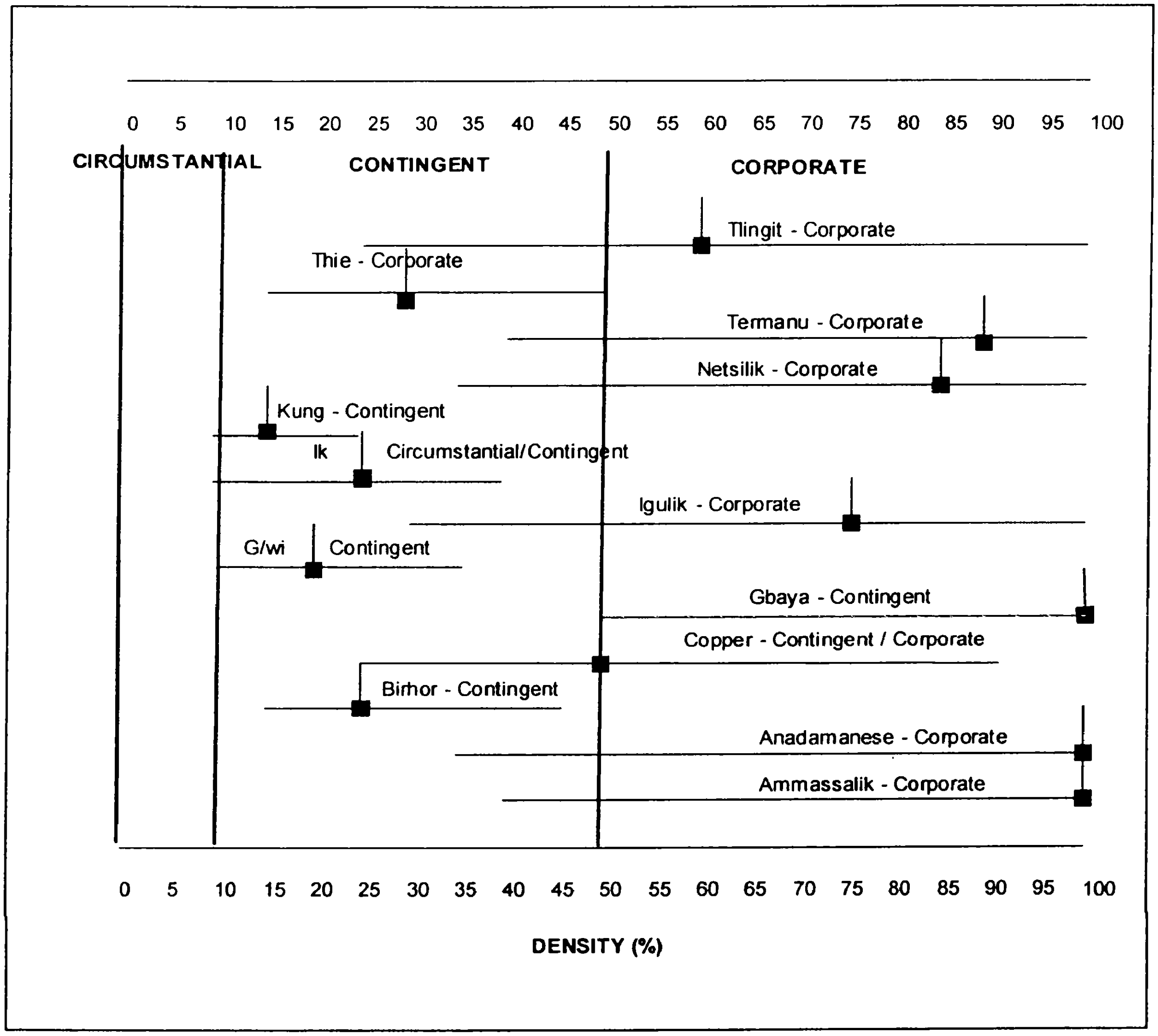


Figure C1.3 - Ethnographic analysis - network density

Working from this sample, the typical network density ranges (accumulated for extended network) by GDM density category are:-

Density category	*Density range*	*'Normal' range*	*Mean*	*Min PIC @ Mean*
CIRCUMSTANTIAL	>0 - 15%	>0 - 10%	c5%	c8360
CONTINGENT	10 - 50%	10 - 50%	20%	c2090
CORPORATE	25 - 100%	50 - 100%	80%	c523

Table C1.4 - Network density figures by category

Relationship maintenance

It is generally accepted that the cohesion of primate groups is maintained by what is termed 'social grooming' meaning the establishment of coalitions and friendships (Dunbar, 1993, 681). He argues that the time devoted to grooming co-varies proportionately with group size amongst non-human primates and that the size of a social group is a whole multiple of personal networks (Dunbar, 1993, 681-682), extending explanation by proposing that the size of a personal network is proportional to neocortex size (Dunbar, 1993, 681-682). Extrapolating from the ratio of neocortex size to group size in non-human primate groups, Dunbar calculates that humans should be able to maintain personal networks of 147.8 people (Dunbar, 1993, 682). If human grooming time were proportional to primate social grooming time then humans would need to spend 41.6% of their time maintaining their personal network relations (Dunbar, 1993, 689, tab. 3). Clearly, that is impractical. Dunbar goes on to posit that vocal language evolved as a tool for making social grooming more efficient, escalating the advantage gained by information gathering in face-to-face encounters not only by the ability to exchange data on a one to many basis but also by the ability to discuss absent parties. (Dunbar, 1993, 689-691).

These are important ideas for a study of human social networks and they are reviewed individually below.

Time budget for social grooming

Whilst there is little doubt that vocal language improves the efficiency of social grooming exchanges by an order of magnitude, Dunbar does not suggest the 'budget' that individuals can afford. The Wheeler, Reis and Bond (1989) comparative study of the social interactions of US individuals and Hong Kong Chinese does allow comparative calculation of this element for a *circumstantial* density network (the US) and what is probably a comparatively high-density *contingent* group, the HK Chinese:-

	US	HK	*Wheeler et al (1989) ref.*
Time spent interacting:			
Minutes per day	348.57	201.89	*Tab 2, 82*
% of day	24.21	14.02	
Interaction content(% day):			
Task	14.60	30.00	*82-83*
Recreation	22.40	11.80	
Work	3.80	3.80	
Conversation	59.20	54.40	
Time spent grooming:			
Interact minutes * conversation %	206.35	109.83	
As % day (/1440)	14.33	7.63	

Table C1.5 - Time spent grooming

Note that this analysis does not denote a maximum *per se* but it is clear that the requirement is well within capacity as the Hong Kong Chinese, with their comparatively dense networks, do not need to allocate the same time to maintenance as their United States counterparts.

Network size - cognitive limit?

Dunbar backs his argument for a mean group size of 147.8 by detailed observation of hunter-gatherer societies' 'intermediate' aggregation level ('band/village') (Dunbar, 1993, 683-685, tab. 1), by estimates of population of Mesopotamian Neolithic Villages (Dunbar, 1993, 686), by sociological observation of communities of the Hutterite sect (Dunbar, 1993, 686) and by an analysis of army operating units at various times and places in the last 400 years (Dunbar, 1993, 686-687). At first inspection, this is quite convincing in that the sheer volume of cases in which numbers of c150 appear, together with the minimum mating network required (Chapter Two, above), argue for more than simple coincidence would allow. However, Dunbar does touch on studies which have suggested that maximum 'group size' (and, indeed, settlement size) is organisationally constrained (Dunbar, 1993, 687) yet only uses that evidence to add further weight to his argument.

Herein may lie a significant weakness. Dunbar does not distinguish between using his term 'group size' to mean 'personal network size', using it to mean an organisationally bound social structure (a group) and, indeed, in a third sense which is tantamount to community size. Further, the very general nature of his argument is such that he does not fine-tune for organisational type (c.f. social structure). Johnson (1982) develops and extends work on communication networks to argue that people cannot work together in cliques of more than 5 or 6 without inefficiency developing in information dissemination, impairing decision-making processes (Johnson, 1982, 392-396). He develops this idea to argue that societal organization tends to reduce pressures of scalar and communication stress by developing systems of representation by sub-units of the population. Decision-making hierarchies may be 'simultaneous' (i.e. permanent roles filled by long-term service of particular actors), suggesting an element of non-consensual decision making and prescription, or 'sequential' which may have varied representation and which are democratic and consensual. (Johnson, 1982, 396-412). If the nature of these hierarchies is reviewed, then a close fit with Dunbar's 'natural group' of 147.8 is immediately apparent:-

	'Pure' 5	*5 and 6*	*5 and 6*	*5 and 6*	*'Pure' 6*
Level 0	5	6	5	5	6
Level 1	25	130	25	30	36
Level 2	125	150	150	180	216
Level 3	625	750	900	1,080	1,296

Table C1.6 - Population at each level of organisational hierarchy

The cognitive element of this 'group size' could be related to the organisational capacity represented, rather than a social grooming capacity. To work through an hypothetical example, it might be supposed that a community like the Hutterites are a corporate density population with *equal* centrality; in their own terms, they state that they limit communities to 150 people because *'when the number of individuals is much larger than this, it becomes difficult to control their behaviour by means of peer pressure alone'* (Dunbar, 1993, 686-687). If it is reasonable to imagine that they live in family units of 5 - 6, and accept representation by a 'head of the family', then they must have the further possibility of representation at 'level 1' decision-making processes, probably in a sequential hierarchy manner. Each family member may vote and their majority decision be taken forward by the 'head'; the level 1 aggregate would then meet and vote and the decision be passed back to the family by the 'head'. That is a two stage process, requiring at least three meetings to complete the decision making and communication. Any family member needs to enquire of at least 4-5 other people if they wish to gather information to confirm that the decision was 'fair' I.e. they need to learn how 4 - 5 other households voted and calculate whether the majority verdict was upheld. In total, then, for any individual to be assured of fairness s/he must exchange information with 5 people in their own family and 4 - 5 people from others and this will require at least 4 meetings. That may be manageable. When a whole-community decision is made, two levels of aggregation are required. This requires elapsed time for 5 meetings to make the decision and convey it back and an auditor needs to speak to at least 30 others to confirm. The time spent on checking a decision's fairness is stretched. To go to a third level strongly suggests an absolute need for trust; 7 meetings must elapse and 150 people meet to cross-check. People could spend so much time meeting to make decisions that there would be no time left for action. Thus, it might be argued that Dunbar's posited cognitive constraint may be a time constraint on information processing for decision making, rather than a process of social grooming *per se.*

There is some circumstantial evidence for this alternative interpretation in that the 'Band/Overnight Camp' range (mean 37) (Dunbar's term - 1993, tab. 1) is close to the level 1 decision making range and the 'Tribe' (mean 1,154) (Dunbar's term, again) the level 3 / level 4. Furthermore, it is clear that a personal network does not fit those dimensions well (see above). Given that room for doubt, the 'typical' personal network size can be tested further by examining budgeted time in the Wheeler, Reis and Bond (1989) study. That is detailed below.

Maintenance frequency

All data is taken from the Wheeler, Reis and Bond (1989) study.

	USA	*Hong Kong*
Period recorded (days)	14.5	15.8
Different people met (people)	78.2	50.5
Time spent grooming (minutes per person per day)	= 206.35 * (14.5/78.2) = 38.36	= 109.83 * (15.8/50.5) = 34.71

Table C1.7 - 'Grooming' times

Hong Kong Chinese subject's relationships are not less intimate (i.e. weaker) than United States subject's, yet less time is spent per relationship per day. Therefore, they must either have a smaller personal network or denser networks, so that more is gained from grooming *in absentia*. Each of these possibilities is examined:-

Variable network size

To extrapolate from the data to find network size, the frequency of meetings between intimate friends, effective circle and extended network are required. Unfortunately, the data available on this issue is very limited indeed, although Boissevain (1974) gives just a hint that 30, 90 and 180 days respectively could approximate to the right order of magnitude. Given the low confidence factor on these figures, three sample ranges are calculated, namely 30/90/180 days, 15/45/180 and 15/45/90. As the figures of 5 intimate friends and 13 effective friends have wide application, these will be used here and the number of extended network nodes be allowed to vary.

	Hong Kong Chinese	***United States***
30/90/180:		
Intimate	15.8 / 30 * 5 = 2.63 rec.	14.5 / 30 * 5 = 2.41
Effective	15.8 / 90 * 13 = 2.28	14.5 / 90 * 13 = 2.09
Extended	15.8 / 180 * x = (50.5 - 4.91) Therefore, x = 514	14.5 / 180 * x = (78.2 - 4.5) Therefore x = 912
Total:	**532**	**930**
Similarly:-		
15/45/180	**476**	**875**
15/45/90	**247**	**446**

Table C1.8 - Network sizes by meeting frequency

Density Variance

	Hong Kong Chinese	***United States***
Transactions per day	3.43	6.97
Ave. people groomed per day	3.1962	5.3931
If U.S. 5% dense, then no. groomed per day incl. absent		5.3931 * 1.05 = **5.6627**

Table C1.9 - Data re. transactions per day

If network sizes were the same, then in the Hong Kong Chinese case the number of people 'groomed' per day would have to include 2.4666 people absent from face to face meetings (i.e. 5.6627 - 3.1962). To achieve that, network density would have to be 2.4666 / 3.1962 = 77%. Although 77% density is easily possible (see analysis of network density, above), Hong Kong is likely to fall into the fairly high *contingent* density bracket, with a density closer to the 20 - 50% range. In consequence, the difference between the two societies is likely to be a combination of differing network size and density.

Relative strength of relationships

On the basis of frequency:

30 : 90 : 180 days	=	6 : 2 : 1
15 : 45 : 180 days	=	12 : 4 : 1
15 : 45 : 90 days	=	6 : 2 : 1

On basis of face-to-face time per person:

HK : US	=	34.7063 : 38.3599	=	1 : 1.11

The US subjects 'spend' 11% more time on each face-to-face relationship or, to put it another way, the Hong Kong Chinese subjects gain 11% more information by virtue of comparative density of networks.

If each community invested 15% of time:

The Hong Kong Chinese would 'groom' their relationships with (50.5 / 15.8) * (15 / 7.6) people = **6.3083.** Similarly, the US subjects would 'groom' (78.2 / 14.5) * (15 / 14.3) = **5.6571.**

The ratio HK : US = 1.12 : 1, i.e. the Hong Kong Chinese subjects gain 12% of time by virtue of comparative density of networks, bearing out the result above.

Appendix C2 -

Minimum Commontant Population by Network Density Table

PIC by network density

	5%		*10%*		*15%*		*20%*		*25%*	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
STRONG (Min 13 - Max 32):	260	640	130	320	87	213	65	160	52	128
Most frequent (18) :		360		180		120		90		72
WEAK (Min 150 - Max 750):	3000	15000	1500	7500	1000	5000	750	3750	600	3000
Most frequent (400) :		8000		4000		2667		2000		1600
Total:	*3260*	*15640*	*1630*	*7820*	*1087*	*5213*	*815*	*3910*	*652*	*3128*
Most frequent:		***8360***		***4180***		***2787***		***2090***		***1672***

	30%		*35%*		*40%*		*45%*		*50%*	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
STRONG (Min 13 - Max 32):	43	107	37	91	33	80	29	71	26	64
Most frequent (18) :		60		51		45		40		36
WEAK (Min 150 - Max 750):	500	2500	429	2143	375	1875	333	1667	300	1500
Most frequent (400) :		1333		1143		1000		889		800
Total:	*543*	*2607*	*466*	*2234*	*408*	*1955*	*362*	*1738*	*326*	*1564*
Most frequent:		***1393***		***1194***		***1045***		***929***		***836***

	55%		*60%*		*65%*		*70%*		*75%*	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
STRONG (Min 13 - Max 32):	24	58	22	53	20	49	19	46	17	43
Most frequent (18) :		33		30		28		26		24
WEAK (Min 150 - Max 750):	273	1364	250	1250	231	1154	214	1071	200	1000
Most frequent (400) :		727		667		615		571		533
Total:	*296*	*1422*	*272*	*1303*	*251*	*1203*	*233*	*1117*	*217*	*1043*
Most frequent:		***760***		***697***		***643***		***597***		***557***

	80%		*85%*		*90%*		*95%*		*100%*	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
STRONG (Min 13 - Max 32):	16	40	15	38	14	36	14	34	13	32
Most frequent (18) :		23		21		20		19		18
WEAK (Min 150 - Max 750):	188	938	176	882	167	833	158	789	150	750
Most frequent (400) :		500		471		444		421		400
Total:	*204*	*978*	*192*	*920*	*181*	*869*	*172*	*823*	*163*	*782*
Most frequent:		***523***		***492***		***464***		***440***		***418***

Table C2.1 - Minimum commontant population by network density

Appendix C3 - Ethnographic analysis of network density

Table of societies reviewed, with results:

Society	*Density category*	*'Tribe' population*	*Density range/ Midpoint*	*Reference*
AKA	Contingent	? (Dunbar figure erroneous)	n/k	Dunbar 1993; Hewlett 1988
AMMASSALIK	Corporate	413	40-100%; 100%	Dunbar 1993; Service 1962
ANDAMANESE	Corporate	471	35-100%; 90%	Dunbar 1993; Williams 1974
BIRHOR	Contingent	1,625	15-45%; 25%	Dunbar 1993; Williams 1974
COPPER (Esk)	Contingent / Corporate	800	25-90%; 50%	Dunbar 1993; Damas 1968
DOBU	Contingent	n/k (data not recorded)	n/k	Benedict 1952; Gregory 1995
GBAYA	Contingent	340	50-100%; 100%	Burnham 1979; Gregory 1995
GEBUSI	t.b.a.	450	40-100%; 95%	Dunbar 1993; Knauft 1987
G/WI	Contingent	2,000	10-35%; 20%	Dunbar 1993; Silberbauer 1972
IGULIK	Corporate	550	30-100%; 75%	Damas 1968
IK	Circumstantial/Contingent	> 2000	10-35%; 25%	Turnbull 1968
INUIT	n/k	483	35-100%; 85%	Dunbar 1993
KALULI	n/k	1,200	15-65%; 35%	Dunbar 1993
!KUNG SAN	Contingent	2,693	10-25%; 15%	Dunbar 1993; Gregory 1995
MAE ENGA	n/k	2,290	10-30%; 20%	Dunbar 1993
NETSILIK	Corporate	500	35-100%; 85%	Damas 1968
TAUADE	n/k	1,237	15-60%; 35%	Dunbar 1993
TERMANU	Corporate	450	40-100%; 90%	Fox 1979; Gregory 1995
THIE	Corporate	1,370	15-50%; 30%	Fox 1979; Gregory 1995
TLINGIT	Corporate	>380 (prob. 700)	25-100%; 60%	DeLaguna 1990; Gregory 1995
WALBIRI	n/k	886	20-85%; 50%	Dunbar 1993
YANOMAMO	t.b.a.	663	25-100%; 65%	Dunbar 1993; Chagnon 1979
ZUNI	Corporate	n/k (data not recorded)	n/k	Benedict 1952 Gregory 1995

Table C3.1 - Ethnographic analysis of network density

Density category analysis for this exercise

Several cases had already been analysed for an earlier exercise (Gregory, 1995); these are noted in the table, above. Those analysed specifically for this exercise were simply reviewed for 'fit' against density category by definition; this is not comprehensive but should be a good guideline. The important factors contributing to assignment to category are presented in note form here.

Aka

The Aka are foragers of the Central African republic and the Northern Congo. They reside in villages for 3-4 months of the year and, to give examples, the Ndele village is home to c250 people and Bagandu c800 and these are some 100 km apart (Hewlett, 1988, 263-276). Note that the addition of these two villages is probably where Dunbar (1993, tab 1) obtained his figure of 1050; if so, then that would appear to be erroneous as a figure for a 'tribe', in his terms.

Whilst the Aka co-operate for net hunts, other activities are individual. Marriage and kinship rules are flexible. There is little inter-individual differential in status, although the roles of great elephant killer, healer and logistics controller must be filled; modesty is stressed. (Hewlett, 1988, 265-266). There is an element of perceived inter-individual status difference arising out of the number of brothers that a man has (Hewlett, 1988, 271)

Hunting camps comprise 1 - 15 nuclear family units, totalling c 25-35 people. The core of each camp comprises members of the same patriclan and others are considered temporary visitors. Hunting activity is usually an agglomeration of 2 - 4 camps, being typically 60 - 100 people. (Hewlett, 1988, 266).

In summing up his review, Hewlett (1988, 266) assesses the Aka's core values as being sharing, cooperation and autonomy, emphasising that *'individuals come and go as they please'*.

Analysis: CONTINGENT density; probably DIFFERENTIAL centrality.

Ammassalik

The Ammassalik are a hunting-fishing society from Greenland. All data is taken from Service (1962, 94-96) who relies on Holm's ethnographic reports from 1883-1885 extensively. In the winter months, the population aggregate in settlements for sealing and they scatter in the summer for hunting and fishing. In 1884, the population was recorded at 413, settled in 13 patrilocal 'longhouses' scattered in different parts of the fjord. Each house comprised a chief who was commonly the oldest man but who had to be perceived as having earned the position by skilful hunting, or by having sons regarded as talented hunters. The whole comprised one marriage population, practising endogamy as a whole community. Each longhouse was virilocal. By 1895 the population had reduced to 247 and outsiders later joined the community, bringing a concomitant increase in population. There is an interesting hint that families began to change the houses that they lived in each winter season (i.e. from patrilocal rather down-density to *contingent*).

Analysis: CORPORATE density

Andamanese

All data is taken from Williams (1974, 101-102). The total population is noted as being 5650, distributed over 12 tribes, so the figure of 471 is an average.

Groups live together and are highly territorial and practice strict endogamy, although population mix is achieved by widespread 'adoption' of children by people's 'friends' in neighbouring bands, which effectively identifies people with others to whom they are not biologically related from whence they marry. This also sets up visiting between tribes.

Analysis: *CORPORATE density (as no fission in adulthood) but note that the personal network extends beyond the 'tribe'*

Birhor ('Bihar')

Nomadic hunter-gatherers who live in and among rural settled communities. Total population was recorded as 1625 in the 1961 census (Williams, 1974, 80). Band size ranges from 10 - 72, averaging about 27 and there is little inter-band co-operation. They share work and resources, control marriage and kinship (Williams, 1974, 50-53). People are rather private and gaining the confidence of one group is by no means an entree to another (Williams, 1974, 44). Nevertheless, Williams' detailed analysis of the movement of families between bands (Williams, 1974, tab. 11) is a clear indication that people are free to move between groups and that they do so often. Aggregation events for ceremonial purposes do occur but never amount to more than c90 - 120 people.

There are one or two ascribed positions (religious) but no other status differentials (Williams, 1974, 54-55).

Analysis: *CONTINGENT density; probably EQUAL centrality.*

Central Eskimos

Dunbar (1993, tab 1) treats these as one society, amalgamating details from three. Damas (1968) details, compares and contrasts the Copper Eskimo, the Netsilik and the Iglulik groups and it is useful for this purpose to note them separately. Populations were recorded as follows:

Copper	1922	800	
Netsilik	1888	450-500	
Iglulik	1943	500-550	(Damas, 1968, 112-113).

Damas visited each region in the early 1960s and reviewed the position. He found that the largest winter aggregates were of groups of c100 people living in villages on the sea ice. The Netsilik and Iglulik had much social organisation in common, as each lived in indivisible sharing units of dwellings housing multiple families, or compounds of single dwellings. Sharing at that level is important, but sharing between dwelling groups scarcely occurs. (Damas, 1968, 113).

By contrast, the Copper lack the high degree of cohesiveness found in the other two regions. All life support is conducted at a nuclear family level, hunting group composition is irregular and often comprises people who are unrelated. There is some partnership forming to share and some communal eating occasions village-wide. Leadership is weakly developed and based on personal qualities alone. (Damas, 1968, 113-114).

Analysis: *COPPER - CONTINGENT density, probably DIFFERENTIAL centrality.*

NETSILIK - CORPORATE density

IGULIK - CORPORATE density

G/wi

Total population is recorded as c2000. There is no central organisation with recognised authority and Silberbauer (1972, 273) describes this society as *'a loose confederation of autonomous bands'*. Each has its own territory but there is cooperation between bands, band alliances, intermarriage, and sharing both within and between bands (Silberbauer, 1972, 303). Visiting between bands is commonplace and visits can be very long term (indiscernible from permanent) (Silberbauer, 1972, 303).

Analysis: CONTINGENT density; probably EQUAL centrality.

Ik

Cultivators 3 years out of 4, and hunter-gatherers for the other, populating the dry open mountains near the borders of Uganda, Kenya and the Sudan (Turnbull, 1968, 133). They are also known as the TEUSO or TEUTH. They number somewhat over 1500 and, interestingly, they are noted as associating themselves *'with nearby hunting tribes such as the Niangea and Napare and even the more distant Tepes . . . despite a mutual unintelligibility of language'* (Turnbull, 1968, 133).

During 'agricultural' years they live in small heavily stockaded villages with numerous divisions which prevents solidification into effective units larger than the nuclear family. In hunting years, bands comprise between 7 - 30 nuclear families with no territorial definition and in a constant state of flux. The nuclear family itself is not a very solid social entity. (Turnbull, 1968, 133-135). The society is strongly egalitarian and people display real hostility to those who are plainly better fitted by virtue of superior talent. The only time that they operate as a group is when they unite to present strong hostility in opposition to neighbours.

Analysis: Probably borderline between CIRCUMSTANTIAL and CONTINGENT density and EQUAL centrality.

Some notes on population figures used

Gbaya

Burnham (1979, 186-188) states that the total Gbayan population is 34,000 and there are c100 patriclans. Averaged.

Termanu and Thie

The island of Roti has 76,000 people in 18 political units. No indication of individual populations is given, therefore it is averaged at 4,100 people per polity. Termanu is organised on a basis of fixed clans of which there are 9. Therefore, the average is 450 people per clan. (Fox, 1979, 26, 32-33).

Thie is organised on a different basis and now numbers 26 clans, but these represent 3 large intermarrying groups (Fox, 1979, 32-33), i.e. average 1,370 people. This is the figure used.

Tlingit

DeLaguna (1990, 205, tab 1) details the population figures for each of the 12 tribes in 1910, which average 372 people (range 29 - 694); figures for slaves are not given as they are not, strictly speaking, Tlingit peoples. To adjust, the higher figure of 700 has been used, to approximate all people including slaves.

APPENDIX D - 'METHOD' STUDIES

The Shipibo-Conibo Study

The ethnographic study of the 'tribal groups' of the Ucayali region (a tributary of the Amazon flanking the base of the Peruvian Andes), undertaken by Warren DeBoer, revealed the Ucayalian view that group affiliation is signalled by language, head flattening, tattooing, elaborate projectiles and the decoration of pottery (DeBoer, 1990, 82-104). Further analysis of the 14 groups shows that this combination of stylistic attributes does not completely differentiate between each group e.g. the Mayoruna, the Cashinahua, the Remo and the Sharanahua:

Modern tribe	*Language*	*T/HF*[1]	*Projectiles?*[2]	*Decoration*[3]
Amahuaca (Am)	Panoan	T	?	None
Campa (Ca)	Arawak	-	Y	None
Capanahua (Cp)	Panoan	-	?	None
Cashibo (Cs)	Panoan	HF	Y	None
Cashinahua (Ch)	Panoan	T	Y	None
Cocama (Cc)	Tupi	T	N	Omagua-Cocama
Conibo (Co)	Panoan	HF	N	Shipibo-Conibo
Mayoruna (My)	Panoan	T	Y	None
Omagua (Om)	Tupi	HF	N	Omagua-Cocama
Pano (Pa)	Panoan	-	N	Omagua-Cocama
Piro (Pr)	Arawak	-	N	Shipibo-Conibo
Remo (Re)	Panoan	T	Y	None
Sharanahua (Sr)	Panoan	T	Y	None
Shipibo (Sh)	Panoan	HF	N	Shipibo-Conibo

Table D.1 - Stylistic characteristics of groups in the Ucayali Basin (data from DeBoer, 1990, 84-87)

Furthermore, when the likely archaeological survival is taken into consideration (head flattening, projectile points and pottery), then the view of the groups will appear as shown in figure D.1b, below, which may be compared with figure D.1a:

[1] T/HF = Tattooing (T) or Head Flattening (HF)
[2] Projectiles? = Users of elaborate (decorated) projectile points (Y) or not (N)
[3] Decoration = Pottery decoration style

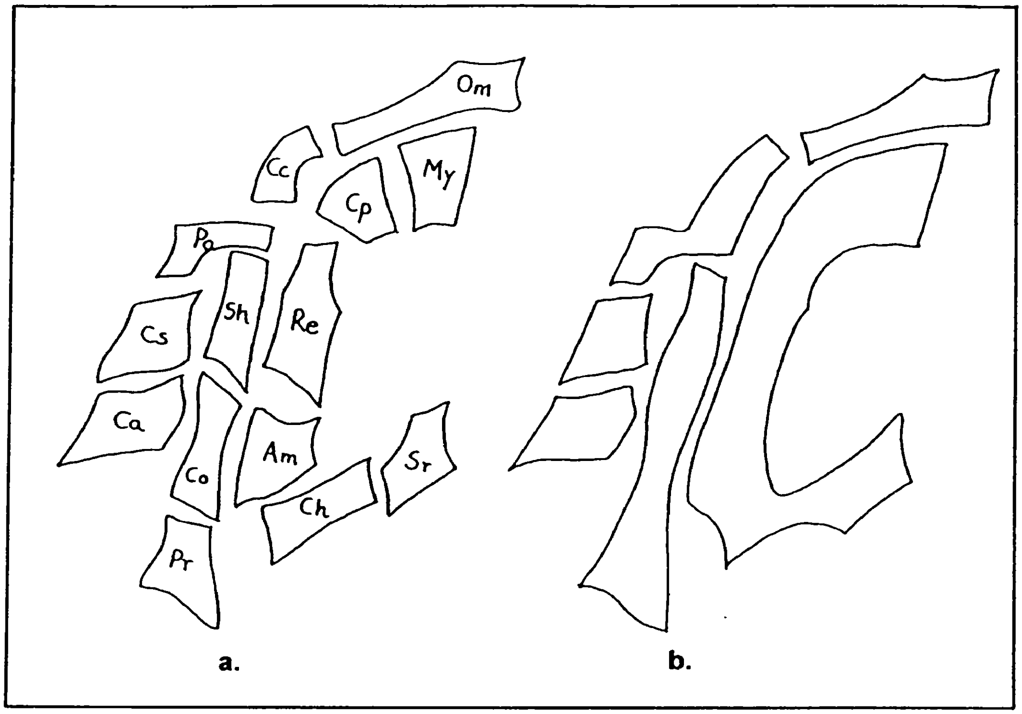


Figure D.1 - The Ucayala tribal groups' territory: a. mapped b. as seen in archaeologically observable 'style' terms

The Zeekoe Valley study

Given the differential survival of material, detecting the difference between *contingent* and *corporate* density may be difficult. Even in the *corporate* density case, exact correlation between the archaeological style boundary and the group territory cannot be expected. Sampson (1988) has tackled this problem head-on in his analysis of the archaeological style boundaries among the mobile hunter-forager groups of the Zeekoe ('Seacow') Valley in South Africa. This study is especially useful for our purposes as it tackles the more difficult analysis situation of mobile groups, although it will apply equally to sedentary.

Sampson creates an hypothetical map of one individual's movements during her/his lifespan and sees it as a series of concentric rings with the core territory at the centre occupied for the most time, a wider annual range reflecting seasonality, ceremonial and visiting activities and a lifetime range in recognition that, very occasionally, the individual may leave the territory (e.g. to join another group). An outer zone is added to reflect the fact that artefacts may travel further afield in, e.g. gift exchange (Sampson, 1988).

Leading on from that point, Sampson recognises that occurrences of any particular item dropped by an individual will fit a distinctive profile reproduced as figure D.2, below. Extrapolating from that, any artefact type which acts as a group marker with emblemic style will also fit that profile on a greater scale and, thus, a *'frequency isopleth map* [of finds of a group marker] *will yield clearly defined double shoulders'*. (Sampson, 1988, 22).

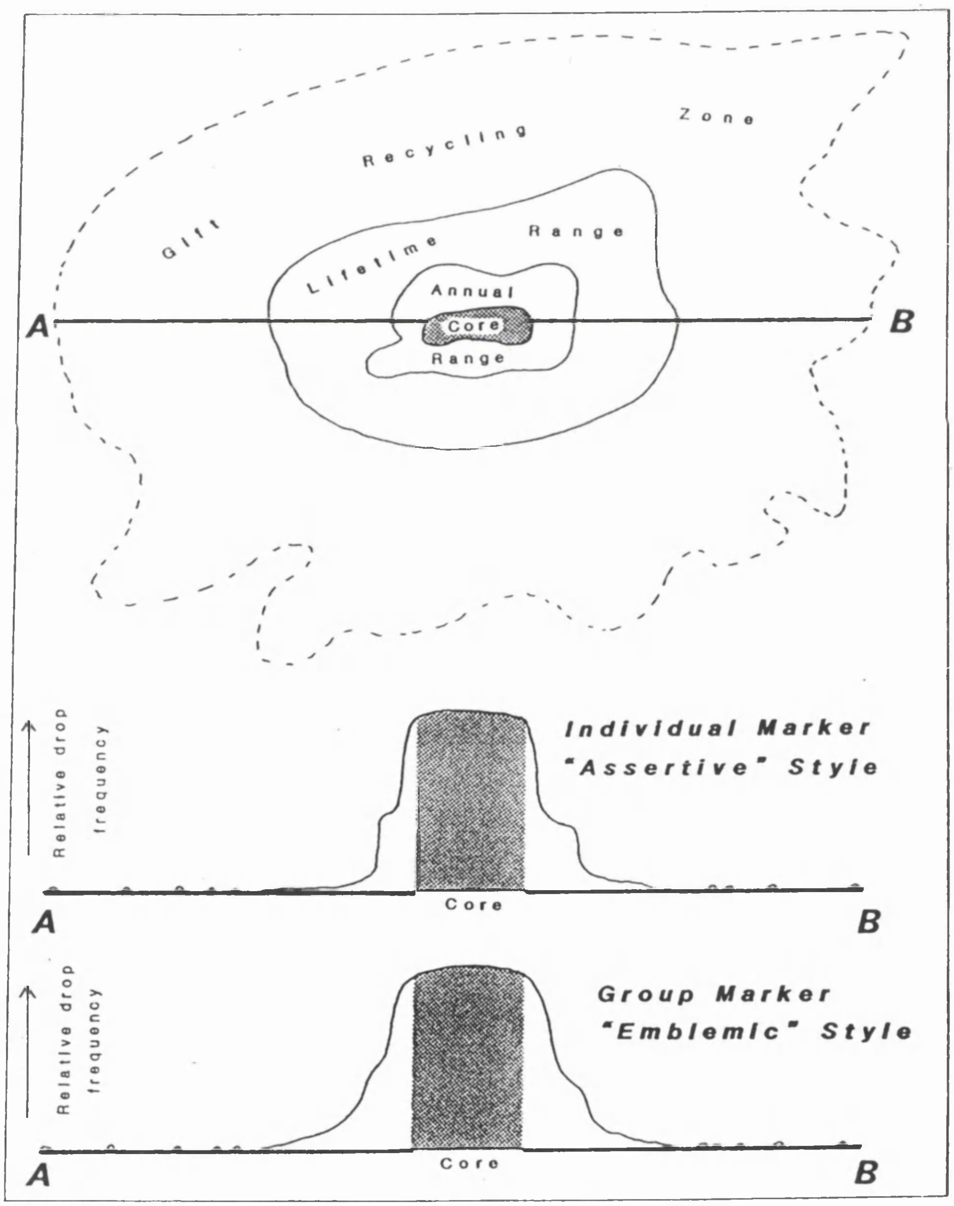


Figure D.2 - Pattern of drop of articles carrying identity signals (source: Sampson, 1988, fig. 1.3)

Independent statistical testing can be used to double-check the result of the 'drop-off' points as follows:-

i) apply a percentage value for every data marker object at every data point
ii) calculate the difference between the values for each pair of results for a marker at a neighbouring data point
iii) compute the sum of the differences and plot midway between (a putative 'shoulder' if middling drop-off; a territorial boundary if high).

Sampson is pessimistic about the effects of boundary changes through time, and changes in the use of emblemic markers (Sampson, 1988, 28) but we can add to that the thought that boundary changes may well reflect changes in group make-up in response to perceived threat, for example, leading to strengthening of territorial boundaries and defences, as discussed above, and predict that this would give rise to a need for more overt group markers (e.g. physical external boundaries). Thus, that pessimism may be over-stated when we consider the causes and consequences of long-term change over time.

Thus, it is argued that the *corporate* density commonty will demonstrate just such a distribution of emblemic style, relatively close to home, and that no other local commonty will have the same emblemic style set.

In *contingent* density commonty, the individual is free and entitled to move between communities, possibly some distance away. Sampson (1988, 17-20) recognises this and, indeed, it is the very system within the groups used in the study. Extensive fieldwork and surface sherd collection and analysis of manufacturing technique and decoration type resulted in a convincing map of territory as well as the identification of those design elements which appear to be emblemic, as opposed to those which do not. The result is convincing because:-

i. it appears to 'fit' with physical features which may serve as visual references for boundaries
ii. the size of territories fit well with the known territories of the !Kung San bands.

The history of archaeological fieldwork is such that the standard of collection and retention of material evidence has varied enormously and it must be accepted that in many cases, if not the majority, that standard has been inadequate to allow Sampson's pioneering approach.

APPENDIX E - SUSSEX DATASET

Overview of the dataset

The dataset sites are listed in alphabetical order of their common names in table E.1, below, and each is given a site reference in the form *Enn* which acts as a cross-reference to the more full details of the site in the gazetteer in this appendix (below). All sites are reviewed for their contribution to the changing patterns of settlement in the first millennium BC and most require detailed analysis of features for GDM analysis (Chapter Six - The GDM of Sussex); the latter have full entries in the Gazetteer (below) but those sites with little contribution to make are featured only in the discussion of site patterning (below). The presence of a detailed gazetteer entry is noted in the 'Gaz.?' column. The National Grid Reference ('NGR') is noted as a six figure reference where it is known, or in the form *'AA xx.yy.'* where it has been estimated from descriptive data. The history of site patterning in the first millennium BC in Sussex shows particular preference for general region and type of terrain through time (below), so it is useful to include a broad location category, encoded as:-

CP	=	Coastal Plain
WD	=	Weald
WA	=	West of River Arun
AA	=	Between Rivers Arun and Adur
AO	=	Between Rivers Adur and Ouse
WO	=	West of the River Ouse

Areas of the Coastal Plain can also be subdivided into the river 'sectors' so, for example, Rustington site A is described as 'CP; AA' meaning that it is on the Coastal Plain between the Rivers Arun and Adur.

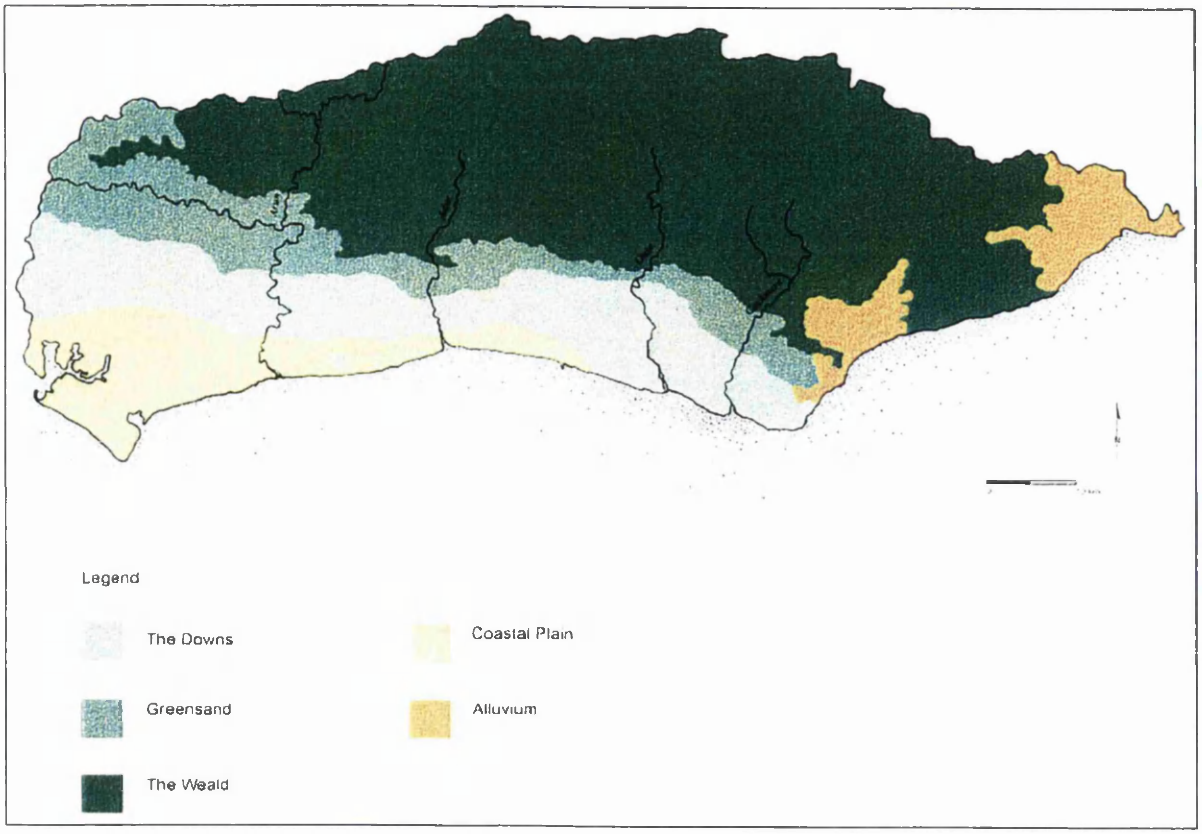


Figure E.1 - Map of Sussex with location divisions shown

The attribution to period is of key importance in the case study analysis so it is summarised in table E.1 for use as a ready guide, coded as a 'Y' in column:-

'1' = late second millennium - 1000 BC
'2' = c1000 - 750 BC
'3' = c750 - 600 BC
'4' = c600 - 400 BC
'5' = c400 - 100 BC
'6' = c100 BC - AD 43.

Table E.1:-										
Site name	***Ref.***	***Gaz. ?***	***NGR***	***Location***	***1***	***2***	***3***	***4***	***5***	***6***
America Wood	E01	No	TQ 134164	WD		Y				
Belle Tout	E02	Yes	TV 557956	EO		Y				
Bishopstone	E03	Yes	TQ 476007	EO		Y	Y	Y	Y	Y
Black Patch	E04	Yes	TQ 495086	EO	Y					
Caburn	E05	Yes	TQ444089	EO				Y	Y	?
Carne's Seat	E06	No	SU 887094	WA					Y	Y
Castle Hill, Newhaven	E07	Yes	TQ 440000	AO			Y	Y	Y	Y
Chanctonbury Ring	E08	Yes	TQ 139121	AA			Y			
Charleston Brow	E09	Yes	TQ 484051	EO					Y	Y
Cissbury	E10	Yes	TQ 139081	AA					Y	?
Cock Hill	E11	Yes	TQ 08. 10.	AA	?	Y	Y			
Crowhurst Park	E12	No	TQ 775128	WD						Y
Devil's Dyke	E13	Yes	TQ 261111	AO						?
Ditchling Beacon	E14	Yes	TQ 331130	AO				Y		
Downsview	E15	No	TQ 32. 10.	AO	Y	Y				
Eridge Park	E16	No	TQ 575339	WD						Y
Findon Park	E17	No	TQ 125085	AA				Y	Y	
Garden Hill	E18	Yes	TQ 444319	WD					?	Y

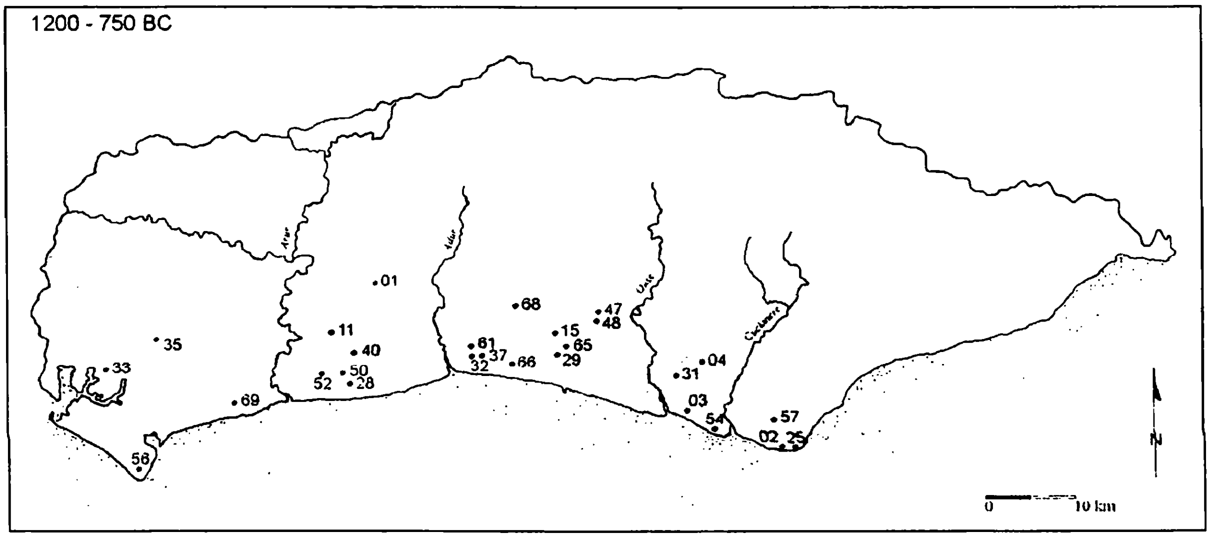
Table E.1 (continued)		*Gaz.?*	*NGR*	*Location*	*1*	*2*	*3*	*4*	*5*	*6*
Goosehill	E19	Yes	SU 830127	WA			Y	Y		
Green St., Eastbourne	E20	No	TV 590990	EO				Y		
Halnaker Hill	E21	No	SU 92. 10.	WA			Y			
Hammer Wood, Iping	E22	Yes	SU 854240	WD						Y
Harrow Hill	E23	Yes	TQ 081100	AA			Y			
Harting Beacon	E24	Yes	SU 808183	WA			Y	Y		
Heathy Brow`	E25	Yes	TV 596962	EO		Y				
High Rocks	E26	Yes	TQ 561383	WD						Y
Highdole Hill	E27	No	TQ 397045	AO						Y
Highdown Hill	E28	Yes	TQ 092043	AA		Y	Y	Y		
Hollingbury	E29	Yes	TQ 322079	AO		Y	?	Y		
Horsted Keynes	E30	No	TQ 38. 28.	WD						Y
Itford Hill	E31	Yes	TQ 447054	EO	Y					
Kingston Buci	E32	Yes	TQ 23. 07.	AO		Y	Y	Y	?	Y
Knapp Farm	E33	No	SU 819060	WA; CP		Y				
Lancing Down	E34	Yes	TQ 177066	AA						Y
Lavant	E35	Yes	SU 868095	WA; CP		Y			Y	Y
Lordington	E36	Yes	SU 782101	WA						Y
Mile Oak	E37	No	TQ 245085	AO		Y				
Money Mound	E38	No	TQ 237287	WD						Y
Muntham Court	E39	No	TQ 109095	AA			Y	Y		
New Barn Down	E40	Yes	TQ 09. 06.	AA	Y	Y	Y			
North Bersted	E41	Yes	TQ 927008	WA; CP					Y	Y
Ounces Barn	E42	Yes	SU 922084	WA; CP						Y
Oving; Copse Farm	E43	Yes	SU 90. 05.	WA; CP					Y	Y
Park Brow	E44	Yes	TQ 153089	AA				Y	Y	
Philpots	E45	Yes	TQ 36. 32.	WD						Y
Piper's Copse	E46	Yes	TQ 01. 26.	WD						Y
Plumpton Plain A	E47	Yes	TQ 358122	AO	Y	Y				
Plumpton Plain B	E48	Yes	TQ 361119	AO		Y				
Portfield Gravel Pit	E49	No	SU 88. 04.	WA; CP						Y
Potlands Farm	E50	Yes	TQ 08.06.	AA	Y	Y				
Rustington A	E51	No	TQ 061031	AA; CP						Y
Rustington B	E52	No	TQ 058031	AA; CP		Y				
Saxonbury	E53	Yes	TQ 577329	WD						Y
Seaford Head	E54	Yes	TV 495978	EO		Y				
Sedlescombe	E55	No	TQ 78. 18.	WD						Y
Selsey Bill	E56	No	SZ 856921	WA; CP		Y				Y
Shinewater	E57	Yes	TQ 561003	EO		Y				
Slonk Hill	E58	Yes	TQ 226065	AO				Y	Y	
Stoke Clump	E59	No	SU 833094	WA				Y		
Testers, Steyning	E60	No	TQ 175111	AA						Y
Thundersbarrow	E61	Yes	TQ 230084	AO		Y	?	Y		
Torberry	E62	Yes	SU 779204	WA			Y	Y	Y	
Tote Copse	E63	No	SU 923048	WA						Y
Trundle	E64	Yes	SU 877110	WA			Y		Y	
Varley Halls	E65	Yes	TQ 331089	AO	Y	Y				
West Blatchington	E66	Yes	TQ 276062	AO; CP		Y	Y			
Westhampnett (cemetery)	E67	Yes	SU 88.06.	WA; CP						Y
Wolstonbury	E68	Yes	TQ 284138	AO		Y	Y	Y		
Yapton	E69	No	SU 964024	WA; CP		Y				

Table E.1 - The Sussex sites dataset

Site patterning through the first millennium BC

The full case study period from the late second millennium BC to AD 43 is broken down into each of the date ranges and each site in the dataset current in a particular date range is introduced with a note on its contribution, organised by broad location. The whole provides a brief summary of the site patterning in Sussex through the first millennium BC.

Late second millennium - c750 BC



Legend

01: America Wood	31: Itford Hill	52: Rustington B
02: Belle Tout	32: Kingston Buci	54: Seaford Head
03: Bishopstone	33: Knapp Farm	56: Selsey Bill
04: Black Patch	35: Lavant	57: Shinewater
11: Cock Hill	37: Mile Oak	61: Thundersbarrow
15: Downsview	40: New Barn Down	65: Varley Halls
25: Heathy Brow	47: Plumpton Plain A	66: West Blatchington
28: Highdown Hill	48: Plumpton Plain B	68: Wolstonbury
29: Hollingbury	50: Potlands Farm	69: Yapton

Figure E.2 - Sussex sites in the period late second millennium - 750 BC

East of Ouse

Two sites which are very important for GDM analysis are likely to have been settled and occupied in the one or two centuries at the very end of the second millennium BC. The first of these, **Itford Hill** E31, was occupied for a period of only c 25 - 50 years (Burstow and

Holleyman, 1957, 209-210) but comprises a comparatively extensive nucleated settlement site. Similarly, **Black Patch** E04 at Alciston was occupied for a short period, probably about 50 years, at much the same time (Drewett, 1982b, 343). Both have comparatively firm dating based on radiocarbon determinations. Most sites are dated by analogy with pottery from other sites and, in one or two cases, with these two; for example the Heathy Brow E25 assemblage, analysed by Sue Hamilton, is compared with Itford Hill E31 but finally given a most likely date of the C 9th BC on the balance of the overall evidence (Hamilton, 1993, 110). Unfortunately, dating by ceramics is particularly problematic in the immediate post-Deverel-Rimbury period (late second millennium - 600 BC) and especially so when coarseware dominates an assemblage.

The dating of the **Seaford Head** E54 and **Belle Tout** E02 sites is tenuous; whilst there is little doubt that there was occupation earlier than the first millennium BC in both of these cases, it is argued that they may have been enclosed and / or continued in use in this period. The more informative sites at **Bishopstone** E03 and at **Heathy Brow** E25 were occupied within the earlier part of the first millennium BC at some point between c 1000 and 750 BC.

Finally, a very recent archaeological assessment exercise, to investigate the waterlogged environment at **Shinewater Park** E57 in Eastbourne, has revealed a large assemblage which suggests occupation of the site for no more than 100 years between c900 - 700 BC (Greatorex, 1995; Hamilton, forthcoming, 1-2). Although the site has not been excavated and its full extent is not known, on first view it gives the impression of a settlement site, with one or more platforms set in a marshy environment and whose archaeological importance it would be possible to compare with Flag Fen in Cambridgeshire (Woodcock, pers. comm.).

Adur : Ouse

Dating to the end of the second millennium BC period, downland settlement sites are known at **Varley Halls** E65, **Downsview** E15 and **Plumpton Plain A** E47. The first two are only c 1.5 km apart and have been excavated in the 1990s but only the Varley Halls E65 work has been published. The Plumpton Plain A E47 site was investigated in 1934 revealing an important nucleated settlement which is generally thought to be contemporary with Itford Hill E31 (above) on the basis of pottery analogies and metalwork (e.g. Barrett, 1980, 298-300). However, there is a case to be made for contemporaneity with the nearby **Plumpton Plain B** E48 site and that may place it in the early first millennium BC (see Gazetteer entries E47 and E48, below).

The Varley Halls E65 and Downsview E15 sites continued into the beginning of the first millennium BC (Hamilton, 1997b, 41) and the recently excavated site at **Mile Oak** E37 appears to have been occupied in the 1000 - 750 BC period, only (Hamilton, forthcoming, 1). Regrettably, details of Mile Oak E37 and Downsview E15 are not included in the gazetteer (below) as pre-publication details were not available for consultation at the Sites and Monuments Records at the time of writing. **Kingston Buci** E32 and **West Blatchington** E66 are both thought to have been settlement sites dating to the beginning of the first millennium BC but their form is uncertain as limited investigation of both revealed pits and small ditch sections only.

Thundersbarrow E61, **Wolstonbury** E68 and **Hollingbury** E29 are all enclosed areas, apparently first constructed at the beginning of the first millennium BC, but which do not appear to have housed permanent settlement. The earliest, inner enclosure at Thundersbarrow E61 has produced pottery characteristic of the C 9th BC from the middle ditch fills (Hamilton and Manley, 1997, 95) and, it is conjectured, may have been built as early as the middle of the second millennium BC given the radiocarbon determination of 1670 - 1320 cal BC (HAR-2182) on a piece of antler at the base of the ditch (Hamilton and Manley, 1997, 95). Similarly, the inner enclosure at Wolstonbury E68 is likely to have been built in the C 10th or C 9th BC but that construction event is thought to have been followed by the building of the outer ring within the same period (Curwen, 1930, 243; Hamilton and Manley, 1997, 95). Finally, the earliest enclosure of the subsequent enclosed settlement site at Hollingbury E29 was probably built at this time but very little is known of it as it lies under the later enclosure (Curwen, 1932, 2 and fig. 1; Holmes, 1984, fig. 1; Hamilton, 1993, 203).

Arun : Adur

The only downland site attributed to this period with complete confidence is the pre-rampart enclosure at **Highdown Hill** E28, but the settlements at **Cock Hill** E11 and **New Barn Down**

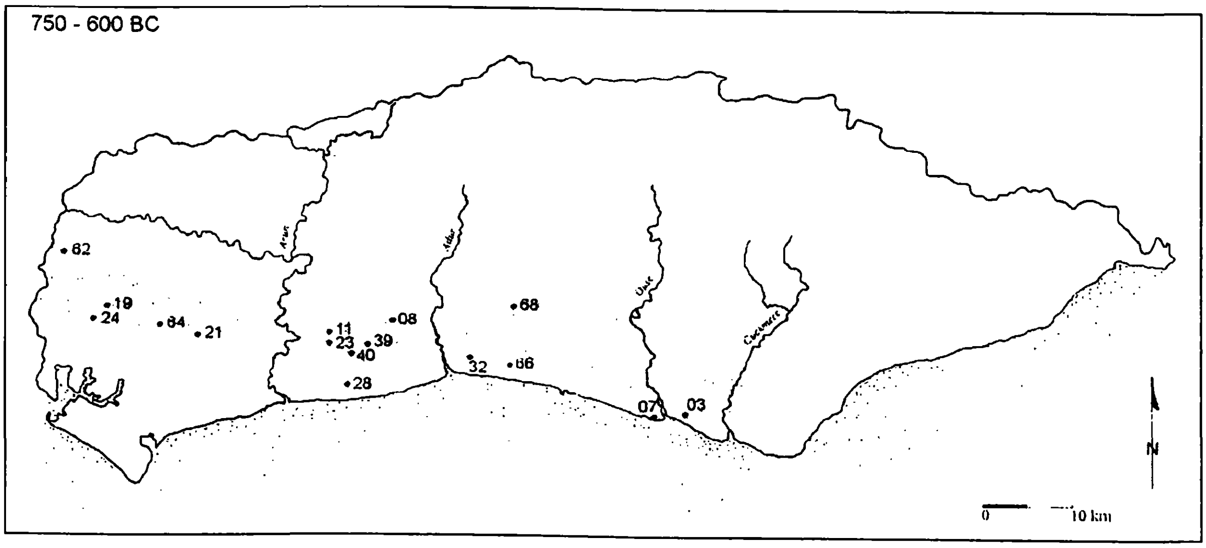
E40 are most likely to have been occupied from the C 10th BC, although they could have been built in the following period.

The non-downland sites are all of very particular interest, as none of them seem 'typical' of the dataset for the period for one reason or another. They have all been discovered and excavated in recent years but, in line with the modern ethos of a presumption in favour of preservation, this work has been of a very limited extent in advance of development. On the lower lying slopes, the unique (to Sussex) 'burnt mound' site at **Potlands Farm** E50 has interesting implications regarding the question of inter-community seasonal activity. Moving down onto the Coastal Plain, a watching brief in 1987 - 88 discovered and recorded a site at c5 metres OD at **Rustington site B** E52 which could not be excavated in advance of development but which appears to have been at least one, and possibly three hut sites as evidenced by postholes and burnt clay / occupation material with pits and depressions and a quernstone discovered (Rudling, 1990, 7). On the basis of the pottery, the site has been dated to c1000 - 900 BC and has many parallels with the only other Coastal Plain site of this period, at Yapton E69 (see below) (Rudling, 1990, 8). Finally, on a small round-topped hill in the Weald, a fieldwalking exercise associated with the A24 Ashington bypass development discovered a late Bronze Age (c1000 - 750 BC) site at **America Wood** E01 (Priestley-Bell, 1994, 33). Although small, the site is important as it is the only evidence of Wealden settlement at that time (Hamilton, 1994, 46). The site as excavated comprises only one small pit, some postholes and stake-holes and it would appear that the postholes could describe a 5 metre diameter circle which, together with finds of pottery, a saddle quern and fire-cracked flint and burnt clay, have tended to suggest settlement (Priestley-Bell, 1994, 33-34).

West of Arun

On current knowledge, settlement in this region in this period is somewhat sparse. Dating to a time between 1000 - 750 BC, a settlement site is indicated by the evidence of a few pits at **Yapton** E69 on the Coastal Plain but nothing is known of its general form and relationship with the surroundings (Rudling, 1987, 51-67). Similarly, a fieldwalking and subsequent excavation exercise in advance of the building of a new length of the A27 between Chichester and Havant discovered a group of late Bronze Age pits at **Knapp Farm** E33, used for depositing broken vessels, charcoal and calcined flint (Gardiner and Hamilton, 1997, 72, fig. 4), which suggests settlement of an unknown form. A probable settlement site was located at **Selsey Bill** E56 by gravel-pit workers in 1931 who dug through *'saucer shaped depressions in the surface of the gravel, about a foot below the present surface, the largest being 10 ft. in diameter and 2 ft. deep'* (White, 1934, 40). On examination, the pottery was thought to be early Iron Age when examined by Christopher Hawkes (White, 1934, 42-48) but Sue Hamilton (pers. comm.) thinks it more likely to have been of the 1000 - 750 BC period, having reviewed the report in the light of her more recent analysis of Sussex first millennium BC traditions which benefits from consideration of parallels excavated in a modern tradition. Finally, it is thought that the (much later settlement) site at **Lavant** E35 may have been occupied in this period on the basis of pottery finds and two unusual metalware items (although no structural features in the area excavated are attributed to it) (Kenny, 1993, 26).

750 - 600 BC



Legend

03: Bishopstone
07: Castle Hill, Newhaven
08: Chanctonbury Ring
11: Cock Hill
19: Goosehill
21: Halnaker Hill
23: Harrow Hill
24: Harting Beacon
28: Highdown Hill
32: Kingston Buci
39: Muntham Court
40: New Barn Down
62: Torberry
64: Trundle
66: West Blatchington
68: Wolstonbury

Figure E.3 - Sussex sites in the period 750 - 600 BC

East of Ouse

The use of **Bishopstone** E03 may have continued through this period, as there is clear evidence for the next date band (see below). Hamilton and Manley (1997, 98) note a possibility that the Coastal, Wealden sites of Hastings Castle and East Hill may fit the period on typological grounds (i.e. as putative promontory forts) but, given the variability in site morphology, these unexcavated, undated sites are not included in the analysis. Naturally, the sites at Seaford Head E54 and Belle Tout E02 could have continued in use in this period, as there is no dateable material from the interior and the banks were still extant, but they are not carried forward as nothing is known of them except the construction details attributed to the previous period.

Adur : Ouse

On the basis of the ceramic dating **West Blatchington** E66, **Wolstonbury** E68 and **Kingston Buci** E32 continued in use and **Castle Hill, Newhaven** E07 was probably first settled at this time (Hamilton, 1993, 113-114) although no features of the latter have been recorded.

Arun : Adur

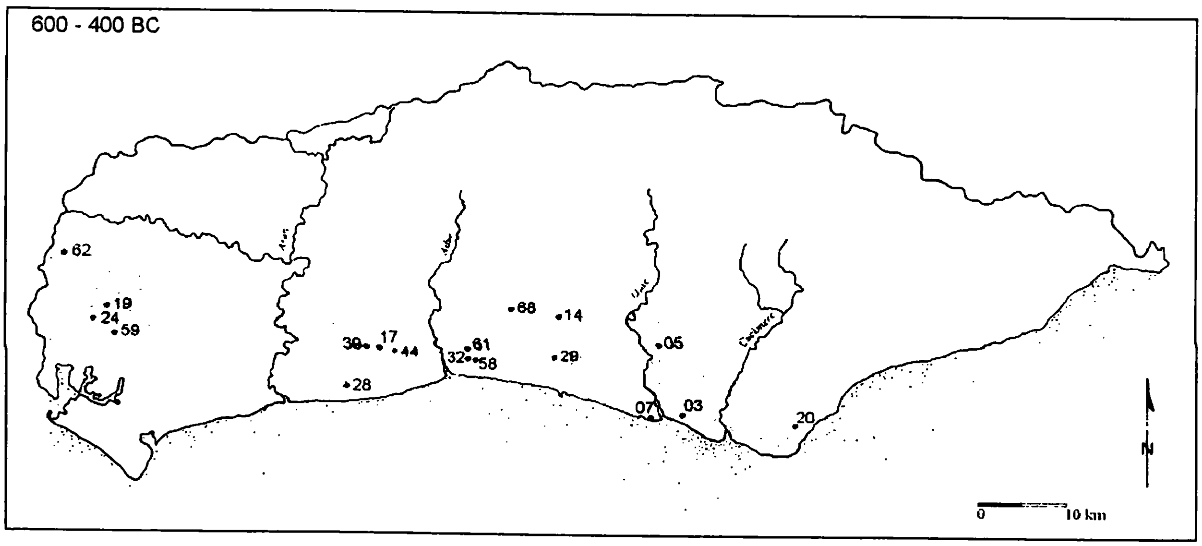
The increasing settlement of this area is evident in three new constructions dating to this time namely **Chanctonbury Ring** E08, **Harrow Hill** E23 and the open settlement at **Muntham Court** E39 which probably also continued into the next period (Hamilton, pers. comm.; 1993, 346) but, although it was excavated in the 1950s, the details have never been published (Hamilton, pers. comm.). **Cock Hill** E11 and **New Barn Down** E40 just <u>may</u> have been first occupied in this period although they are attributed to the previous (see above), and occupation probably continued at a minimum. The **Highdown Hill** E28 site was emphasised by enclosure.

West of Arun

From c750 - 600 BC the enclosure known as **Harting Beacon** E24 provides the most information although pottery evidence also reveals some presence at **Torberry** E62 and

Trundle E64 downland sites in this period before their enclosure (Hamilton, 1993, 145); nothing is known of the form that occupation may have taken and it could have been restricted to occasional visits. It is just possible that the same may apply to the **Goosehill Camp** E19 hill slope site (Hamilton, 1993, 145). Visits to (or occupation of) the Neolithic enclosure on **Halnaker Hill** E21 are also indicated by a few pottery sherds both within the site and in association with local lynchets and a radiocarbon date for a piece of bone from ditch fill (Bedwin, 1992, 7, 10-11).

600 - 400 BC



Legend

03: Bishopstone
05: Caburn
07: Castle Hill, Newhaven
14: Ditchling Beacon
17: Findon Park
19: Goosehill
20: Green St., Eastbourne
24: Harting Beacon
28: Highdown Hill
29: Hollingbury
32: Kingston Buci
39: Muntham Court
44: Park Brow
58: Slonk Hill
59: Stoke Clump
61: Thundersbarrow
62: Torberry
68: Wolstonbury

Figure E.4 - Sussex sites in the period 600 - 400 BC

East of Ouse

Hamilton (1993, 259-262, 345) finds ceramic evidence for continued occupation of the **Bishopstone** E03 enclosure dating to 500-300 BC and argues for comparability with the assemblage from a single pit at **Green St., Eastbourne** E20 (Hamilton, 1993, 260). In 1996, a field programme in and around the domed hilltop of Mount **Caburn** E05 discovered that the site was occupied by a large round house, possibly unenclosed during this period (Drewett and Hamilton, 1996, 6) but detailed excavation findings had not been published at the time of writing. Drewett and Hamilton (1996, 6) do comment that the settlement or household must have been of some significance, on the basis of a 'high status' element to the assemblage.

Adur : Ouse

Two earlier sites within this area were enhanced structurally during this period (**Hollingbury** E29 and **Thundersbarrow** E61) and the occupation of **Castle Hill, Newhaven** E07, **Kingston Buci** E32 and **Wolstonbury** E68 continued, although few details are known. Two new sites were established, at **Slonk Hill** E58 and at **Ditchling Beacon** E14 and only West Blatchington E66 appears to have been left at this time. Overall, the continuity and expansion give the impression of increasing settlement in the area, especially in that some sites offer evidence of permanent occupation.

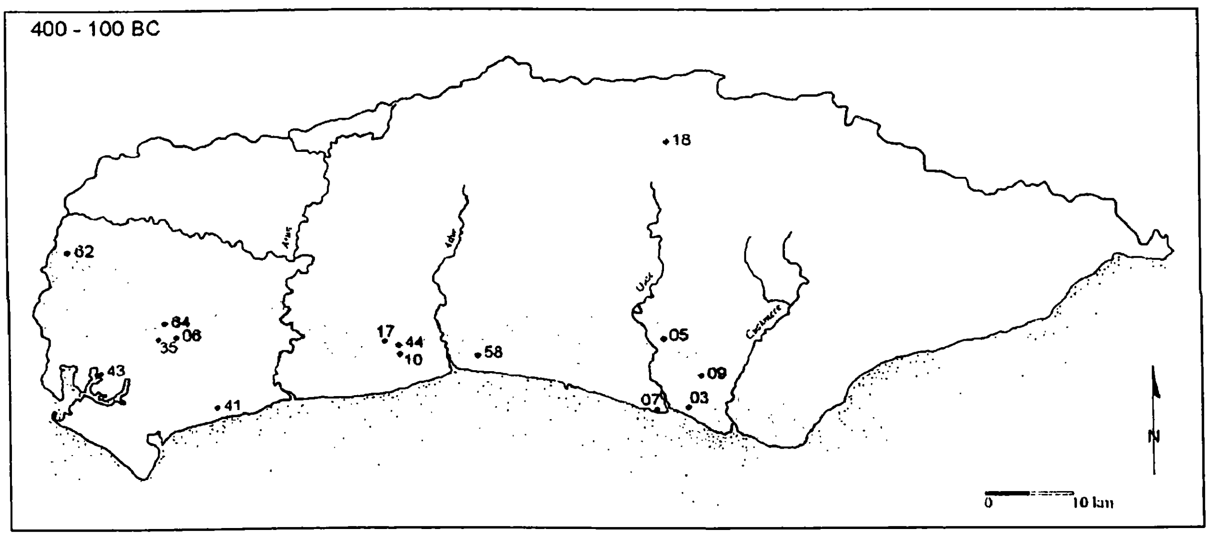
Arun : Adur

The open settlement at **Muntham Court** E39 continued into this period, as did the **Highdown Hill** E28 enclosed settlement site which is thought to have been abandoned by c500 BC on the basis of ceramic dating (Hamilton, 1993, 343). Two sites were constructed after that, namely **Park Brow** E44 and **Findon Park** E17, both of which are dated from some time in the period c500 - 300 BC on the basis of ceramic evidence (Hamilton, 1993, 345-346). **Findon Park** E17 comprises a group of 11 pits, only one of which contains pottery dating to this period (Fox and Wolseley, 1928, 449-460; Hamilton, 1993, 346). Findon Park E17 lies some 2 km to the north-west of Park Brow E44 and to form the third side of a triangle another contemporary site is suspected at the unexcavated No Man's Land (Fox and Wolseley, 1928, 449), c 1 km from both.

West of Arun

The **Stoke Clump** E59 assemblage is a surface collection only (Cunliffe, 1966, 109-113) and suggests a domestic context of which no details are known but which Hamilton (1993, 205, 343) has been able to date by local ceramic parallels to c600 - 500 BC. Occupation of, or visits to **Harting Beacon** E24 continued in this period as indicated by a radiocarbon date of 400 - 50 BC (HAR-2411) for the burial of the human skull in the upper fill of the southern ditch terminal (Bedwin, 1979, 29), suggesting use before that date (unless, of course, the site was 'forgotten' for this 200 year period); however, the pottery falls almost entirely in the earlier period (Morris, 1978a, 239; Hamilton, 1979, 29). Both the construction of the double-ringed **Goosehill Camp** E19 and the earliest annexation of the promontory at **Torberry** E62 can be dated to c500 - 300 BC on the basis of ceramic typology for Sussex (Hamilton, 1993, 349).

400-100 BC



Legend

03: Bishopstone	10: Cissbury	43: Oving; Copse Farm
05: Caburn	17: Findon Park	44: Park Brow
06: Carne's Seat	18: Garden Hill	58: Slonk Hill
07: Castle Hill, Newhaven	35: Lavant	62: Torberry
09: Charleston Brow	41: North Bersted	64: Trundle

Figure E.5 - Sussex sites in the period 400 - 100 BC

Dataset site numbers reduce for the 400 - 100 BC period, particularly in that a number of enclosures appear to have gone out of use but were replaced, in some sense, by the four substantial and emphasised 'developed hillforts' of Sussex. These are evenly spread and appear to be located somewhat centrally for each downland block, if the Caburn E05 is viewed as being on the 'border' between the East of Ouse and the Adur : Ouse downland sectors and the Trundle E64 as central to the west of Ouse, with the full enclosure at Torberry E62 appearing to 'look towards' the Wessex pattern.

Several settlement sites continued in use throughout and a few new sites were settled, extending onto the Coastal Plain in the West of Arun sector and, perhaps, into the Weald.

East of Ouse

Occupation of the enclosure at **Bishopstone** E03 continued although there may have been some change in spatial focus in a north-easterly direction (Bell, 1977, 62) but, most importantly, the domed hilltop of the **Caburn** E05 was formally encircled in the dramatic form visible today. The first occupation of the small settlement at **Charleston Brow** E09 is attributed to this period.

Adur : Ouse

Castle Hill, Newhaven E07 and **Slonk Hill** E58 continued to be occupied at this time.

Arun : Adur

Occupation of the **Park Brow** E44 settlement site certainly continued in this period (if it was not first constructed then, as discussed above), as did occupation of **Findon Park** E17 which comprises 10 pits dated to this period (Fox and Wolseley, 1928, 453) but, unfortunately, no structural details and little pit stratigraphy were recorded so there is little that the site can contribute. Most notably, however, the building of the comparatively enormous 'hillfort' enclosure of 24 ha at **Cissbury** E10 can be dated to this time.

West of Arun

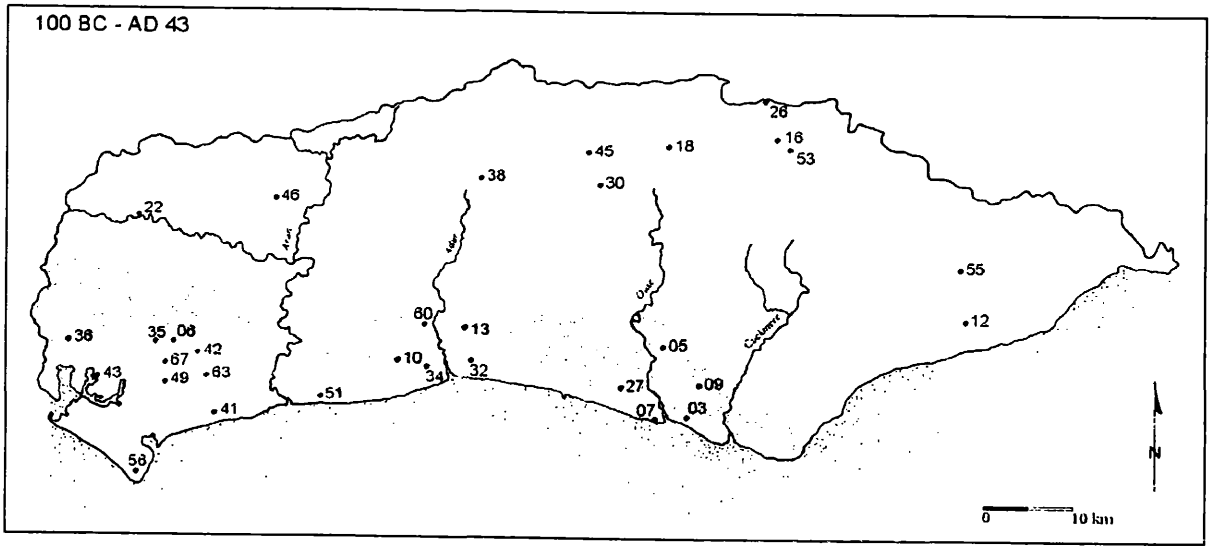
In contrast to the more easterly sectors, settlement in this area appears to have flourished in this period although it should be noted that there appears to have been movement from the downland onto the fertile soils of a large tranche of the Coastal Plain. **Lavant** E35, near Chichester, promises to be a most interesting site comprising some 13 roundhouses and excavated in 1993 but, regrettably, only a brief pre-publication summary of findings was available at the time of writing (i.e. Kenny, 1993). **North Bersted** E41 and **Oving** E43 appear to have been settled at this time, in both cases for the first time after a gap of some 1000 years or more. Finally, surface survey and sample excavation of the ditches of two concentric rings at **Carne's Seat** E06, thought to have been some kind of community settlement site prior to the addition of a 'banjo enclosure', produced a small amount of pottery which is attributed to this period (Hamilton, 1986, 43).

On the Downs, the simple promontory cross-ditch at **Torberry** E62 was developed and enhanced into a larger, more emphasised and fully enclosed hilltop site and the Neolithic causewayed enclosure at the **Trundle** E64 was enclosed and signalled by a clearly monumental pair of entrances.

The Weald

Garden Hill E18 could possibly have been constructed in this period but no other sites are known.

100 BC - AD 43



Legend

03: Bishopstone
05: Caburn
06: Carne's Seat
07: Castle Hill, Newhaven
09: Charleston Brow
10: Cissbury
12: Crowhurst Park
13: Devil's Dyke
16: Eridge Park
18: Garden Hill
22: Hammer Wood, Iping
26: High Rocks
27: Highdole Hill
30: Horsted Keynes
32: Kingston Buci
34: Lancing Down
35: Lavant
36: Lordington
38: Money Mound
41: North Bersted
42: Ounces Barn
43: Oving; Copse Farm
45: Philpots
46: Piper's Copse
49: Portfield Gravel Pit
51: Rustington A
53: Saxonbury
55: Sedlescombe
56: Selsey Bill
60: Testers, Steyning
63: Tote Copse
67: Westhampnett (cemetery)

Figure E.6 - Sussex sites in the period 100 BC - AD 43

East of Ouse

The **Bishopstone** E03 site continued in use in this period, becoming effectively an open site as the earlier ditch completely filled (Bell, 1977, 132) and the **Charleston Brow** E09 site continued, too. An occasional presence at the **Caburn** E05 is apparent from pottery in a few pits (Hamilton, 1993, 348) but the volume is so significantly less than that of the previous period that, to all intents and purposes, it is regarded as hosting very low level activity at this time (Hamilton and Manley, 1997, 105).

Adur : Ouse

The dating of the **Devil's Dyke** E13 promontory enclosure on the north scarp of the Downs is very weak indeed, in that an unspecified amount of pottery of this period was recovered from the interior in association with a circular structure (Hamilton and Manley, 1997, 104 citing Burstow and Wilson 1936). Some part of the agglomeration of roundhouses within fields at **Highdole Hill** E27 may have been attributable to this period by finds of unstratified Sussex Ouse ware (Hamilton, 1993, 350). Slonk Hill E58 had probably been abandoned by this time but the pottery from **Castle Hill, Newhaven** E07 suggests that it was still occupied although no structural details of that site are known (Hamilton, 1993, 362; Hamilton and Manley, 1997, 107) (see above). It would appear that there was some evidence of settlement at the little-excavated earlier site at **Kingston Buci** E32 as indicated by the presence of Sussex Ouse ware (Hamilton, 1993, 348-350).

Arun : Adur

The focus of settlement may have moved back onto the Coastal Plain, as indicated by the traces of archaeological features at **Rustington site A** E51 in a ditch which contained a quantity of late C 1st BC - early AD C 1st ceramics associated with a small layer of burnt clay and daub (Rudling, 1990, 1-4).

Findon Park E17 and Park Brow E44 both appear to have been abandoned by this time and the lack of internal investigation of the Cissbury E10 enclosure is keenly felt as there is no way of knowing the extent of occupation into this period. Indication of a settlement site on the northern scarp slope of the Downs at **Testers** E60 has been found in the form of a ditch with Sussex Ouse ware of c 20 BC - AD 70 in the upper fills (Hamilton, 1988, 66; Hamilton, 1993, 362) and a small 'shrine' site underlying the later Romano-Celtic temple has been located at **Lancing Down** E34.

West of Arun

On the Downs, the Trundle E64 appears to have been abandoned by this time and although Torberry E62 was visited it is thought to have gone out of any regular use and may have been ploughed (Cunliffe, 1976, 25). On the lower slopes above the Coastal Plain, there was a new site at **Lordington** E36 comprising one small enclosure with no identified internal features dateable to this period. On the lower ground, the small settlement at **Oving** E43 continued, as did **North Bersted** E41. **Lavant** E35 continued to be occupied as well but the settlement focus shifted so that there is only a hint of it within the area excavated, thus little is known of its form. A new site at **Ounces Barn** E42 on the Upper Coastal Plain has been identified as an enclosure with no internal buildings but the extent of excavation was limited and the excavators feel that it may have morphological parallels with Oving E43, suggesting that there may have been buildings outside the area excavated (Bedwin and Place, 1995, 64). Unstratified wheel-thrown pottery of the West Sussex type (c60 BC - AD43) was found at the **Selsey** E56 site, first settled in the 1000 - 750 BC period (above) (Hamilton, 1993, 351-352). Similarly, pottery of the same type was found in a tiny domestic trench at **Tote Copse** E63 on the Coastal Plain (Pitts, 1979, 259; Hamilton, 1993, 364). The small settlement at **Carne's Seat** E06 was extended by a 'banjo enclosure' in this period, as far as surface survey collections can indicate the date (Holgate, 1986a, 48; Hamilton, 1993, 352). Clearly, an occupation site is indicated by the unstratified finds from pits discovered during quarrying operations at **Portfield Gravel Pit** E49 dated to this period and into Romano-British times (Hamilton, 1993, 351-352) but the features were destroyed before they could be recorded, so stratigraphic detail is missing (Curwen and Frere, 1947, 137, fig. 1). Finally, the most unusual find of a relatively large cremation cemetery at **Westhampnett** E67 has recently been excavated.

The Greensand and the Weald

Unstratified pottery of the Sussex Ouse ware type (c20 BC - AD 70) was found in an unexcavated context at **Eridge Park** E16 which is thought to have been a small settlement occupied into the Romano-British era, connected with local iron working at some stage in its life (Money, 1979, 258; Hamilton, 1993, 348-350). A further iron-working site with an unstratified assemblage dating from the late Iron Age into the Romano-British period has been discovered at **Crowhurst Park** E12 (Straker and Lucas, 1938, 224-232) which included a pottery assemblage (Piggott, 1938, 229-232) which Sue Hamilton (1993, 348-350) has reviewed, with the important finding that it has transitional features from the Sussex Ouse ware type to the East Sussex ware; a similarly mixed assemblage has been recovered from a 'dump' in a little stream by an iron-working site at **Sedlescombe** E55 (Chown, 1946, 148-151; Hamilton, 1993, 350).

With the possible exception of the insecurely dated **Devil's Dyke** E13 enclosure on the Downs (see above), it is noteworthy that all of the new enclosed sites in this period were in the Weald and that those on the Downs were abandoned, to all intents and purposes. Four of Wealden sites are promontory enclosures (**Hammer Wood** E22, **Philpots** E45, **Garden Hill** E18 and **High Rocks** E26) and the fifth is more of the contour form (**Saxonbury** E53). None of these have very secure dating and there is reason to believe that any or all of those sites may have been 'special places' prior to development as full enclosures, as far back as the middle-late Bronze Age, or earlier (below). A further connection with interest in earlier 'special places' may be seen in the evidence for deposits of whole pots in the earthen core of the Beaker period bowl barrow at **Money Mound** E38 in this period, a practice which continued until at least AD 388 (to judge by the Roman coin evidence) (Beckensall, 1967, 13-21).

Whilst clay digging in the 1930s, a V-shaped ditch and kiln site was discovered at **Horsted Keynes** E30 and found to contain pottery in some quantity (Curwen, 1937, 255-262) which was subsequently to be considered examples of Sussex Ouse ware of c20 BC - AD 70 (Hamilton, 1993, 348-350).

Gazetteer

An entry per site listed by site reference number follows; this is in alphabetical order as well but omits those sites for which summary details alone are known (see table E.1, above). Each site entry includes, at a minimum, an illustration of its form (usually sourced from the original excavation report), details of important features and dating information.

E02 - Belle Tout

Large in area by comparison with other enclosures at more than 25 ha, the Belle Tout site is a cliff-edge area annexed by a bank and ditch in an arc on the headland plateau immediately above the Birling Gap which is some 3km to the west of Beachy Head (Bradley, 1971a, 8). Within the enclosure lies a Beaker settlement, the excavation of which (by Richard Bradley in 1968 - 69) prompted a preliminary examination of the surrounding earthwork to consider the question of contemporaneity (Bradley, 1971a, 9) but no pottery or other dateable artefact was found to help in answering that point (Bradley, 1971a, 9-16).

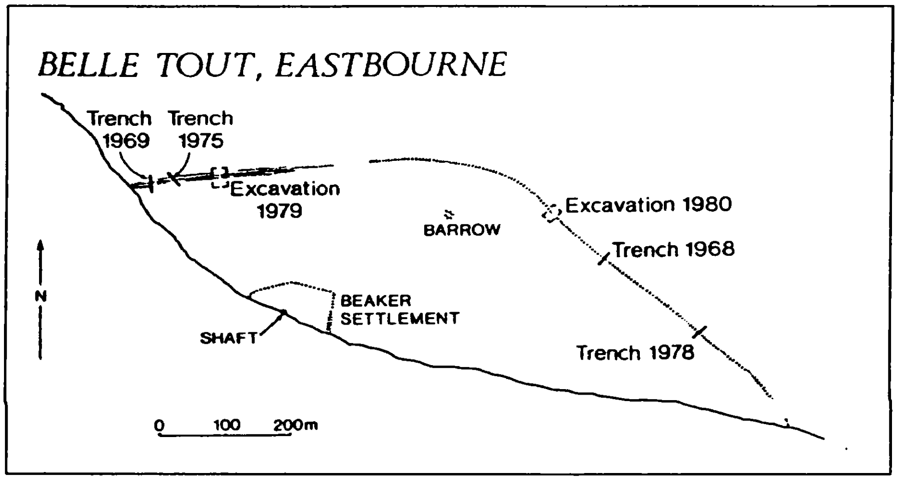


Figure E.7 - General site plan of Belle Tout (source: Bedwin, 1982, fig. 38)

A further attempt to elucidate was made during the 1979 - 80 Bullock Down survey programme by cutting trenches based on small gaps in the earthwork but, again, no dateable artefacts were found although the flint work discovered does appear to be compatible with a Bronze Age or a Neolithic date (Bedwin, 1982, 94). Sue Hamilton has reviewed the pottery found in the interior of the enclosure as illustrated in Bradley (1971a, fig.3) and finds it compatible with a late Bronze Age date (c1000 - 750 BC) (Hamilton and Manley, 1997, 97) indicating occupation of the site at that time but that finding does not provide an answer to the question of when the area was demarcated.

The earthwork is an insubstantial dump cast up from a ditch, varying in depth from 20cm - 120 cm, to an internal bank which can have been scarcely as high as a metre (Bedwin, 1982, 91-94, fig. 42).

E03 - Bishopstone

Located on Rookery Hill, at a height of c50 metres OD and with good views along the Coast as it overlooks the English Channel from a south-facing spur, Bishopstone is surrounded on three sides by low-lying alluvial land. The site was discovered in 1967 during a building programme and excavated under the direction firstly of David Thomson and then Martin Bell from 1967-1975. (Bell, 1977, 1-4).

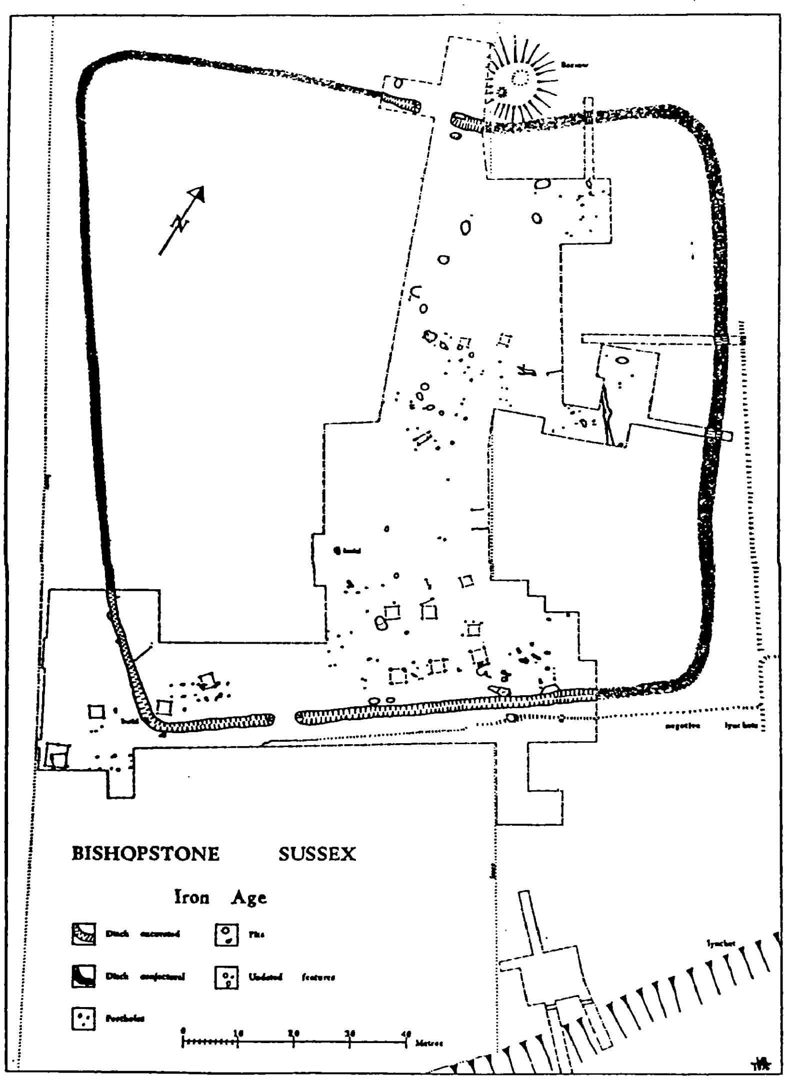


Figure E.8 - General Plan of the Iron Age site at Bishopstone (source Bell, 1977, fig. 23)

The site is estimated to cover c 5 ha on a hill slope bounded by steeply sloping ground to the east. A substantial tract was examined using modern techniques, although the central block is arable land today and regular ploughing has eroded much of the expected vertical stratigraphy (Bell, 1977, 4-6). The area was occupied in the Neolithic (Bell, 1977, 7-8) but the very limited middle Bronze Age evidence suggests casual visits, only, at that time (Bell, 1977, 9).

More permanent occupation is first indicated as an open site followed by later enclosure within a V-shaped ditch (varying from 0.6 - 0.9 metres deep and 1.4 - 2.7 metres wide) accessed by two simple entrances (North = 5.8 metres wide; South = 3.8 metres wide) with very little (if any) superstructure associated (Bell, 1977, 52, 55). No trace of a bank survives (even from aerial inspection) and it is assumed that it has been obliterated by erosion and agricultural activities and noted that the reconstruction as a sub-rectangular shape is conjectural (Bell, 1977, 56). Traces of an associated, contemporary field system have been discerned on two sides of the enclosure (Bell, 1977, 61).

The occupation structures of the pre-enclosure phase are clustered in an area straddling the south-west corner of the enclosure and comprise two pits, two four-post structures, one six-post, a shallow scoop and possibly some other features including a post-pair but it is difficult to be precise as assignment to this phase is partly based on horizontal stratigraphy (Bell, 1977, 49-52; Hamilton, 1993, 232-233). The enclosure was then built and recut on at least three separate occasions. Clustered within the south side of the ditch and associated with the enclosure phase(s) are six pits, a hearth, a post-pair, a four-post structure and some single post-holes; more of the structures uncovered may have belonged to this phase but attribution is uncertain (Bell, 1977, 71-76; Hamilton, 1993, 233-235). The ditch itself is thought to contain some kiln debris (Hamilton, pers. comm.). Finds associated with this phase of occupation indicate a range of domestic activities but no roundhouses or obvious under-cover living quarters of any kind. Cut into the fill of the ditch was a grave containing the skeleton of a female of c 17 years and a newborn baby, covered by a layer of soil and then a layer of chalk blocks and flints (Bell, 1997, 78-80). The woman's body was placed on her back with the legs drawn to one side with *'little regard for its arrangement'* (Bell, 1977, 78) and her hands may have been bound; beside her head was placed a newborn baby and by her feet were half of a chalk spindle whorl and a perforated long bone (Bell, 1977, 78-80; Wilkinson, 1977, 80-81).

Finally, the extent of ditch silting suggests that the site became effectively open again by c 100 BC (Bell, 1977, 132) and the late Iron Age period is well represented by features identified by finds of Sussex Ouse ware (e.g. pit 920) (Hamilton, 1993, 350) as well as a Nauheim derivative brooch (c 50 BC - AD 70), a 'Colchester type' iron fibula and fragments of two potin coins (Bell, 1977, 134). A burial of an adult man was dated to this period. He was placed in a storage pit in a cramped posture (as constrained by the size of the pit) and his hands and feet appear to have been bound; the pit was filled with chalk rubble, soil and 'domestic debris' (Bell, 1977, 81; Concannon, 1977, 81-83). Where features can be thus attributed, it appears that the preferred storage method shifted away from the above-ground storage structures which dominated the earlier period in favour of below-ground storage in pits (Bell, 1977, 134).

E04 - Black Patch

Modern heavy ploughing threatened a settlement site situated on the western slope of a dry valley some 3 km west of the River Cuckmere, prompting Peter Drewett and the Sussex Archaeological Society to excavate in 1977 - 80, to recover archaeological data before it was obliterated. The site comprises an area of small rectangular fields marked by lynchets which were entered from the east by a hollow way and double lynchet trackway and set within those fields is a series of at least four 'hut platforms' and seven enclosures (many of which could also be hut sites) (Drewett, 1982b, 321).

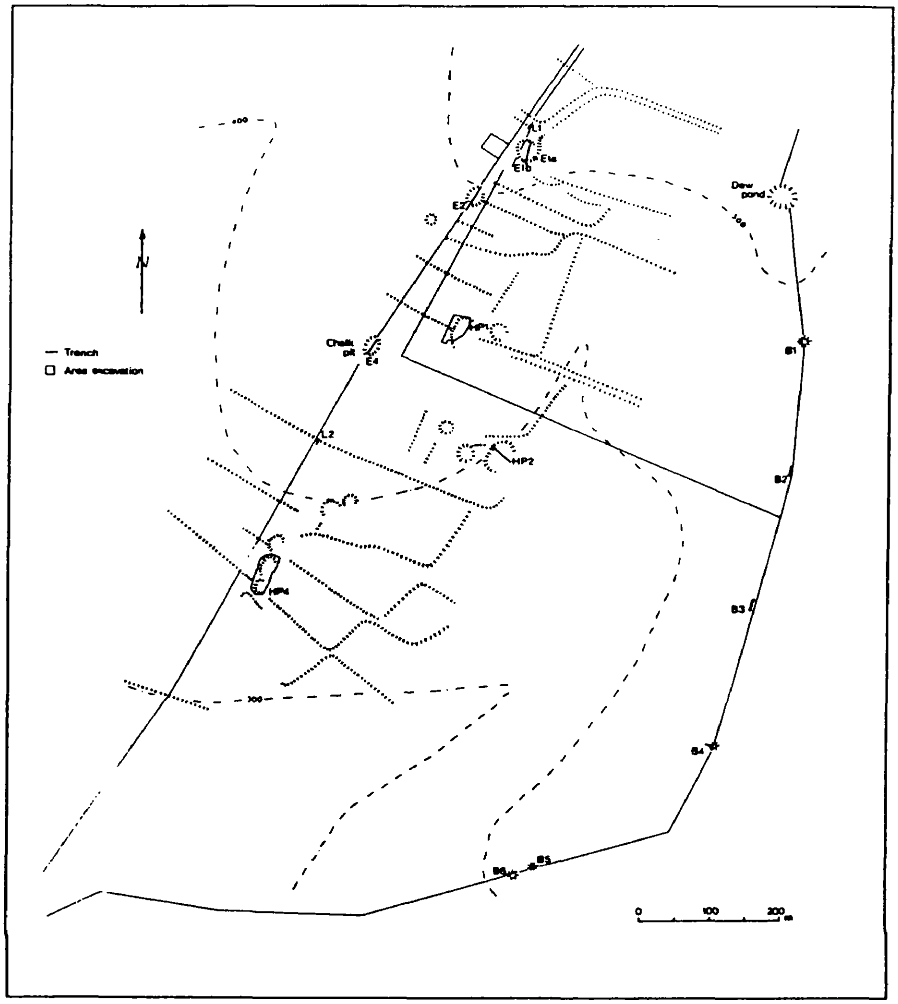


Figure E.9 - The Black Patch site and its field system (source: Drewett, 1982b, fig. 3)

The hut platforms are roughly in a line, with a distance of c200 metres between Hut Platforms 1 and 2, 200 metres between 2 and 3 and 150 metres from 3 to 4 (Drewett, 1982b, fig.3). Of those, hut platforms 1 and 4 have been fully excavated.

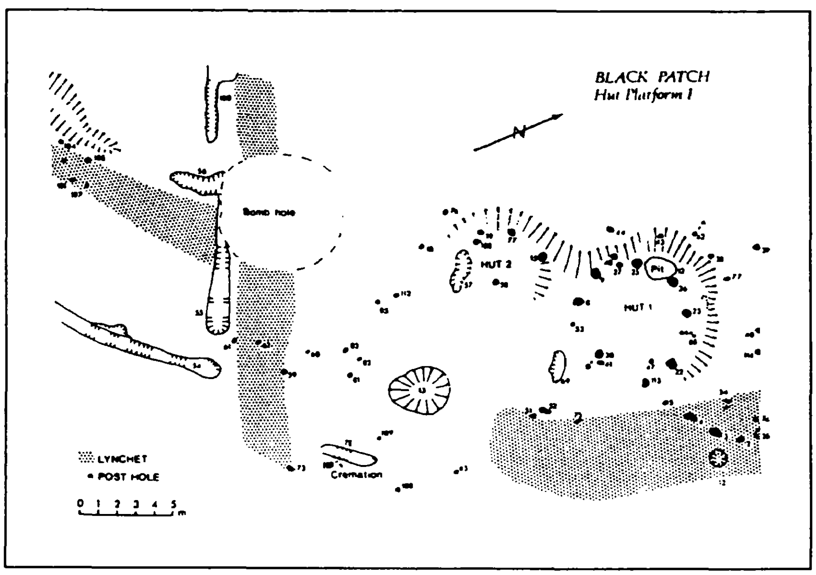


Figure E.10 - General plan of hut platform 1 (source: Drewett, 1982b, fig. 14)

Hut platform 1 was set in the corner of a pre-existing field originally marked out by a ditch system against which lynchets had developed and it housed a circular structure on an 8 metre diameter terrace (Hut 1) and a slighter, second terrace thought to have been for a simple, rough shelter, together with what may have been two ponds (Drewett, 1982b, 347). The huts produced so few artefacts that the excavators believe that they were systematically cleared before desertion (Drewett, 1982b, 347).

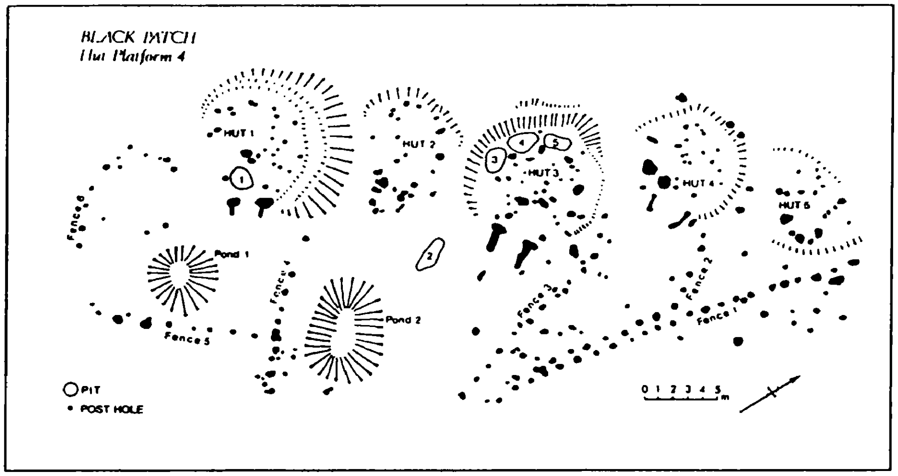


Figure E.11 - General Plan of Hut Platform 4 (source: Drewett, 1982b, fig. 4)

Hut Platform 4 comprises a north-south bank, extended to an enclosure by fencing. Within the area enclosed are five hut terraces each containing post-holes indicating round huts which are grouped by fencing, together with two ponds and several single postholes and post clusters (Drewett, 1982b, 325). The levelled terrace of the hut one structure is c 7 metres diameter in a first phase, expanding to c 8.5 metres diameter at some later point, in an arrangement which enclosed a pit and which is thought to have been constructed by extending the roof onto the bank behind (Drewett, 1982b, 325-326, 328). Similarly, hut three was built on a terrace c 8 metres diameter and contained three oval pits. The hut four structure is a little smaller on a c 7 metre diameter terrace and huts two and four smaller still at 5 and 6 metres diameter, respectively. Assemblage analysis of the five round structures revealed an interesting non-uniformity of purpose, suggesting to the excavators that hut one was essentially for food preparation, hut three for craft and storage and hut four housed elements of both; huts two and five had little in the way of associated artefacts and may have been used primarily for animal sheltering (e.g. for lambing and calving) although flint knapping apparently also took place there. (Drewett, 1982b, 383-340).

An important question asked of this site was whether it represented nucleation on a scale unprecedented in Bronze Age Britain, or whether the house platforms replaced each other over time (Cunliffe, 1991a, 31-32). To explore that, further information was sought by cutting a transect sample across house platform two which located the edge of a small hut terrace and a scatter of post holes, but few artefacts and no organic material suitable for radiocarbon dating. (Drewett, 1982b, 346-347). Transect samples across two of the seven 'enclosures' (as opposed to 'house platforms') also revealed that they contained structures (probably of huts), one or more pits and, possibly, a pond (enclosure one) (Drewett, 1982b, 347-348) and, therefore, were not solely stock enclosures.

Three radiocarbon determinations were obtained from hut platform four giving 830 +/- 80 bc (HAR 2939), 1070 +/- 70 bc (HAR 2940) and 840 +/- 70 bc (HAR 2941) which were calibrated to 1300 - 1100 cal BC using the Suess curve (presumably to one sigma) (Drewett, 1982b, 343). A single pit in hut platform one also provided three dates, namely 1020 +/- 80 bc (HAR 3735), 1130 +/- 70 bc (HAR 3736) and 900 +/- 70 bc (HAR 3737), calibrating to c1360 - 1150 cal BC (Drewett, 1982b, 347). Further work may have been done on these dates, to improve the calibrated result, as Needham's (1996a, 135) authoritative revision of Bronze Age periodisation and dating cites the calibrated date sets as centring on median values of 1015 cal BC and 950 cal BC, respectively. The range of dates is remarkably narrow whichever set is considered and has proved valuable in establishing a marker for the highly consistent, large ceramic assemblage (paralleled at Itford Hill E31). Taken together, the evidence suggests that the huts within hut platform four, taken as a whole, were occupied for a period less than 50 years (Drewett, 1982b, 343). Although the evidence from hut platform one is comparatively slight, the radiocarbon dates are consistently earlier than those for hut platform four and the clearance evidence suggests movement to another location on the site whereas hut platform four's assemblage suggests movement away from the site leaving heavy objects behind (e.g. loomweights) (Drewett, 1982b, 342-343). Furthermore, the pre-existence of fields beneath hut platform one suggests movement onto that site from elsewhere. The spatially intermediate hut platform two could not be dated and three was not excavated. Overall, somewhat tentatively, it seems likely that the hut platforms were not fully contemporary to the extent of representing a large nucleation but, rather, represent some movement of the population in a down-slope direction.

The eleven round barrows in the immediate vicinity were all investigated by survey and by excavation where possible. Nine of them can be attributed to a period earlier than settlement but two may be platform barrows of middle Bronze Age date (numbers four and eight) but contemporaneity cannot be established conclusively (Drewett, 1982b, 352-361).

E05 - Caburn

The Mount Caburn hill is a prominent, domed landmark some 3 km south-east of Lewes and was occupied from at least the C 6th BC but first formally encircled at a later time.

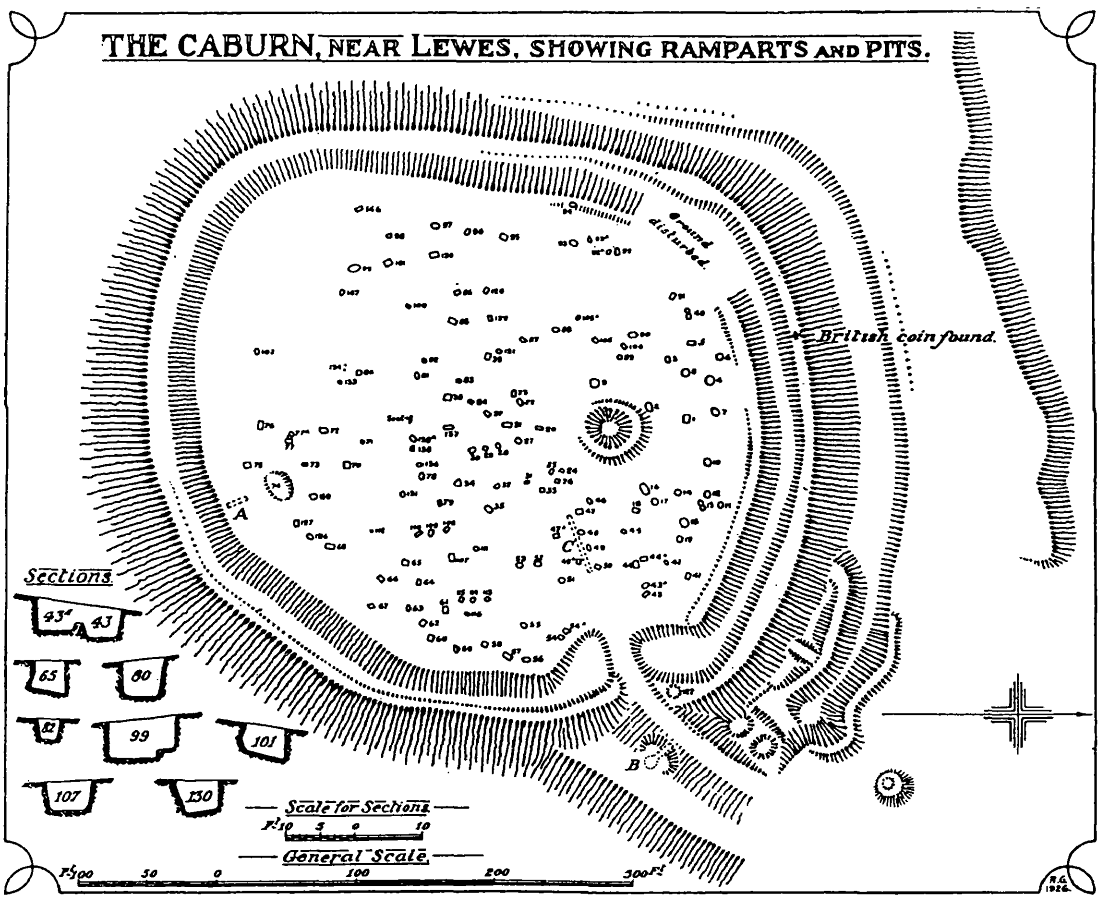


Figure E.12 - General site plan of Caburn pre-1996 excavation (source: Curwen and Curwen, 1927, Pl. 1)

The area enclosed is comparatively small at 1.4 ha and has attracted a great deal of archaeological interest since first examined by Pitt Rivers in the nineteenth century. Pitt Rivers dug sections through the banks and ditches at the north-west of the site and removed the contents of some pits, followed by Eliot and E. Cecil Curwen in 1925 - 26 who removed the contents of the known pits remaining (Curwen and Curwen, 1927) In 1937 - 38, AE Wilson continued investigation by cutting a couple of sections through the ramparts and gutting the entrance, inviting Christopher Hawkes to report upon the pottery (Wilson, 1938; Hawkes, 1939b). The age of the excavations and the state of knowledge at that time has resulted in something of a gap in the understanding of this important site, prompting further exploration by the Sussex Archaeological Society starting in 1996 and ongoing. This work is not published to date, although an idea of the extent and key findings has been reported by Drewett and Hamilton (1996). Of key importance is the discovery of a particularly large roundhouse (details not known) associated with an assemblage interpreted as 'high status' (Drewett and Hamilton, 1996, 6; Hamilton, pers. comm.) built before enclosure, probably in the 600 - 400 BC period (Hamilton, pers. comm.).

During the first millennium BC the bank, seen as an inner bank today, was built with an external ditch. Wilson (1938, 174) thought it likely that it was of a timber-framed, wall-and-fill construction but Avery (1993, 65) has convincingly challenged those findings, reinterpreting the evidence as indicating an unretained dump. The ditch was a steep-sided V-shape in profile, 2 metres deep and originally 3.5 metres wide. The sole entrance, at the north-east, was extensively excavated to reveal a funnel-shaped passage extending about 7.5 metres inwards from the front face of the rampart on the left-hand-side of the passage mouth. The sides were lined with upright timbers set in slots and the passages terminated at a gate at the inner-most end. The passage narrowed from c 3.8 metres wide at the outer face to about 2.5 metres between the gateposts and it is likely that the gateposts were replaced at least once. On the northern side of the entrance the main ditch ended c 7 metres short of the passage mouth and a short length of a shallower ditch was dug at right angles to the bank, flanking the entrance route for at least 7.5 metres. Material from that ditch was dumped to form a bank which was probably retained by timber. (Avery, 1993, 65-67). The outer bank and ditch which give the partial bivallate appearance today is thought to be post-Roman (Avery, 1993, 66).

The dating of this site has been under some revision given the most recent excavation, but from scant publication it seems likely that the first formal enclosure falls within the 400 - 100 BC period on the basis of ceramic evidence; in particular, the turf line under the bank contains early ware but also a saucepan pot sherd (c300 - 100) and the dump material also contains saucepan pot sherds (Hawkes, 1939b, 229; Hamilton and Manley, 1997, 101).

Although the site was developed by extending and enhancing the enclosing banks and ditches, to the form extant today, this is unlikely to have occurred before Roman occupation of Britain (Avery, 1993, 67) and a study of the contents of the rectangular pits within by Malcolm Lyne suggests that many may have been Romano-British (Drewett and Hamilton, 1996, 7) which tends to support the view that the Caburn site was unoccupied and little visited in the late Iron Age period (tacit in its exclusion from the Hamilton and Manley (1997, 104-107) analysis). Furthermore, where there are pottery attributions to the late Iron Age period they may represent residual material from the Romano British use of the site.

E07 - Castle Hill, Newhaven

Castle Hill lies on the west side of the River Ouse overlooking the entrance to Newhaven harbour (Field, 1939, 263) and delineated by the crumbling cliff to the south. This site has never been excavated under the direction of an archaeologist but mechanical extraction of flints from extensive areas of the hilltop in the 1930s uncovered a very large quantity of pottery (Field, 1939, 265-267; Hawkes, 1939a, 269-292) representing continuity of occupation throughout the first millennium BC from a date sometime in the period 750 - 600 BC. This is supported by evidence of the metalwork hoard also recovered from the site (Hamilton, 1993, 191, 341). Unfortunately, no stratigraphic relationships were recorded and no details of site structure have been recovered although it is possible that cliff erosion has caused the loss of defining earthworks, into the sea (i.e. of the 'promontory earthwork' type as seen locally at Seaford Head E54 and Belle Tout E02).

E08 - Chanctonbury Ring

Situated in a highly visible spot on a long, narrow plateau on the very northern edge of the Downs, Chanctonbury Ring is an oval-shaped, slightly banked and ditched enclosure of c 1.25 ha (Bedwin, 1980, 173-174).

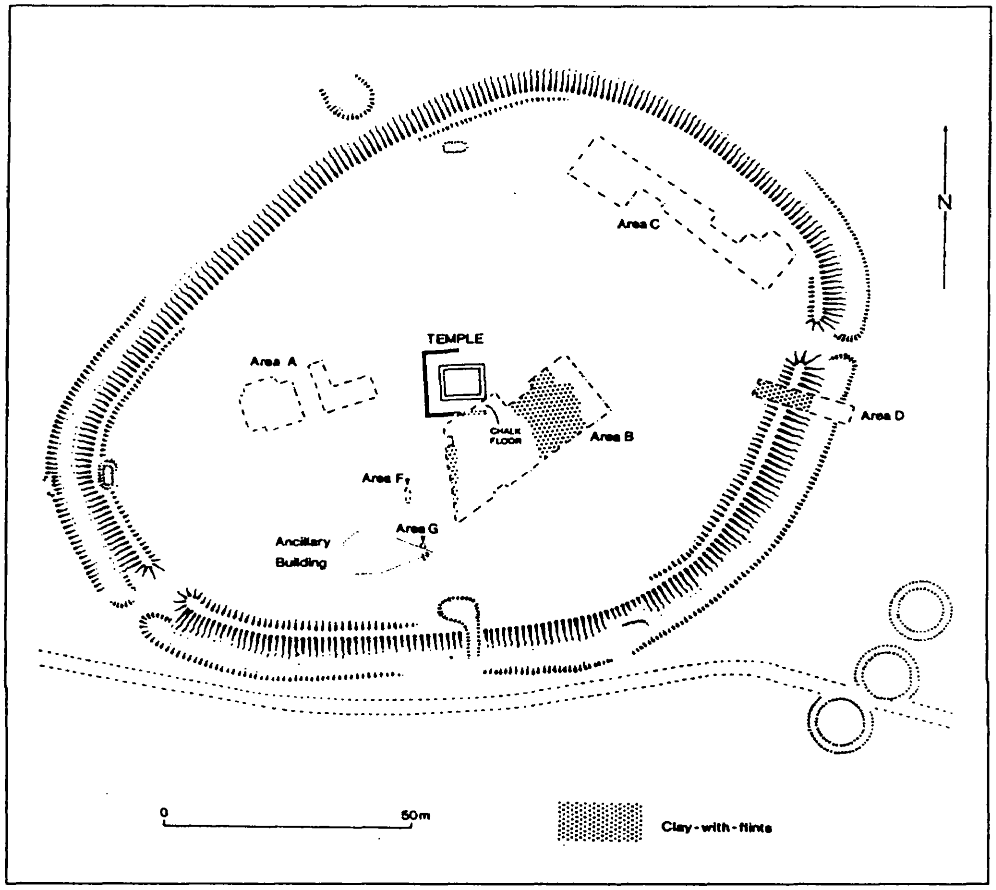


Figure E.13 - General site plan of Chanctonbury Ring (source: Bedwin, 1980, fig. 2)

The bank is of a simple dump construction and there is no evidence of any superstructure retaining it in the first millennium BC (Bedwin, 1980, 182-183). A replanting programme provided an opportunity for excavation in 1977, aimed at examining the origins of the centrally-placed Romano-British *cella* type temple previously known at this site. That work provided limited information on the ditch and bank construction whilst also covering c10% of the interior, somewhat randomly spread (Bedwin, 1980, 176-185).

Features attributable to the first millennium BC are the first construction of the bank and ditch, a pit (feature 110) and two postholes (features 305 and 307) (Bedwin, 1980, 177-182). This does not represent permanent occupation in itself and it seems reasonably unlikely that such evidence would fail to manifest given the excavation strategy.

The dating evidence, based upon pottery technology and typology analysis, suggests that the site was enclosed in the C 7th BC and the features discussed (above) date to the same time, but that the period of frequent use was very limited (not beyond the end of that century) and may have been followed by intermittent visits, with none indicated after c400 BC (Hamilton, 1993, 197-198, developing and enhancing the original report and opinion expressed by Hamilton, 1980, 196-203). The excavator suggested that the site may have had some religious significance in the first millennium BC, an idea based upon the general observation that Romano-Celtic shrines often superseded earlier religious structures and the more specific point that the 1337 sherds of first millennium BC pottery found may represent as few as 25 vessels, suggesting deposits in the nature of votives (Bedwin, 1980, 185-186).

After the storm of 1987, English Heritage set in motion an application for Scheduled Monument Consent and commissioned an archaeological assessment involving trial trenching, which located more of the Romano-British temple site (Anon, 1993, 58-60). That work has not been formally published to date but a follow-up note reports that the temple site included a relatively large number of examples of both 'Iron Age' (not dated) and Roman small bronze boar figurines, leading to speculation that this may represent a local cult of the pig with some longevity (Anon, 1992, 3). However, the argument for continuity of purpose is somewhat challenged by the absence of any evidence at all for visits during the 500 years from C 4th BC to AD C 1st (Bedwin, 1980, 186), by the overwhelming bias in favour of coarseware pottery (c90%) (Hamilton, 1993, 178) and by the palaeoenvironmental evidence for short tufted grassland suggesting some grazing of the interior (Hamilton, 1993, 198).

Taking all of these points together, it does seem probable that the enclosure was associated with the pastoral strategy for the neighbourhood and that may have included forays into the Weald, as the pottery fabric suggests sources in the Weald as well as the immediate Downland locale (Hamilton, 1993, 184) but the case for continuity of an element of 'religious' practice associated with the pig is strengthening and cannot be disregarded; it is not beyond the bounds of possibility that this could have developed from a pig specialisation associated with this site.

E09 - Charleston Brow

The downland settlement site at Charleston Brow, near Firle Beacon, is sketchily described in the report of an early excavation (Parsons and Curwen, 1933) which records the investigation of two 'separate' settlement areas connected by a trackway. The 'southern site' has been planned, as shown in figure E.14, below.

The site is described as being a rectangular area c 5.5 * 4 metres, defined by a depression c 15-30 cm below the surface of the surrounding ground with a 60 cm gap in the south-east side which is likely to have been the entrance (Parsons and Curwen, 1933, 166). The north-west side is broken by a pit which contained numerous potsherds and a second pit was located just outside the rectangle in the western corner which contained a quantity of calcined flints (Parsons and Curwen, 1933, 167-168).

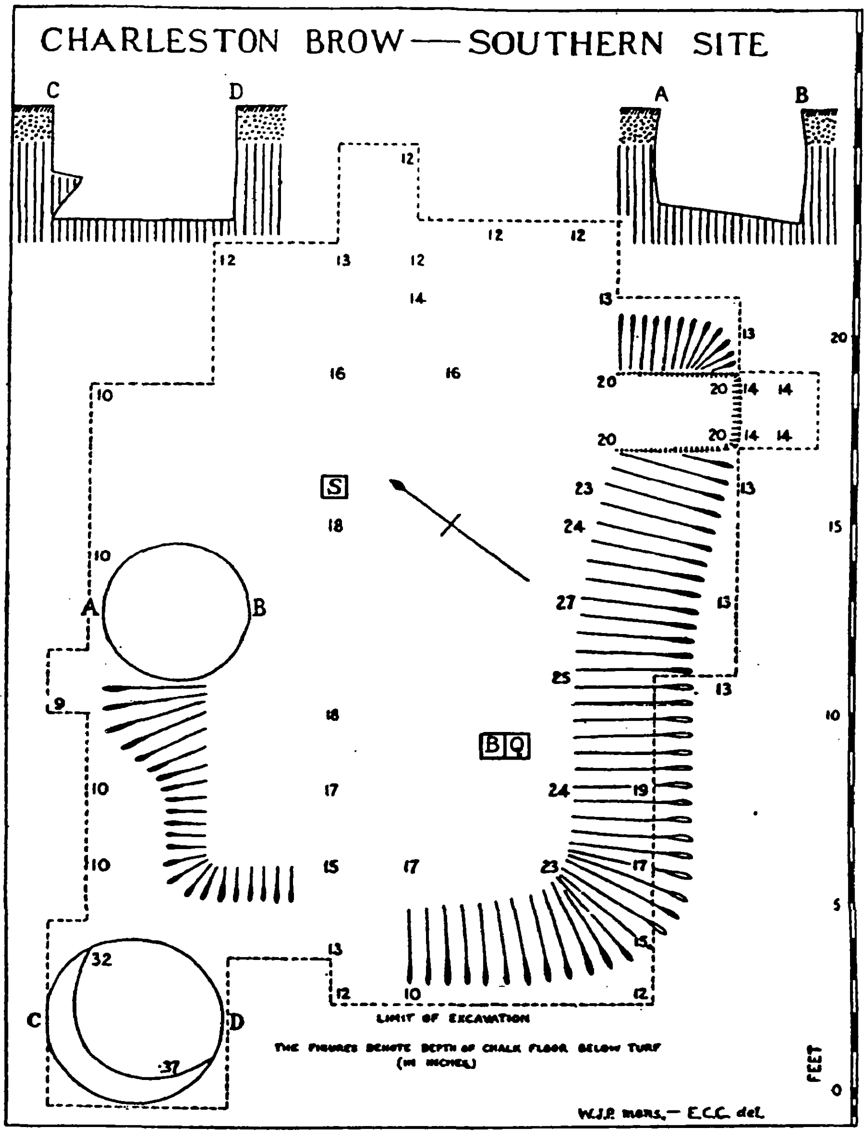


Figure E.14 - Plan of Southern site at Charleston Brow (source: Parsons and Curwen, 1933, Plate II)

Inside, the considerable assemblage included a bronze belt link, three conjoined bronze rings, a small segment of a bronze sword, a saddle quern and 19 quern fragments as well as other worked stone and bone and clay fragments and a good deal of pottery making an assemblage which starts with saucepan ware (if not earlier) and continues into the late Iron Age (Parsons and Curwen, 1933, 168-173; Hamilton, 1993, 348-350) and on to the Romano-British period.

The northern site is not pictured in Parsons and Curwen's (1933) report but recorded as comprising a field c 86 * 46 metres featuring c 5 pits which contained potsherds, iron items, bronze items, iron slag and a number of Roman artefacts (Parsons and Curwen, 1933, 174-180). Additionally, a poorly preserved 'hut site' (no dimensions or description given) was located which contained a quantity of artefacts and material attributed to the late Iron Age and Romano-

British periods (Parsons and Curwen, 1933, 174-180), an analysis with which Hamilton (1993, 348-350) concurs.

E10 - Cissbury

The impressive univallate 'hillfort' with counterscarp bank at Cissbury, near Findon, is situated at c183 metres OD on the edge of the South Downs and commands extensive views to the south and east across the Coastal Plain to Beachy Head, west to the Isle of Wight and north and east toward the Weald (Donachie and Field, 1994, 25-26). The site has long attracted interest and was explored by Pitt Rivers in the nineteenth century but the only systematic excavation to be undertaken has been that of E. Cecil Curwen and Ross Williamson in 1930. They concentrated on attempting to date the site by excavation of sections through the surrounding bank and two small internal trenches (Curwen and Williamson, 1931). Fortunately, a comprehensive survey was undertaken by RCHM(E) in 1993, contributing considerably to the understanding of this site.

The enclosure delimits an area of some 24 ha, the 9 ha western part of which (both inside and outside the boundary) is riddled with at least 270 Neolithic mine shafts around the entrances of which there are lips of up to 3 metres in height (Donachie and Field, 1994, 27), rendering the area both dangerous and unusable for the building of structures of any size. The enclosure itself (as visible today) may have been preceded by a stockade on the same line although the slot under the excavated bank may equally have been the bed of a timber-retaining wall (Avery, 1993, 105-106). Either way, the first period bank was up to 3.9 metres above the interior in places, and considerably higher (up to 8.6 metres effective height) where it was built to take advantage of the steeply falling hill slope around a proportion of its length (Donachie and Field, 1994, 27). The bank was flat-topped and some 3 - 4 metres wide (Donachie and Field, 1994, 27). The outer ditch was steep-sided and flat-bottomed averaging 1.9 metres deep (up to 3 metres) and 5 - 6 metres wide (up to 9 metres) (Donachie and Field, 1994, 29) and surrounded, in turn, by a counterscarp bank.

Figure E.15 - General site plan of Cissbury (after Donachie and Field, 1994, fig. 1)

The entrances seen in the south and the east are original and the rampart terminals widened and raised on either side; the gap to the east is only 1.5 metres but the southern entrance was 3 - 4 metres wide and fronted by a well-defined causeway (Donachie and Field, 1994, 29). The bank was increased and the ditch re-dug at a very late pre-Roman, or Roman date (by ceramic evidence) but there is little to define the date of the first encirclement. A lynchet abutting the tail of the bank produced some *'really coarse . . . very gritty hard stuff and no finger-tip decoration'* (Curwen and Williamson, 1931, 29) leading Avery (1993, 105-106) to propose an Iron Age date which has subsequently been refined, in terms of interior occupation, particularly as evidenced by pits 29, 30 and 10, to the beginning of the middle Iron Age on the basis of saucepan pottery finds (Hamilton and Manley, 1997, 101-102).

The interior picture is confusing because there has been little excavation, the site has been continually used for agriculture and it was occupied by the military during World War II. By detailed survey and careful study of associations, Donachie and Field (1994, 29-30) have isolated a number of features as probably contemporary with first occupation, including division into a field system of plots some 0.2 - 0.5 ha, a double-lynchet track between the entrances and a 'honeycomb' of circular depressions ranging widely in size from 0.8 - 10 metres diameter. The rectilinear pits and platforms sized between 8 and 10 metres are thought to be later (Donachie and Field, 1994, 29). Enclosure *h* is a sub-rectangular ditch 0.6 metres deep and defining an 18 * 28 metre area which is surrounded by a bank on the outside some 0.6 metres high and 3.5 metres wide with an entrance at the north-west. This is thought to be earlier than the field system but could, of course, date to the Neolithic or the Bronze Age (Donachie and Field, 1994, 29-30). Thus, the question of interior occupation is uncertain although it is considered likely. However, the specific assertion of a particular roundhouse depression (Aldsworth, 1983, 198) has been cast into doubt by the survey (Donachie and Field, 1994, 30) and the counter-proposal that it could be the site of a much later beacon is made. Three possible ponds have been located (*j*, *k* and *l* on plan) (Donachie and Field, 1994, 30). For the purpose of this work, it is a pity that there has been no internal excavation but the view taken is that occupation of the interior in permanent structures in the 400 - 100 BC period was likely but not certain.

E11 - Cock Hill

The enclosed settlement site at Cock Hill is situated on the slope of the valley between Harrow Hill E23 and its easterly neighbour, Blackpatch Hill, facing Harrow Hill. The threat of destruction provided an opportunity for excavation by HBA and MM Ratcliffe-Densham over five seasons from 1952 - 1957.

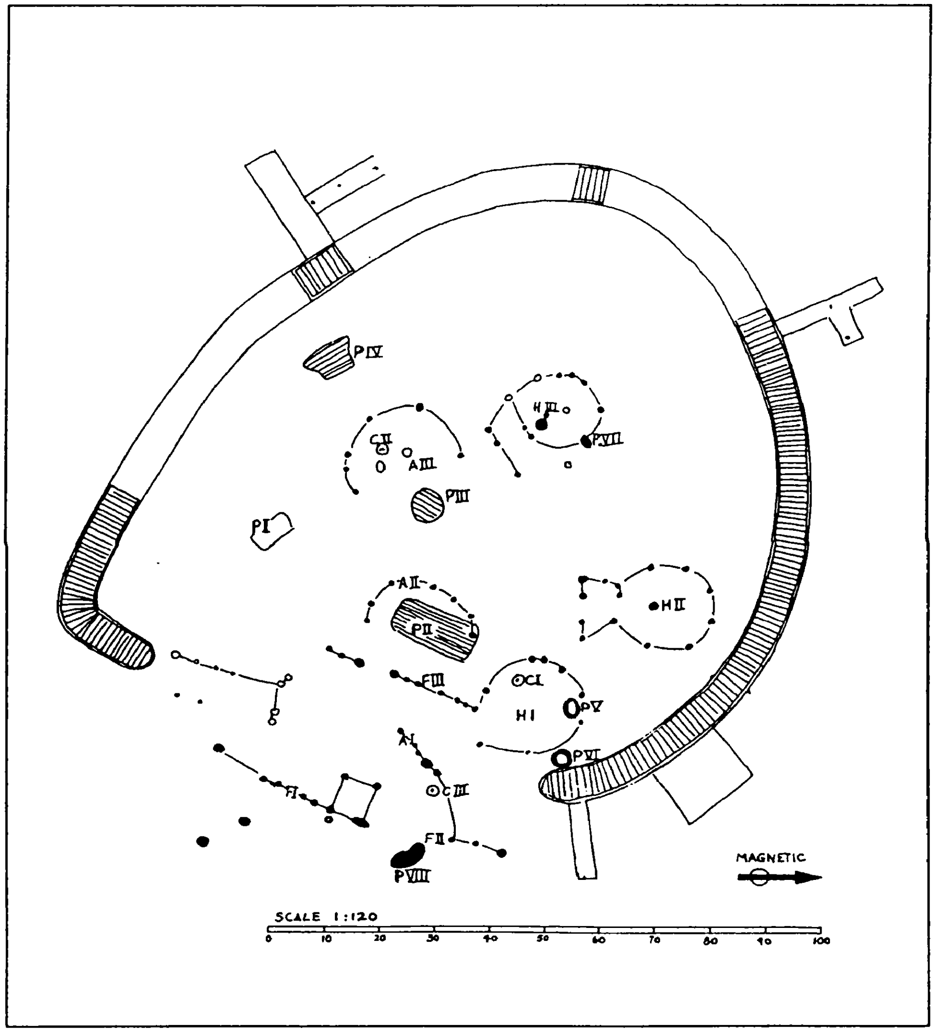


Figure E.16 - General Site Plan of Cock Hill (after Ratcliffe-Densham and Ratcliffe-Densham, 1961, fig. 2)

A low bank, only c 0.5 metres high but c 5 metres wide has been raised from a U-shaped ditch about 7 metres wide and 1 metre deep running three quarters of the way around the <u>interior</u> of the bank which delineates a very small area of c0.015 ha. Inside the enclosure are three clear roundhouses and associated fencing, banks, paths, ponds and pits. (Ratcliffe-Densham and Ratcliffe-Densham, 1961, 80-89)

The dating and longevity of occupation of the site is difficult to pin down with any accuracy, but the sequence of development events is fairly clear suggesting that the roundhouse H3 and the fenced semi-circle A3 were constructed at the same time, followed by the digging of the pond P1 and both of those events followed by construction of the ditch and bank. Roundhouse H1 and its associated structures followed, together with the entrance structure. There was a minor collapse of the bank into the ditch due to retained trees before roundhouse H2 was built. (Ratcliffe-Densham and Ratcliffe-Densham, 1961, 89-91). However, that sequence could have developed without any appreciable break and thus represent a short period only.

Beneath the bank, 'middle Bronze Age' sherds were found but the remainder of the pottery assemblage is designated 'late Bronze Age' or 'early Iron Age' by the excavators, apart from a few Roman and medieval sherds, viewed as insignificant in interpretation of the site (Ratcliffe-Densham and Ratcliffe-Densham, 1961, 97-98, plates IV a, XI a). Unfortunately, few sherds are illustrated in the excavation report as published but the assemblage is described as comprising '*great quantities of sherds from plain, bucket shaped Deverel-Rimbury pots'* with *'rims all absolutely plain and the bases flat'* and made from rough paste, containing much coarse flint grit and very badly fired (Ratcliffe-Densham and Ratcliffe-Densham, 1961, 97). Decoration was either absent or consisted of applied bands with, or without, applied fingertip impressions. Other vessels were barrel shaped (Ratcliffe-Densham and Ratcliffe-Densham, 1961, fig. 4) and yet others had applied lugs (Ratcliffe-Densham and Ratcliffe-Densham, 1961, fig. 5). Hamilton (1993, 338) argues that plain, straight-sided and convex jars with flat-topped rims are a typical coarseware form in assemblages dated to 1000 - 750 BC and that description applies well to the jars illustrated in the Ratcliffe-Denshams' (1961) report. Furthermore, she adds that the coexistence of slab construction and coil techniques and very coarse flint fabric inclusions are also typical, although that extends into the subsequent period (750 - 600 BC) (Hamilton, 1993, 337-341). Without the advantage of reviewing the assemblage in its entirety and applying Hamilton's (1993) analysis criteria, the best assessment of the evidence is that it is probable that the site was occupied at some time between C 10^{th} - C 8^{th} BC but possible that it was as late as C 8^{th} - C 7^{th} BC.

E13 - Devil's Dyke

This 15 ha promontory enclosure has been the subject of extremely limited excavation in the interior, comprising only a small trench ('site A' in figure E.17, below) on the site of a suspected circular hut said to have been surrounded by a shallow ditch 0.6 metres across, delineating a circle of 8.8 metres in diameter with three depressions within (Burstow and Wilson, 1936, 195-197).

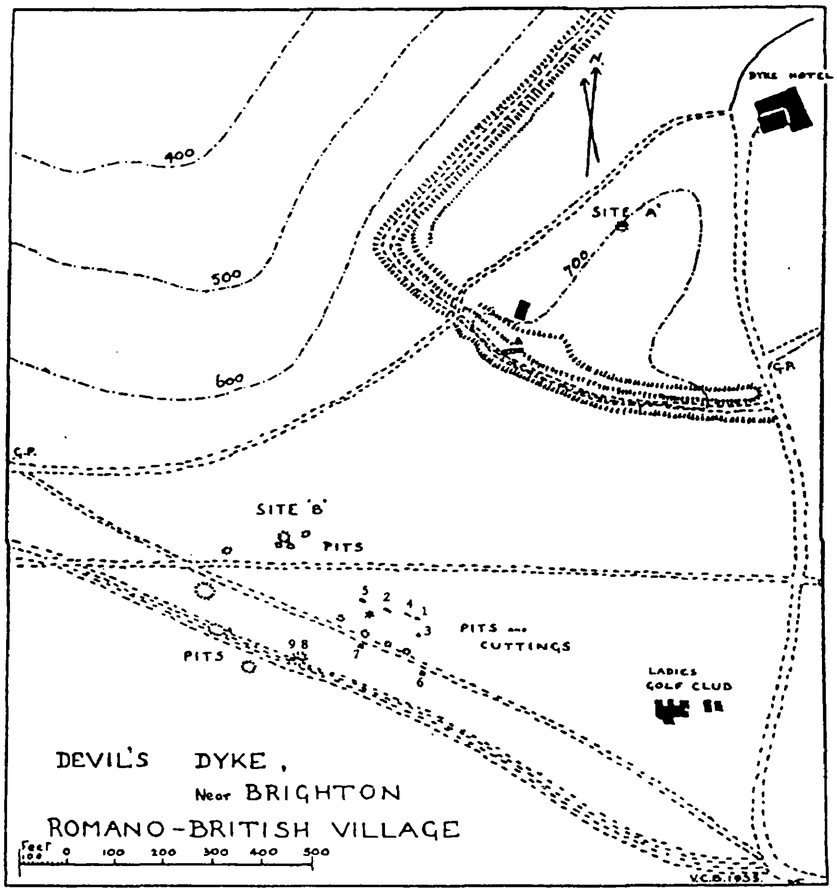


Figure E.17 - General Plan of part of the Devil's Dyke site, overlain with plan of roundhouse at 'Site A' (Source: Burstow and Wilson, 1936, 196, 197)

Postholes were searched for but not found but the depressions proved to be three relatively small internal pits and a fourth was discovered to the west of the hut site (Burstow and Wilson, 1936, 197). Pit 2 contained *'about 30 fragments of pottery'* (Burstow and Wilson, 1936, 197) and Hawkes (1936, 201) in his analysis of the ceramics from this site and a nearby Romano-British site ('site B' on figure E.17, above) specifically notes that a rim found in pit 2 *'need indicate no earlier date than Claudian, i.e. ten or twelve years from AD 43'* (Hawkes, 1936, 201) although recognising that the ware in question has occurred elsewhere as imports in the pre-Conquest period. Further excavation took place outside the enclosure (see figure E.17, above) but, just as for the interior site, very few details are recorded. In pit 7, a silver coin was found of *Epaticcus* which indicates a date of deposition after c AD 1-20 and other pottery, not singled out by context, is generally described as La Tène III, largely wheel-made and *'often clumsy'* which could indicate a date from c50 BC onward. Thus, by indirect association, Hamilton and Manley (1997, 104) find it just possible that this could have been a late Iron Age 'hillfort' uniquely located on the Downs.

E14 - Ditchling Beacon

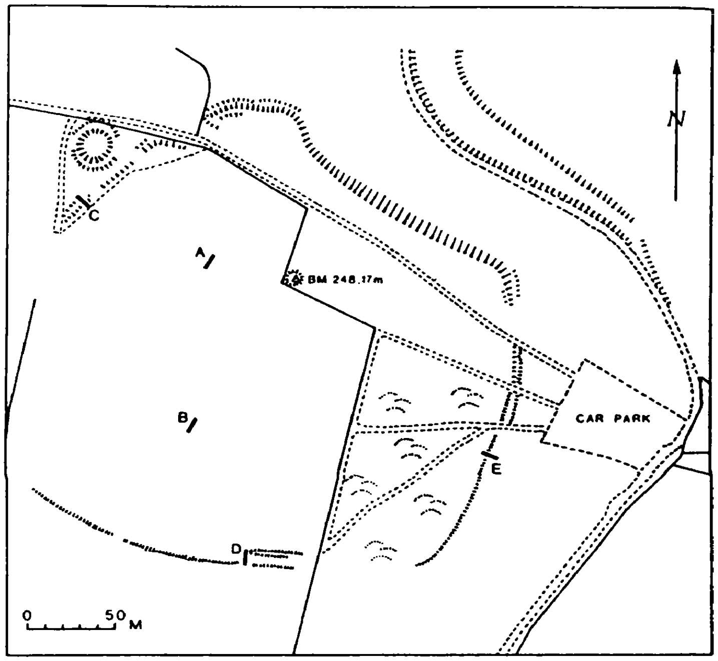


Figure E.18 - General site plan of Ditchling Beacon (source: Rudling, 1983, fig. 14)

Situated on the northern edge of the Downs and with views so extensive that the location is a noted viewing spot today, this site is on arable land and has been extensively ploughed out even in the 60 years between first excavation (directed by DA Crow and Ross Williamson in 1929) and the more recent exploratory work of David Rudling (1983, 251-254). Excavation of the interior (two small sample trenches) found only three flint-gritted sherds and a few charcoal flecks (Rudling, 1983, 251), scarcely allowing any assessment of whether there was human occupation on any scale. Three trenches through the earthworks enclosing brought to light a shallow ditch (1 metre deep and 3 metres wide) but few traces of a bank survive (Rudling, 1983, 251-252) , although it must have been fairly slight given the capacity of the ditch. Where it does survive, a few small sherds of pottery characteristic of the East Sussex late Bronze Age/ early Iron Age suggest that it was built in the 600 - 400 BC period (Hamilton and Manley, 1997, 97-

98), a finding which is reinforced by the radiocarbon date of 902 - 340 cal BC (HAR-5935) associated with a piece of antler in the lower ditch fill (Bedwin, 1983a, 253; Hamilton and Manley, 1997, 97-98).

E18 - Garden Hill

Set on a spur of high ground in the High Weald, Garden Hill is an enclosure annexing c2.7 ha defined by a steep natural escarpment on the north, south and east and with a more level approach from the west.

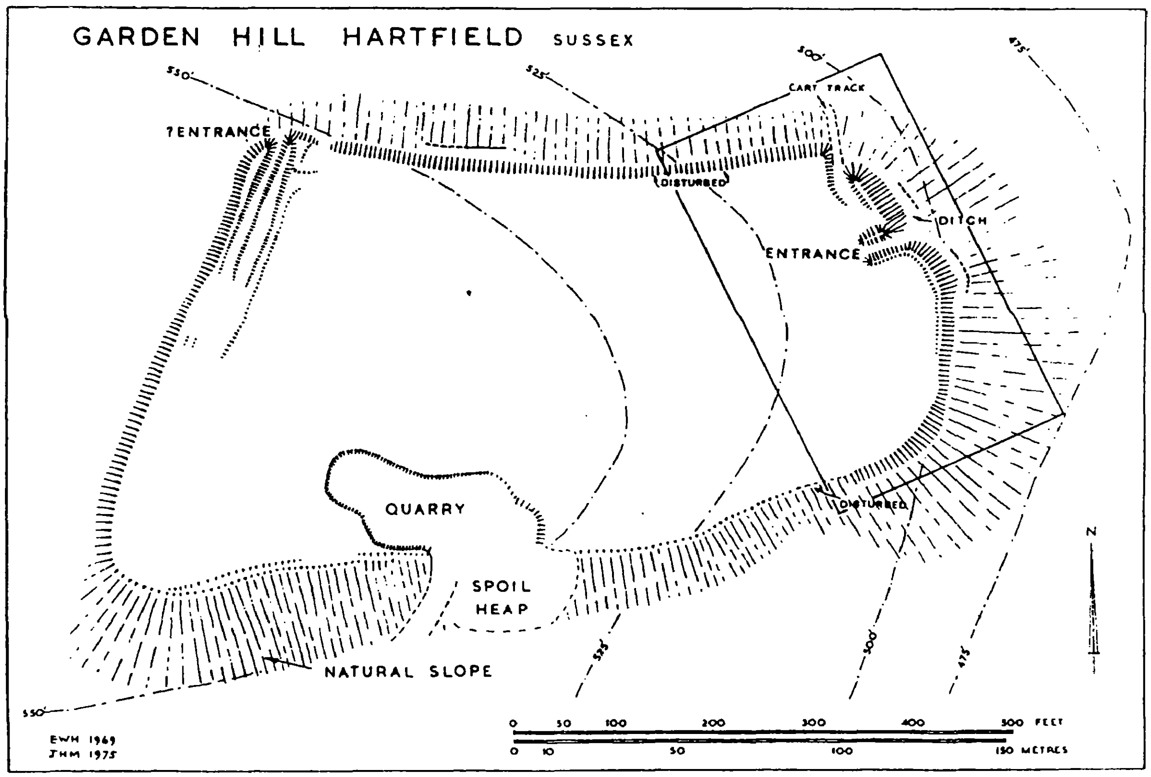


Figure E.19 - General site plan of Garden Hill (source: Money, 1977, fig. 2)

The site was discovered by CF Tebbutt in 1968 in an area now tree covered and he realised its antiquity by re-excavating a military trench (which ran along the enclosing ditch) to discover pottery dating to the late Iron Age and later (Tebbutt, 1970, 39, 43-48). The discovery prompted a more concerted excavation exercise directed by John Money over eleven seasons (1972 - 82) (Money, 1977, 339; Grew, 1984, 330) and which has been reported in brief note form; full publication is planned for the *Sussex Archaeological Collections* (Money, 1977, 348) but not available at the time of writing.

Use of the site has been multi-period and there may have been some early use of the site (perhaps just visiting) in the Neolithic and the Bronze Age (Money, 1977, 343-344). The late Iron Age phase is locally referred to as 'Period II' (Money, 1977, 344). Tebbutt's (1970, fig. 2) work discovered that the bank had been revetted by a drystone wall and backed by an irregular line of close-set postholes suggesting a palisade (Tebbutt, 1970, 43-45). There is an in-turned entrance to the east and further excavations confirm Tebbutt's finding that the banks were stone-revetted and palisaded (Money, 1977, 344). A metalled road ran through a double-gated passage, across a ditch which was broad and flat bottomed (dimensions not reported) (Money, 1977, 344). Stone from the revetting was found in the bottom of the ditch and the absence of any silt between suggests that the bank collapsed or was slighted soon after construction (Money, 1977, 344). No dating evidence for the act of enclosure is mentioned in the interim reports but Hamilton and Manley (1997, 105) refer to '*. . . no stratified evidence to date its Period I rampart. The Period II rampart produced Early Iron Age sherds and Middle Iron Age saucepan pottery from low down in its ditch silts, suggesting that the site might have been enclosed by the Middle Iron Age. The greater evidence, however, is for late Iron Age and Romano-British activity . .* '.

Investigation in the interior revealed a number of features (figure E.20, below) and those marked 'II' are probably late Iron Age. Most notably, those features include two gully-defined roundhouses; 'D' has a simple gap entrance to the north-east and is c11 metres in diameter (Money, 1977, 344; Grew, 1980, fig. 23) and 'G' has east and west facing porches and a diameter of c12 metres (Goodburn, 1978, 467).

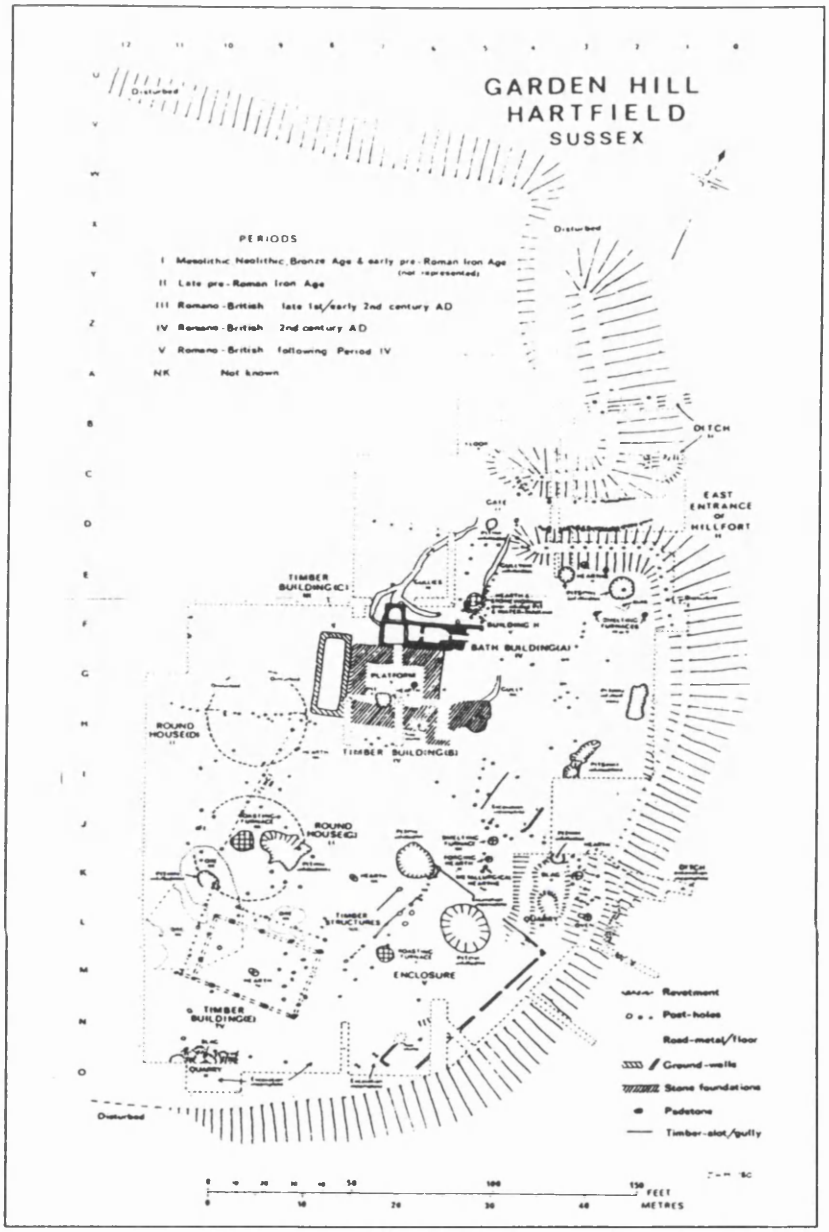


Figure E.20 - Excavated interior of Garden Hill (source: Grew, 1980, fig. 23)

Dating is presumed to have been on the basis of ceramic associations, although not made explicit, and roundhouse 'G' was demolished in the AD C 1st (Goodburn, 1978, 467)). It is evident that a third roundhouse has been discovered to underlie the building shown as 'B' on the plan (figure E.20, below, at G6-7/H6-7) (Grew, 1982, 392; 1984, 330) but no plan has been published, to date. Other Period II features include a metallurgical hearth used for forging ('K' on plan, below) which has been tested using archaeomagnetic principles, producing a date of not later than the turn of the first millennium BC (Grew, 1980, 400). Archaeomagnetic dates have also been determined for a hearth and a baking oven dug into the bank and both of those are mid C 1st BC (Grew, 1980, 400).

E19 - Goosehill

Lying on the steep, eastern slope (lee-side) of the windswept Bow Hill ridge, Goosehill is an unusual site enclosing c1.6 ha within two wide-set, concentric rings of inner banks with outer ditches. The inner ring is the more substantial and protects at least one hut structure (and at least two more are suspected) and may well be contemporary with the outer, with offset entrances (inner to the down-slope south and outer to the west and to the east). (Boyden, 1956, 75-85).

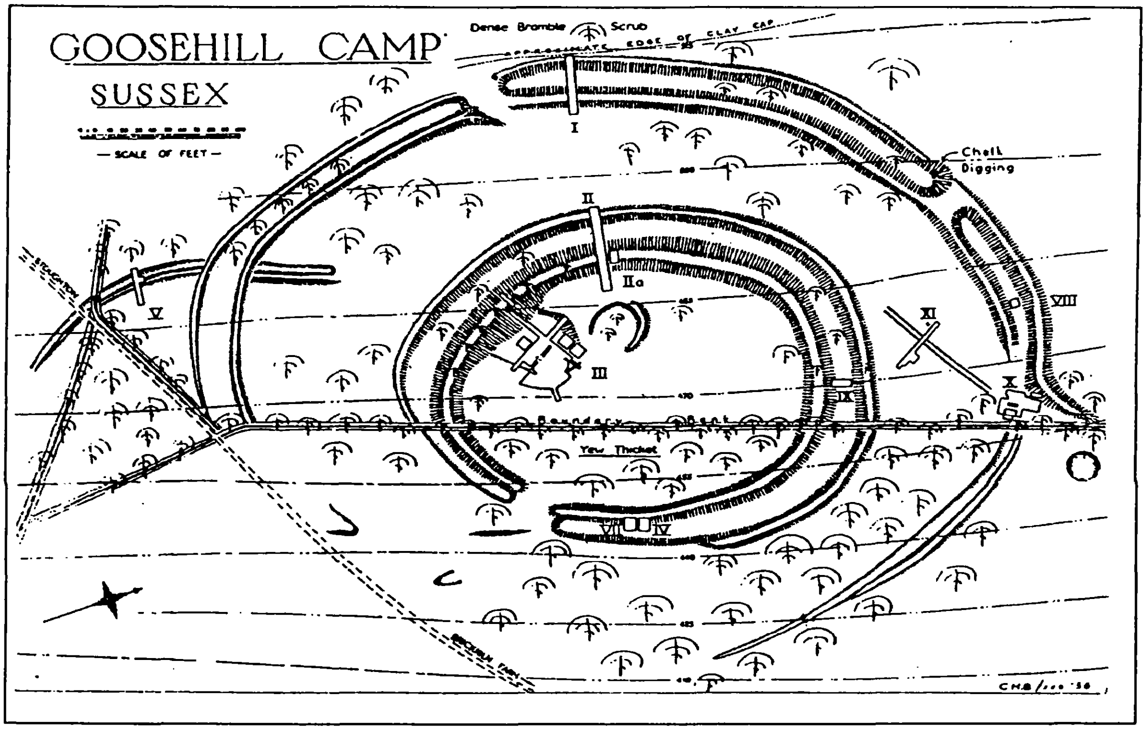


Figure E.21 - General site plan of Goosehill (source: Boyden, 1956, fig. 2)

Despite being as recent as 1953 - 55, JR Boyden's excavations, in the difficult conditions of a degree of waterlogging and heavy undergrowth, were not published to a modern standard. As a result, contextual and stratigraphic details are rather difficult to elucidate, an unfortunate circumstance on this rather interesting site.

The inner ring surrounds c0.3 ha by a steep, V-shaped ditch some 1.7 - 1.8 metres deep and perhaps 2.5 metres wide originally with an inner unretained bank which could not have stood any higher than 2 - 2.5 metres at most (Avery, 1993, 166; Boyden, 1956, 75-85). The outer enclosure of c1.6 ha (*in toto*) was rather greater at the up-slope (presumed to be due to landslip into the down-slope ditch, inevitable given the slope of the site) but was V-shaped, also, and c1.5 metres deep and 2.4 metres wide at the greatest part, suggesting a rather slighter bank than the inner.

Pre-enclosure use of the site is indicated by a small, curving ditch overlain by the outer bank and ditch at the south of the ring but no finds at all were located in a 3 metre section rendering it undateable (Boyden, 1956, 83). The lower ditch fill and the hut floor of the inner circle produced pedestal bases and round-shouldered pottery forms which Hamilton and Manley (1997, 97-98) have been able to date to c500 - 300 BC but the trench through the outer ring produced only two sherds of a coarseware in lower levels (Boyden, 1956, 75-76), which cannot be dated.

In the vicinity, to both the east and the west are lynchets and a substantial linear earthwork which suggest contemporary field systems at a short distance but these have neither been excavated nor dated (Boyden, 1956, 92-93).

E22 - Hammer Wood

Situated close to the northern edge of the Greensand belt which runs along the foot of the South Downs, the multivallate 'promontory' enclosure of c 3 ha in Hammer Wood straddles a ridge (Boyden, 1958, 149-150).

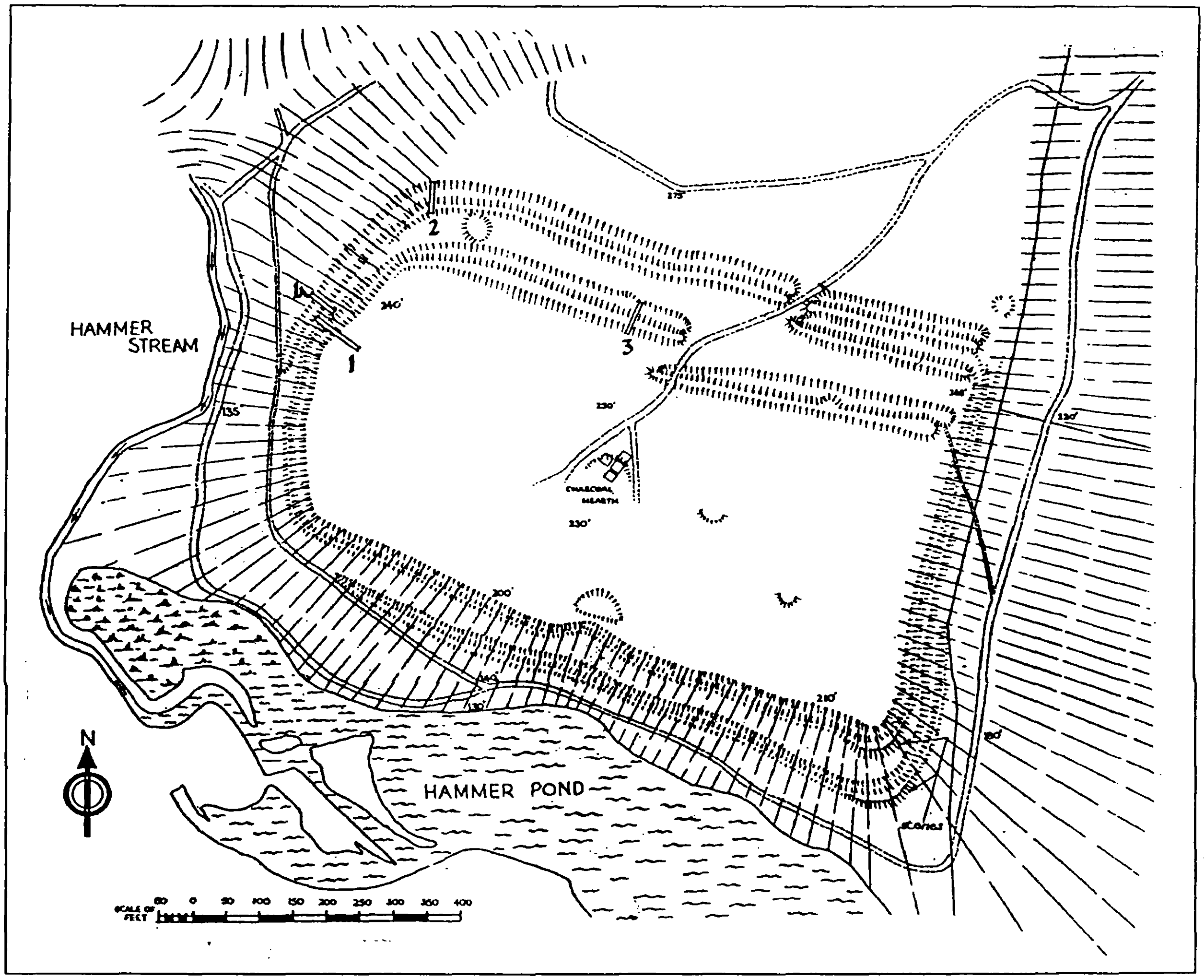


Figure E.22 - General site plan of Hammer Wood (source: Boyden, 1958, fig. 1)

Across the ridge is an offset entrance to the north-east, through two banks (c 2.5 metres above the silted ditch as they stand today) (Boyden, 1958, 149) and those banks continue around the steep sides of the ridge, although they are less substantial in those quarters, except in the south-east corner where they have been strengthened by the addition of outer bastions in stone work where a long natural ramp leads down to the stream, rendering the ridge top more accessible at that point (Boyden, 1958, 150-151).

Excavation by JR Boyden in 1957 was limited to three trenches across the enclosing banks and ditches and produced very few finds and none which support any dating (Boyden 1958, 155). Cuttings 1 and 1a revealed that the bank and ditch sections sealed two hearths, of which the up-slope one contained 20 sherds from a single pot (Boyden, 1958, fig. 2, 153). The pot was very coarse and badly fired with thin walls and little decoration but, although regarded as a crude example, Boyden (1958, 157) argues that it is a clear example of a 'pie crusted, Iron Age A situlate' vessel and recent review places it as late Bronze Age, i.e. c1000 - 750 BC (Hamilton and Manley, 1997, 105). That is interesting because, as Boyden (1958, 155) points out, it is hard to see why they should be located on such a steep slope (a *'ravine'* in his words) unless they were associated with the construction of the earthwork. However, on typographic and morphological grounds by comparison with more securely dated sites, the enclosure is thought to be more likely to have been built in the late Iron Age period (Hamilton and Manley, 1997, 105).

E23 - Harrow Hill

Six kilometres to the west south-west of Chanctonbury Ring E08 lies the very small (c 0.3 ha), sub-rectangular univallate enclosure on the singularly marked Harrow Hill directly over the site of extensive Neolithic flint mines (c 245 or more on the hillside as a whole) (RCHME, 1994, 6). The Neolithic flint mines, in particular, and the extent of first millennium BC settlement in the immediate environs, attracted the attention of the Worthing Archaeological Society who excavated the site under EC Curwen's direction in 1924 - 25 and with G Holleyman in 1936.

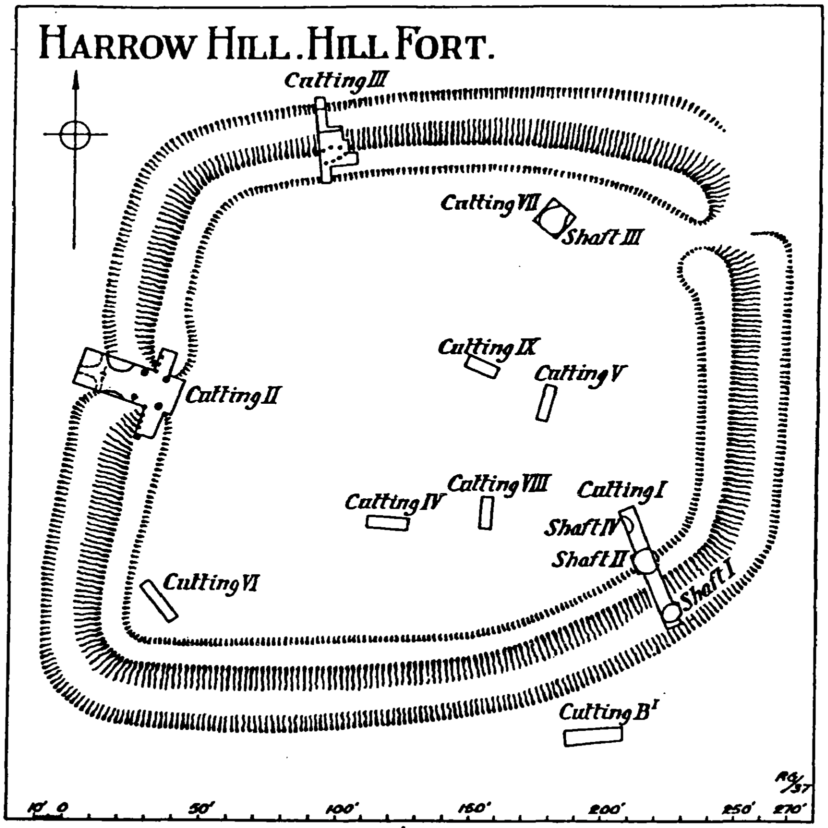


Figure E.23 - General site plan of Harrow Hill (source: Holleyman, 1937, Pl. 1)

The bank cannot have been high as the upcast from a ditch some 1 metre deep and 2 metres wide (flat-bottomed) is not great, but it is likely that the bank was a bed for a timber stockade as evidenced by a clear row of postholes spaced at 0.75 metre intervals along the line of the bank. The stockade may have been steadied by timber 'anchors' (if not fully timber-laced), given the evidence of a double row of postholes in cutting III. (Holleyman, 1937, 232-236; Avery, 1993, 172). The Royal Commission for Historic Monuments (England) (RCHME) surveyed the site in 1994 and argued that the palisade cannot have been extensive or intended as a corral because the postholes were irregular and discontinuous to the north and absent in the south-east, suggesting a palisade facade (RCHME, 1994, 13). The main entrance was marked by two pairs of large postholes, suggesting a double gate approximately 2.5 metres wide delimiting a passage some 3 metres long, lined on each side by timbers set into bedding slots cut into the chalk (Holleyman, 1937, 232-236; Avery, 1993, 172). The building incident was marked by an abundance of burnt ash, clay and charcoal on the turf line over the Neolithic shafts and below the bank at this spot (Holleyman, 1937, 235).

Internally, no first millennium BC structure-related features were found but a few surface finds, in association with those from the bank and ditch, allowed re-evaluation of the original dating estimate by the excavator based on pottery technology and typology to C 8th - C 7th BC (Hamilton 1993, 198; Hamilton and Manley, 1997, 97). Most notable of the finds on this site is the quantity of animal bone scattered all over the interior and of which the overwhelming majority comprises skulls, mandibles and teeth of between 50 - 100 oxen found in the interior area excavated, suggesting a total of more than 1000 over the whole site (Holleyman, 1937, 250)[1]. Holleyman (1937) offers no details of the disposition of the animal bone but clearly associates it with the first millennium BC use of the site, presumably by association with the disposition of potsherds.

Interestingly, the RCHME survey comments that there is a causeway across the ditch to the north-east but it is very unlikely to have been a gateway because the largest Neolithic shaft lies just outside, making access virtually impossible. Thus, they suggest that this may hint at a symbolic reference to the past. (RCHME, 1994, 13).

E24 - Harting Beacon

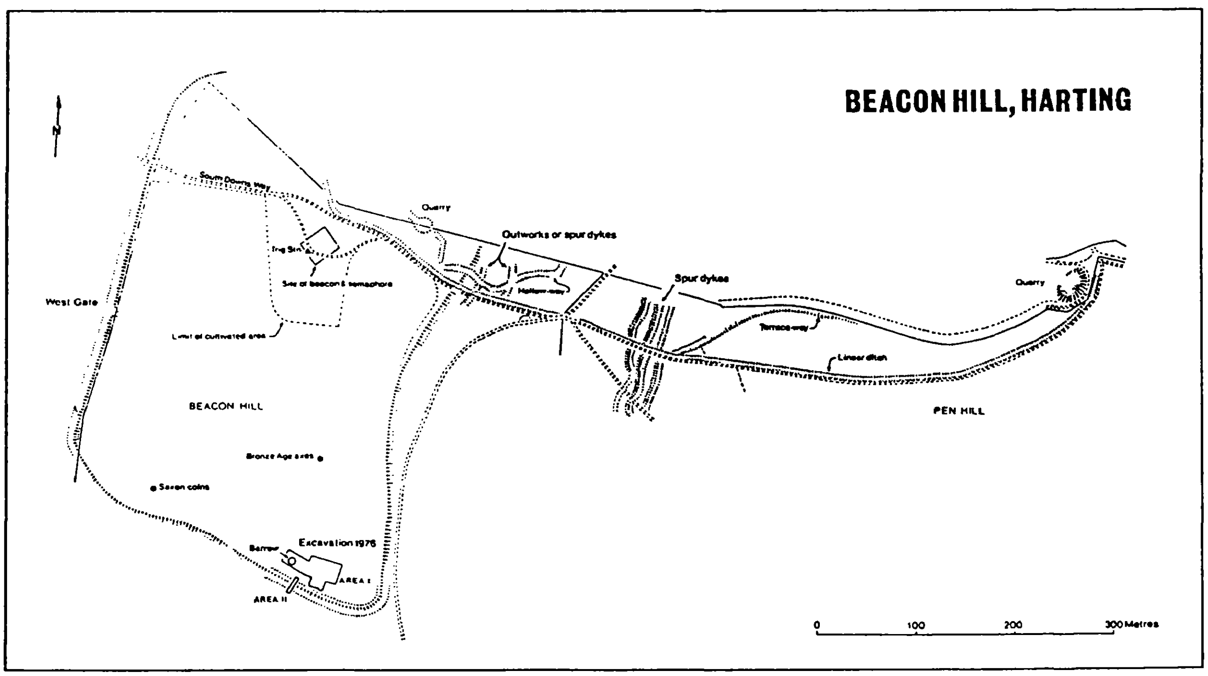


Figure E.24 - General site plan of Harting Beacon (source: Bedwin, 1978a, fig. 2)

[1] There is an anomaly here. Jackson's (1937, 248-249) report on the animal bone discusses remains of 13-14 individuals; whilst there is no explicit comment that this is a subset of the total finds, it is assumed that it must be.

Situated on the very north edge of the Downs, the univallate enclosure of c10.5 ha is a trapezoidal shape, bounded on three sides by banks with an outer ditch and on the fourth by a steep scarp slope, heavily wooded today, and seems to be linked with a substantial series of earthworks which do not appear to be field systems *per se* but are extensive linear ditches, cross-spur dykes and track ways (Bedwin, 1978a, 225-227, fig.2).

The site was excavated in a limited way by PAM Keef over the period 1948 - 52 and that work included a section through the western entrance where two gold pennanular rings were found and dated, on style grounds, to the late Bronze Age (Keef, 1953, 204-206; Bedwin, 1978a, 227). Outside the enclosure, on the steep east slope of Beacon Hill, several small, oval hut platforms were noticed and two subsequently excavated by PAM Keef in 1946 - 47, revealing a pattern of postholes suggestive of fairly flimsy hut shelters in association with early pottery (Keef, 1950; Bedwin, 1978a, 227). However, the note of the siting is rather ambiguous as Bedwin (1979, 25) suggests that they were located on Harting Hill about 2 km to the west and considers the pottery a little later than the Harting Beacon material and contemporary with the cross-ditch phase at Torberry E62.

Owen Bedwin's excavations of c 1% of the interior of this site at its south-east corner during 1976 - 1977 (guided by surface scatter density observed in a field walking programme) revealed four four-post structures, one six-post, one three-post, three pits and a few single postholes (Bedwin, 1978a, 229-230; 1979, 21-23). The pattern within the area excavated does suggest that they were concentrated in this small area and did not extend in either direction along the bank or, indeed, into the centre.

The bank was of timber-retained construction laid directly onto chalk subsoil, surviving to a height of 1 metre at most and separated by a berm of c2 metres from a flat-bottomed ditch c1.3 metres deep and 2.5 - 3.0 metres wide (Bedwin, 1978a, fig. 4, 230). At some stage the whole was maintained by the removal and fill of the timber posts and the cleaning of the ditch, resulting in enlargement of the bank (Bedwin, 1978a, 230).

Until recently, the dating of the construction of the enclosure was regarded as problematical, requiring either that the gold rings were aged 'heirlooms' when buried or that pottery regarded as early Iron Age (C 6^{th} - C 5^{th}) was rather earlier than thought (Bedwin, 1983b, 201; Barrett, 1980, 312). Fortunately, Hamilton's detailed study of earlier first millennium BC Sussex pottery has been able to resolve this anomaly by careful reappraisal of this site, in association with other sites (particularly Chanctonbury Ring E08), concluding that the data set represents a fairly brief occupation of the site in the period 750 - 600 BC (Hamilton, 1993, 146, 166-168, 341).

E25 - Heathy Brow

The small, open settlement site at Heathy Brow is situated at c 400 metres OD, near Belle Tout E02 and at the most south-easterly point of the South Downs. Near to the site is a contemporary trackway defined by a double-lynchet traceable for nearly two kilometres which points in the direction of the Belle Tout E02 coastal enclosure although falling short by c1.4 km (see above) (Bedwin, 1982, fig.27; Hamilton, 1993, 90). Furthermore, the site appears to be associated with field systems to its west and south-west. During the programme of widescale review of the archaeology of Bullock Down, Eastbourne between 1976 and 1980, the settlement site was excavated almost to the full extent of surface scatter revealing two platforms which may be hut floors, two working hollows, a couple of four-post structures and a number of individual postholes (see figure E.25, below):-

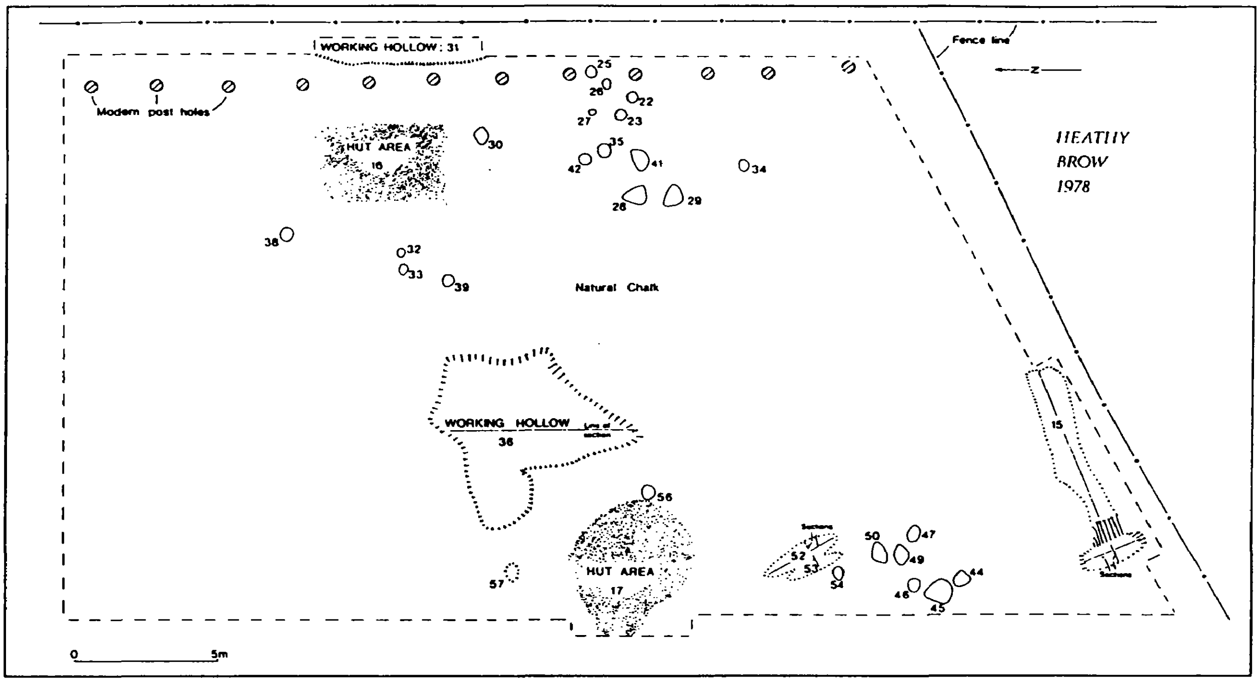


Figure E.25 - General site plan of Heathy Brow (source: Bedwin, 1982, fig. 28)

Sue Hamilton has revised her original estimate of the date of the pottery in the light of her detailed review of Sussex ware in the first millennium BC, now placing it at c1000 - 750 BC (Hamilton, 1982, 81-88, revised by Hamilton, 1993, 93).

E26 - High Rocks

On the border between Sussex and Kent, in the High Weald, 9.7 ha of a promontory at High Rocks are enclosed by virtue of a steep, high (6.2 - 12.6 metres) escarpment on the north and west sides and most of the remaining three sides of a sub-rectangle are confined by a double bank and ditches, reaching treble or, possibly, quadruple banks at the main entrance to the east (Money, 1942, 105-106). The site was discovered by John Money in 1939 and a very small exploratory excavation conducted in the spring of 1940, but the much more extensive excavation series from 1957 - 1961 provides most of the data (Money, 1942; 1968).

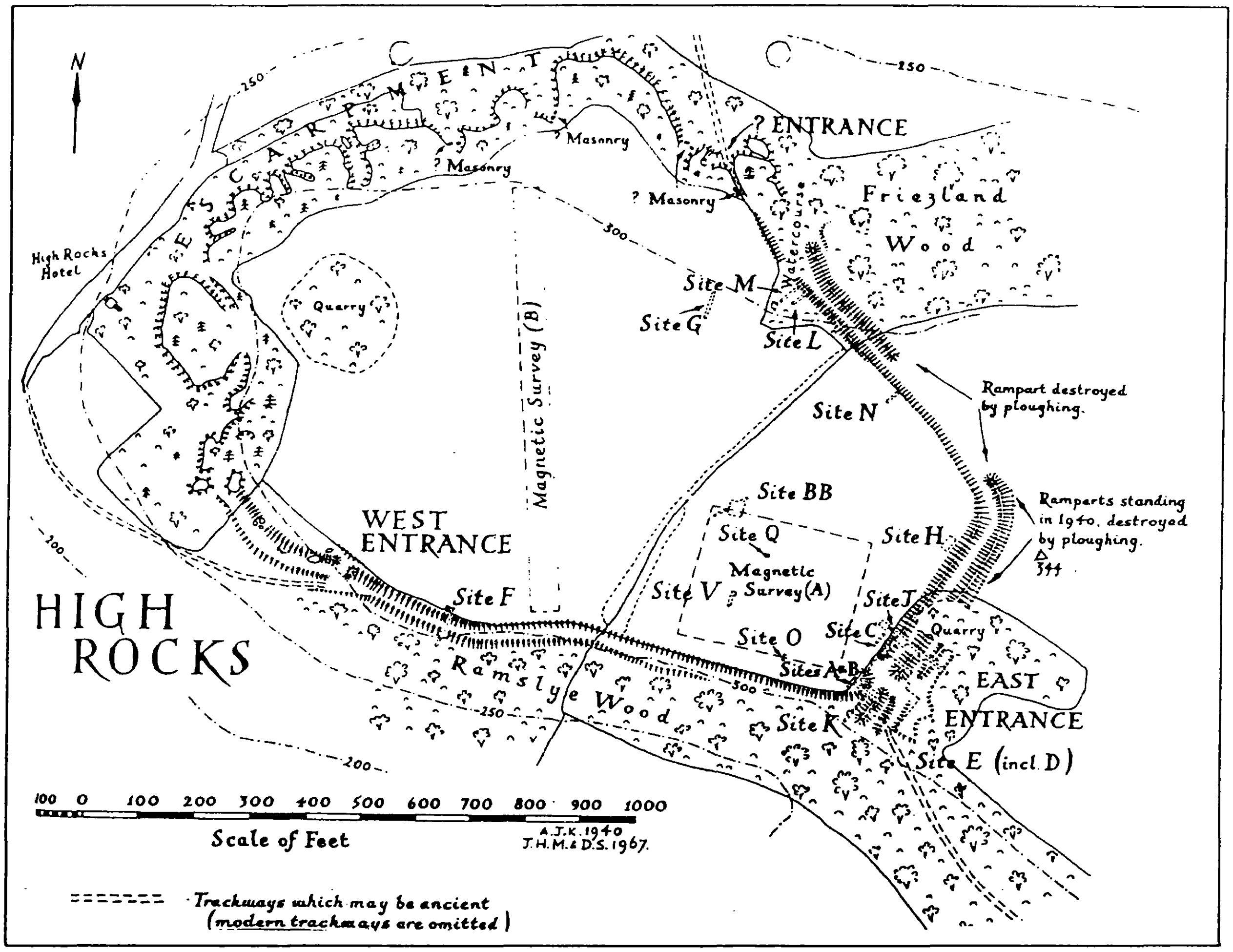


Figure E.26 - General site plan of High Rocks (source: Money, 1968, fig. 2)

In the rock face of the cliffs there are a number of gaps and these coincide with what may be tumbled masonry, suggesting to the excavator that that length may have been partially protected, too, and that there may have been an entrance to the north-east (Money, 1968, 159). It is likely that there is another entrance at the west, associated with an ancient track, but that has not been investigated by excavation (Money, 1968, fig. 2).

The excavator views the enclosure of the site as occurring over two phases (Money, 1968) but Avery (1993, 187-188) has presented a convincing argument for a third. It is likely that the line of the outer bank followed that of a slot c23 cm wide and c23 cm deep which underlies it in section J (Money, 1968, fig. 5, 168) which was interpreted by Money (1968, 168) as a *'marking out'* trench only. However, Avery (1993, 187-188 esp. note 3) argues that the slot is too slight for any purpose other than the bed of a fence or stockade and that it appears to be positioned relative to the overlying bank in line with a posthole in another sector. Thus, erring on the side of conservatism, it does seem likely that the excavator's 'Period 1' actually represents two phases, which will be referred to as 'period 0' and 'period 1'. Period 0 is enclosure of the area by a fence or stockade.

Section F, through the southernmost banks and ditches, provided important evidence to suggest to the excavator that the area enclosed by the outer bank in the first earthen enclosure phase (Period 1) was subsequently raised at the same time as the inner (up-slope) bank and the ditch between were constructed (Money, 1968, 161, 163-165). This opinion derives from the observation that a layer comprising soil containing charcoal fragments of oak overlays the first phase of the outer bank and lies under the inner, whilst not being represented in the ditch between (Money, 1968, 164, fig. 3). Pollen analysis of that soil layer suggests that there was a period of arable farming of the site between Periods 1 and 2 (Dimbleby, 1968, 184).

In period I the outer (first) bank and ditch were constructed. The outer ditch was U-shaped, c50 - 130 cm deep and 1.1 - 1.3 metres wide and the bank was built as a simple dump and cannot have been very high given the volume of material which could have been cast up from that ditch (Money, 1968, 163-164; Avery, 1993, 187). The entrance at the east was probably a simple, gated gap at this period although it may have been stone revetted at the 'ends' of the banks (Money, 1968, 179-180).

In the second period, after some time of arable farming of the site, the period 1 (outer) bank was heightened and a new ditch, inside it, cut into the natural rock. The inner ditch was flat-bottomed, c75 - 90 cm deep and 1.2 - 3.4 metres wide. Using material from the inner ditch and the interior of the enclosure, the inner bank (c7.5 metres broad) was constructed on the crest of the hill slope (Money, 1968, 165). The inner bank was revetted to the exterior with a sandstone block drystone wall (Money, 1968, 165). On the entrance stretch of the enclosure, site J revealed a single line of postholes irregularly spaced along the crest of the outer bank, suggesting a palisade, but the excavator is unable to say whether that should be attributed to period 1 or period 2 in this sector (Money, 1968, 168). There was no trace of a palisade in the southern sector (trench F) (Money, 1968, 165) and the outer bank on the north side was not investigated by excavation. The approach from the south-east is much easier than from any other side and it is likely that the palisade was only required in that sector, together with the additional third and, possibly, fourth banks.

The greater part of the eastern entrance was excavated showing, in period 2, the movement backward of the gate, the metalling of the entrance with beaten earth, sandstone pieces and slag and similarly along the approach (Money, 1968, 179-182). The sides of the 10 metre long entrance passage were stone- and timber-lined and there may have been a bridge across the gap, to link the walks along the tops of the banks (Money, 1968, 181).

Finds on this site are very few and dating tenuous. The land surface sealed by the period 2 bank revealed a few sherds of early pottery (Money, 1968, 187; Hamilton and Manley, 1997, 105) and a few examples of middle Iron Age saucepan pottery (c300 -100 BC) were found in the interior. Thus, it is possible that one or both of the earliest periods of enclosure of the site could have been from the C 3rd BC (Avery, 1993, 187; Hamilton and Manley, 1997, 105) although the excavator prefers a date of the C 2nd BC (Cotton and Frere, 1968, 192). There is no stratified indication of the construction of the period 2 enclosure, but the majority of the pottery is found in unstratified contexts in the interior and is generally of a wheel-thrown, quartz-tempered ware suggesting a date from c50 BC onwards (Cotton and Frere, 1968, 193; Hamilton and Manley, 1997, 105). The evidence of the pottery suggests that the site was visited infrequently in Romano-British times and occupation is regarded as not having been intensive at any time (Cotton and Frere, 1968, 193).

E28 - Highdown Hill

The landmark hill at Highdown rises from the coastal plain like an island separated from the main body of the South Downs and is surmounted by the enclosure of c1 ha. AE Wilson began excavation in 1939 but work was interrupted by World War II and when it resumed, he had to contend with damage resulting from military occupation of the enclosure and its effects on the banks, ditches and the interior (Wilson, 1940; 1950, 163). That work concentrated almost exclusively on the banks and ditches and revealed occupation of the site before the enclosure seen today, which is surrounded by a shallow ditch c1 - 1.5 metres deep and 1 - 1.5 metres wide at the top following at least three sides of a sub-rectangular shape (Wilson, 1950, fig. 2; Avery, 1993, 180-185).

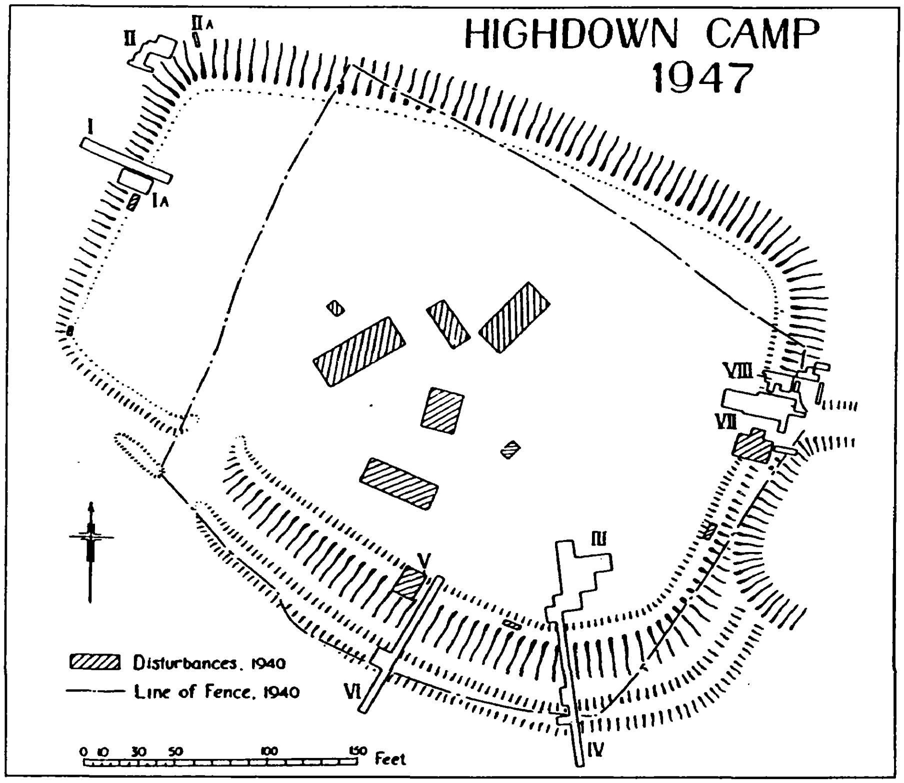


Figure E.27 General site plan of Highdown Hill pre-1985 findings (source: Wilson, 1950, fig. 1)

The site began to take on its modern appearance by the building of a polygonal enclosure by a ditch which may have been as deep as 2 metres, a corresponding timber-framed wall-and-fill bank with concealed rear uprights backed by a sloping tail and a berm of some 2 - 3 metres between them (Avery, 1993, 180). This considerable structure was maintained after enough time had passed for a clear turf line to form over the bank. The timbers were set some 1 metre apart and c 22 - 25 cm across. (Wilson, 1950; Avery, 1993, 180).

In the first instance, entrance was by way of a simple 3 metre wide gap in the east of the enclosure, but at the time of the ditch and bank refurbishment this gap was blocked and the main entrance moved to the south-west of the enclosure, at a far grander scale being c 7 - 8 metres wide and in-turned, but no further detail is known as it was not excavated. The existing gap to the east is modern. At an unidentified time, an outer ramp and ditch was cut along the southernmost part, c 1.5 - 2 metres deep. (Wilson, 1950; Avery, 1993, 181-182).

Of very real interest to this work (but regrettably not published to date) are the results of Mark Gardiner's 1985 excavation of c10% of the interior of the enclosure (largely unstratified), damaged by the storms of that year, together with his post-excavation re-examination of the archive (Hamilton, pers. comm.). Sue Hamilton (pers. comm.) has reviewed the pottery assemblage and firmly dates it to the C 8^{th} - C 7^{th} BC, citing the presence of late Bronze Age decorated wares in the fill of the first wider-enclosure ditch (Hamilton and Manley, 1997, 97). Hamilton and Manley (1997, 101) comment that there are circular and rectangular structures within and that they are also associated with moderate quantities of that pottery, suggesting permanent occupation at the time of the building of the enclosing structure. Gardiner's work is clearly important to the work in hand because, as Hamilton and Manley (1997, 101) remark (in association with the slightly later site of Hollingbury E29) *'Both have substantial earthworks, round "houses", metalwork hoards, fine ware pottery and other occupation debris. These sites perhaps herald the middle Iron Age pattern of the association of "domestic evidence" with prominent enclosures which encircle distinct, "landmark" hills'* and, again, Hamilton (1993, 198) refers to this site as *'clearly very different'* and a *'farmstead of some status'* and justifies that comment by adding the information that the metalwork hoards include quantities of gold material, as well as bronze (Hamilton, pers. comm.).

E29 - Hollingbury

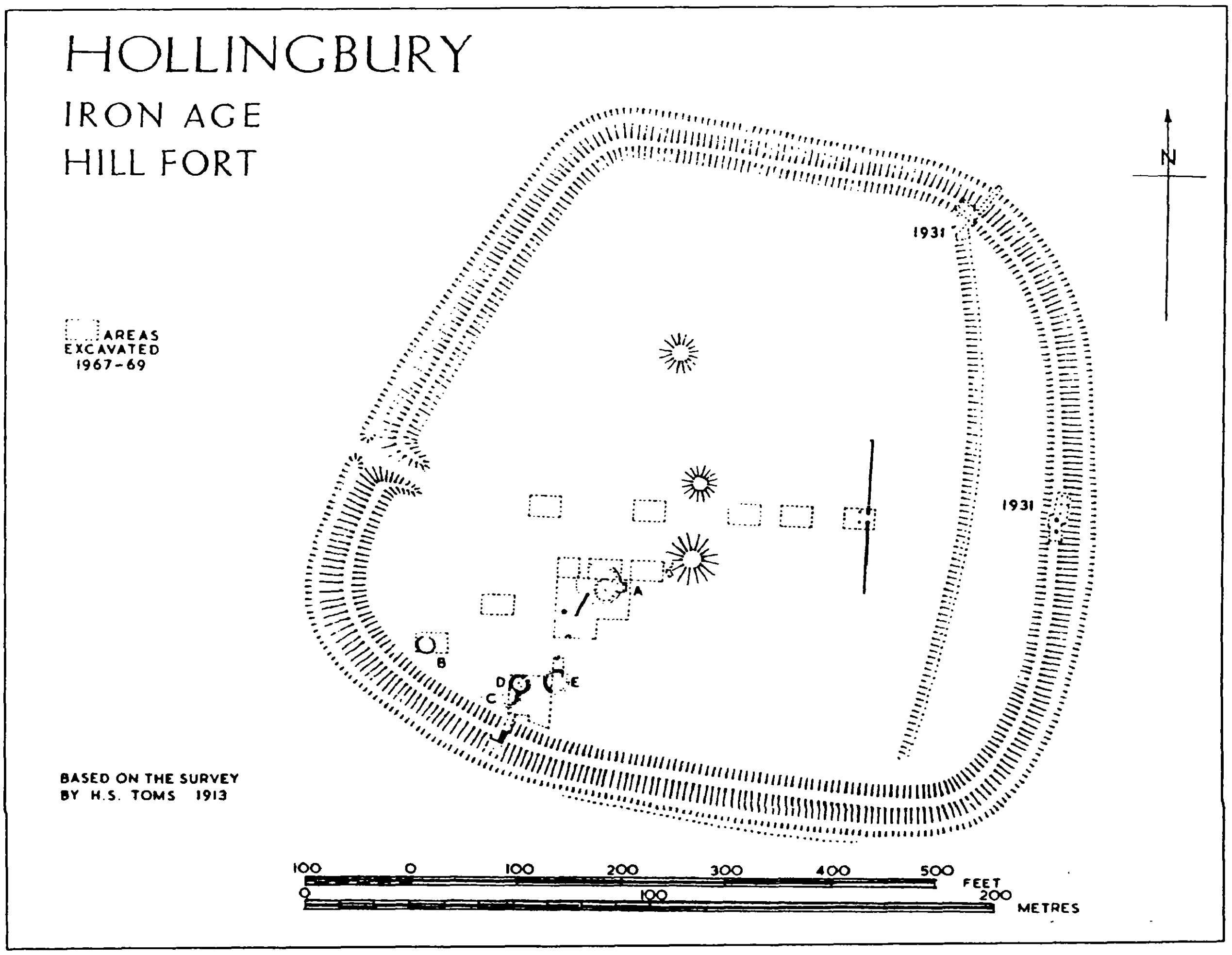


Figure E.28 - General site plan of Hollingbury (source: Holmes, 1984, fig.1)

The earliest enclosure of the site is indicated by the evidence for a turf-covered bank and a ditch underlying the current bank and ditch found by excavation of the north-east section by E. Cecil Curwen in 1931 (Curwen, 1932, 2, fig.1; Holmes, 1984, fig.1; Hamilton, 1993, 203). However, there are no stratigraphic associations of finds with that structure, leading to the suggestion that highly local finds of middle and late Bronze Age metalwork (Thomas, 1983, 198-199; White, 1991) tend to indicate occupation during the C 10^{th} - C 9^{th} (Hamilton and Manley, 1997, 97).

Elements of a settlement indicated by roundhouses were established on the site of the earlier enclosure at some time before the second phase of enclosure of c 3.7 ha, as is revealed by the stratigraphy where huts C and D meet the back face of the bank and by Curwen's find of a hearth, charcoal, pottery and bone beneath the bank on the old land surface (Holmes, 1984, 39).

The Brighton and Hove Archaeological Society's excavations of 1967 - 69, under the direction of John Holmes, examined some 5-10% of the interior, concentrated in the south-west where the roundhouses were located. The scope of that work included five further sample trenches across the centre of the site from east to west, revealing revealed a four-post structure but no more roundhouses; no excavation of the northern half was attempted (presumably because of gorse cover) (Holmes, 1984, 32). Thus, although it may be safe to predict no occupation of the centre (in line with the entrance), there is no estimate of the full extent of the occupation. Unfortunately, the potential value of the evidence provided by the roundhouses has been tempered a little by the coincidence that this area of the site was badly churned during military use of the site in World War I (Holmes, 1984, 32).

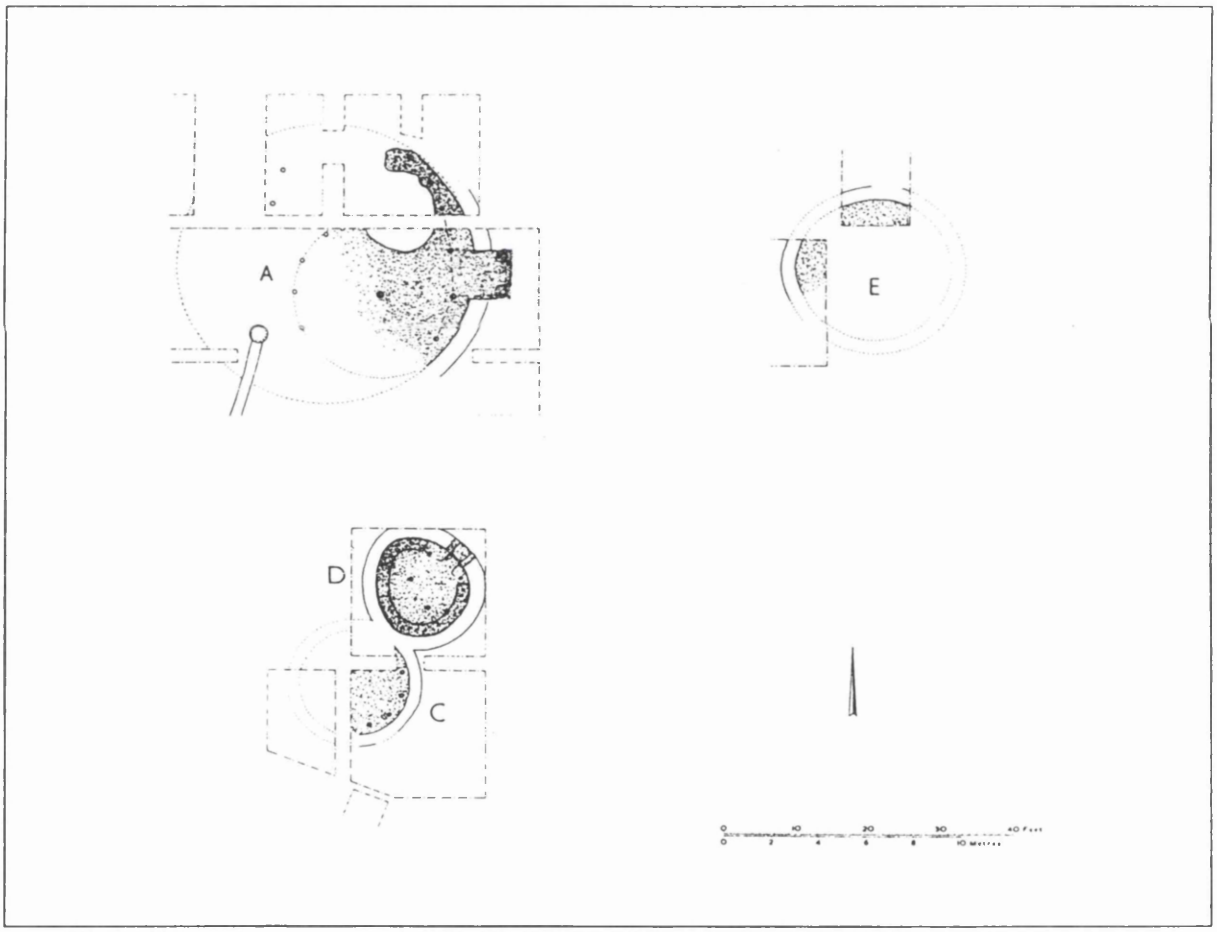


Figure E.29 - The roundhouses at Hollingbury (after Holmes, 1984, fig. 3)

The hut sites found were indicated by combinations of hard, flinty floor layers (all), postholes (A and C), gullies (A and E) and wall stubs (D) and sizes varied from 4.3 - 12.3 metres diameter.

Some stratigraphy is detectable between these structures, with A having been rebuilt at a larger size and D superseding C and close examination of assemblages tends to indicate a degree of variability in the function of each. (Holmes, 1984, 32-36).

The enclosure itself is substantial, comprising a bank (which survives to 1.3 metres and is thought to have been c 2 metres high), a counterscarp bank to the south, a berm and a steep-sided 2 metre deep ditch about 3.7 metres wide at the bottom (Holmes, 1984, fig.4; Curwen, 1932, section D; Avery, 1993, 196-197). The outer face of the bank presented an almost vertical wall of compacted chalk rubble and a few large stones at the base retained the impression of the vertical posts of a timber frame built from squared posts c 10 cm * 10 cm, set more than 0.3 metres deep. The back face showed corresponding postholes and timber lacing was observed. The entrance to the west was of a two gate form, with very substantial posts (c 6 - 7 metre square) set 2.15 metres apart at the outside and 2.4 metres apart on the inside. (Holmes, 1984, 39-44; Avery, 1993, 197). The entrance to the east, initially thought contemporary (Curwen, 1932; Avery, 1993, 197) has now been shown to be later (possibly Roman) (Holmes, 1984, 44).

The pottery at this site (except that within the earlier earthwork) all dates to the period 600 - 500 BC whether associated with internal structures, or any point of the bank and ditch works (Hamilton, 1984, 55-61, tempered by 50 years in Hamilton, 1993, Ch.9, 343).

E31 - Itford Hill

The settlement site lies on gently sloping ground just 275 metres off the main ridge of the Downs, commanding an extensive view of the Ouse Valley and the surrounding downland (Burstow and Holleyman, 1957, 167-168). Survey and excavation was conducted by the Brighton and Hove Archaeological Society under the direction of WE Holden and G Holleyman over five seasons from 1949-1953 (Burstow and Holleyman, 1957, 168).

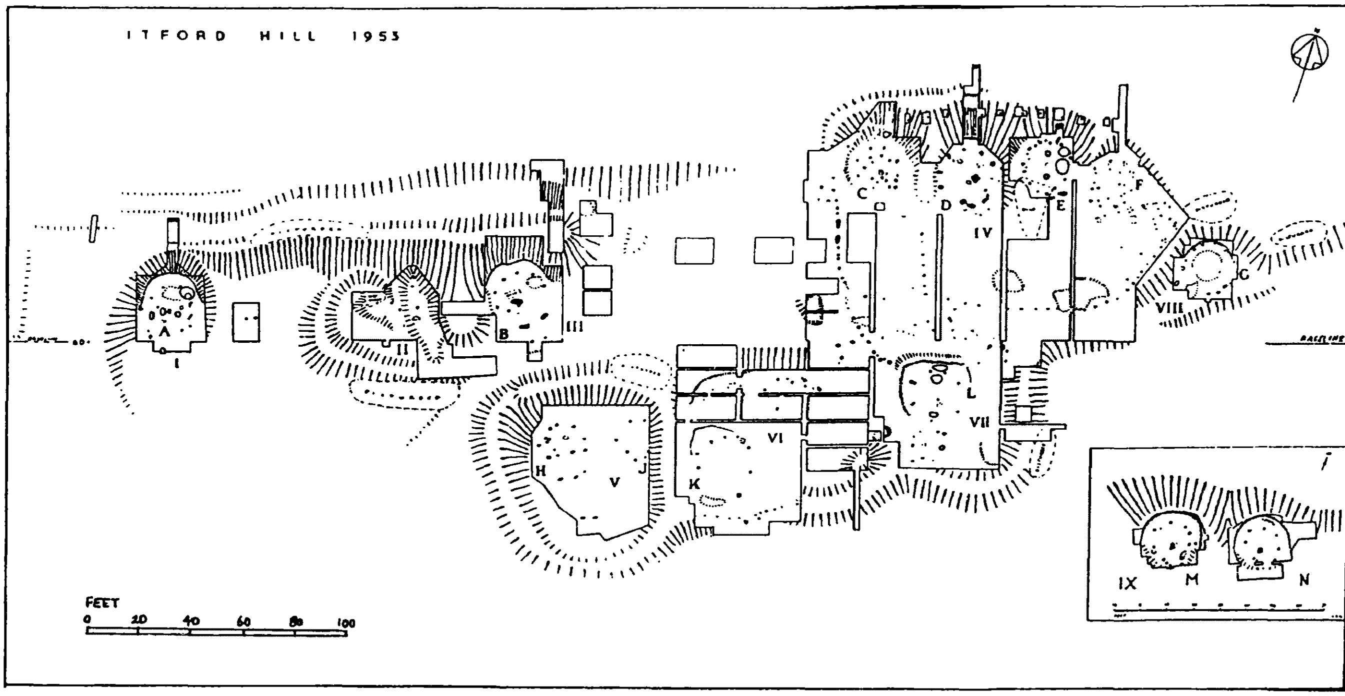


Figure E.30 - Itford Hill site after excavation (source: Burstow and Holleyman, 1957, plate XVI)

The whole site is compact, comprising a number of enclosures and platforms within an area of c135 * 55 metres at its maximum dimensions with a separate enclosure (or possibly two) at a distance of about 90 metres to the south-east of the main cluster. It is associated with a shallow hollow way which runs across the back of enclosures I, II and III and a lynchet which trails eastwards from the eastern end of the site. (Burstow and Holleyman, 1957, 168). An undated cross-ridge dyke commences immediately to the west of enclosures IX and X and runs westwards for more than 500 metres downslope (Burstow and Holleyman, 1957, 168).

In total, thirteen round structures were located, with the largest spatial cluster being enclosure IV comprising four huts, enclosures IX and V with two each, and enclosures I, III, VI, VII and VIII of one each (Burstow and Holleyman, 1957, plate XVI). There was considerable variation in the form and content of the huts as analysed by the excavators. Huts B, D, M and N were all round or pear-shaped with a double or a porched doorway and a main supporting post hole (which was not placed centrally) but with no hearth and no storage pits. Of those, huts B and D were the largest structures of any type at the site (at c 6 - 7 metres diameter between the postholes) (Burstow and Holleyman, 1957, 190-191) and may have been constructed by using the rear banks as a component of the walling to support the roof. The second category are oval or pear-shaped but have a simple doorway structure and no central posthole, although containing storage pits. Huts A and H fall into this category. The remaining seven huts fall into the third category of those with no special doorway features and no central post hole, some of which have storage pits; none have fireplaces. Some of these, at least, may have been merely roofed structures without walls or partially walled. (Burstow and Holleyman, 1957, 191-192). Assemblages are differentiated; for example, those huts containing pits (A, E and L) have the heaviest weight of pottery sherds on the settlement and one of them housed a simple upright loom (hut E) (Burstow and Holleyman, 1957, 191-192).

The length of occupation is thought to have been very short at about 25 years, or less, as there are few signs of refurbishment or replacement of buildings, the pottery assemblage was fairly small (although not small enough to represent comprehensive clearing) and the pottery represents a clearly consistent set dated to c1000 - 750 BC by the excavators (Burstow and Holleyman, 1957, 210). That date range has subsequently been revised to the end of the second millennium BC on the basis of a radiocarbon date of 1182 - 1128 cal BC (GrU-6167) for a sample of barley from a storage pit in hut E (Hamilton, 1993, 25) and by analogy with the Black Patch E04 assemblage and its associated dating evidence (above).

E32 - Kingston Buci

This site constitutes a series of large pits, some of which were dug and recorded but there has been no mapping of the findspots, no stratigraphic recording and no wider-scale excavation to set the findspots in context. The size of the pits is interesting because they represent the only Sussex example of what would appear to be 'Iron Age' style storage pits occurring this early amongst the dataset. For example, one pit is described as being 5 feet in diameter, 31 inches deep and 4 feet 3 inches wide at the floor (Curwen and Hawkes, 1931, 185-186), containing some C 10th - C 9th BC pottery (Hamilton, 1993, 114-115, 339) and other material which is described in such a manner as to suggest the ritually structured deposition identified by Hill (1995c) in Wessex examples. However, the sketchy nature of all reporting of this site does not allow any great confidence in the attribution of this particular pottery to this pit as described. It is noteworthy that Hamilton (1993, 348-350) also suggests that some of the pot sherds could be typical of Sussex Ouse ware of c 20 BC - AD 70.

The only thing that can be deduced about the site as a whole is that it was probably unenclosed as Curwen would certainly have mentioned earthworks in the vicinity if there had been any. In all other respects, there is too little detail to allow any useful contribution to GDM analysis.

E34 - Lancing Down

The site of an extant Romano-British masonry temple on a chalk ridge on the Downs between the Arun and the Adur was excavated by Owen Bedwin in 1980 as it was under threat from plough damage; that work was informed by Sheppard Frere's (1940) earlier survey around the site.

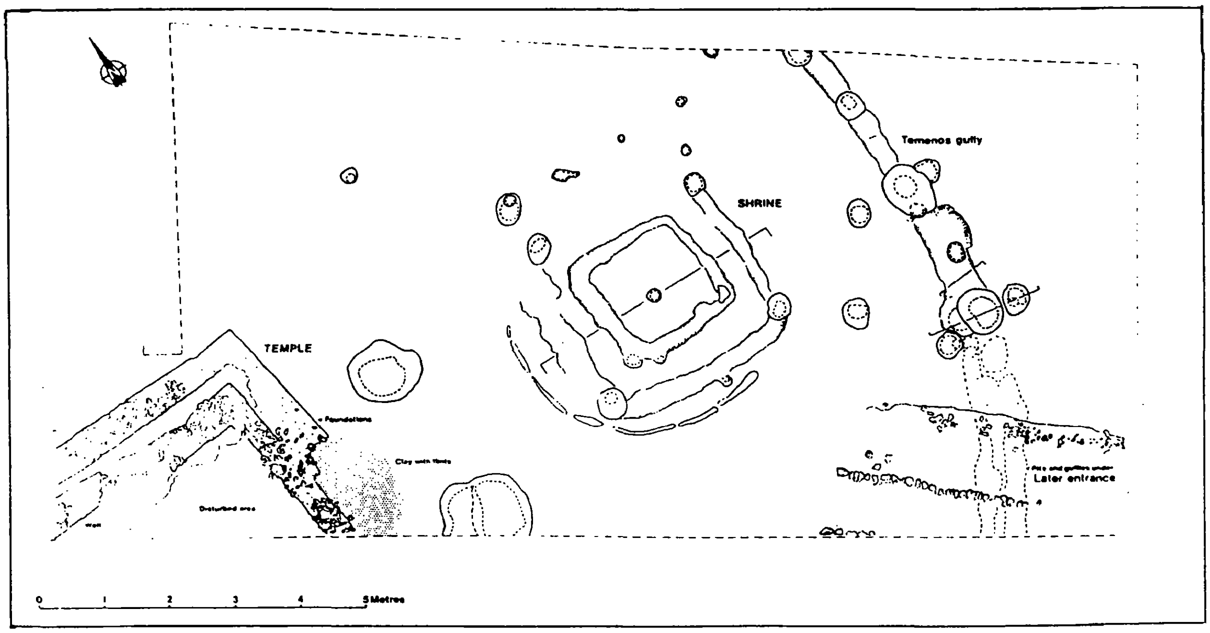


Figure E.31 - General plan of the Lancing Down late Iron Age features (after Bedwin, 1981, fig. 3)

A few metres from the masonry temple was located an earlier, small, double square building with a 3 metre side which is presumed to have been supported by posts at each corner of the outer square. The whole would appear to have been enclosed in a circular structure (only partially preserved). (Bedwin, 1981, 46). It is argued that its ground plan and proximity to the Romano-British *cella* strongly suggest religious significance (Bedwin, 1981, 46). A few potsherds found in contexts of this structure support a late Iron Age date and there appears to be no break in the late Iron Age to Romano-British pottery sequence on the site (Bedwin, 1981, 46).

E35 - Lavant

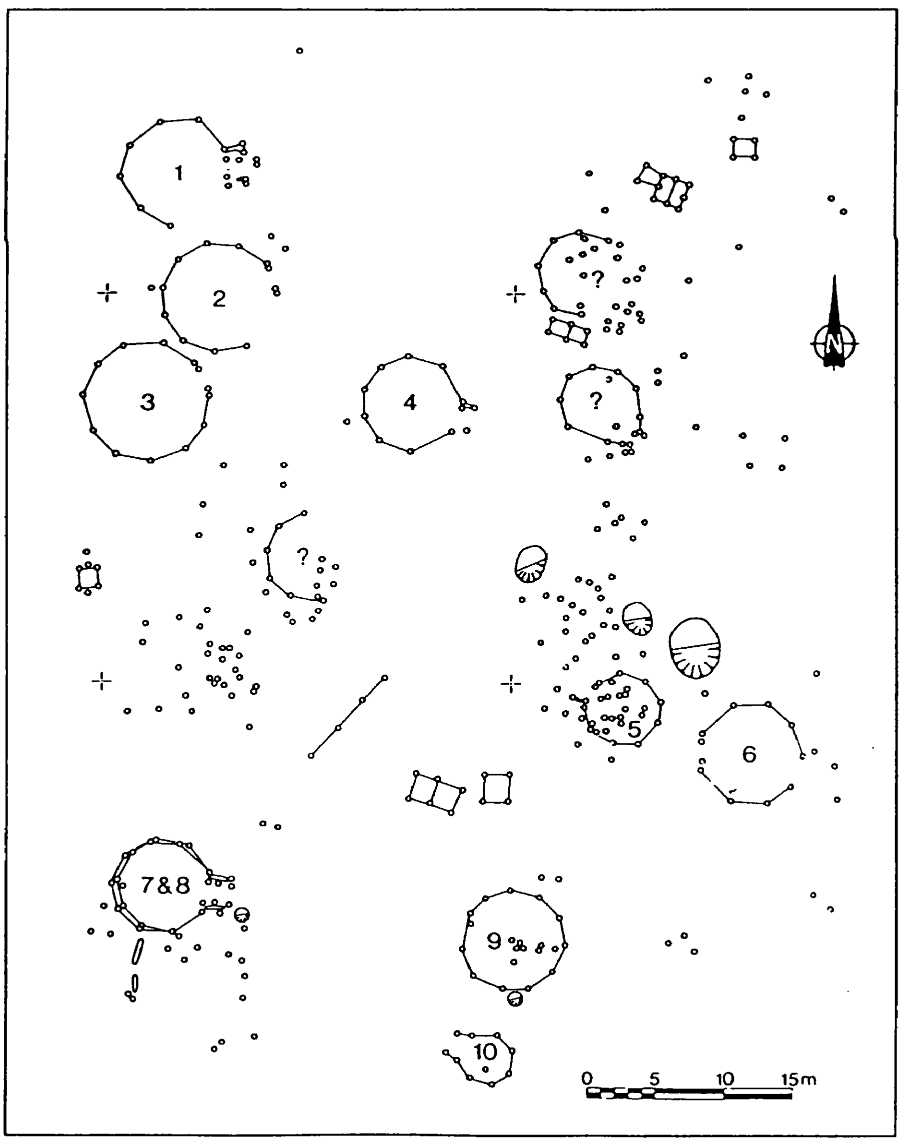


Figure E.32 - General site plan of Lavant (source: Kenny, 1993, fig. 10)

The site was discovered in 1993 in advance of the construction of a new reservoir and work was delayed long enough to excavate a rectangle c150 * 190 metres, revealing 1300 archaeological features. To date, the site has been published in a brief note only (i.e. Kenny, 1993). The first occupation evidence is for the period c1000 - 750 BC on the basis of three diagnostic ceramic bases in narrow pits (which were probably complete pots filled with fire-cracked flints) and a find of a bronze 'Sussex Loop' together with a gilded bronze decorated annular arm ring (Kenny, 1993, 26). The latter are regarded as very unusual finds for West Sussex, in that the majority of the known examples of Sussex loops are found in the vicinity of modern Brighton and the arm rings are most common in Kent and Hampshire (Kenny, 1993, 26). The nature of the occupation of that period is unclear and it seems that none of the structural features noted in the plan (figure E.32, above) belong to it. Hamilton (pers. comm.) would place the Sussex loop in the middle Bronze Age, somewhat earlier than Kenny's (1993, 26) date but not enough of the context is known to make a confident attribution to that period.

The site was then occupied as a settlement in the middle Iron Age (c400 - 100 BC), dated on the basis of sherds of pottery in pits (no specific details in the Kenny (1993) brief note). At that time, the site was an unenclosed settlement of ten certain and three possible roundhouses with associated four-, six- and eight-post above-ground storage structures (Kenny, 1993, 28). Kenny (1993, 28) records that '*except house 10, they were of a standard 7-8m diameter with simple doorway or external porch. Although not necessarily contemporary, they appear to face each other across one or more central, relatively open (communal) spaces'*. On the subject of contemporaneity, Kenny (1993, 28) simply notes that one of the houses (7 / 8) was replaced on the same spot.

In the late Iron Age (c100 BC +) and into the Roman period, there is a pair of parallel V-shaped ditches at the extreme south-east of the excavated area (not shown on plan, above) which produced large quantities of potsherds, suggesting to Kenny (1993, 28) that there was a later settlement to the south-east with its limits marked by the ditches uncovered but excavation fell short of that.

Unfortunately, Kenny (1993) does not comment on whether s/he feels it likely that the middle Iron Age settlement extends beyond the area excavated in any direction; the absence of any remark to that effect is taken to mean that s/he probably does not think so.

E36 - Lordington

Sited on downland, the site was detected by parch marks and the subject of limited excavation by Robin Holgate in 1978 and 1984.

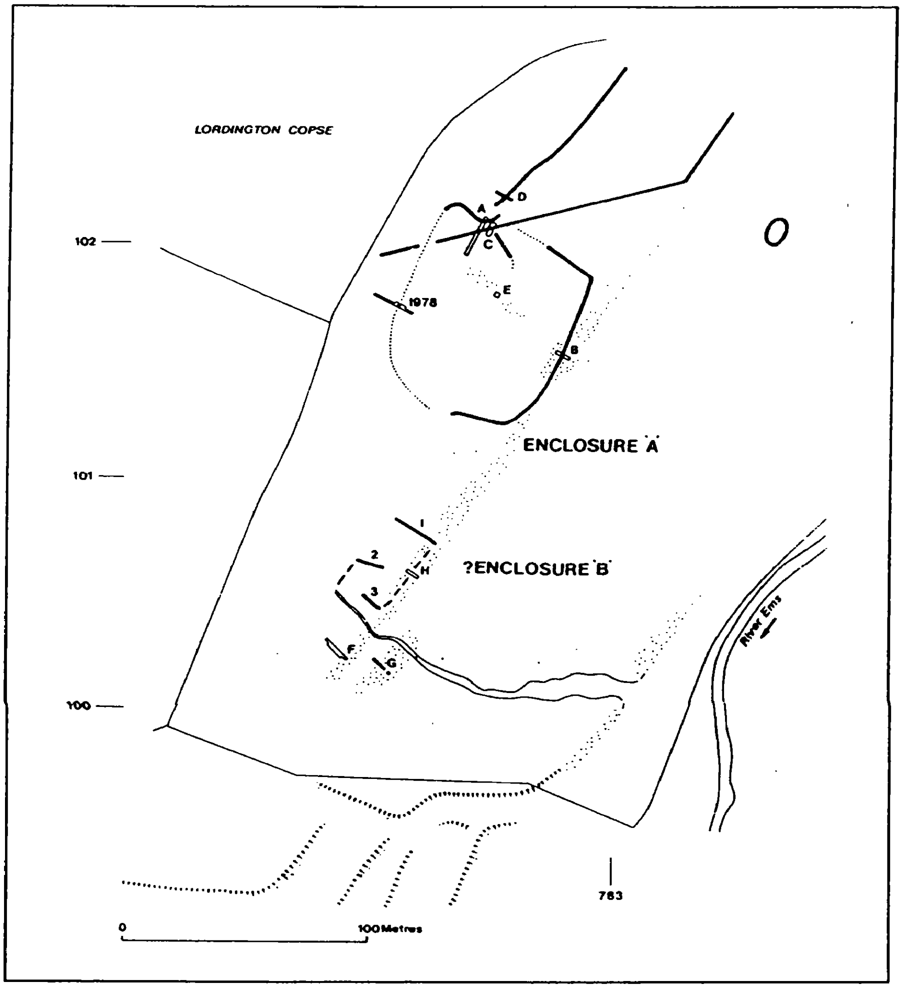


Figure E.33 - General site plan of Lordington (source: Holgate, 1986b, fig. 3)[2]

The larger of the two enclosures ('A') is sub-rectangular, measuring c 90 * 70 metres with entrances at the north and south ends and defined by a ditch 1.5 - 2.0 metres wide and c 1.0 metres deep which appears to have silted up naturally (Holgate, 1986b, 246-7). There were no traces of a bank or any internal features but the ditch in trench B did cut an earlier pit (Holgate, 1986b, 247). The only finds were small quantities of late Iron Age and Romano-British pottery, animal bone, charcoal and worked flint (Holgate, 1986b, 247) and none are in the primary silts of ditches (Holgate, 1986b, 249). Sampling of the area noted as 'enclosure B' found no sign of a ditch but located undateable sections of lynchets; however, the modern ploughsoil included material from the late Iron Age onwards (Holgate, 1986b, 247).

[2] N.B. No orientation indicator in the original.

E40 - New Barn Down

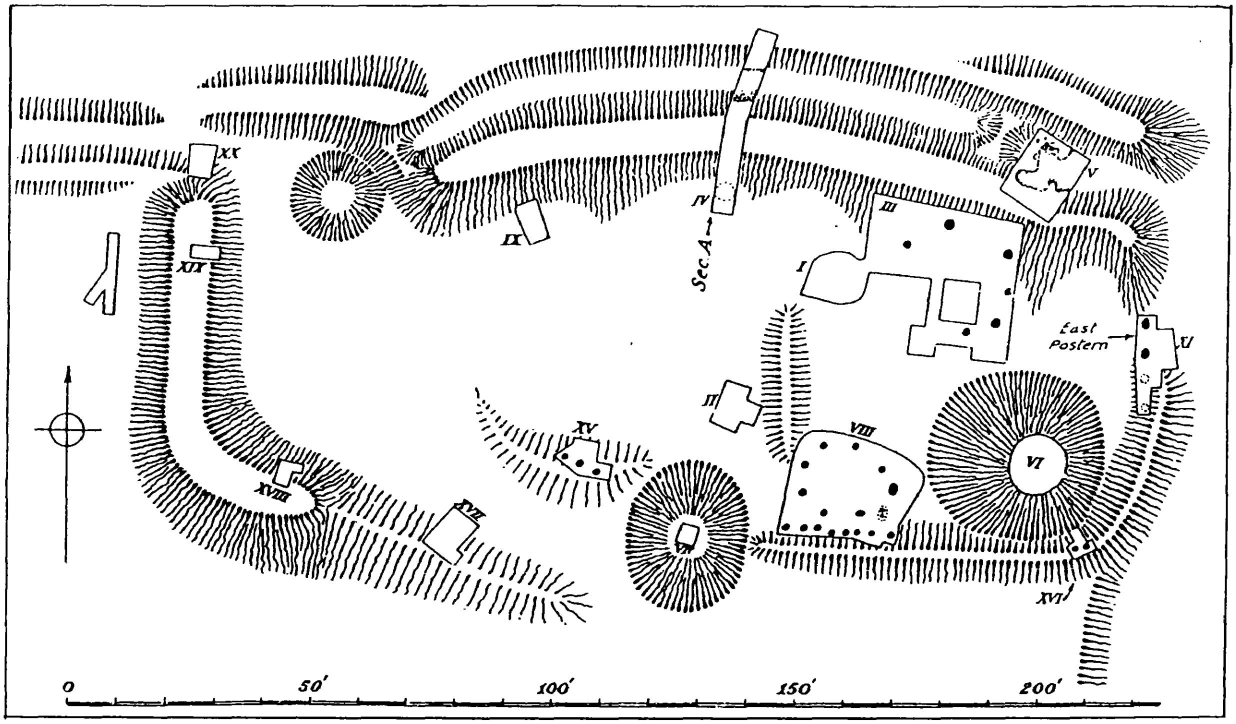


Figure E.34 - General site plan of New Barn Down (source: Curwen, 1934, fig. 1)

On the south-eastern spur of Harrow Hill E23, within a few hundred metres of the hilltop, of the Cock Hill E11 settlement and the Blackpatch Hill unexcavated settlement, lies the 0.27 ha enclosed settlement of New Barn Down E40 associated with a pattern of lynchet-defined small fields and a contemporary 2 metre wide track delineated by lynchets on both sides. The track leads directly from the main entrance for c150 metres and then turns through a right angle from which point it is traceable for a further 450 metres before it disappears in a modern field system. (Curwen, 1934, 137-139).

The boundary of the settlement to the north is delineated by a 1 - 1.5 metre high bank raised from a flat-bottomed ditch some 1 metre deep and wide across the exterior of the northernmost bank of the site (Curwen, 1934, fig. 1). The west and south-west are marked by a further bank of approximately the same size but no ditch and the south-east and east by a much lighter bank (Curwen, 1934, fig. 1). Five 'bays' are formed by the northern bank, at least one of which contains the lowered and levelled floor of a roundhouse structure. The excavator surmised that some of the other four may also have formed in this way, although one or two exploratory trenches did not reveal any evidence for that. (Curwen, 1934, 149-150). A further roundhouse structure ('free-standing'), features relating to the bank and ditch, two of the three entrances and the two ponds were partially excavated and the whole surveyed. The weaker bank of the section from the eastern entrance to the southernmost pond of the settlement was surmounted by a timber structure based on narrow posts shallowly-set into the chalk at intervals of approximately 1 - 1.5 metres (Curwen, 1934, fig.1), suggesting an open-structured style of fence steadied by soil piled up against its base which would explain the apparent anomaly of the ditch capacity compared to the total bank needs for earth. The fence is unlikely to have fully encircled the settlement, given that the exploratory trenches elsewhere in the bank did not reveal any postholes.

A few metres to the north of the settlement is a small, oval, partially-ditched enclosure which was not excavated but which does have an entrance break directly opposite a break in the double lynchet track near the eastern entrance to the settlement, tentatively suggesting that it may be an associated fold (Curwen, 1934, 140).

The site was dated to the late Bronze Age by the excavator on the basis of pottery typology and a number of figures allow a tentative suggestion, based on Hamilton (1993) that the assemblage better fits the earlier part of the millennium (say, C 10th - C 8th BC) but would not be anomalous in the later late Bronze Age (C 8th - C 7th). Without detailed examination, no refinement is offered, although Sue Hamilton (pers. comm.) thinks the former more likely.

E41 - North Bersted

The site lies in the centre of a plain in the valley of the Aldingbourne Rife, thought to be tidal in the first millennium BC period (Bedwin and Pitts, 1978, 293). To judge from the present extent of estuarine alluvium, it is likely that it lay on a small peninsula, surrounded by water on three sides but as it is about 4 metres above present sea level it is thought to have remained free of flooding at all times, although it may have been waterlogged in wet weather (Bedwin and Pitts, 1978, 293). The soil would have been favourable for arable use and the observable extent of the site consists of at least a 5 ha area of small rectangular and sub-rectangular fields bounded by an extensive network of drainage ditches (Bedwin and Pitts, 1978, 309-310).

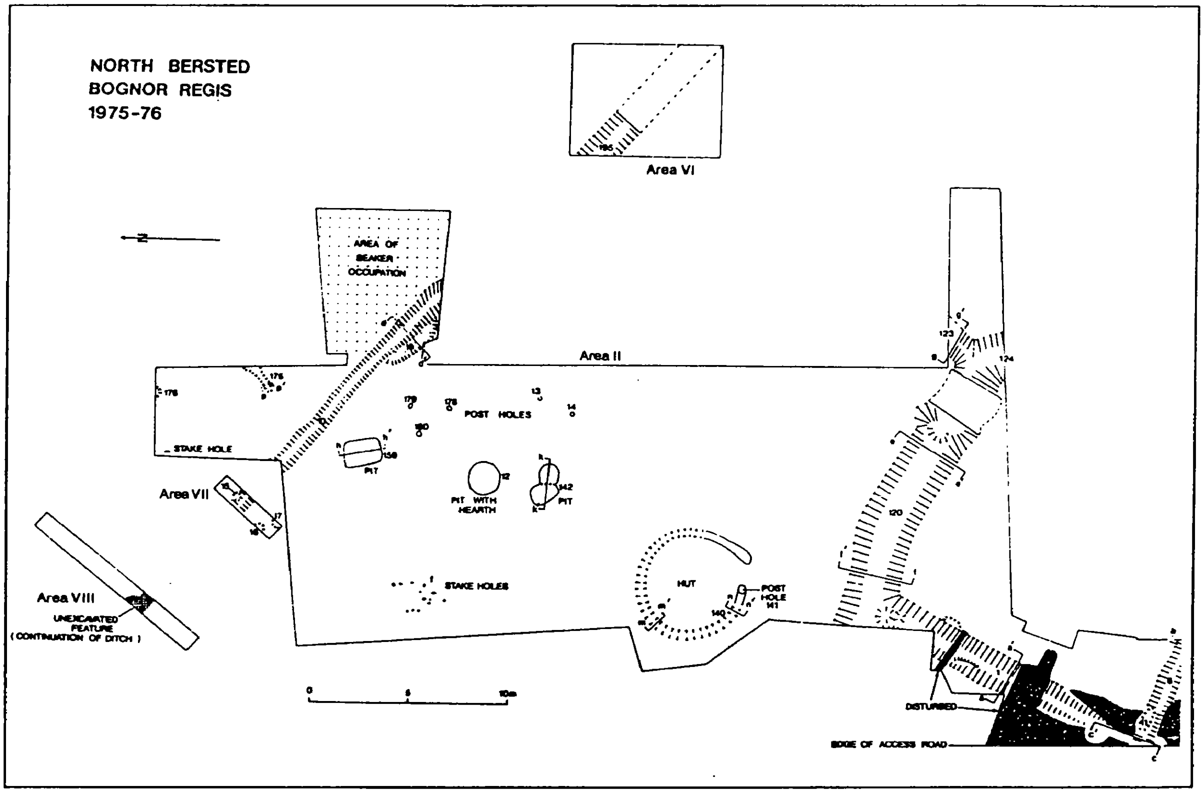


Figure E.35 - General site plan of Iron Age elements of North Bersted (source: Bedwin and Pitts, 1978, fig. 5)

A single circular hut, 6 metres in diameter, was located by a well-defined ring gully but the only individual features remaining after centuries of ploughing were the door location and one posthole (Bedwin and Pitts, 1978, 300-301). Nearby were a number of scattered individual postholes and stake holes and three shallow pits, one of which (feature 12) contained evidence of a hearth within surrounded by a structure which prevented the sides of the pit burning and which may have been for use in the production of iron slag (Bedwin and Pitts, 1978, 297, 301).

Other important finds include two structured deposits in the ditches and nine fragments of human skull (possibly from one individual) scattered throughout the upper layer of ditch 120 (Bedwin and Pitts, 1978, 297, 339-340).

The ceramic evidence shows a preponderance of saucepan pottery dating to c C 3rd - C 2nd BC in all features (including those mentioned above) but a significant element of Aylesbury-Swarling wheel-turned ware occurs in a subset of the features, taking occupation of part of the site at least into the late C 1st BC (Bedwin and Pitts, 1978, 310; Morris, 1978b, 315-339), a date refined by Hamilton (1993, 351-352) as likely to be in the range c 60 BC - AD 43 on the basis of her attribution of the ware as late Iron Age West Sussex wheel-thrown and a bronze fibula of c 50 BC - AD 50 in the final ditch fills. It is probable that the site was deliberately cleaned and cleared as a great deal of daub, charcoal and fire-cracked flint was associated with the latest pottery on the site which suggests the burning of a structure followed by disposal of the debris in those features (Bedwin and Pitts, 1978, 311). Thus, it seems likely that the site was occupied for at least two centuries and then tidily abandoned. Use of the ditched field system continued into the Roman period (Bedwin and Pitts, 1978, 311).

E42 - Ounces Barn

Situated within the Upper Coastal Plain, the site is located on a gentle, south-facing slope at the foot of the chalk escarpment between 40 - 50 metres OD (Bedwin and Place, 1995, 45-46). Over two seasons (1982 - 83) Owen Bedwin and Chris Place explored an irregularly shaped area immediately abutting the eastern terminal of the 'Devil's Ditch' (an important element of the Chichester Dykes earthworks complex) by stripping it of topsoil and partially excavated in advance of gravel extraction.

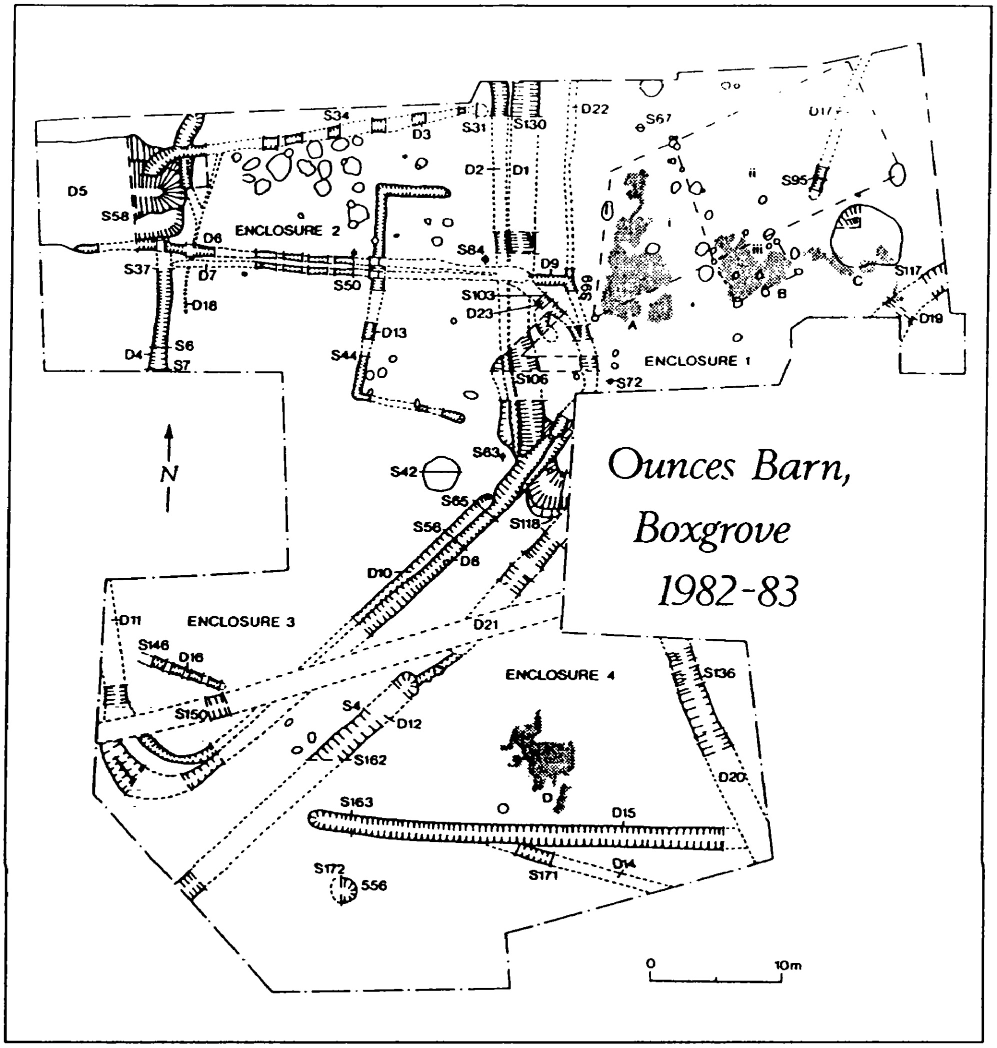


Figure E.36 - The excavated area at Ounces Barn (source: Bedwin and Place, 1995, fig. 4)

The late Iron Age activity is dominated by Enclosure 1 (partly revealed by excavation) which had a minimum size of 36 * 33 metres and with a ditch morphology said to be similar to that of Oving E43 (Bedwin and Place, 1995, 63). The excavators found no settlement features internal to the enclosure ditch but do raise the possibility that it could have had an external round house similar to that at Oving E43 (Bedwin and Place, 1995, 63); excavation did not extend far enough to examine this hypothesis.

It does appear that the Devil's Ditch, itself, is later than enclosure 1 although there is some room for doubt in that the Ditch does, unquestionably, terminate at the enclosure and the excavators do point out that contemporaneity is just possible on the evidence (Bedwin and Place, 1995, 64).

The ditch of the enclosure included the very unusual find of 7 moulds for producing coin flans (Bedwin and Place, 1995, fig. 26), suggesting the possibility of on-site production of coinage, a view strengthened by the recovery of several crucible fragments and possible furnace debris (Bedwin and Place, 1995, 64). In advance of specialised study of the moulds, Bedwin and Place (1995, 64) have identified tentative parallels with known Atrebatic coins in gold and silver and these are the first coin moulds of the period ever located in Sussex. Nevertheless, similar coin flan moulds elsewhere are conventionally accorded a pre-Conquest date (Bedwin and Place, 1995, 64), suggesting contemporaneity with the ceramics from the site. Bedwin and Place (1995, 64) note the juxtaposition between enclosure 1 and the Devil's Ditch and raise the possibility that it would be appropriate to view enclosure 1 as a coin production site within an oppidum rather than as an isolated enclosure. However, due consideration must be given to the possibility that the Devil's Ditch extant today may be later than enclosure 1 (Bedwin and Place, 1995, 64) and, by implication, have replaced or extended an earlier boundary, or that the enclosure may have had an original purpose other than coin production and have been pressed into use for that when the Devil's Ditch was added (Bedwin and Place, 1995, 64).

In the Romano-British period (centred around c AD C mid-1st to mid-2nd) settlement at the site continued as a small rural settlement with at least one building, associated enclosures and a trackway (Bedwin and Place, 1995, 64-65).

E43 - Oving

Situated within the region of the (later) Chichester Dykes, a complex of enclosures linked by field boundaries and double-ditched trackways was located from crop marks and excavated by sampling in 1980 and 1982-83 by Owen Bedwin, Robin Holgate and the Sussex Archaeological Field Unit (Bedwin and Holgate, 1985, 215-216). The southern part of the site consists of four interlocking rectangular enclosures of which the smallest was almost entirely excavated (30 * 25 metres) (Bedwin and Holgate, 1985, 217-219).

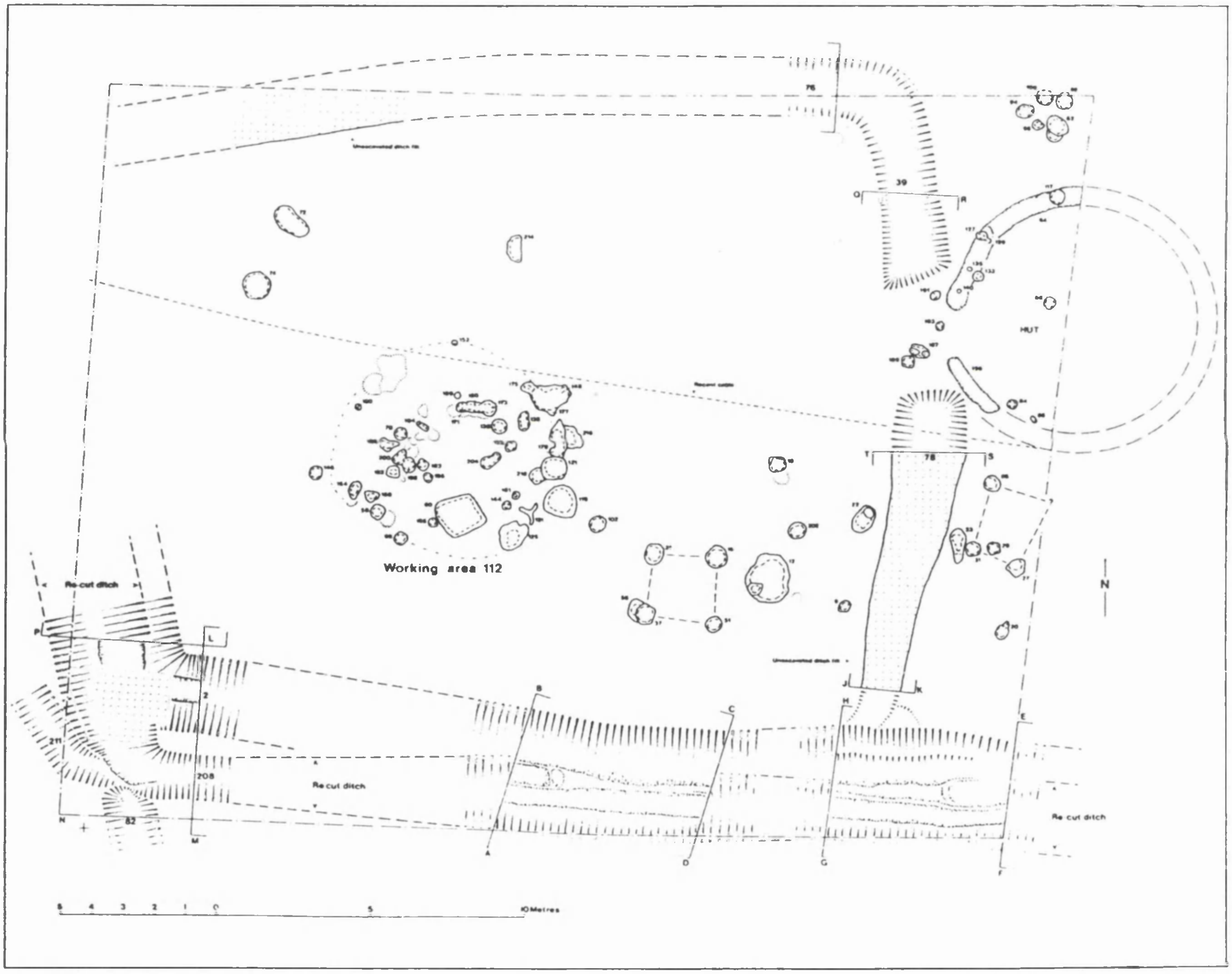


Figure E.37 - General site plan of Iron Age site at Oving (source: Bedwin and Holgate, 1985, fig. 3)

The whole was enclosed by ditches varying in depth between 0.6 and 1.2 metres with a causeway to the east immediately beyond which lay a 7 metre diameter ring gully interpreted as the remains of a roundhouse (Bedwin and Holgate, 1985, 218-219). In the centre of the enclosure lay a circular depression associated with a number of postholes and small pits suggesting that it was a working area of some description (Bedwin and Holgate, 1985, 219). A number of shallow pits were located and one (perhaps two) four-post structures for above-ground storage (Bedwin and Holgate, 1985, 218-219) together with one arrangement which could be interpreted as a five-post (18-22-9-202-12).

A charcoal sample from one pit produced a radiocarbon determination of 230 +/-70 bc (HAR-4252) (not calibrated) and the ceramic assemblage of saucepan pottery, together with some wheel-thrown Aylesford-Swarling ware, places the site toward the end of this period at, say, c200 BC and into the C 1st BC (Hamilton, 1985, 225), extended to c AD 43 by the presence of late Iron Age West Sussex ware in association with Dressel 1b amphora sherds and a La Tène II fibula in the final phase of the enclosure complex (Hamilton, 1993, 352).

E44 - Park Brow

The southern end of the Park Brow ridge abuts onto the valley from which rises the higher hill crowned by the Cissbury E10 hilltop enclosure (above) and was occupied by at least three sites dating from the first millennium BC and into Romano-British times. A site at the top of the hill at the extreme south end covering an area of approximately 100 metres square was excavated in 1921 by Garnet Wolseley and Reginald Smith and this could have been the location of a further season in 1925; unfortunately, the excavation reports (Wolseley and Smith, 1924; Hawley, 1928) are unclear on this detail.

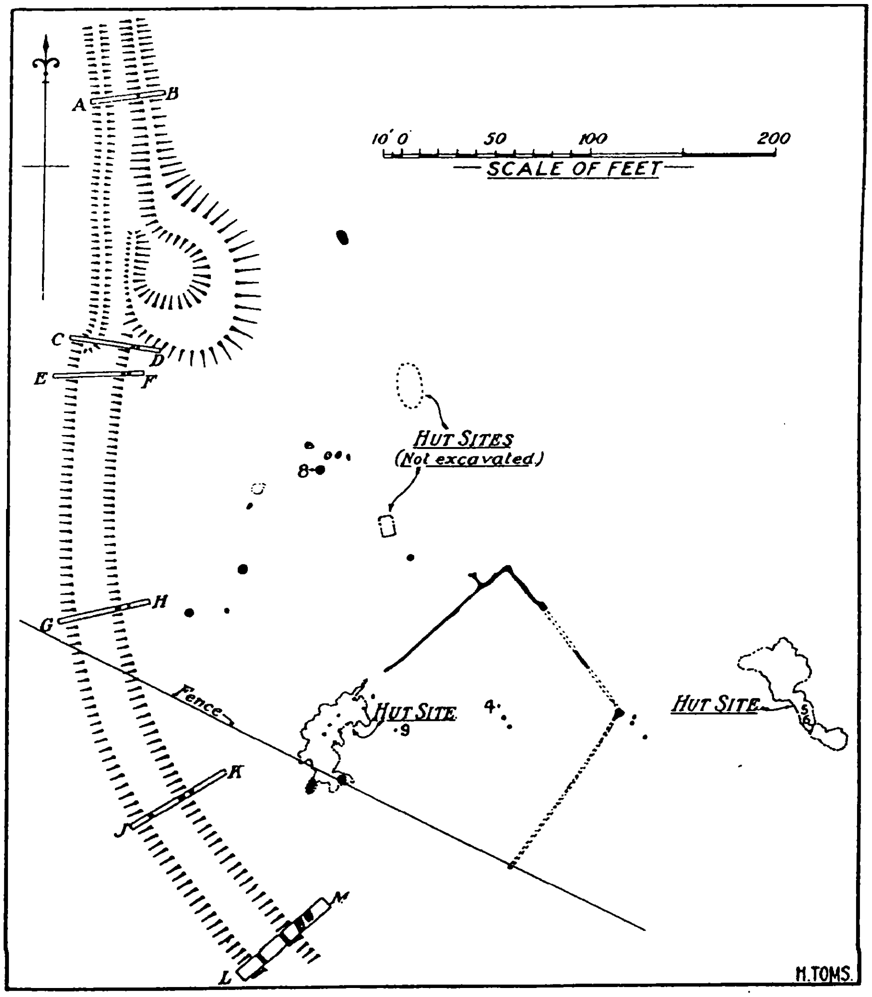


Figure E.38 - General site plan of Park Brow (source: Hawley, 1928, fig. O)

The first season revealed large pits and what seem likely to have been postholes (although interpreted by the excavators as smaller pits). Associated with these features are five hollowed-out areas (c 0.6 metres deep) of roughly rectangular plan. One of these was excavated to reveal six *'small round or oval pits 2 to 3 feet deep showing the remains of a sort of hard-rammed chalky mortar clinging to their sides'*. These were specifically interpreted as postholes and contained pieces of daub with wattle impressions, amongst other matter. (Wolseley and Smith, 1924, 347-349).

The general description of pit assemblages does suggest structured deposition and the domestic occupation of the site but, unfortunately, there is nothing in the text to allow the structure discussed to be located or examined in more detail. The later excavation may have concentrated on another of the 'hollowed out areas' mentioned above and it uncovered a double row of large postholes to set posts which may have been up to 0.5 metres thick and which was interpreted by the excavators as a house structure some 18.5 metres long by 9.25 metres wide (figure E.39, below). (Hawley, 1928, 36).

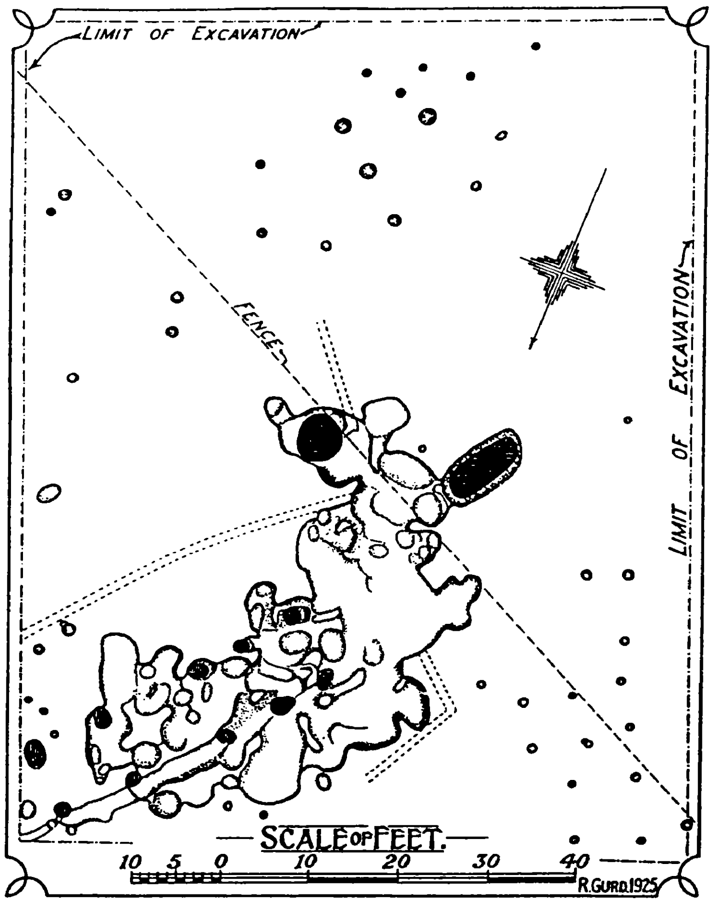


Figure E.39 - Plan of rectangular structure at Park Brow (source: Hawley, 1928, fig. P)

Although the assumption that any structure had to have included the pits may be flawed, even a minimal interpretation of this as a building would view it as c 7.7 * 3.1 metres. Seventy five metres down the slope, another site was interpreted as the floor of a building as indicated by the state of the natural chalk which was *'in a state of complete chaos. All the posts and material had been dragged out of the ground and on that lay a quantity of potsherds'.* (Hawley, 1928, 36).

Sue Hamilton has dated some of the ceramic evidence to c500 - 300 BC but the sources of the individual, diagnostic material is widespread and broadly associated with a Vioillier Ic type bent silver ring (c300 BC) and a high-arched La Tène Ib iron brooch (late C 4th - early C 3rd BC) (Hamilton, 1993, 260-261).

E45 - Philpots Camp

A promontory enclosure annexing a rough triangle of land 6 ha in area, Philpots is defined by sheer cliffs of sandstone to the south and north-west, 4.6 - 9.2 metres high, and a cross-bank and outer ditch (Curwen and Curwen, 1925, 176) in which Eliot and E. Cecil Curwen could not locate any original entrances (Curwen and Curwen, 1925, 176) but Ian Hannah (1932, 158) reports locating two simple gap entrances during further examination of the site in 1931.

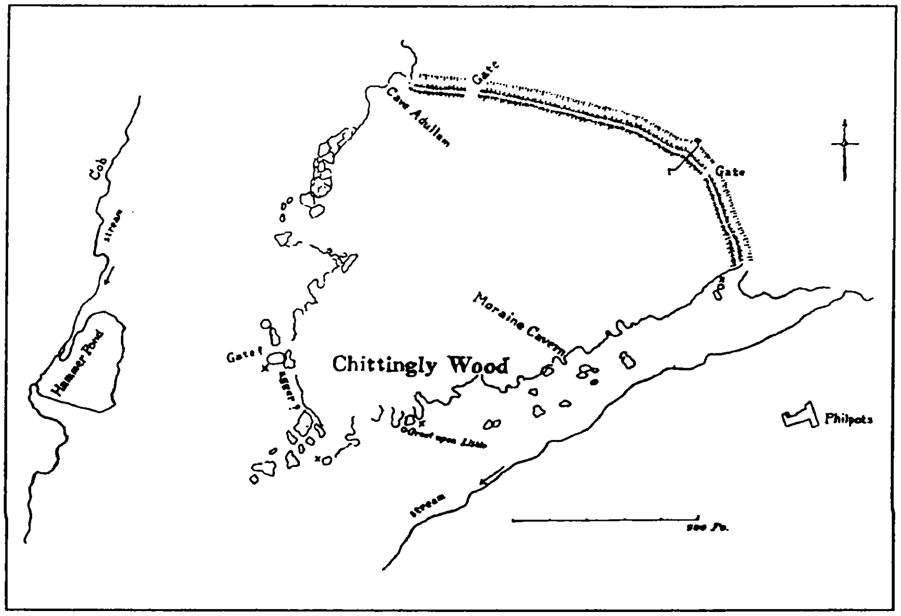


Figure E.40 - General site plan of Philpots (source: Hannah, 1932, 155)

The 1931 excavations were very limited, comprising a section through the cross-bank and ditch revealing the ditch to have been c2.15 metres deep and 6.15 metres wide and flat-bottomed with one sloping edge (Hannah, 1932, 158-159). Despite a specific search for postholes, no features were found in the ditch and finds comprised only fragments of charcoal in the ditch fill and a few fragments of worked flint in the lower fill (Hannah, 1932, 158-159) but no ceramics or other dateable artefacts at all (Hannah, 1932, 163). Hamilton and Manley (1997, 105) tentatively date the site to the late Iron Age on topographical and morphological grounds, only.

E46 - Piper's Copse

Situated in the fairly low-lying ground of the lower Weald (at c 38.5 metres OD), Piper's Copse is an oval enclosure of c 0.5 ha hidden by hazels and in a remote district and lay undiscovered until 1934 (Winbolt, 1942, 245-247). The enclosure is by a bank standing today at c 4.3 metres above the bottom of an (outer) ditch (Winbolt, 1942, 248) and the entrance has not been located. It is situated near a *'copious stream'* which is at the bottom of steeply sloping ground to the east and in the region of a rich source of iron ore and some 6 miles south-south-east of the (probably contemporary) Hascombe Camp in Surrey (Winbolt, 1942, 247) (excluded from this study as it is outside the area).

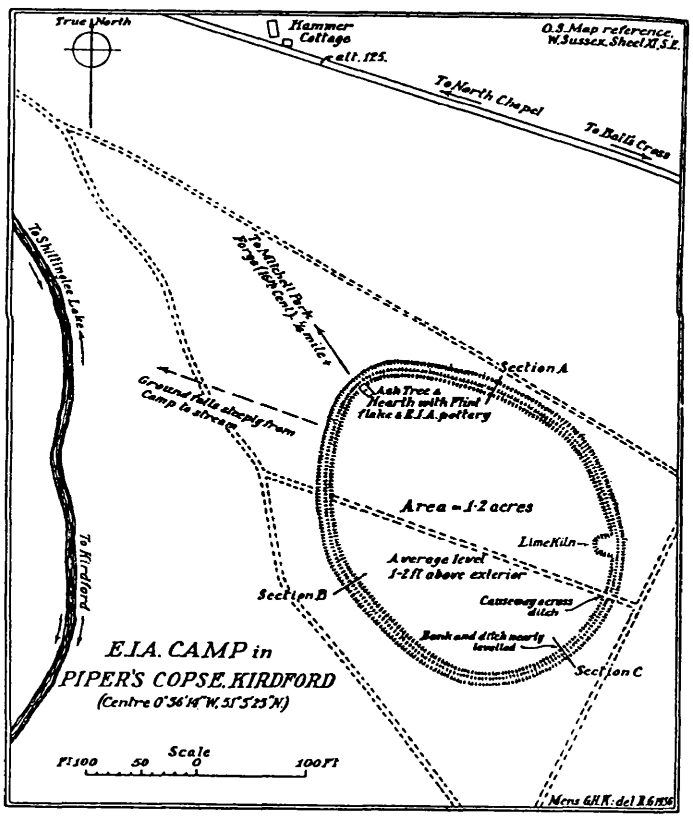


Figure E.41 - General site plan of Piper's Copse (source: Winbolt, 1942, 243)

Excavation has been very slight and the sections through the bank and ditch reveal it to have been c 1.8 - 2.5 metres deep and the bank c 1.8 - 2.5 metres high and c 8 - 11 metres wide (Winbolt, 1942, 246) although it is unclear whether these dimensions reflect a survey of the earthworks extant today or an excavated measure. No finds are mentioned in association with the earthworks themselves. Just inside a fox hole in the bank to the north (see figure E.41, above) Winbolt discovered a *'red-burnt hearth'* associated with six fragments of pottery which he identifies as La Tène III (possibly II) which would tend to date it to the C 1st BC (Hamilton and Manley, 1997, 105) as well as a number of nodules of iron ore (burnt and unburned) (Winbolt, 1942, 245-246). Despite the paucity of the evidence for occupation and dating, Hamilton and Manley (1997, 105) date this site to the C 1st BC on the balance of probability when topographic and morphological similarity with better dated sites of that period are taken into account (Hamilton and Manley, 1997, 105).

E47 - Plumpton Plain Site A

The Plumpton Plain sites lie just above the steep edge of the Downs at the north, at c200 metres OD in the vicinity of a number of other unexcavated sites suspected as being of this period (e.g. Stanmer Down about a kilometre to the south-west and at Streathill Farm only 500 metres away) (Holleyman and Curwen, 1935, 16, fig.1).

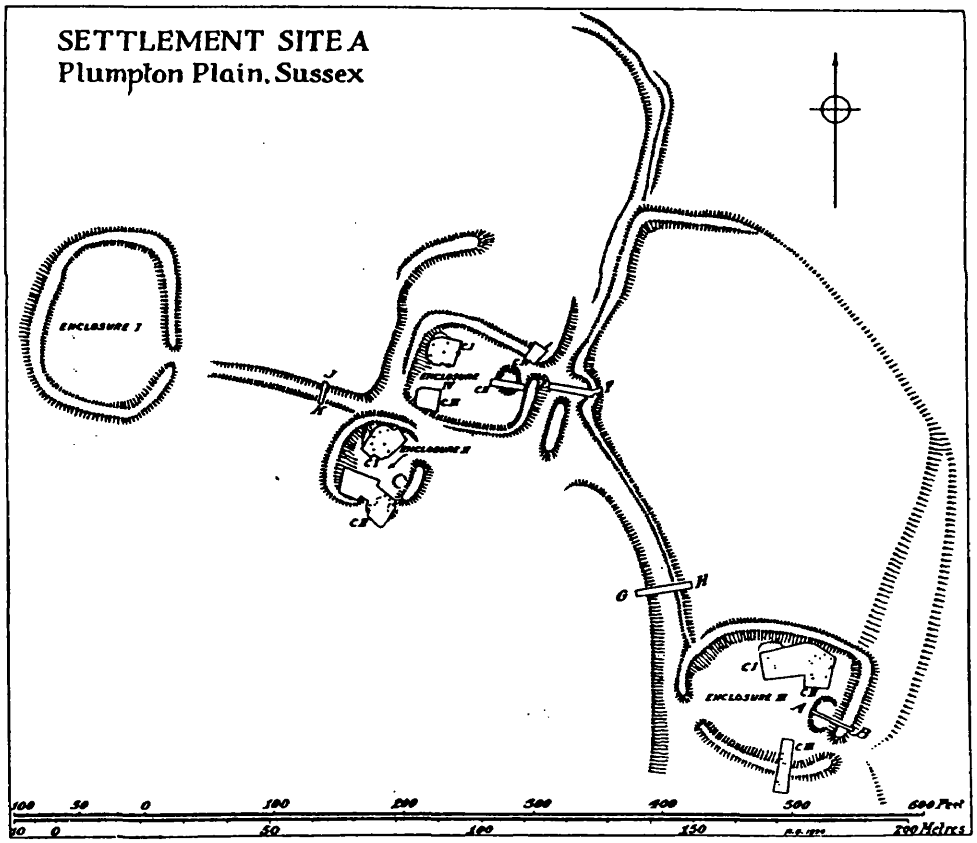


Figure E.42 - General site plan of Plumpton Plain A (source: Holleyman & Curwen, 1935, fig. 2)

Site A constitutes a series of four dug out, small, banked but not ditched enclosures (Holleyman and Curwen, 1935, 16, fig.1, fig.2) ranging from 0.03 ha to 0.09 ha linked together by 'tracks' defined, in the main, by double lynchets. Integral with the site is a series of small fields defined by lynchets and viewed as contemporary.

Three of the enclosures were partially excavated by G Holleyman, E. Cecil Curwen and the Brighton and Hove Archaeological Club in 1934 revealing a roundhouse of c 6.15 metres diameter in both Enclosures II and III and a rather flimsier round structure in Enclosure I (again at c 6.15 metres diameter) associated with a 4.3 * 1.5 metre cooking trench of some kind (Holleyman and Curwen, 1935, 21-31).

The pottery is typical Deverel-Rimbury and analogous with finds from Itford Hill E31 in Sussex for which a radiocarbon date from grain associated has been evaluated at 1260 - 1030 cal BC (GRU-6167) (Holden, 1972, 89) which also concurs with the date at Plumpton Plain Site A in that the small quantity of metalwork found (Holleyman and Curwen, 1935, 32-33) is not inconsistent with an end date at the end of the second millennium or beginning of the first millennium BC.

E48 - Plumpton Plain Site B

Site B lies only 300 - 400 metres to the south-east of Plumpton Plain Site A E47 but its character is very different. Excavated by the same team in the following year, the site is marked to the north by an 80 metre long bank which is only c 25 centimetres high today and 8 metres wide; the original form appears to have been that of a bank thrown up by the digging of two ditches some 4 metres apart (Holleyman and Curwen, 1935, fig. 12), which would have made the bank perhaps two or three times higher, but no more. Guided by the scatter of surface sherds as they could be observed in a clearing in the shrub cover at the location, the excavators dug nine areas representing about 5% of the clear ground and located posthole scatters in three of these (Holleyman and Curwen, 1935, fig. 3). The nature of the finds in these areas does suggest that they may have been activity sites covered by some type of structure or surrounded in some degree by fencing, but there are no clearly reconstructable house forms from the scatters as found. The lack of exploration into the gorse cover means that there is no certainty that the site was unenclosed, although this seems likely.

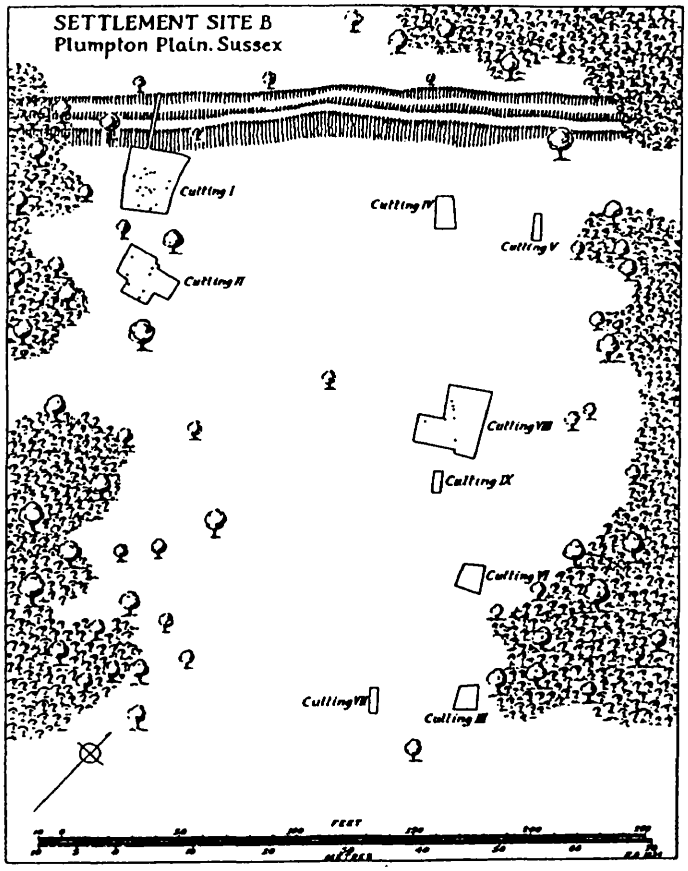


Figure E.43 - General site plan of Plumpton Plain B (source: Holleyman & Curwen, 1935, fig. 3)

The pottery is in a plainware tradition with shouldered and 'hook rim' jars and Class IV bowls and cups which Hawkes (1935, 46-55) considered later than the assemblage at Plumpton Plain A E47, a view with which Barrett (1980, 311) concurs, placing it in the post-Deverel-Rimbury period at the late Bronze Age or early Iron Age. Hamilton's (1993) more detailed reanalysis of Sussex developments has been able to narrow that finding down to c1000 - 750 BC (Hamilton, 1993) and Hamilton (pers. comm.) has subsequently noted that more recent findings, including Varley Halls E65, Mile Oak E37 and Downsview E15 suggest that overlap, or close continuity, between Deverel-Rimbury and post-Deverel-Rimbury assemblage dates may be possible after all.

It has been normal to view the Deverel-Rimbury site A (E47) as in use earlier than the first millennium BC, and out of this range, on the basis of pottery findings and possibly on dissimilarity of the morphology of the sites (see e.g. Holleyman and Curwen, 1935, 38). However, it can be argued that the sites may have been contemporary, to the extent that they represent one community only on the following grounds:-

1. The date ranges for each site allow that they could both have been current in the C 10th BC.
2. A respect for Site A's local field boundaries by Site B's can be posited.

3. The activities at the sites appear complementary in some respects, suggesting perhaps that the norm was to conduct some activities at B and others at A, but not both. In particular, spinning- and weaving-related finds are common at Site B but there are none at Site A and flint hammer stones are common at Site B whereas there was only one at Site A suggesting that B made flint tools. Conversely, flint tools are common at A but scarce at B which underlines the analysis. Similarly, storage is common at B but cooking is only evident at A. (All data from Holleyman and Curwen, 1935, unnumbered table on pp. 38).

Finally, one of the main differences between Deverel-Rimbury ware (characterised at Site A) and the plainware (characterised at Site B) is the size of the vessels (Barrett, 1980, 298-300; Hamilton, 1993, 368) which is commonly taken to imply a change in cultural behaviour in food storage, preparation and eating. In Wessex it has long been acknowledged that there was a considerable overlap in the currency of the two traditions well into the first millennium BC (Barrett, 1980, 313) but this is denied for Sussex in the main on the basis of the Plumpton Plain argument for supercession. However, it is argued that concurrency and, indeed, complementarity of the two sites is a likely alternative explanation of the evidence. If the differences in the structures between the two sites is taken into account, and consideration given to the view that the flimsy structures of Site B were unlikely to provide adequate overnight shelter in the climate of the early first millennium BC, then the conclusion to be drawn may be as simple as suggesting that members of the community went out to the fields to work and to get together for non-agricultural domestic activities at Site B during the day and returned to the solid houses of Site A to cook meals and to sleep at night. In other words, sites A and B could be jointly the home of the same community.

E50 - Potlands Farm

Situated in a partly waterlogged location, close to a stream at c 31.5 metres OD, on clay on the lower slopes of the South Downs, this site is of the 'burnt mound' type and the only example thus described in Sussex, to date. The site was excavated in 1994 in advance of the A27 improvements. (Stevens, 1997, 59).

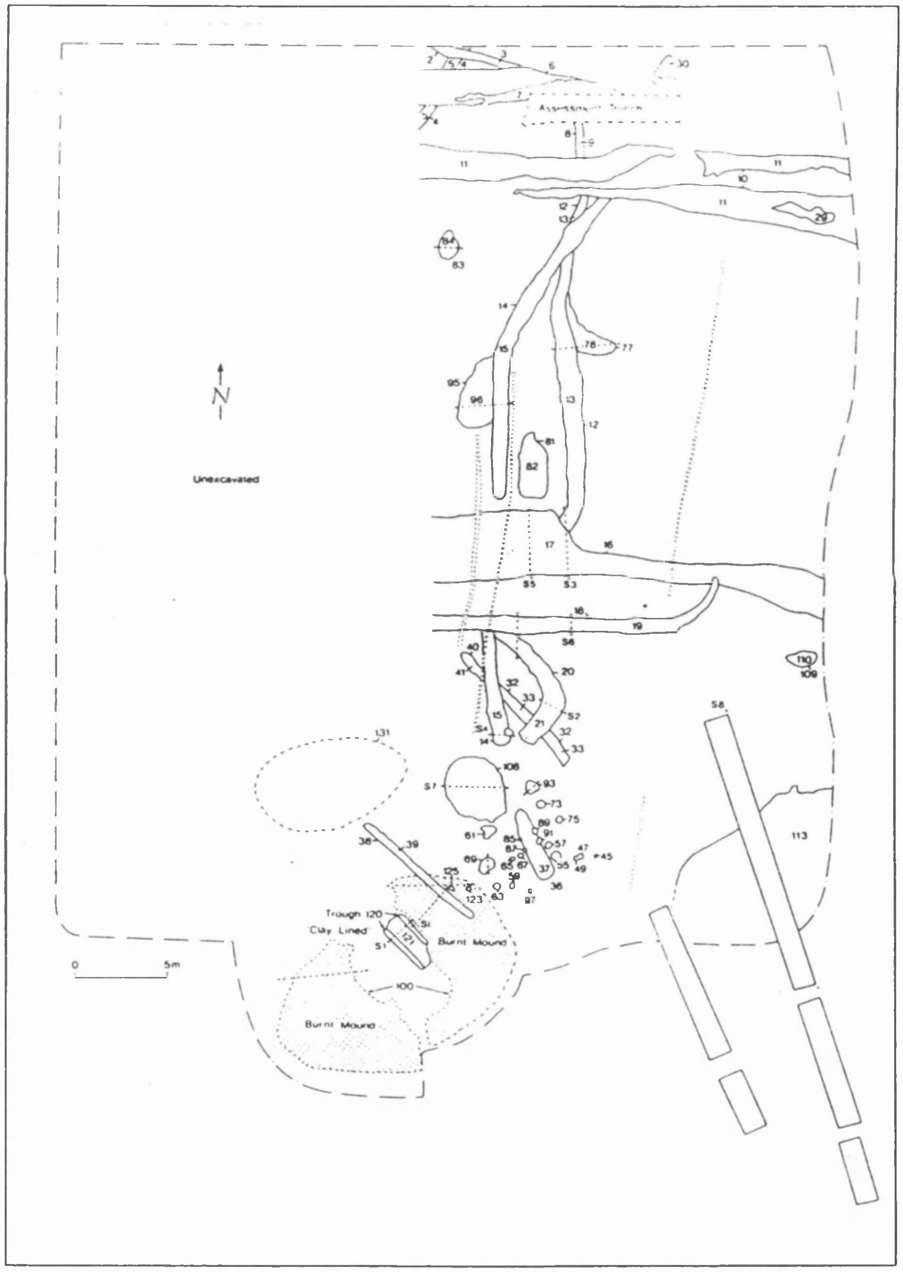


Figure E.44 - Plan of excavated area of Potlands Farm site (source: Stevens, 1997, fig. 2)

The burnt mound itself (to the south of the main excavated area) surrounds a clay-lined trough c2.95 * 1.30 * 0.35 metres deep and filled with fairly large fire-cracked flints (as was the mound deposit) but no artefacts were recovered from the trough, despite thorough sieving (Stevens, 1997, 60). The crescent-shaped feature near the trough and mound (context 20) is interpreted as the hearth used to heat the flint and the group of 20 post-holes clustered around the shallow, 5 metres long gully (context 36) is interpreted as being possibly the remains of racks for hanging meat and catching the blood drips in the gully below. (Stevens, 1997, 62). Other small pits and ditches may also belong to this period, although there were no especially noteworthy deposits within. One or two of the ditches appear to have been substantially later (medieval). Dating is by pottery, comprising just one middle Bronze Age sherd in the burnt mound but a number of middle and late Bronze Age sherds in other contexts, of which Hamilton (1997a, 65) comments that they are relatively large and uneroded, suggesting that they were *in situ* or close to their original area of use.

The excavator supports the 'cooking' interpretation of this type of site, on the balance of probability, but does not completely exclude alternative uses appertaining to bathing and sweating (Stevens, 1997, 68-69). However, he also notes that the immediate area would have been liable to flooding and, therefore, unsuitable for permanent habitation implying that the site may have been seasonally visited (Stevens, 1997, 69). The pollen evidence suggests that it was set in a wooded area with clearings and the charcoal remains suggest the use of local trees for fuel (Stevens, 1997, 69). Further, he points to Buckley's (1986, 70) theory that burnt mounds represent the remains of ritual feasts and suggests that this may have been related to hunted prey at this site (Stevens, 1997, 69).

E53 - Saxonbury

On the summit of a hill in the High Weald region and with long views, Saxonbury constitutes an inner enclosure by dry stone wall circumscribed by a later enclosure by double earthen banks and a ditch between annexing c 0.5 ha in total. The hill is covered by trees and shrubs today, making exploration difficult but it was examined by SE Winbolt in 1929 and 1930 (Winbolt, 1930, 222), thus offering some data.

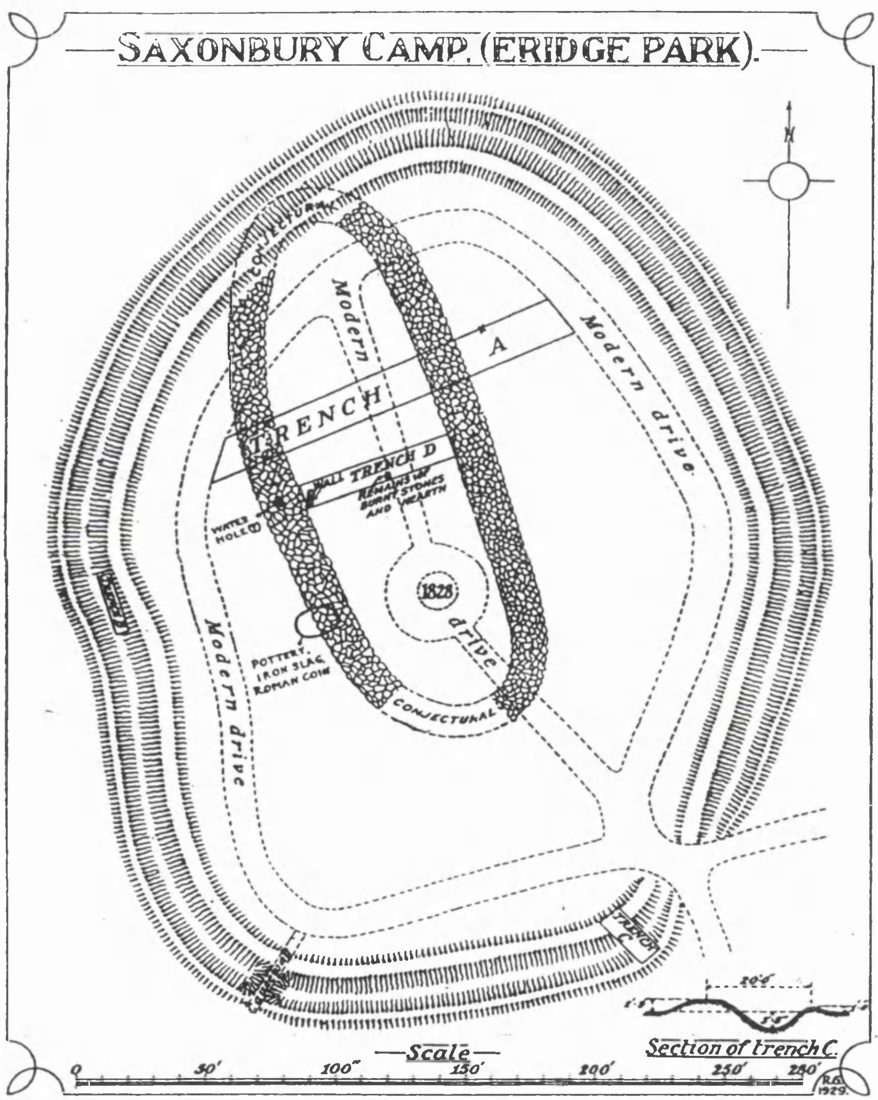


Figure E.45 - General site plan of Saxonbury (source: Winbolt, 1930, fig. 1)

In the first phase, occupation took an entirely unknown form and is indicated only by the footings of a dry stone wall underlying the inner oval tracked for a short distance into the interior of that oval where it projected at an angle (see 'wall trench D' on figure E.45, above) (Winbolt, 1930, 228).

The elongated oval itself (71 * 29 metres) is formed by a drystone wall laid onto the bedrock on a natural small and level plateau (Winbolt, 1930, 226). The wall is substantial being c 170 metres long, with a base c 5 metres wide and thought to have been originally c 1.5 - 2 metres tall as a result (Winbolt, 1930, 226, 235-236). Its entrance was probably to the south and there may have been another at the north, from whence a 'hollow way' can be traced for some distance (Winbolt, 1930, 226, 235-236). In the centre of the oval are a group of burnt stones, a hearth, charcoal and iron slag and within the wall itself is a 1.3 metre square 'pocket' with a c 30 cm deep base of imported clay which is overlain by charcoal and iron slag; Winbolt (1930, 229) suggests that this may have been a water purifying hole or a clay store but it may equally have been a feature used for a cooling process in iron working.

A subsequent enclosure overlies the oval at the north end (Winbolt, 1930, 235-236) and it is also an irregular oval c 114 * 89 metres with an entrance to the south-east thought to have been original in that the banks are heightened at that point (Winbolt, 1930, 227). A second gap is in the form of a causeway at the south-west but that may not have been contemporary (Winbolt, 1930, 227). The enclosure takes the form of a double bank (set c 6.2 metres apart from their centre points), constructed of big stones and earth, with a ditch between (no dimensions given) (Winbolt, 1930, 228). Investigation produced no stratified finds of use in dating either enclosure but in the interior of the site were *'numerous sherds'* of *'La Tène III'* pottery now dated to the C 1st BC, together with a coin of Vespasian or Titus (c AD 69 - 81) and quantities of iron slag (Winbolt, 1930, 228).

The site is similar in some respects to sites on the Downs where earlier enclosures were encircled on a wider diameter, with the outer enclosure overlying the inner at a point on the circuit (particularly Wolstonbury E68 and Thundersbarrow E61). Winbolt (1930, 231-232) comments on the similarity to other (unspecified) sites in this respect and on that basis places the inner enclosure at the Bronze Age, or earlier. That is certainly a possibility given the more southerly examples. However, almost all the pottery found is late Iron Age with only one or two earlier sherds and a few later (Winbolt, 1930, 233). Thus, the conservative view taken in this work is that the outer enclosure was most likely to have been built in the 100 BC - AD 43 period and that the inner oval may not have long preceded it.

E54 - Seaford Head

Comprising an earthwork demarcating an arc to the cliff edge known as Seaford Head enclosing 4.2 ha today (but eroding at a fast rate), this simple site was examined by Owen Bedwin in 1983. The approaches are very steep to the west but more gradual from the north and east; the cliffs are unassailable today (Bedwin, 1986, 25).

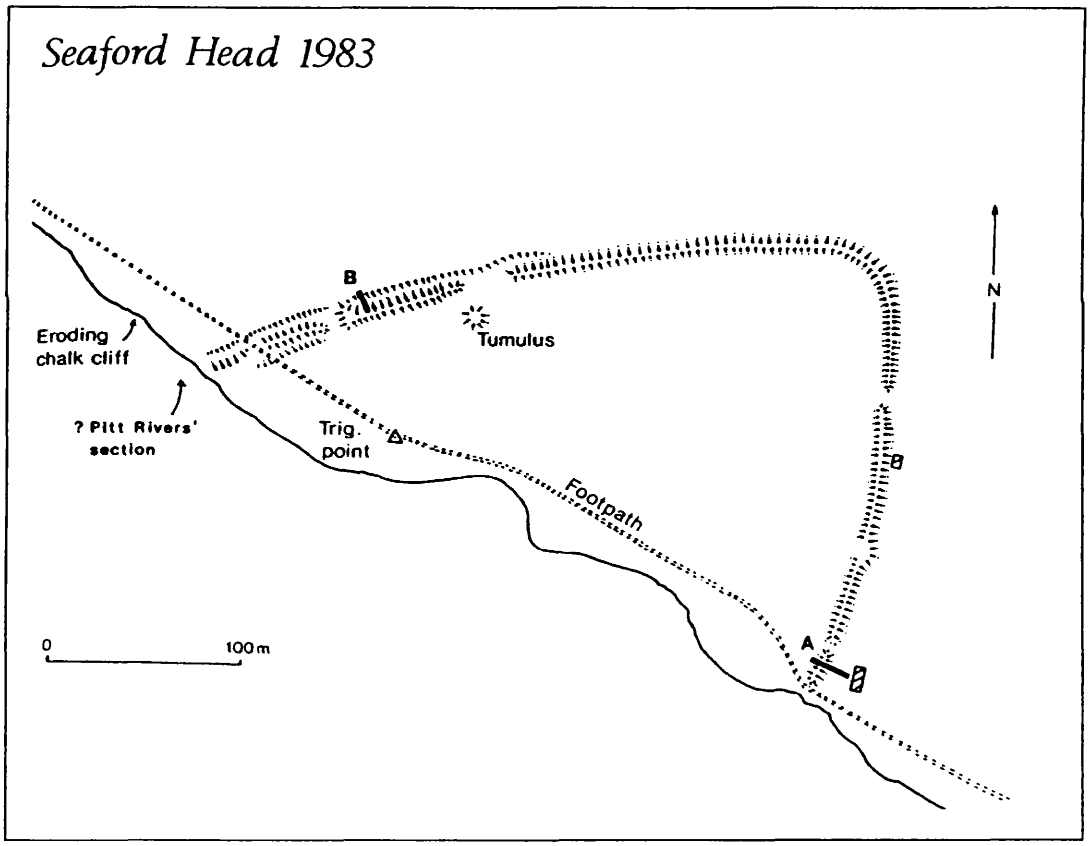


Figure E.46 - General site plan of Seaford Head (source: Bedwin, 1986, fig. 2)

The sole surviving internal feature is an early Bronze Age low round barrow opened by Pitt Rivers in 1876 at which time a section was cut through the enclosure at a point which has since fallen into the sea (Bedwin, 1986, 25). That excavation revealed a ditch 2.1 metres deep with sterile chalky rubble in the bottom to a depth of 1.3 metres; above that layer were quantities of

Romano-British material (Bedwin, 1986, 25). However, some of the sherds found in the interior were clearly first millennium BC in origin (Bedwin, 1986, 25).

Owen Bedwin's 1983 excavation was conducted with a view to getting a more clear idea of the date of construction and comprised two further sections through the ditch and bank revealing pottery which was considered typical of the early Iron Age (C 6^{th} - C 5^{th} BC) (Bedwin, 1986, 30) at that time. Sue Hamilton has reassessed the assemblage in the light of her review of early first millennium BC pottery technology and typology in Sussex (Hamilton, 1993) arriving at a date of the late Bronze Age (c 1000 - 750 BC) on the basis of the one diagnostic rim sherd (illus. Bedwin, 1986, fig. 6) found in the lower fills of the ditch (Hamilton and Manley, 1997, 97).

The external ditch proved to be up to 2 metres deep with a wide, flat bottom (c 3 metres) and the internal bank c 1.5 metres high with wooden revetting evident using posts set c40 cm apart; the berm was c80 cm + and, at an undated point in time, the bank was increased to c2 metres high. (Bedwin, 1986, 29-31).

E57 - Shinewater

Excavation to provide a new lake in a landscaping project in 1995 revealed and disturbed previously unrecorded archaeological remains (Greatorex, 1995, 1) of some significance in that they include large quantities of *in situ* waterlogged material in a context unprecedented in Sussex or, indeed, anywhere in central Southern Britain. Work was stopped to allow an archaeological investigation to take place in the disturbed areas, by the Institute of Archaeology Field Unit led by David Rudling, and the site as revealed has been consolidated and protected pending direction on the way forward (Greatorex, 1995, 1).

Palaeoenvironmental evidence is interpreted as indicating a period of marine transgression followed by an episode of freshwater fen which experienced seasonal flooding, exposing the peat surface, followed by a sustained period of marine transgression and salt marsh and, finally, reclamation of the land (Robinson, 1995, 33). By analogy to Romney Marsh (to the east), it is suggested that the period of freshwater fen occurred in the middle Bronze Age (c 3000 BP, i.e. 1050 BC) but marine flooding became evident in the deposition of clay at some time during the first millennium BC (Robinson, 1995, 33), The site itself is predominantly associated with the freshwater fen peat layers.

A number of lines of evidence argue for refinement of the date to the C 9th BC:-

1. Two calibration plots for radiocarbon measurements from sapwood of one timber (BM-2990 and BM-3002) *'show that there is a very high probability that this timber was felled during the ninth century cal BC'* (Needham, n.d., 1, enclosures.).
2. A radiocarbon date for a sample from the wooden handle of a socketed sickle (OxA-6176) *'accords well with the BM dates on the timber from the platform and helps confirm use of the site in the ninth century cal BC'* (Needham, 1996b, 1, enclosures).
3. Artefacts of *'rarer materials'*, many of which are also rare examples of their type, tie in with a date range of 900 - 700 BC, especially amber beads which are standard for the period although not common, an antler cheekpiece of a 'Class 1' type of British late Bronze Age, lead 'purse' pendants comparable with those found at Flag Fen in Cambridgeshire and a shale bracelet (Needham, 1995, 43-45).
4. The pottery assemblage, which is dated to a single broad-phase of site activity during the C 9th - C 8th on stylistic grounds (Hamilton, forthcoming, 2). Stylistic comparison is with the local Sussex sequence for the most part, but the assemblage also includes vessel forms which are very unusual for Sussex, yet which are distinctive components of the assemblages at sites in the Thames Valley (especially Mucking South Rings) and eastern sites, especially Minnis Bay, Kent and West Harling, Norfolk (Hamilton, forthcoming, 4). Furthermore, it is even possible that there are imports of fine ware comparable with wares of northern France (especially Choisy la Bac, Oise) (Hamilton, forthcoming, 5-6).

Thirty timber samples were analysed by dendrochronology and cannot be dated because the sequence is incomplete but the majority were felled in one year although there is evidence of repairs and alterations using timber felled up to ten years later (Hillam, 1996, 1, enclosures). Thus, it would appear that the site was probably built in a year and, as it was not repaired after c

10 years on the sample excavated, it is likely that it was abandoned within a century as indicated by the dating evidence (above).

The site as revealed comprises one, or perhaps two, timber platforms approached by a timber trackway and, possibly, by a clay causeway (Greatorex, 1995, 14). Elements of the site were revealed in five areas of the lake site by the landscaping work and these are referred to as areas A to E in discussion. Note that the exercise has been an investigation of those areas exposed by chance and not an excavation *per se*.

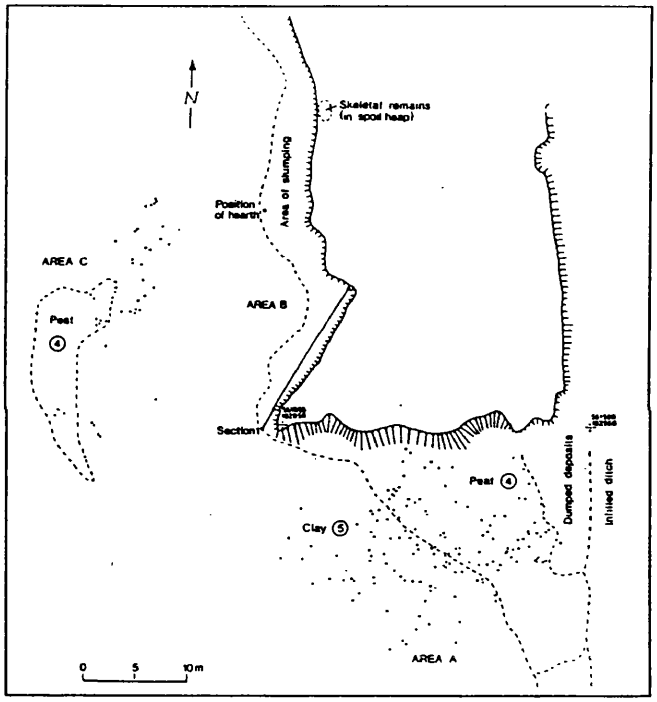


Figure E.47 - The areas investigated at Shinewater (source: Greatorex, 1995, fig. 2)

Area A

The area was severely truncated by the landscaping work but split and warped posts were seen sticking up vertically and a platform is indicated by some horizontal spars and brushwood set in the top of the peat which survived the mechanical stripping. Finds of large quantities of pottery, animal bones and worked bone artefacts, struck and fire-cracked flints and quernstone fragments found in association on the surface of the peat are all thought to indicate an occupation layer above the peat, destroyed by the digging operation (Greatorex, 1995, 8).

Area B

A section through the full site stratigraphy was exposed by contracting works and cleaned by hand and recorded, showing clear evidence of a solid wooden platform and three thin layers of reed or rush matting which are interpreted as floor layers associated with the platform (Greatorex, 1995, 10-11). Three raised hearths are separated from the platform and floor layers by clay deposits, similar to those at the Glastonbury and Meare Lake Villages (Greatorex, 1995, 11). Large quantities of pottery, animal bones, quernstone fragments and struck and calcined flints confirm that occupation continued in this direction (Greatorex, 1995, 12).

Area C

Severely truncated by machine stripping of the peat layer, the evidence is limited to a number of vertical posts associated with a low density scatter of pottery and animal bone, but no platform is indicated.

Area D

A large spread of timbers and a linear alignment of posts, associated with a scatter of pottery, animal bones and fire-cracked flints is thought to be originally part of a trackway, of which c 60 metres is preserved (Greatorex, 1995, 13-14). The trackway has been traced further to the west (at TQ 561102) and takes the form of three parallel rows of vertical timbers with horizontal timbers and rods between to create a surface; some posts in area C could be part of this alignment and lead across area D toward the platform in area B (Greatorex, 1995, 14).

Area E

A clay causeway (8 metres wide) with flanking ditches was recorded in a trench across. The vertical posts appear to be associated with the causeway but no artefacts were located, so this has not been dated. (Greatorex, 1995, 14).

An unprecedented (for Sussex) proportion of the finds from this site are regarded as being rare and unusual and 'high status' as a result. The pottery rarities have already been mentioned but there are also antler cheekpieces, a socketed axe which may have come from northern Holland or North West Germany (a virtually unknown occurrence in Britain) and copper alloy artefacts in a quantity which is unusual in itself (Greatorex, 1995, 9). The location and the pristine condition of the higher-status artefacts could be thought to indicate a ritual and / or ceremonial aspect to the site and they may, indeed, have been deliberately deposited in the peat by digging down from a higher level (Greatorex, 1995, 9). However, this is thought unlikely to have been the primary purpose for the site on a number of grounds. Not only is the 'normal' occupation evidence considerable but also, if the site is compared with the assuredly 'ritual' site at Flag Fen, it is apparent that most objects were deliberately broken or damaged, were dominated by weapons and ornaments, and deposited in the water rather than the ground surface at the latter (Greatorex, 1995, 9-10). Similarly, human remains are few on the evidence from Shinewater so far, although they do include 17 human cranium fragments in the upper peat and a disarticulated skeleton of a 10-12 year old with a small pot and a shale bracelet fragment, found in a contractors' spoil heap (Greatorex, 1995, 10).

The animal bone evidence is more likely to be representative at this site as it does not come from ritual deposition in pits and it shows a preponderance of pig (at c 30%) which is unusual for downland sites. Some of the pig bones are noteworthy for being particularly large, suggesting that wild boar may have been hunted from the settlement (as well as deer). (Stevens, 1995, 50-52).

In summary the interpretation, as a result of the assessment exercise, is that this is a particularly high status settlement of unknown extent built within a year in the C 9th BC and unlikely to have lasted much longer than c 50 years (100 at the outside). The site could have been abandoned due to marine transgression.

E58 - Slonk Hill

This small, unenclosed settlement lies on the crest of a hill at c 60 metres OD which juts out into the Coastal Plain and overlooks the mouth of the River Adur. The site is c 1.5 km south of Thundersbarrow E61 and near the Kingston Buci E32 site and there is some reason to think that Slonk Hill may have been connected to them both by ridgeways (Hartridge, 1978, 71) although those earthworks have not been dated. Nearby lies a region of further pits located in 1948 and which date between 600 - 400 BC (Hartridge, 1978, 69). The Slonk Hill settlement itself was excavated in 1968 - 74 by a team led by R Hartridge, in advance of road building work (Hartridge, 1978, 71).

Site occupation was divided into three phases showing continuing occupation from 600 - 100 BC (followed by a Romano-British settlement or a temple after a break) although many features are undated (Hartridge, 1978, 74-75, 93). In the first phase (600 - 400 BC)[3] the structural finds comprise one four-post structure, one five-post and one six- , five pits and a 'working hollow' (Hartridge, 1978, 74-76, 91).

Two burials were discovered dating to the 400 - 100 BC phase of occupation of the site. The first was that of an adult female crouched in a grave, laid on her left side with her head to the North and with her hands and feet so arranged as to suggest that they may have been bound; her burial was accompanied by a shale bracelet and a fibula (Hartridge, 1978, fig. 5, 140-141). The second was a young adult male who was placed in an oval pit on a bed of mussel shells in a flexed position with his head facing north (Hartridge, 1978, 80-81, 140).

No clear house structures were found in the limited area excavated but the presence of a few undated gullies and linear features (Hartridge, 1978, 79), taken in conjunction with the evidence of working at the site and burials does suggest that this may have been a settlement for people rather than a facility solely for animals.

[3] Hamilton (pers. comm.) would place this as possibly earlier (c750 - 600 BC), as the assemblage includes a plainware, post-Deverel-Rimbury element.

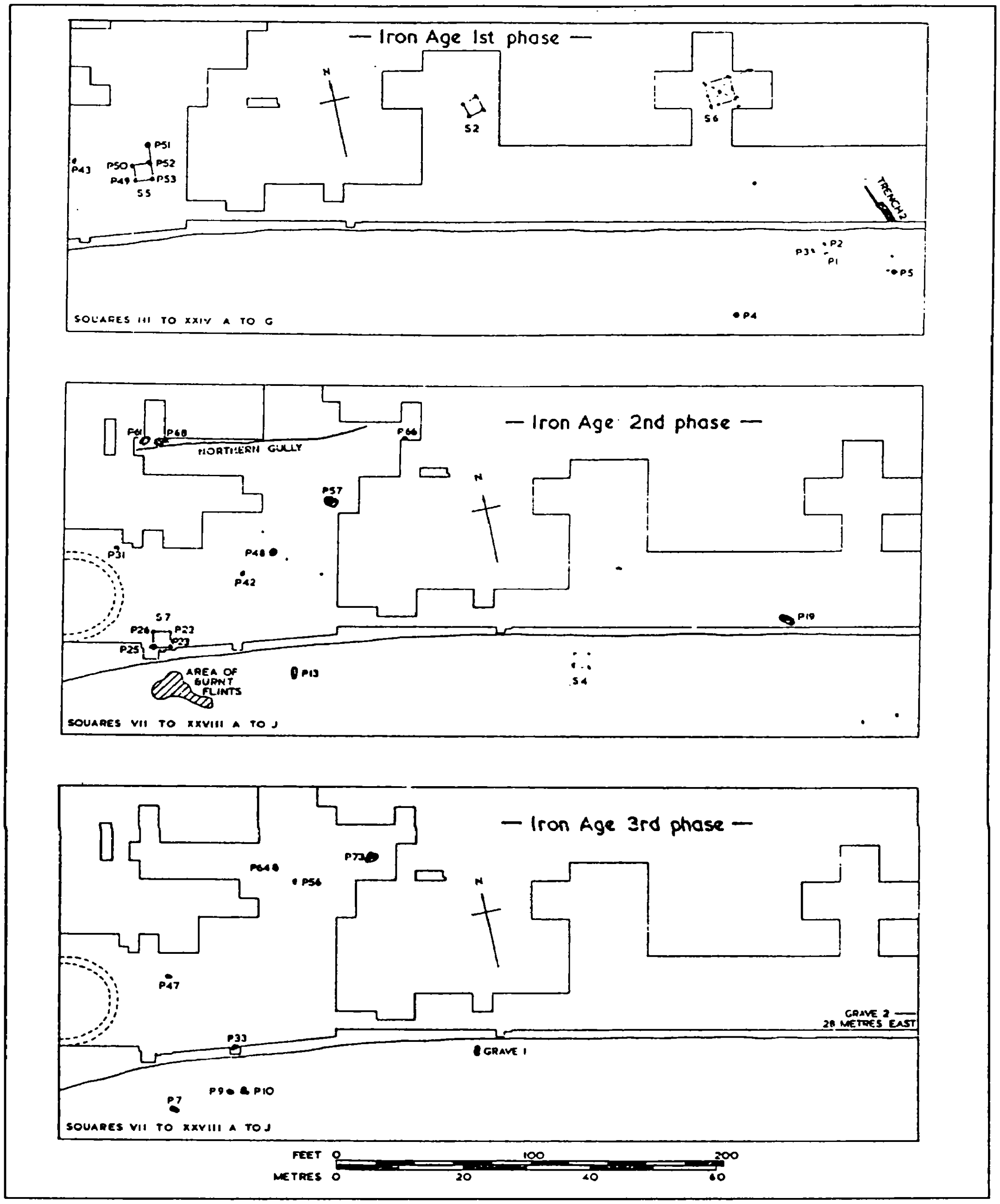


Figure E.48 - First phase at Slonk Hill (source: Hartridge, 1978, fig. 4)

E61 - Thundersbarrow

At a middle point on a chalk ridge the ground rises to a hump on the summit of which lies the small quadrilateral enclosure of c 0.6 ha (extended in a later period - see below) defined by a V-shaped ditch between 0.7 - 1.0 metres deep and 1 metre wide at the top with a corresponding very slight, simple dump built bank on the inside and entrances at the west and east as revealed by survey and very limited excavation by E. Cecil Curwen in 1932 (Curwen, 1933, 109-133). Further excavation work has been done by David Rudling in 1985 but is unpublished, to date.

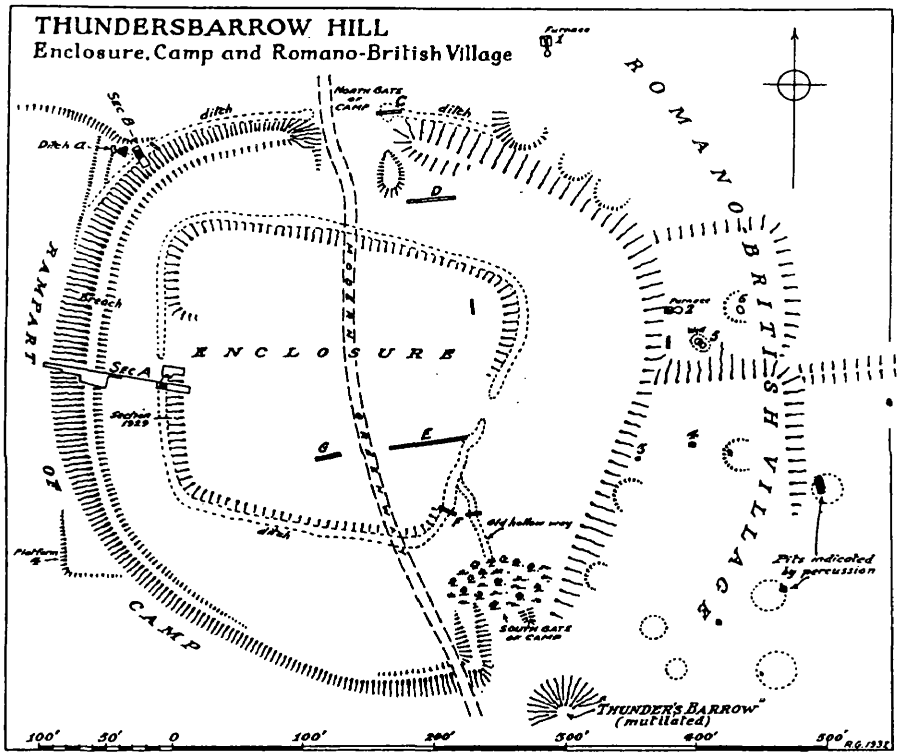


Figure E.49 - General site plan of Thundersbarrow (all periods) (source: Curwen, 1933, pl. XVII)

Hamilton and Manley (1997, 97) record that the early enclosure discussed here has produced pottery characteristic of the C 9th BC from the middle ditch fills and that the otherwise sterile basal ditch fills produced a piece of antler dated by radiocarbon analysis to 1670 - 1320 cal BC (HAR-2182). Thus, it is conjectured that the site was first occupied in the middle Bronze Age and continued into the C 10th - C 9th BC at least.

There may have been a gap in the period of occupation of this site before the wider enclosure of c 1.2 ha by a shallow ditch, probably never deeper than c1.0 - 1.3 metres and 3 metres wide, and a low, simple dump bank on the inside which could have been up to 7 metres broad judging from the extent of the old turf line (Avery, 1993, 335). The bank, when excavated, was only 0.7

metres high (Curwen, 1933, 118-120). Taking those points together, the bank cannot have been very much higher when constructed and may not have suffered from plough damage as much as commentators have previously thought.

A gap in the ditch and bank was noted just to the east of the modern northern entrance but was not excavated by (Curwen, 1933, 120-121). Speculation on these points should become unnecessary when the information from Rudling's 1985 excavation becomes available. Sue Hamilton analysed the pottery finds from that season and records that the sherds from the enclosure date its building episode to c 600 - 500 BC (Hamilton, 1993, 343).

Unfortunately, the interior has not been excavated at all so nothing is known of the nature of occupation.

E62 - Torberry

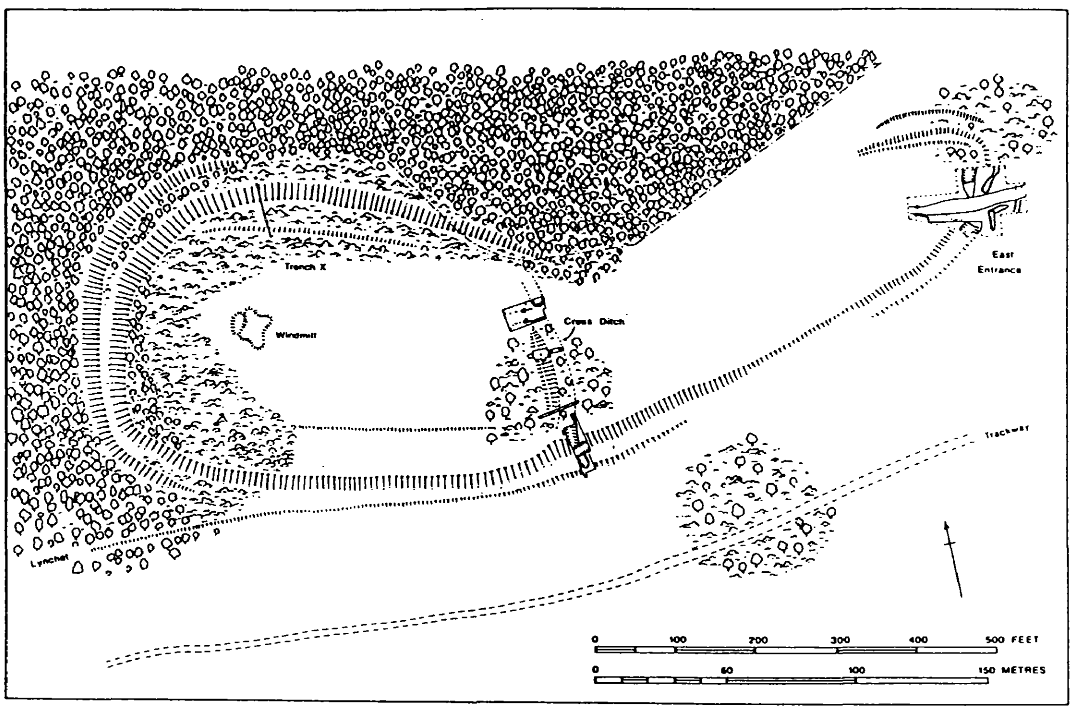


Figure E.50 - General site plan of Torberry (all periods) (source: Cunliffe, 1976, fig. 2)

The scarp slope of the Sussex Downs is connected to the Great Torberry 'elongated' hill by a neck of chalk known as Little Torberry, forming a hill which slopes away very steeply on the north, west and south sides (Cunliffe, 1976, 1). At this period, that terrain was utilised to form an effective enclosure of c 1.4 ha by the simple expedient of annexing the promontory by a cross-ditch and bank.

Excavated by JR Boyden in 1956 - 58, there was considerable delay to publication of the excavation by Cunliffe in 1976. The cross-ditch was found to be flat-bottomed, c2.4 metres deep and 5.5 - 6.0 metres wide with natural silting at the bottom on top of which lay evidence for deliberate fill by large, freshly quarried chalk blocks (presumed to be in preparation for the later extension - see below) (Cunliffe, 1976, 3-4). The associated bank survived to 0.6 metres and was built directly on the surface of natural chalk, in a timber-laced box form with timber revetting between posts set at 2.7 metre intervals and with 4.6 metres between the outside and inside rows (Cunliffe, 1976, 3-4). The roughly central entrance is simply constructed, as represented by two pairs of posts (which need not have been contemporary) approximately 4.5 metres apart and flanked by gullies which may have supported palisades or simply bedded fences designed to discourage access to the berm (Cunliffe, 1976, 3-5, fig. 4). The roadway itself did not exceed 2.7metres in width and is marked by a slight hollow (Cunliffe, 1976, 5). The pottery associated with the cross-ditch is the earliest found on site and of the type known as 'Kimmeridge-Caburn' which Cunliffe (1976, 23) dates to c600 - 400 BC, a view which Hamilton has been able to refine and adjust in the light of the wider Sussex picture to suggest a range from 500 - 300 BC (Hamilton, 1993, 349).

The earlier cross-ditched site was extended, fully encircling the western end of the hilltop enclosing the 1.4 ha on all sides by a bank of unknown dimensions but with an outer V-shaped ditch some 2.4 metres wide and 1.8 metres deep (Cunliffe, 1976, 25, 3). At some time after that, the enclosed area was extended to surround a further hectare in front of the cross-ditch and that work was slighted; the entrance was moved to the eastern end of the new enclosure, but little is known of its original form (Cunliffe, 1976, 25). The original entrance was modified by the building of substantial stone walls across the ditch ends to create a long in-turned entrance, at the head of which was a massive timber gate (Cunliffe, 1976, 25, 8-12). That gate was deliberately destroyed and the walls thrown down to block the roadway (Cunliffe, 1976, 25, 12-13). Nothing is known of the interior, which remains completely unexcavated.

Dating is entirely based upon ceramic evidence in that all of these phases are associated with saucepan pots, suggesting that all changes took place in the period 400 - 100 BC on the strength of Hamilton's (1993, 346-348) revision of dating for these styles (which included this assemblage in the analysis). A small group of pottery dating to the AD C 1st was found in the upper silting of ditch C at the eastern entrance and in the uppermost levels of the cross-ditch, suggesting that the site was visited (and maybe ploughed) in the early part of the Roman period (Cunliffe, 1976, 25) but it has been assumed that regular or routine occupation ceased by c100 BC.

E64 - Trundle

Set at the very peak of a conical hill, The Trundle was first occupied as a causewayed enclosure in the Neolithic period (Curwen, 1931, 101; Avery, 1993, 349) but surrounded by a stone-built bank of a nine-sided polygonal shape at some point in the first millennium BC, thought to be in this period by indirect association with finds from pits and the entrances.

Excavation has been slight and little is known of the history of the site but what information there is is drawn from E. Cecil Curwen's excavation seasons in 1928 and 1930 (Curwen, 1929, 1931) and a detailed survey of the site conducted by the Royal Commission for Historic Monuments (England) in 1995 (RCHME, 1995). Curwen's first season constituted a trial hole in the western entrance and some excavation of Neolithic features on the northern side and the second was focused on the contents of three first millennium BC pits within the inner (Neolithic) ring and extensive investigation of the eastern entrance.

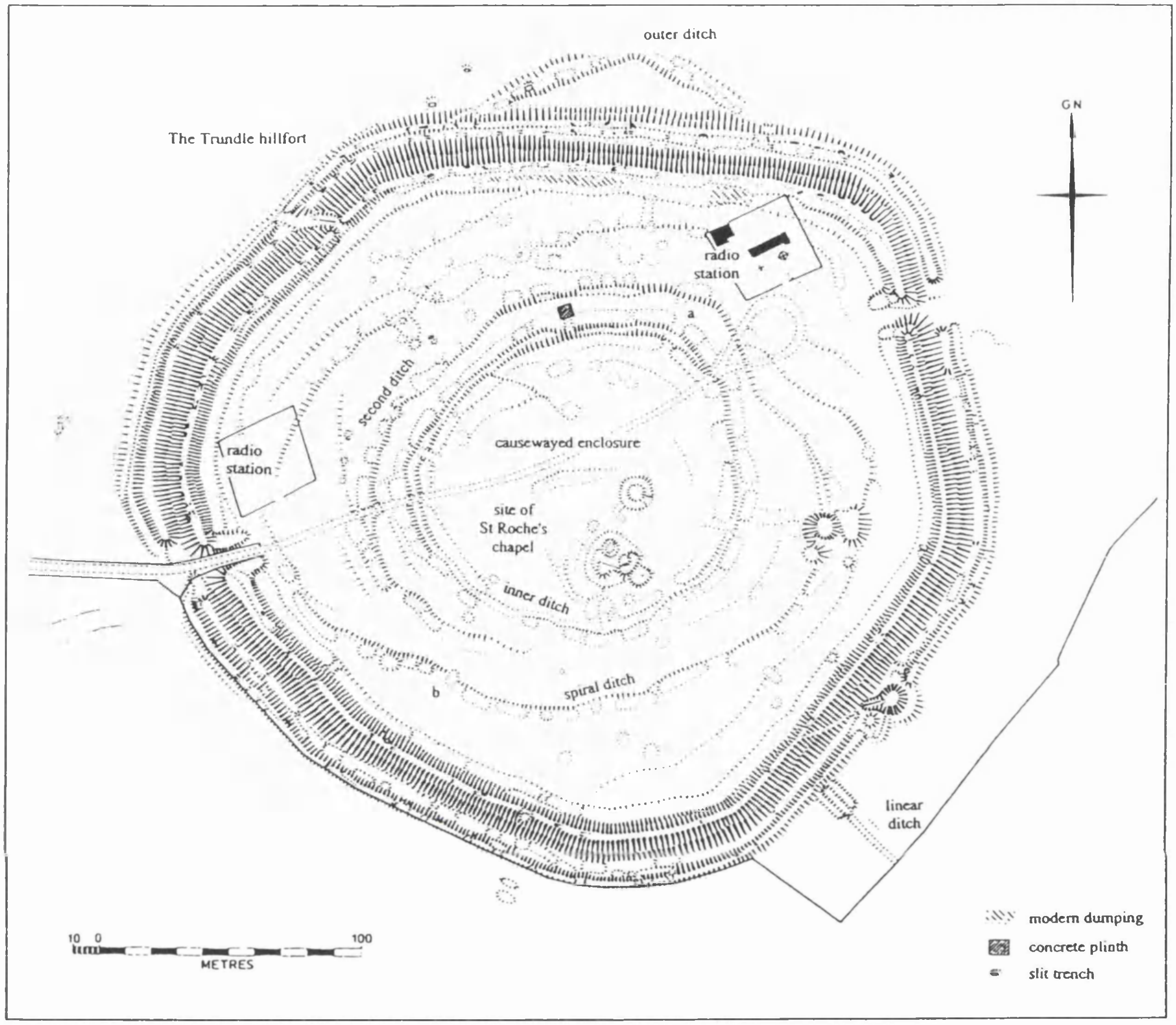


Figure E.51 - General site plan of The Trundle (source: RCHME, 1995, fig. 3)

Most unusually for Sussex, the bank was built of coarse chalk rubble and large blocks of chalk which means that it cannot be reconstructed from the collapsed remains which stand 0.6 metres high at the most (Curwen, 1931, 119). The entrances appear to be turned inward at the terminals making a carefully-engineered passage some 18 metres long in the east (the details of the west are unknown).

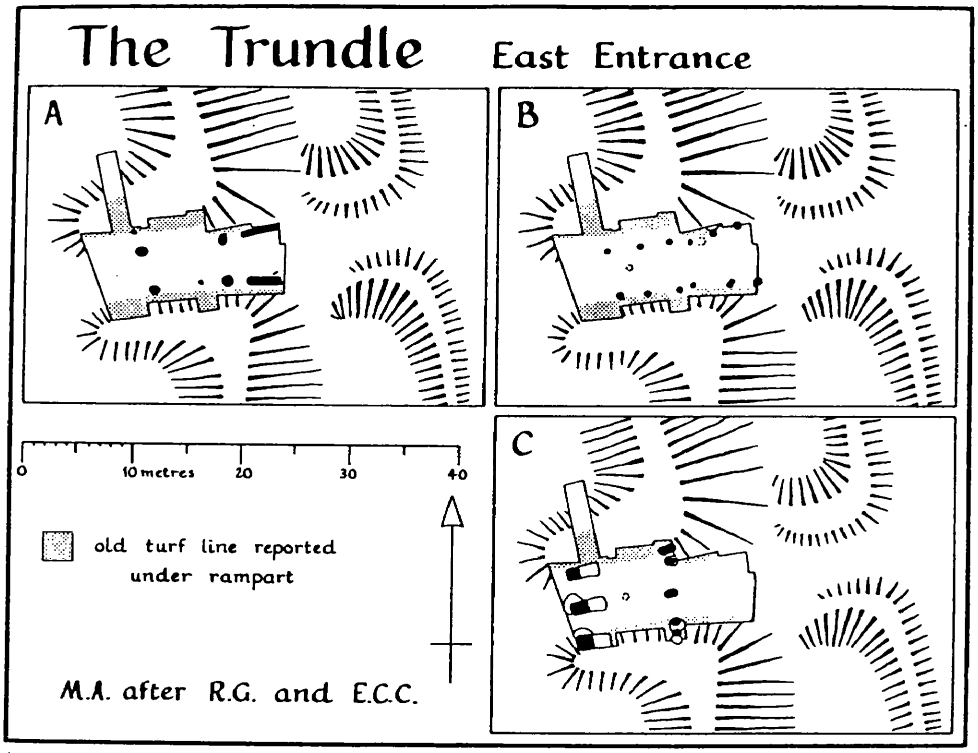


Figure E.52 - Models of the east entrance to the Trundle (source: Avery, 1993, fig. 116)

It would appear that this entrance was re-engineered to different designs on three occasions, but their sequence is by no means clear. Nevertheless, there is slight evidence to suggest that the first version was 'Plan B', a simple timber-lined corridor some 13 metres long and narrowing from 4.9 metres wide at the mouth to 3.7 metres wide at the inner end (Avery, 1993, 349). That may have been replaced by Plan A or Plan C. Plan A is considered to have some parallels with the middle Iron Age entrance to St Catharine's Hill F42 (a fairly close neighbour) in having a double gate complex onto a central post, thus dividing the effective use of the entrance into two passages 14 metres long and totalling c 5 metres wide at the mouth narrowing to c3 metres (Avery, 1993, 349). Finally, Plan C has the very unusual feature of a row of three pits across the inner entrance gap, each c 2 - 2.6 metres deep and 1.3 metres square which appear to have long sloping ramps into them for a distance of c 3.5 metres (Curwen, 1931, 120). The fills of the pits comprise chalk, chalk blocks and heavy flint nodules (some of which are trimmed), together with rotary quern fragments (Curwen, 1931, 120). The excavator found no weathering either of the pit sides or the fill, suggesting that these pits were filled as soon as they were dug (Curwen, 1931, 121). Furthermore, there were no posthole traces within the pits, although they were carefully sought (Curwen, 1931, 121). Nevertheless, no one has offered any explanation other than that they held very large posts for support of some monumental superstructure (Curwen, 1931, 121; Avery, 1993, 349).

The fill of one of those pits contained 2 sherds of saucepan pottery which is critical to dating the enclosure (Curwen, 1931, 120). However, the absence of evidence for postholes in these pits may be explained by the removal of posts followed by deliberate in-filling. Therefore, the pottery could have entered the pits when the posts were removed, not when they were placed. On the other hand, there are a few sherds from the body of the bank and, again, these are of the saucepan pot type indicating a date from c 300 - 100 BC. It is interesting to note that the trial excavation of the western entrance produced a centrally placed pit of the same dimensions and with the ramp feature, suggesting that further investigation may well have revealed a mirror-image of the eastern structure (Curwen, 1931, 120). Associated with the Plan C pits were further postholes arranged to leave a twin carriageway, lined with stone built walls on the outside and with each passage being just over 2 metres wide and Avery (1993, 349) interprets this whole by suggesting that it is just possible that the area of ground covered by those postholes could have supported a roofed bridge or superstructure set some 8 metres in front of a gate.

The other excavated Iron Age features of the site provide another mystery. They amount to three pits of which two have structured deposits in layers which appear to alternate exclusively early Iron Age material with exclusively middle Iron Age, yet which must have been filled in the middle Iron Age because the top layer in each contains early Iron Age material (Curwen, 1931, 114-117 - pits 7 and 8). The third pit contains saucepan pot sherds and a quantity of iron slag, amongst other things (Curwen, 1931, 116-117 - pit 9).

The RCHME survey confirms Curwen's position that the whole was built in nine straight sections (RCHME, 1995, 13) but also serves to introduce the interesting new information that there are fifteen possible house platforms scattered around the interior which are '*generally circular depressions ranging from 5.5 - 8.5 m in diameter, scooped up to 0.1 m into the natural slopes*' (RCHME, 1995, 14). In the course of that work, the surveyors noted several 'slingstones' near both gateways (RCHME, 1995, 13) and 44 potsherds, of which one was a diagnostic rim sherd indicating an early to middle Iron Age date (similar to Curwen's 1931 La Tène I) (RCHME, 1995, 14). Thus, it seems increasingly likely that the Trundle was permanently occupied at some point and visited, at least, in the 600 - 400 BC period but the 'mixed' stratigraphy in the pits would be best explained by suggesting that it was deposited in the 400 - 100 BC period.

E65 - Varley Halls

Located at the southern edge of the South Downs at c 90 metres OD, this site comprises hut platforms created by terracing into the steeply sloping chalk, together with a depression interpreted as a pond, a number of ditch segments and ephemeral traces of sub-division by fencing (Greig, 1997). The site was excavated prior to development work in 1992 by Ian Greig and the South Eastern Archaeological Services and found to be plough damaged on close inspection, rendering some features obscured and presumed to be missing (Greig, 1997, 7-8). In the earlier period, the evidence suggests a small downland settlement said to be analogous with that at nearby Downsview E15 (Rudling, forthcoming) in being set on a steeper slope than might be expected and within ploughed areas (Greig, 1997, 30). Dating is by analysis of ceramics, primarily, although this site proves important in offering radiocarbon determinations which clarify and support that analysis, not only for this site but for other middle and late Bronze Age Deverel-Rimbury assemblages in Sussex with which this has points of analysis in common (Hamilton, 1997b, 41-42).

Site occupation falls into two periods and it is likely that there was a shift of focus and abandonment between.

End second millennium BC

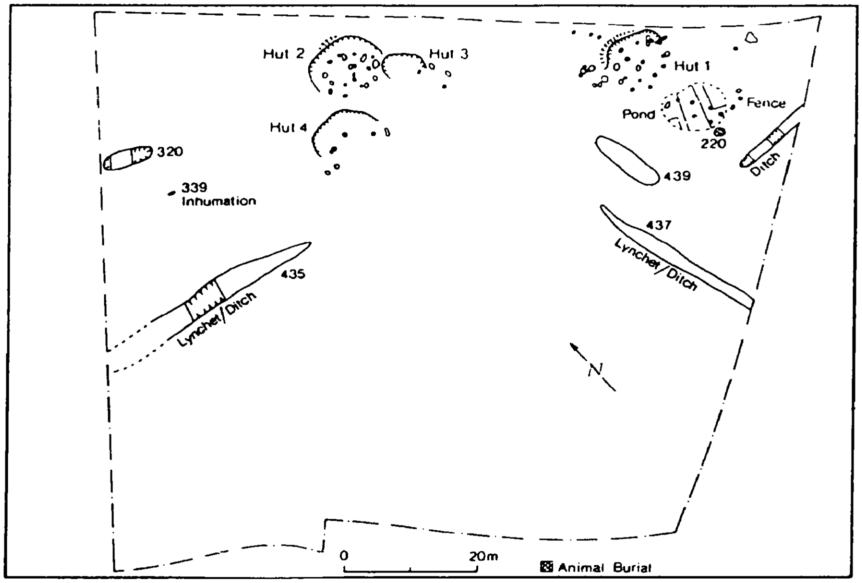


Figure E.53 - Site plan of excavated features at Varley Halls in 1st period (source: Greig, 1997, fig. 3)

In this period, the site as excavated comprises four terraces, three of which definitely housed structures and the fourth of which may have, together with a number of other features in and between the platforms.

Hut 1:

In the first instance, the 6.75 metre diameter terrace housed a round structure supported by postholes c 4 metres in diameter and a central, more substantial post presumed to have supported a roof. The hut was entered by a simple gap to the east c 1.8 metres wide. Stake holes around the outside of the posthole ring are thought to have acted as retaining structure for outer walls of wattle and daub. (Greig, 1997, 10-11). There was no hearth within but the area did include a trodden area implying a bare floor formed from chalk and a number of stake holes (Greig, 1997, 14).

The first hut was completely replaced on the same site with a second, enlarged to c 5 metres diameter and built from more substantial posts packed with flint nodules (some *in situ*) (Greig, 1997, 12-13). Again, the roof was supported with a central post and there was no hearth and an outer wall of stake-retained wattle and daub is assumed. The entrance location and form is uncertain but is thought to have comprised posthole no. 205 (reused) and 226, set c 1.5 metres apart to the east. (Greig, 1997, 14). Internally, holes 179 and 182 are noteworthy for being clay-lined and filled with material which suggests that these were a structure phase 2 feature, thought to be for holding liquid and in such a relationship (with a possible lip) which suggests the collection and sedimentation of clear drinking water (Greig, 1997, 14-15).

The three larger holes to the west of hut 1 are thought to have been small storage pits of this period, as dated by ceramics (Greig, 1997, 15).

Hut 2

Set on a terrace of c 8 metres diameter, this area appears to have housed two huts built on the same site, just as hut 1. The first hut on the site is indicated by a ring of postholes set on a 3.5 metre diameter with a probable central post for roof support. Just as for hut 1 the entrance is a simple gap to the east (c 1.3 metres wide), the postholes are surrounded by stakeholes suggesting an outer wall of wattle and daub and there is no hearth within. (Greig, 1997, 17).

The second hut on the site was constructed in a similar fashion but with a larger posthole ring (4.5 metres diameter) of more substantial posts with flint packing (some *in situ*) just as hut 1. The eastern orientation for the entrance continued and the new simple gap entrance was c1.9 metres wide. (Greig, 1997, 17-19).

The excavator comments that the construction form differed from Black Patch E04 with its reconstructed form suggesting the resting of roof supports on the (higher) bank up-slope of the terrace but is the same as Downsview E15 and Mile Oak E37, two sites nearby; that is useful as publication is pending for the latter two sites (in Rudling, forthcoming). (Greig, 1997, 19).

Hut 3

Immediately adjacent to hut 2 lies a small terraced area (c 4 metres diameter) which has no posthole features although has a small four-post structure immediately to its east (Greig, 1997, 21). Burnt structural debris was found on that terrace in some quantity and includes daub, impressed with wattle and split timber, and charcoal. Interpretation is difficult but the excavator has suggested that the terrace may have housed a 'lean-to' type structure, perhaps with associated storage (the four-post structure) and which may have been the site of a hearth but which, at some point, became the site of the burning of the material for a structure (perhaps its own) (Greig, 1997, 21-23). This is not considered a 'live-in' structure.

Hut 4

The fourth terrace is thought to have been c 7.75 metres across although the steep front edge has fallen away, leaving some reconstruction to the imagination. The full diameter of the post-hole ring would have been c 5.5 metres and there is no stake hole evidence for a wattle and daub outer wall. However, there is a quantity of large fissure-fill fragments in a comparable position and a ledge, suggesting to the excavator a construction form similar to that of Black Patch E04, with rafters coming down to ground level on the top edge of the terrace. The ledge is interpreted as indicating an intention to extend the terrace but in a job which was never finished. Internal features do not survive. (Greig, 1997, 23-25).

Other features

An elliptical hollow (319) of c 7 * 5 metres and 1 metre deep has been interpreted as a probable pond (although it would not have been very effective in retaining water in the chalk without a clay lining) and it has been deliberately back-filled by material which could have come from the excavation of hut platform 1 (Greig, 1997, 25). A group of post holes to the south-east of hut 1 appear to represent a fence line associated with hut platform 1 (Greig, 1997, 25) and a ditch projected into the north-eastern edge of the site running down the slope to a distinct terminal (Greig, 1997, 25). It is a strong possibility that the ditch once held a timber palisade (Greig, 1997, 25). Other linear features are tentatively interpreted as lynchets which, in association with the ditch and the fence, are interpreted as demarcating an archaic field system which is likely to have been contemporary with the settlement (Greig, 1997, 27).

1000 - 750 BC

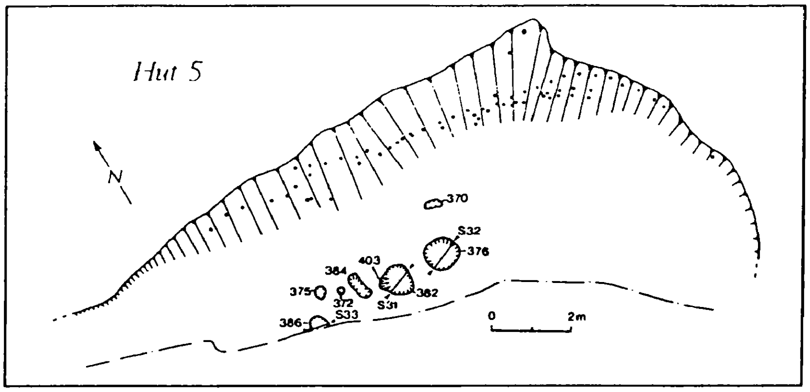


Figure E.54 - Phase 2 elements of Varley Halls (source: Greig, 1997, fig. 13)

In this period, the single large feature is hut 5, situated in the south-west of the site where there are also a number of small features which cannot be dated independently but are probably contemporary. Terming the large feature a hut is debatable, as it appears to be a terrace larger and more irregular than the earlier huts with an edge marked by stake-holes in an erratic fashion and a few postholes in the excavated area. (Greig, 1997, 27-29). If it was a hut, no details of dimensions and orientation are discernible.

Undated features

A burial of an articulated but damaged skeleton of a cow in the north-eastern area of the excavation gives a radiocarbon date of 1010 - 865 cal BC (Greig, 1997, 29 - laboratory reference omitted) placing it as likely to have been in the second period. An unfinished terrace (feature 436) and a number of miscellaneous features cannot be dated (Greig, 1997, 30).

E66 West Blatchington

The site was discovered by excavation targeted at uncovering a Roman Villa and its associated buildings (especially kilns and corn-drying structures) in a built-up area (Norris and Burstow, 1950, 1-8). The first millennium BC elements were not the priority and may also have been substantially disturbed by the building of the villa complex itself; thus, the remains are scattered and comprise two partially uncovered ditches and a few scattered small pits (Norris and

Burstow, 1950, 1-11, fig.19). The 'B' site can be dated to the C 10th - C 9th BC with some confidence as both pottery and bronze metalwork offer input (Hamilton, 1993, 114, 339). The site may have continued through the C 8th - C 7th BC (Norris and Burstow, 1950, 11-12). It may have been enclosed (to judge by the presence of some ditch sections) but too little detail survives to allow any useful input to group dynamics analysis.

E67 - Westhampnett

Situated on low-lying and fairly flat ground some 2 km south of the South Downs, the Westhampnett cremation cemetery site was excavated in 1992 by Bob Davies and English Heritage in advance of the A27 Westhampnett Bypass programme (Fitzpatrick, 1997, 1).

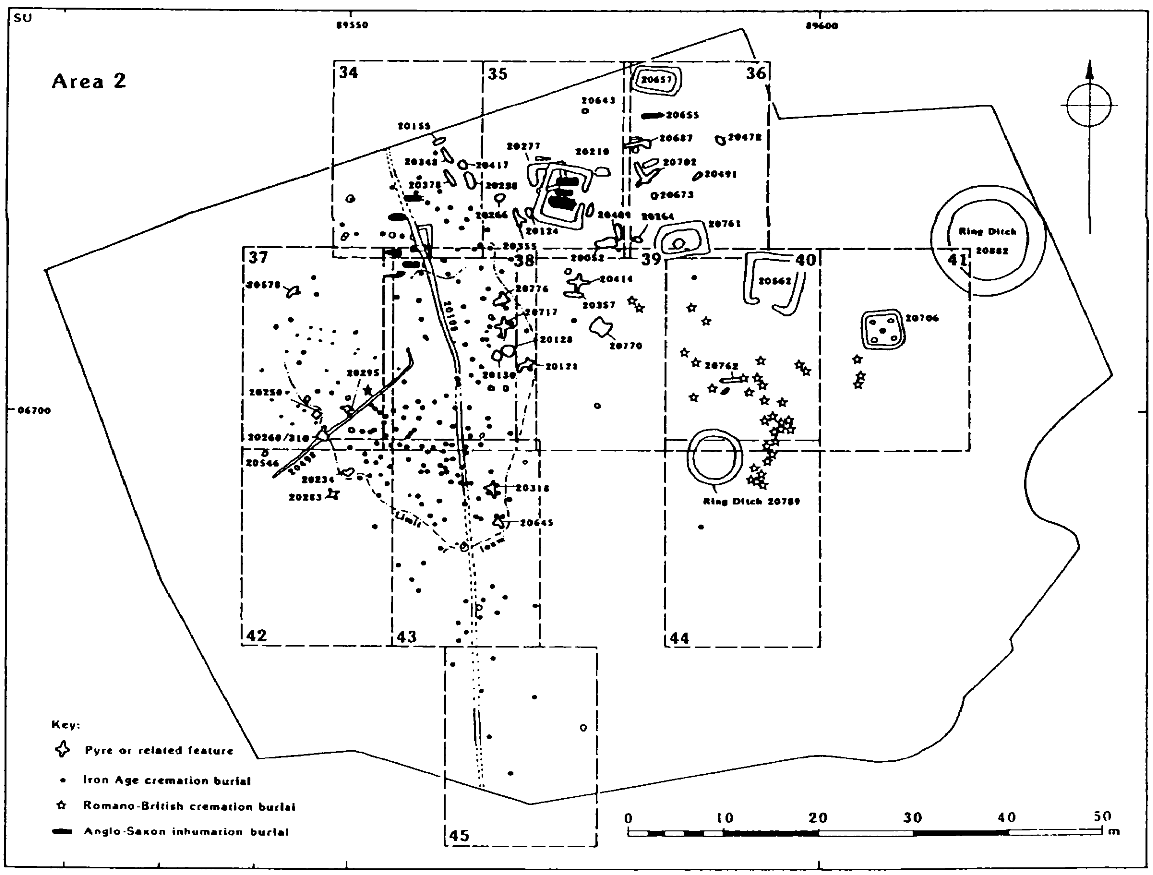


Figure E.55 - Plan of excavated area of Westhampnett site (source: Fitzpatrick, 1997, fig. 6)

The Bronze Age ring ditch (feature 20822) may have provided the original focus for the site location but it clearly did not influence the spatial organisation of the cemetery, being beyond its easternmost extent so it may have acted as a symbol for a sense of place or for a place *'possessed of a spirit'* (Fitzpatrick, 1997, 229). Iron Age features at the site comprise 161 cremation burial sites, a number of pyre sites and related features and four enclosures (20277, 20657, 20761 and 20562) as well as a number of rows of postholes and some possible four- and six-post structures (Fitzpatrick, 1997, 229-231).

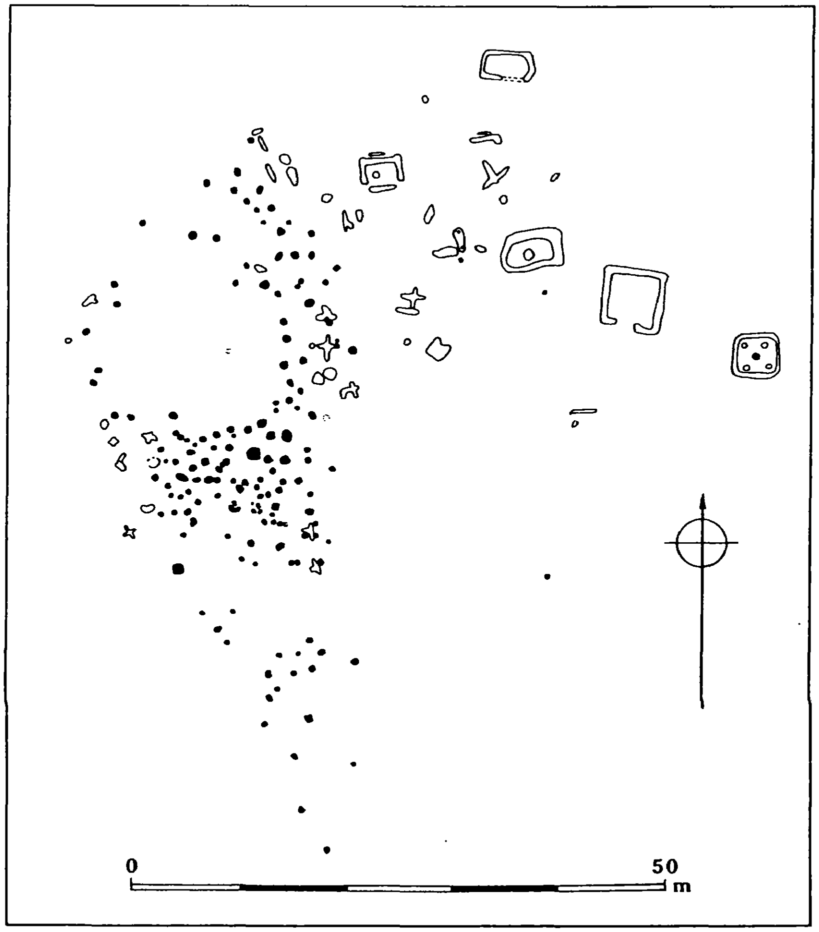


Figure E.56 - Sketch plan of Iron Age features at Westhampnett (after Fitzpatrick, 1997, fig. 136)

A considerable degree of organisation is evident; pyre sites and related features are distributed around the perimeter of the site with a larger concentration in the north-east, the four enclosures are grouped together at the eastern side of the cemetery and the cremation graves respect a circular area, with one exception (20457) which could be an early Roman-British grave, some 70 years older than the rest (Fitzpatrick, 1997, 229-231). One grave (20706) is distinguished by being set apart from the others in a small enclosure which is thought to have parallels with the Lancing Down E34 shrine site and may indicate a concept of *'sacred descent'* or provide a *'symbolic house'* for use in mortuary ritual (Fitzpatrick, 1997, 236). At least two of the four enclosures noted are thought to be shrine sites (20562 and 20277) by virtue of close parallels at Danebury F14 and Heathrow in Middlesex and they are placed on the summit of a small hill (Fitzpatrick, 1997, 229).

A considerable quantity of metal artefacts has provided the main input to a very close dating of this site, suggesting that it is unlikely to have been used for more than 40 years, probably from c90 - 50 BC (Fitzpatrick, 1997, 203-204). Pottery has few close parallels and was probably made or selected deliberately for burial but it is transitional between the St. Catharine's Hill - Worthy Down type and the Aylesford - Swarling which is consistent with that date range (Fitzpatrick, 1997, 204). Furthermore, very few features are dug into others which suggests that the original organising features were never breached and that the site is, effectively, a single archaeological phase (Fitzpatrick, 1997, 204). On current knowledge, the site is not only unusual in this part of the country (as cremation cemeteries tend to be a feature of the south-east and eastern regions) but also may be a little earlier than the main concentration (Fitzpatrick, 1997, 208).

The population burying their dead has been estimated at c85 - 95 and, given the known types of contemporary settlement in the vicinity, the cemetery is considered to have been used communally by several farmstead communities or by followers of a religious sect *inter alia* (Fitzpatrick, 1997, 213). The burials themselves are all 'memorials' to a varying extent, in that the overwhelming majority contain a very small quantity of cremated bone and there is a general lack of pyre debris associated with that (Fitzpatrick, 1997, 213-214). There is some differential spatial distribution by age, in that children (< 12 years) are widely dispersed but at or on the margins of the overall grave distribution, youths (age 13 - 18) are clustered in two main concentrations, adults (age 19 - 45) are evenly distributed and elders (age 45 +) are arranged around the edge of the 'empty' circle from its north-east to south-west quadrant. Furthermore, children have a consistently smaller grave size than adults and elders. (Fitzpatrick, 1997, 214). The four largest graves are set apart by their location (as foci for others to be arranged around at a slight distance), their form (square or rectangular) and their contents (differentially wide range of artefact types) but they commemorate biological men and women equally (Fitzpatrick, 1997, 219).

Of 161 graves, 154 contain some pyre and grave goods. Those artefacts regarded as pyre goods include almost all metal objects (comprising costume fittings including brooches, toggles, keys, a razor and a knife) and animal bone (especially high in lamb and piglet where bone can be identified) (Fitzpatrick, 1997, 220). Grave goods are mainly pottery bowls and jars but 'empty' areas in graves suggest that they may have included some or any of wicker, wood, textiles, foodstuffs and flowers *inter alia* (Fitzpatrick, 1997, 221). Household goods and tools are completely absent and objects for adornment of the body (as opposed to the costume) are generally absent (e.g. no toe or finger rings, no beads and no bracelets; only one torque) and there are no weapons, in striking contrast with other contemporary sites (e.g. Hayling Island F19) (Fitzpatrick, 1997, 221). Although only a small proportion of remains could be sexed, it would appear that artefact type does not correlate with sex although female graves may contain fewer artefact types than male (Fitzpatrick, 1997, 221). However, there are more grave goods and more pyre goods the older the deceased and there may be more metalwork and more jars (in addition to bowls (Fitzpatrick, 1997, 221-225).

E68 - Wolstonbury (a.k.a. Wolstanbury)

The main ridge of the Downs is extended by a lower saddle rising up to the site of Wolstonbury which gives the effect of projecting into the Weald as what the excavator described as a *'bold eminence'* (Curwen, 1930, 237). Unfortunately, the site was greatly disturbed by flint digging activity in the nineteenth and early twentieth centuries but old maps show that the entrance used to be to the south-south-east (now destroyed) and the whole is surrounded by a ditch within a bank enclosing c 2.2 ha (Curwen, 1930, 237-241, plate II).

In 1929, E. Cecil Curwen surveyed the site and then made two small cuttings into the surrounding ditch, revealing it as c 2 metres wide, flat-bottomed and perhaps 1-1.5 metres deep, containing sherds of the late Bronze Age and early Iron Age in the lowest fills (Curwen, 1930, plate ii, 241-243; Hamilton and Manley, 1997, 95-97). Within the enclosure is an oval, shallow, wide scoop which marks off an inner area of c 1.4 ha and which could have provided material for a very slight bank except that no trace of that bank was evident during Curwen's excavation of 7 cuttings into the ditch (Curwen, 1930, plate II, 243-244).

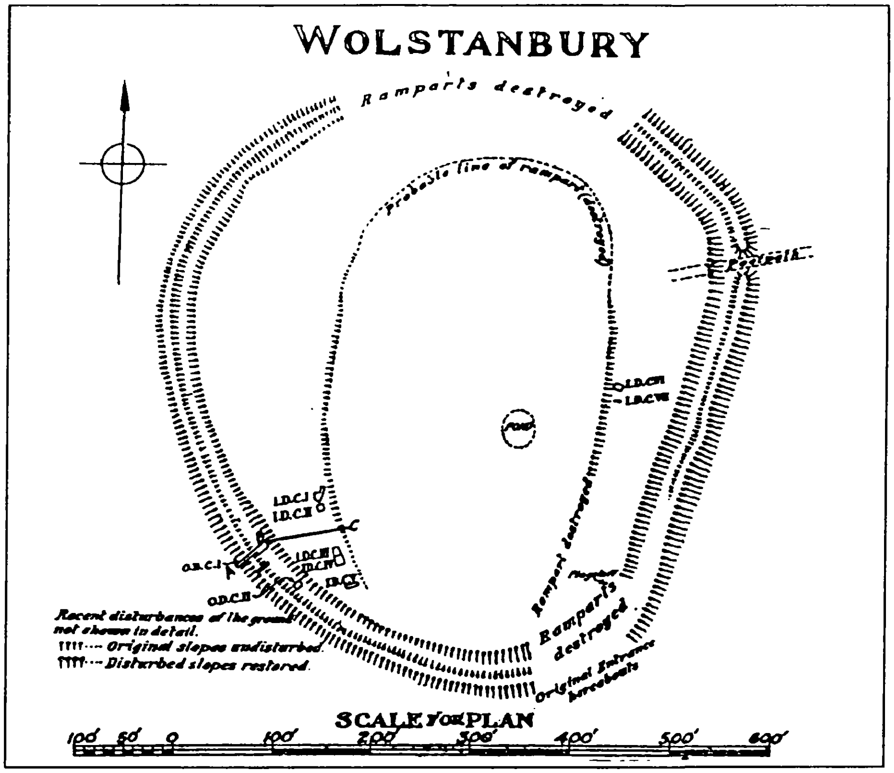


Figure E.57 - General site plan of Wolstonbury (source: Curwen, 1930, pl. II)

Hamilton and Manley (1997, 97) cite an unpublished interim statement from Russell following his 1995 excavation of the outer bank and ditch, particularly noting that late Bronze Age sherds were found together with material (unspecified) from lower ditch fills which could be produced radiocarbon dated to 1030 - 790 cal BC (BETA-94959). The inner oval is thought to be earlier than the larger enclosure, as Curwen (1930, 243) noted that it appeared to be overlaid by the outer rings at the southern end. Thus, the earliest occupation of this site is attributed to the C 10th - C 9th BC and it seems rather likely that the outer rings were built after the inner but still during that 200 year period.

The interior of the site has never been excavated under the aegis of an archaeologist so whether it was permanently occupied or not is entirely unknown.

APPENDIX F - HAMPSHIRE DATASET

Overview of the dataset

The strategy and criteria for collecting, analysing and recording the dataset for the modern county of Hampshire is the same as that described for Sussex (p. 447, above). The attribution to period is similar, but not quite the same, as chronological resolution from dating by ceramic developments varies between the counties. Thus, the summary in table F.1 (below) codes the period attribution columns as:-

'1'	=	end second millennium - 950 BC
'2'	=	c950 - 800 BC
'3'	=	c800 - 600 BC
'4'	=	c600 - 400 BC
'5'	=	c400 - 100 BC
'6'	=	c100 BC - AD 43

Table F.1:-

Site name	***Ref.***	***Gaz. ?***	***NGR***	***Location***	***1***	***2***	***3***	***4***	***5***	***6***
Ashley	F01	Yes	SU 371310	West	Y					
Balksbury	F02	Yes	SU 351446	North West	Y	Y	Y	Y	Y	Y
Beacon Hill	F03	Yes	SU 458573	North	Y					
Blagden Copse	F04	Yes	SU 364523	North West					Y	Y
Bramdean	F05	Yes	SU 627281	East				Y	Y	
Brighton Hill B/C and K	F06	Yes	SU 612488	North East				Y	Y	Y
Brighton Hill X/Y	F07	Yes	SU 612488	North East			Y			
Bury Hill	F08	Yes	SU 364435	North West				Y	Y	Y
Calleva	F09	Yes	SU 639624	North						Y
Chalton 15	F10	Yes	SU 73. 15.	East						Y
Chalton 50	F11	Yes	SU 74. 15.	East				Y	Y	
Chalton 78	F12	Yes	SU 717180	East	Y					
Cowdery's Down	F13	Yes	SU 657352	East		Y	Y			Y
Danebury	F14	Yes	SU 323376	North West			Y	Y	Y	
Easton Lane/Winnall Down	F15	Yes	SU 501309	Centre	Y	Y	Y	Y	Y	Y
Ellingham Farm	F16	No	SU 145084	New Forest	Y			Y		
Franconia Drive, Nursling	F17	No	SU 370153	South	Y	Y				
Grange Road, Gosport	F18	Yes	SU 458100	South		Y	Y			
Hayling Island	F19	Yes	SU 724029	South East						Y
Hook	F20	Yes	SU 73. 55.	North East		Y	Y			
Horndean	F21	No	SU 70. 13.	East						Y
La Sagesse	F22	Yes	SU 35. 21.	West			Y			
Lain's Farm	F23	Yes	SU 269444	North West				Y	Y	Y
Little Somborne	F24	Yes	SU 389328	West				Y	Y	
Maddison Street	F25	Yes	SU 419115	South					Y	
Meon Hill	F26	Yes	SU 35. 34.	West				Y	Y	
Micheldever Wood	F27	Yes	SU 527370	Centre					Y	Y
Nettlebank Copse	F28	Yes	SU 335386	North West					Y	Y
New Buildings	F29	Yes	SU 334326	West	Y	Y	Y	Y		
Oakridge	F30	Yes	SU 642535	North East				Y	Y	Y
Odiham	F31	No	SU 739504	North East			Y			
Old Down Farm	F32	Yes	SU 356465	North West			Y	Y	Y	
Oram's Arbour	F33	Yes	SU 478298	Centre					Y	Y
Owslebury	F34	Yes	SU 525246	Centre					Y	Y
Portsdown I	F35	Yes	SU 672064	South East			Y	Y		
Portsdown II	F36	No	SU 681062	South East				Y	Y	
Portsdown III	F37	No	SU 683062	South East						Y
Quarley Hill	F38	Yes	SU 262423	North West			Y	Y		

Table F.1 (continued):

Site name	*Ref.*	*Gaz. ?*	*NGR*	*Location*	*1*	*2*	*3*	*4*	*5*	*6*
Rooksdown	F39	Yes	SU 66. 55.	North East				Y	Y	Y
Ructstalls Hill	F40	Yes	SU 651515	North East				Y	Y	Y
Silkstead, Winchester	F41	No	SU 456237	Centre				?	?	Y
St. Catharine's Hill	F42	Yes	SU 484276	Centre				Y	Y	
Suddern Farm	F43	Yes	SU 279376	North West			Y	Y	Y	Y
Swanwick	F44	Yes	SU 52. 10.	South		Y	Y			
Twyford Down	F45	Yes	SU 484268	Centre				Y	Y	Y
Viables Farm	F46	Yes	SU 632505	North East					Y	Y
Westbury	F47	Yes	SU 657243	East	Y					
Winklebury	F48	Yes	SU 613529	North East				Y	Y	
Woolbury	F49	Yes	SU 37. 33.	West				Y	Y	Y
Worthy Down	F50	Yes	SU 469350	Centre					Y	Y

Table F.1 - The Hampshire sites dataset

Site patterning through the first millennium BC

The case study period is broken down into each of the date ranges used in GDM analysis (Appendix I - The GDM Analysis of Hampshire) and the contribution of each site in each period in the dataset is briefly noted here, thus making a summary of the site patterning in Hampshire in the first millennium BC. That patterning is made more clear by loosely grouping the sites in discussion and following trajectories of change in a sequence from the east of the county (neighbouring Sussex and part of Surrey) to the west (neighbouring Wiltshire and Dorset).

End second millennium - 800 BC

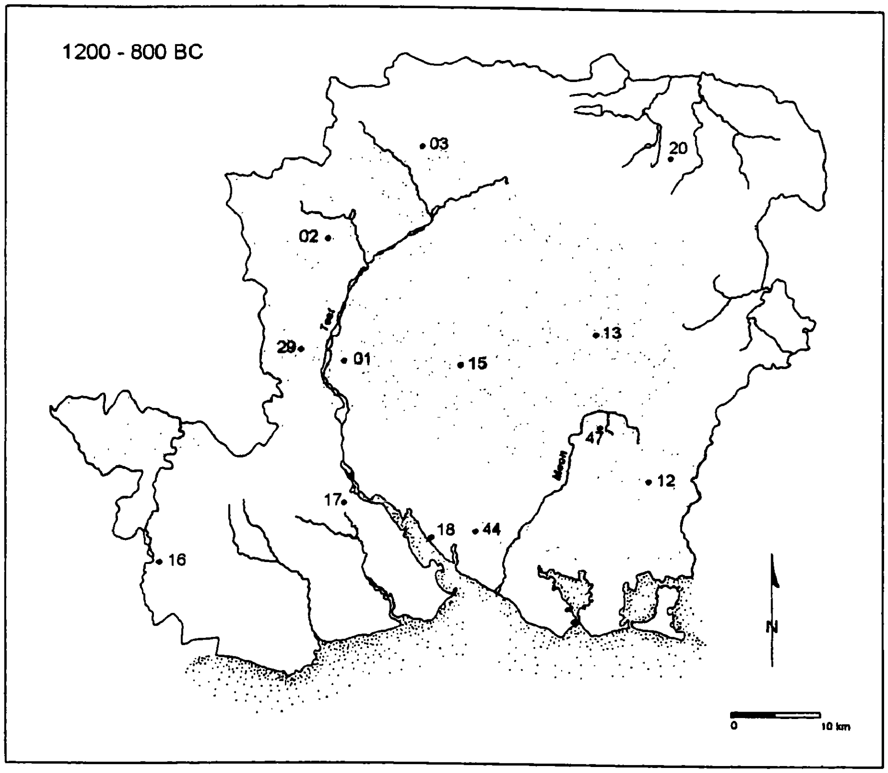


Figure F.1 - Hampshire sites in the period late second millennium - 800 BC

Legend

01: Ashley
02: Balksbury
03: Beacon Hill
12: Chalton 78
13: Cowdery's Down
15: Easton Lane/Winnall Down
16: Ellingham Farm
17: Franconia Drive, Nursling
18: Grange Road, Gosport
20: Hook
29: New Buildings
44: Swanwick
47: Westbury

The known sites for the period are widely and fairly equally distributed. In the east of the county, the small, open settlements at **Chalton 78** F12 and **Westbury** F47 were abandoned by c 950 BC.

In the north-east of the county, the enigmatic site of two ring ditches and a roundhouse (amongst other features) at **Cowdery's Down** F13 provides the earliest evidence in the dataset for settlement in the region of modern Basingstoke which becomes a real focus in later periods (below). Unfortunately, for these purposes, it was subsequently built over in the medieval period with the result that there is a paucity of detail of artefact assemblage by comparison with structural detail. A sub-rectangular enclosure at **Hook** F20 is noted, but excavation was limited and not published which somewhat detracts from the potential value of its contribution. Both of these sites lack the diagnostic evidence to allow more than a general date band of 'late Bronze Age' to be applied which could be any time in the range c 950 - 700 BC (following JD Hill (1995a, 48)). Thus, they could have been wholly built in the next period.

Swanwick F44 constitutes only a deep shaft of the late Bronze Age excavated in the 1920s but the two other known sites in the south have been excavated under modern conditions. **Franconia Drive** F17 was located during a watching brief and features exposed by topsoil stripping recorded in plan only. To the east, a group of 6 pits included one which contained only middle Bronze Age material and one only material of the early Bronze Age but the unstratified finds in the region and the other four pits would not be inconsistent with a late Bronze Age date (Beamish and Hearne, 1994, 36-37, fig. 2; Morris, 1994b, 39). Other features included late Bronze Age material (particularly a ditch section) and the overall morphology of the ditches suggests that there was a *'low-intensity history of land-use consistent with primarily agricultural activity'* at this time; the site was not occupied again until the Romano-British period (Beamish and Hearne, 1994, 40). Also in the south, but unique in being the only known settlement on the Coastal Plain, is the later Bronze Age site at **Grange Road** F18 comprising a small unenclosed settlement of two house structures.

Moving to the New Forest in the far south-west of the county (rather under-represented in the dataset), **Ellingham Farm** F16 was discovered during gravel extraction operations. Excavated features total four pits with ceramic material dating to the C 12^{th} - C 9^{th} BC (and also containing earlier material in the case of pits 312 and 316); the form of the wider context is unknown (Butterworth, 1995, 59, 62-65; Cleal, 1995, 65-68; Morris, 1995, 68-71).

In the centre of the county (near modern Winchester), the **Easton Lane / Winnall Down** F15 site was settled from the middle Bronze Age (if not earlier) by roundhouses within a rectilinear ditch system and continued into the late Bronze Age whilst the local orientation of the general site shifted; the site is of paramount importance to analysis throughout the first millennium BC. To its west lies **Ashley** F01 but limited excavation revealed only ditch features.

Over further to the north-west, the first indications of first millennium settlement in the region of modern Andover occur from the outset in the unpublished modern excavation of an enclosure at **New Buildings** F29 and at the large enclosure at **Balksbury** F02 which remains important to this analysis for many centuries. The hilltop at **Beacon Hill** F03 was also first settled at this time but that information comes from meticulous survey, rather than excavation, and thus the landmark 'hillfort' which developed on the site is not considered in this dataset as too little data is available.

800 - 600 BC

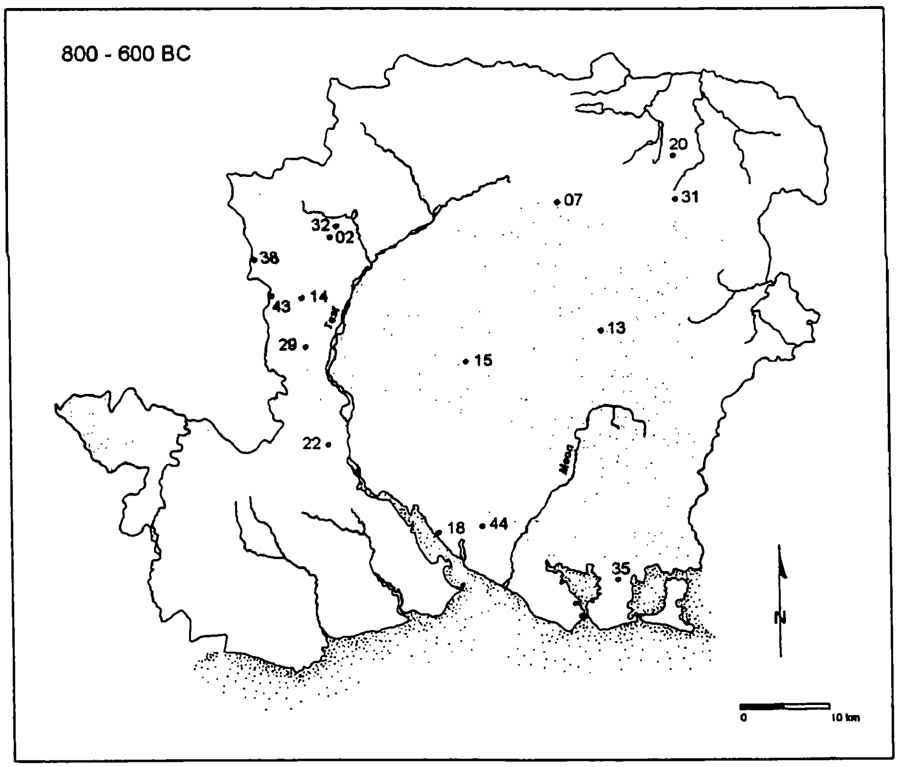


Figure F.2 - Hampshire sites in the period 800 - 600 BC

Legend

02: Balksbury	18: Grange Road, Gosport	32: Old Down Farm
07: Brighton Hill X/Y	20: Hook	35: Portsdown I
13: Cowdery's Down	22: La Sagesse	38: Quarley Hill
14: Danebury	29: New Buildings	43: Suddern Farm
15: Easton Lane/Winnall Down	31: Odiham	44: Swanwick

All sites in the east of the county appear to have been abandoned by this period and there is a distinct 'gap', on current knowledge, between Hampshire and the neighbouring sites in Sussex.

In the south-east, a 'ranch boundary' (developed by an abutting enclosure in this period or the next) has been excavated at **Portsdown I** F35, providing useful data about boundary maintenance. Further round the south coast, the **Swanwick** F44 shaft may have belonged to this period but all material is described as 'late Bronze Age', so it must have been abandoned by c 700 BC. Occupation of the **Grange Road** F18 site continued.

In the north-east quarter, the vagueness of the dating evidence for **Hook** F20 and **Cowdery's Down** F13 is such that it is possible that neither of these sites was built until this period although they have been discussed as falling within 950 - 800 BC (above). The Hook F20's assemblage is described as being 'late Bronze Age' (Ashbee, 1955, 70) so it is probable that it was abandoned by c700 BC. Cowdery's Down F13 did continue in use and may have been developed somewhat in this period (and at any time up to c450 BC). A new settlement site at **Brighton Hill X/Y** F07 has been the subject of limited excavation but provides useful evidence for the longevity of settlement in the Basingstoke area. Investigation of crop marks at **Odiham** F31 oil borehole site was made possible by topsoil stripping, revealing a number of features of which some linear ditches and a roundhouse are likely to have been built and occupied in this period; the assemblage is slight and the full extent of the site not discovered (Jenkins, 1990, 15).

In the centre of the county, **Easton Lane/Winnall Down** F15 continued in its previous form for c50 years but was entirely replaced by an enclosed settlement at some time c750 BC.

Moving to the north-west and westerly areas of the county, after a period of neglect of the banks and ditches, **Balksbury** F02 was refurbished and occupied by a community living in roundhouses and the nearby settlement at **Old Down Farm** F32 was established at much the same time. The **Quarley** F38 hilltop enclosure may have been built first in this period (on limited dating evidence) on the nodal junction of an earlier linear ditch system. A linear complex and ditched enclosure was developed at **Suddern Farm** F43 at some time in the C 8th BC and became associated with the **Danebury** F14 'outer' enclosure built c700 BC which, in turn, was linked to the **New Buildings** F29 enclosure by a linear ditch marked by a pit alignment at the

New Buildings F29 end. Unfortunately, neither the Suddern Farm F43 nor the New Buildings F29 excavations have been published so the details of these interesting relationships are not available for analysis.

Somewhat to the south of the denser occupation lay the assumed settlement site at **La Sagesse** F22, on the river at modern Romsey, considered to have been built between 700 - 575 BC and occupied for 25 years only, to judge by the substantial depositions in the rivulets in the area and careful modern analysis of the well-preserved finds.

600 - 400/350 BC

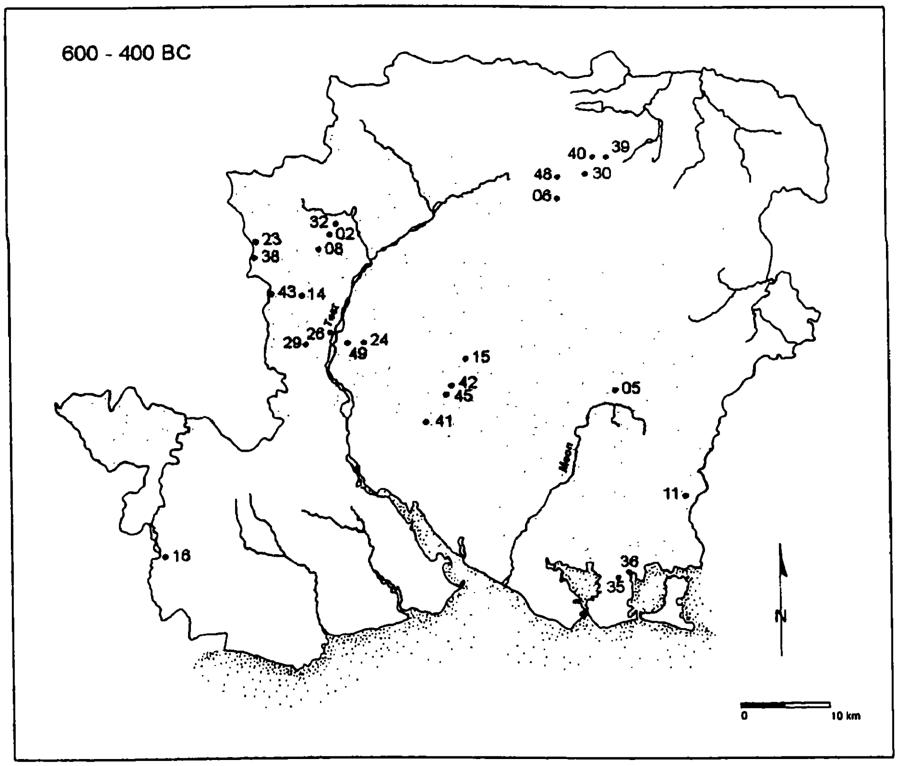


Figure F.3 - Hampshire sites in the period 600 - 400 BC

Legend

02: Balksbury
05: Bramdean
06: Brighton Hill B/C and K
08: Bury Hill
11: Chalton 50
14: Danebury
15: Easton Lane/Winnall Down
16: Ellingham Farm
23: Lain's Farm
24: Little Somborne
26: Meon Hill
29: New Buildings
30: Oakridge
32: Old Down Farm
35: Portsdown I
36: Portsdown II
38: Quarley Hill
39: Rooksdown
40: Ructstalls Hill
41: Silkstead, Winchester
42: St. Catherine's Hill
43: Suddern Farm
45: Twyford Down
48: Winklebury
49: Woolbury

Movement back into the eastern area of the county is signalled by an open site at **Chalton 50** F11 (settled from c 500 BC) and another of uncertain form at **Bramdean** F05. The enclosure added to the linear ditch at **Portsdown I** F35 may have been built as late as this (and certainly continued in use) and the field system at **Portsdown II** F36 (c 460 metres to the east) was probably first established at this time, providing useful contextual information (Bradley, 1967, 57).

In the area of modern Basingstoke, settlement became even more dense as new presence from c 500 BC is indicated in the limited excavations at **Rooksdown** F39, **Oakridge** F30 and at **Brighton Hill sites B/C** and **site K** F06 from c500 BC; **Cowdery's Down** F13 may have continued to c 500 BC. The enclosure at **Winklebury** F48 has been the subject of a much more extended excavation programme, providing important information for this area.

In the centre of the modern county, occupation of **Easton Lane/Winnall Down** F15 continued and the first settlement (probably prior to enclosure) at **St. Catharine's Hill** F42 is evident in a number of pits. A further settlement is indicated by a set of domestic features associated with a field system a little to the south of Winchester at **Twyford Down** F45.

Changes in the established settlement sites in the area around modern Andover and Stockbridge are marked, with the occupation at **Balksbury** F02 continuing, settlement at **Old Down Farm** F32 continuing and changing and the **Danebury** F14 hilltop site being developed on the lines of the 'hillfort' extant today; whilst Danebury F14 became home to substantial occupation, comparatively speaking, from a date toward the end of this period and its associated site at **Suddern Farm** F43 continued, the other associated site at **New Buildings** F29 lapsed from use by c 500 BC. New sites were established from c500 BC at **Bury Hill** F08 and **Woolbury** F49 (unoccupied enclosures)**, Little Somborne** F24 (open settlement) and **Meon Hill** F26 and **Nettlebank** F28 (enclosed settlements).

At the more western extreme, the enclosed settlement at **Quarley Hill** F38 was probably built in this period (but could have been earlier) and a further enclosed settlement is identified at **Lain's Farm** F23. The **Ellingham Farm** F16 watching brief (above) located a further pit containing ceramic material belonging to this period (the C 8th and C 7th BC are not represented) (Morris, 1995, 71).

400/350 - 100 BC

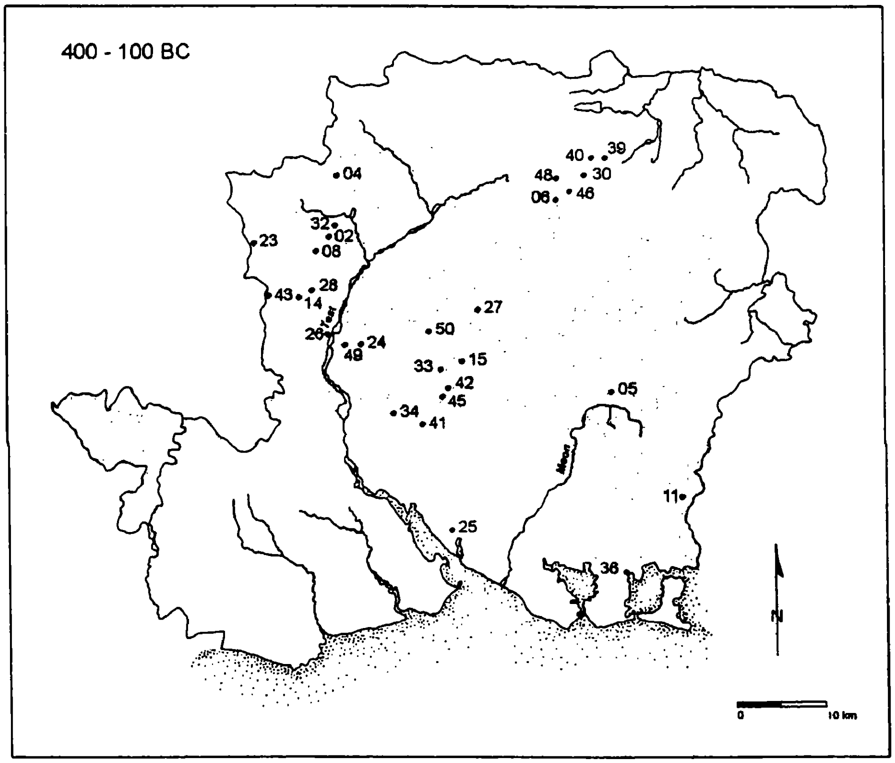


Figure F.4 - Hampshire sites in the period 400 - 100 BC

Legend

02: Balksbury
04: Blagden Copse
05: Bramdean
06: Brighton Hill B/C and K
08: Bury Hill
11: Chalton 50
14: Danebury
15: Easton Lane/Winnall Down
23: Lain's Farm
24: Little Somborne
25: Maddison Street
26: Meon Hill
27: Micheldever Wood
28: Nettlebank Copse
30: Oakridge
32: Old Down Farm
33: Oram's Arbour
34: Owslebury
36: Portsdown II
39: Rooksdown
40: Ructstalls Hill
41: Silkstead, Winchester
42: St. Catherine's Hill
43: Suddern Farm
45: Twyford Down
46: Viables Farm
48: Winklebury
49: Woolbury
50: Worthy Down

Starting at the eastern border of the county, the open settlement at **Chalton 50** F11 reported in the previous period (above) could be wholly attributable to this as the pottery date range is c500 - 200 BC. The **Portsdown II** F36 field system continued. To the north-west of that, the

Bramdean F05 site continued but in a new, enclosed but not settled 'banjo' enclosure form seen more widely across the county in this period in excavated sites at **Micheldever** F27, **Blagden Copse** F04 and **Lain's Farm** F23 as well as in many more sites identified by the distinctive shape as it is seen from the air. Settlement in the south is indicated again in this period by **Maddison Street** F25 site in modern Southampton on the South Coast.

Settlement in the central area intensified further in this period, particularly in the area of modern Winchester where **Easton Lane / Winnall Down** F15 grew considerably in the form of an open settlement densely occupied by comparison with other local sites to a degree which makes it unique in the county and settlement of **Twyford Down** F45 continued as well (although little is known of the detail). Added to that **St. Catharine's Hill** F42, overlooking the Itchen from the east, was the site of a large hilltop enclosure (c9 ha) and the west of the floodplain (at a favourable crossing place) was the site of the very large **Oram's Arbour** F33 enclosed settlement (32 ha) in this period. Working around a circle radiating from the Winchester concentration of sites, the 'banjo' enclosures at Bramdean F05 and Micheldever F27 lay to the east and north, respectively. To the north-west lay the two large ditches and curious pits excavated at **Worthy Down** F50 but the age and limited extent of the excavation do not allow confident interpretation of the nature of the site. The settlement at **Little Somborne** F24 to the west continued in this period and a new small enclosed settlement at **Owslebury** F34 to the south was first built.

Moving toward the long-established concentration of sites in the north-east of the county, the settlement sites at **Oakridge** F30, **Rooksdown** F39 and **Ructstalls Hill** F40 continued in this period and **Brighton Hill South B/C and K** F06 reported in the previous period could be wholly attributable to this. A new open settlement was formed at **Viables Farm** F46 and the enclosed settlement at **Winklebury** F48 appears to have become more densely occupied, in terms of house features, at least.

Over in the north-west of the county, the new 'banjo' enclosure in Blagden Copse F04 has already been mentioned and around the area of modern Andover occupation of **Old Down Farm**

F32 continued in this period although changing its nature considerably as the ditch silted and the evidence of usage is seen in a large number of pits (42) but no structures, in stark contrast to earlier periods. Similarly, the large enclosure at **Balksbury** F02 housed c 90 pits just in the area excavated but no structures at this time. The use of **Bury Hill** F08 enclosure continued without any evidence of permanent occupation of the interior and **Nettlebank Copse** F28 may have continued in use for a while at the beginning of the period. **Danebury** F14 saw considerable change including refurbishment and development of the enclosure and a reorientation of the extensive occupation of the interior. The connected site at **Suddern Farm** F43 continued.

In the west, the **Lain's Farm** F23 settlement may have been developed in 'banjo' form, the **Meon Hill** F26 settlement continued and so did the use of the enclosure at **Woolbury** F49.

100 BC - AD 43

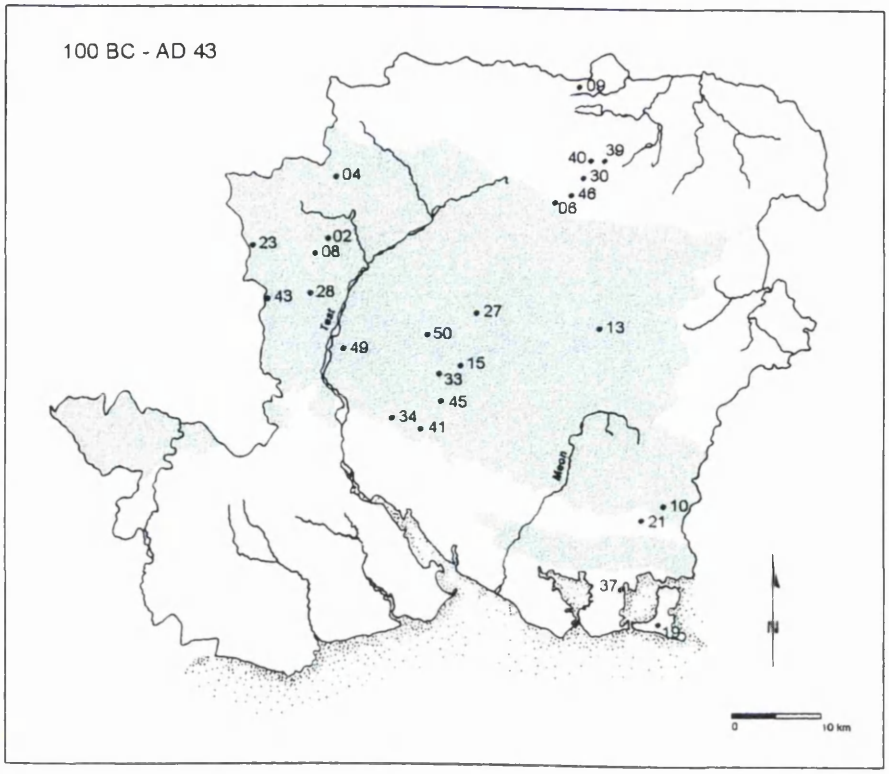


Figure F.5 - Hampshire sites in the period 100 BC - AD 43

Legend

02: Balksbury
04: Blagden Copse
06: Brighton Hill B/C and K
08: Bury Hill
09: Calleva
10: Chalton 15
13: Cowdery's Down
15: Easton Lane/Winnall Down
19: Hayling Island
21: Horndean
23: Lain's Farm
27: Micheldever Wood
28: Nettlebank Copse
30: Oakridge
33: Oram's Arbour
34: Owslebury
37: Portsdown III
39: Rooksdown
40: Ructstalls Hill
41: Silkstead, Winchester
43: Suddern Farm
45: Twyford Farm
46: Viables Farm
49: Woolbury
50: Worthy Down

A slight presence in the east of the county remains indicated in a new small settlement site at **Chalton 15** F10, located in an area heavily settled in the Romano-British period. In the south, just above the coastal plain, a group of pottery and a quernstone was recovered from a drain trench at **Horndean** F21 which, on excavation, proved to be a small V-shaped gully dating from the early C 1st AD into the Roman period; modern buildings prevent any exploration of the nature of the site as a whole (Cunliffe, 1961, 25-29). Pipe laying operations on Portsdown Hill in 1965 revealed a pit, three shallow depressions and a small gully known as **Portsdown III** F37 which is only 140 metres from the earlier Portsdown II F36 field system yet shows no overlap with that, dating wholly to the C 1st AD; no wider exploration was possible (Bradley, 1967, 58). Finally, the Romano-British temple site at **Hayling Island** F19 covered over an important predecessor dating to this period and that is thought to have been a religious site on the grounds of both continuity and the unusual assemblage associated with it.

In the centre of the county, the large hilltop enclosure at St Catharine's Hill F42 was abandoned at c100 BC (having suffered extensive burning) and the settlement at Little Somborne F24 had also gone out of use but all other sites continued. Permanent occupation of the **Oram's Arbour** F33 enclosure continued at a greatly reduced level and it became the focus of more *'industrial activity'* (James, 1997, 27). The enclosure ditch was deliberately filled at **Owslebury** F34 but settlement continued there and occupation of the **Twyford Down** F45 and **Micheldever Wood** F27 sites continued seamlessly in this period. The **Worthy Down** F50 site developed as a series of linked enclosures and pits but the age of the excavation has meant that evidence which could suggest roundhouse platforms was noted but not interpreted as such at the time.

Up in the north-east Winklebury F48 was abandoned by this time. All other sites known to have been occupied in the previous period continued in this. In the cases of **Brighton Hill B/C/K** F06 and **Cowdery's Down** F13, new settlement took a different form and probably followed a break of a century or more at the first and at least 300 years at the second; at **Oakridge** F30 the focus of activity also shifted although no appreciable break is suspected. **Rooksdown** F39 probably continued and the enclosure ditch was recut. Settlement at **Ructstalls Hill** F40 continued in the Phase IB form and the site at **Viables** F46 was enclosed at this time.

At the very top of modern Hampshire, the site of the Roman town at **Calleva** F09 (modern Silchester) overlies a very large (35 ha) Iron Age enclosed settlement dating to this period which was probably rather densely occupied but knowledge is somewhat restricted due to the importance of the overlying Roman layers and the limited opportunities to excavate in the town.

Moving round to the north-west, the long-lived sites at Danebury F14 and Old Down Farm F32 had been abandoned by this time but the nearby **Bury Hill** F08 hilltop site was substantially refurbished by the building of a new enclosure within the old and it is evident that its excavator believes it to have been permanently settled by people who may have been engaged in specialist horse-rearing activity (Cunliffe, 1994, 39), although the details of excavation have not been published to date. Similarly, the **Suddern Farm** F43 site, connected with Danebury F14 in earlier times, was enclosed by bivallate rings and contained 'high status' artefacts (Cunliffe, 1994, 101) but is not yet published. Storage pits at the other large enclosure in the vicinity continued at **Balksbury** F02. Further afield, the **Nettlebank Copse** F28 settlement was developed into a banjo enclosure after a period of disuse and the **Blagden Copse** F04 'banjo' continued in use whilst, at the same time, a specialised funereal and ritual complex and a barrow containing a richly furnished 'bucket burial' were built in the immediate vicinity. The 'bucket burial' is paralleled by a contemporary one at **Silkstead** F41 near Winchester (Hawkes and Dunning, 1930, 304).

In the west of the county, Meon Hill F26 and Woolbury F49 also appear to have been abandoned but the **Lain's Farm** F23 settlement continued into this period.

Gazetteer

An entry per site listed by site reference number follows; this is in alphabetical order as well but omits those sites for which summary details alone are known (see table F.1, above). Each site entry includes, at a minimum, an illustration of its form (usually sourced from the original excavation report as published), details of important features and dating information.

F01 - Ashley

Aerial reconnaissance in severe drought conditions in 1976 revealed a site of ditched enclosures extending over c8 ha which was partly excavated by David Neal, in a 180 * 20 metre strip which revealed predominantly Romano-British features (Neal, 1980, 128, fig. 20).

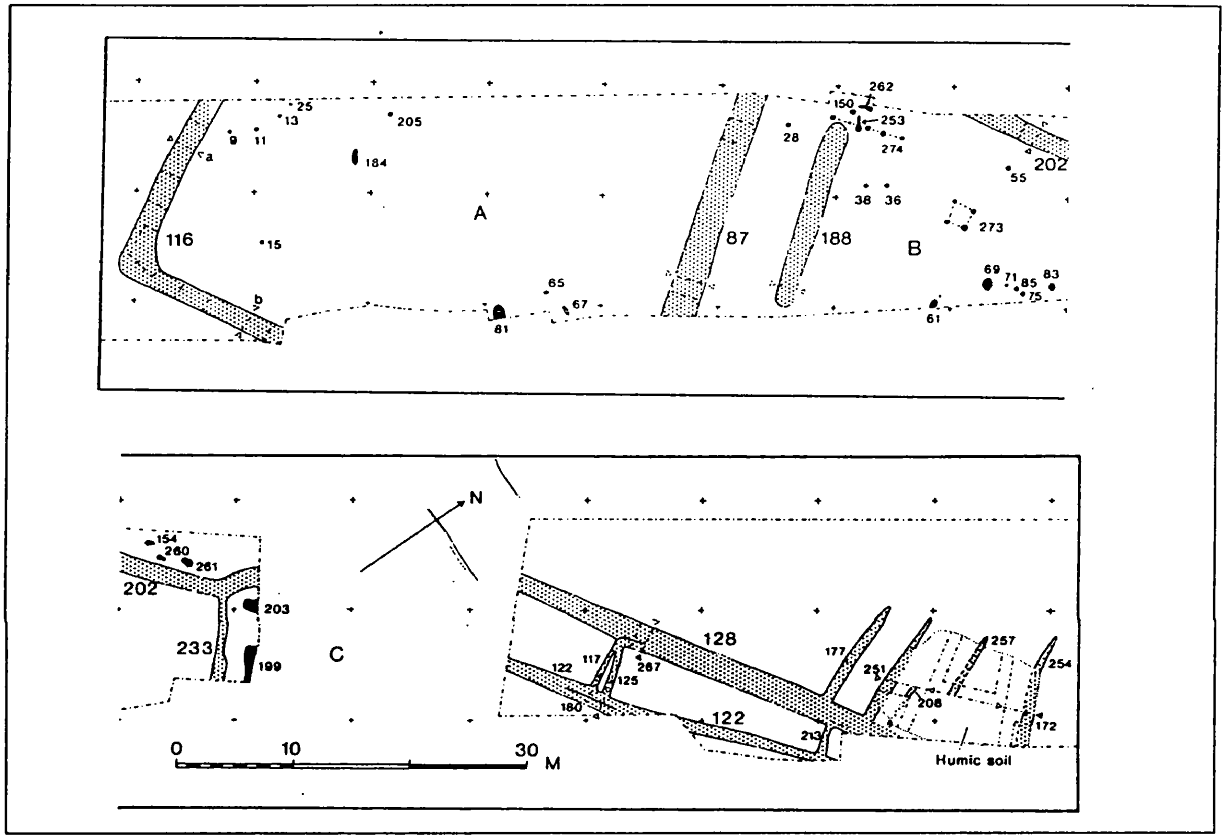


Figure F.6 - Ashley - Plan of excavated area (source: Neal, 1980, fig. 20)

Ditch feature number 188 is U-shaped in profile, measuring c 17 * 2 metres, and included only 11 sherds of finger-impressed urn(s) typical of 'middle Bronze Age' ware in the upper fill, together with a loom weight (Neal, 1980, 128, 133-135). Geophysical survey suggests that the ditch does not continue to the north or south of the excavation trench (Neal, 1980, 141). Thus, the excavation shows the presence of people at this site in the late second millennium to 900 BC period but the nature of that occupation is unknown. The site is wet today (cited as the reason for no storage pits in Roman period of occupation) (Neal, 1980, 142) and that could be the reason for early abandonment at the beginning of the first millennium BC.

F02 - Balksbury

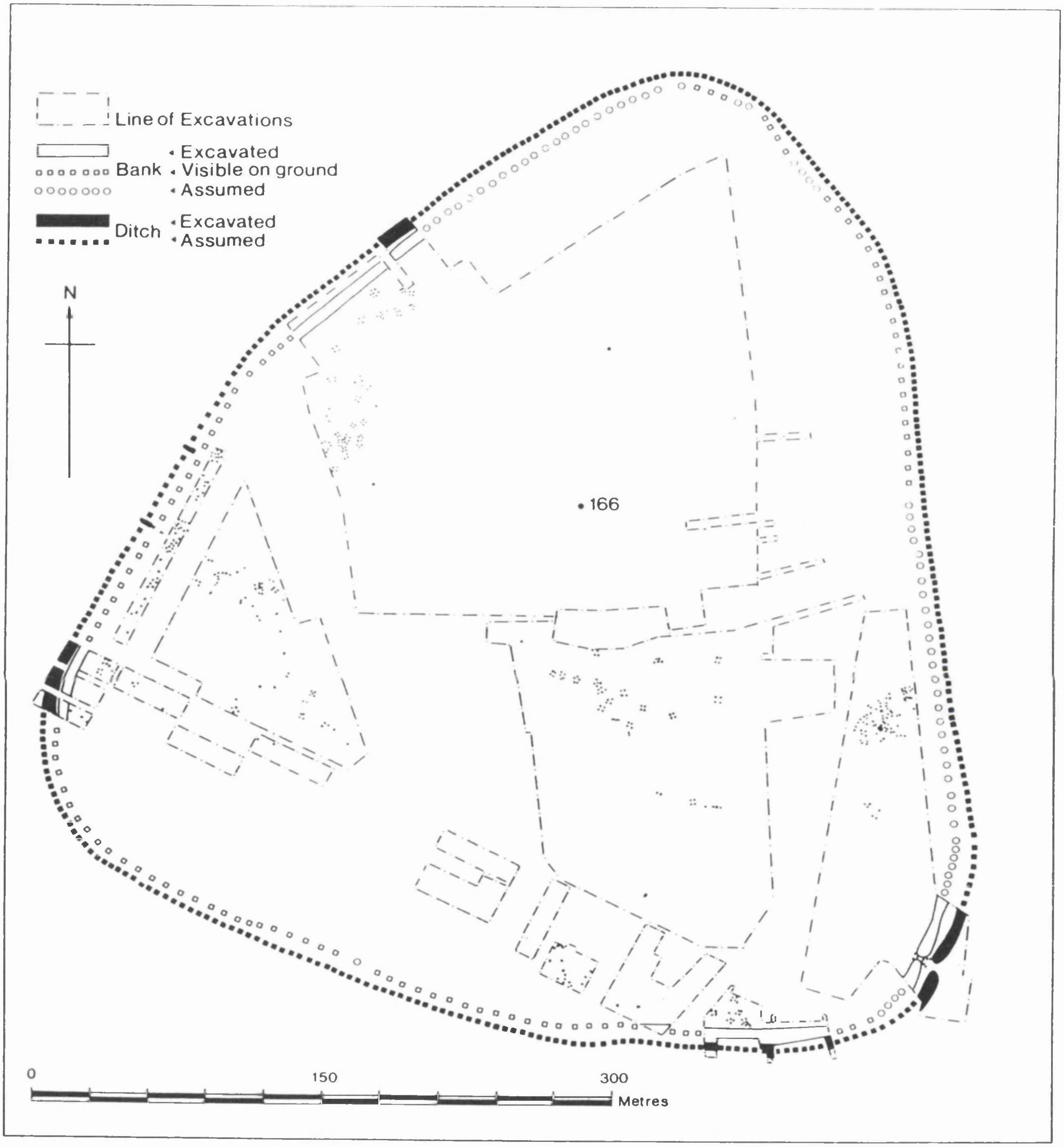


Figure F.7 - Balksbury - Plan of excavated features end second millennium to 900 BC (source: Wainwright and Davies, 1995, fig. 11)

A section of the bank and ditch was excavated in 1939 by Jacquetta Hawkes (J Hawkes, 1940) and the site has been the subject of a number of short excavations in advance of development work in the 1960s - 1980s, primarily directed by Geoffrey Wainwright assisted more recently by Sue Davies (Wainwright, 1969; Wainwright and Davies, 1995). The site was first visited in the

Neolithic and may have been settled in the Beaker / early Bronze Age but the first strong evidence of permanent occupation is clearly dated to the turn of the first millennium BC (Wainwright and Davies, 1995, 9). That coincided with the first large-scale clearance of woodland on the site and the construction of a ditched and banked enclosure of c18 ha of the low plateau. Enclosure was by a ditch outside a bank (Phase I) which was recut and remodelled on at least 2 occasions subsequently (Phases II and III). Whilst it is quite certain that the initial work was carried out in the period 1100 - 900 BC (Wainwright and Davies, 1995, 108), the first recut could have been at any time in the period 1395 - 410 cal BC (Har-442) as dated by radiocarbon analysis on a piece of antler from the Phase II bank (Wainwright and Davies, 1995, 11) and the second recut has only similar pottery to place it (Wainwright and Davies, 1995, 107). There was a period of neglect between the two recuts long enough to allow a clear turf line to grow, but the plain and early decorated forms of the pottery assemblages of all three phases seem to indicate the same broad chronological band (Wainwright and Davies, 1995, 107).

Contemporary with the Phase I enclosure (judged on the basis of the pottery assemblage) the internal features include a scatter of postholes around the edges of the enclosure in the areas excavated, four small pits and a number of above-ground storage structures (Wainwright and Davies, 1995, 107). Dating is corroborated by the radiocarbon dating of charcoal from a posthole to 1160 - 820 cal BC (Har-5127) (Wainwright and Davies, 1995, 107).

After a break long enough to allow considerable soil development, the ditch was enlarged to c3.3 metres deep and 7.3 metres wide and the bank was c6.4 metres wide for most of the circuit, broadening at the entrance and leaving a causeway 8 metres wide from the gate (Wainwright and Davies, 1995, 107). Three post-built roundhouses, widely spread and in the southern half of this site, are attributed to this phase. Dating evidence is slight, coming only from pottery in a single posthole of one of the roundhouses and falls within the wide range of c900 - 400 BC.

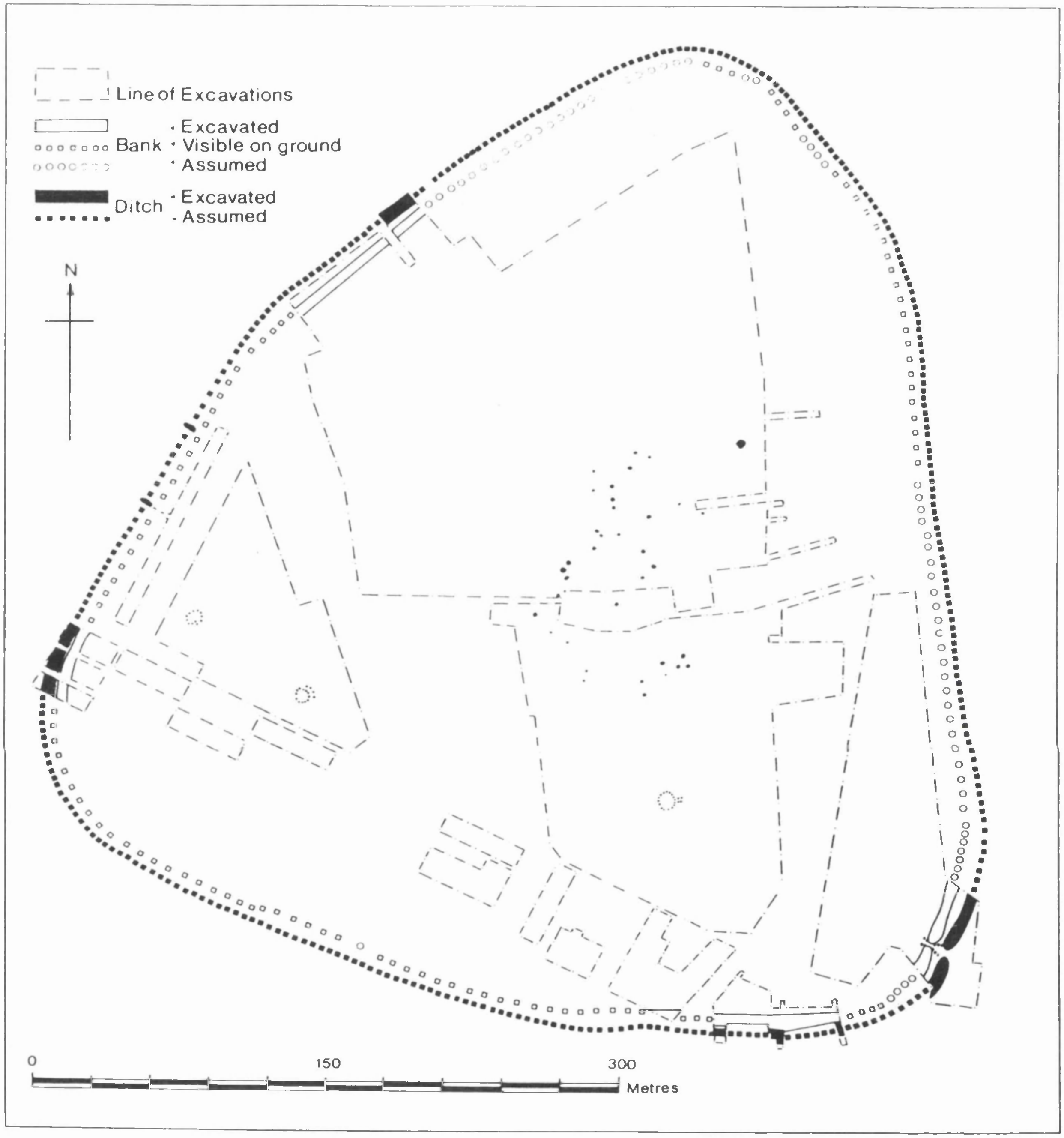


Figure F.8 - Balksbury - Excavated features dated to c900 - 400 BC (source: Wainwright and Davies, 1995, fig. 18)

Structure AJ comprised a circle of 15 postholes with an internal diameter of c8.5 metres and a four-post porch facing east and it is clearly a single-period construction. The remains of structure 2075 describe an 11 posthole circle with 7.6 metre diameter but that is partially circumscribed by an arc of four postholes lying on a concentric circle of 12.4 metres diameter and no entrance can be obviously identified. That has been interpreted by the excavators as indicating a full circle subsequently partly ploughed out, suggesting a double post-hole ring structure. The third roundhouse was an 11 posthole circle of 7.7 metres diameter and had no second, external ring. Inside was one small pit but no entrance has been identified. (Wainwright and Davies, 1995, 16).

Other features include a small number of hollows, scoops and isolated postholes as well as 27 pits dated to this period with a wide variation in size and shape but all concentrated in the centre of the enclosure. Artefacts buried within included triangular fired clay loomweights, fragments of saddle quern and worked bone as well as carbonised grain of wheat, barley and oats. The last is noteworthy in that oats are present in an unusually large proportion for this period. Finally, there was a quantity of animal bone in the pits including several new-born puppies. (Wainwright and Davies, 1995, 17).

No above-ground structures are associated with the third phase (see figure F.9, below) but there are a total of 90 pits and a single posthole, scattered all around the centre of the enclosed area (Wainwright and Davies, 1995, 19). Finds within pits included iron tools, fragments of 13 different saddle querns and 3 rotary querns, a mixed assemblage of animal bone, worked bone including points and needles (which concentrate in the north-west), four circular chalk loom weights and a single crucible fragment which came from an isolated pit at the extreme south-east edge of the pit distribution. Finds elsewhere included a La Tène I brooch, an iron bucket handle and part of a Kimmeridge shale bracelet roughout. (Wainwright and Davies, 1995, 19-20).

Dating is based on diagnostic pottery but, again, dating to a wide band from c400 BC to AD 50, a range backed up but not refined by three radiocarbon determinations from pit material, i.e. 390 cal BC - AD 20 (HAR-444), 200 cal BC - AD 120 (HAR-445) and 760 cal BC - AD 120 (HAR-446).

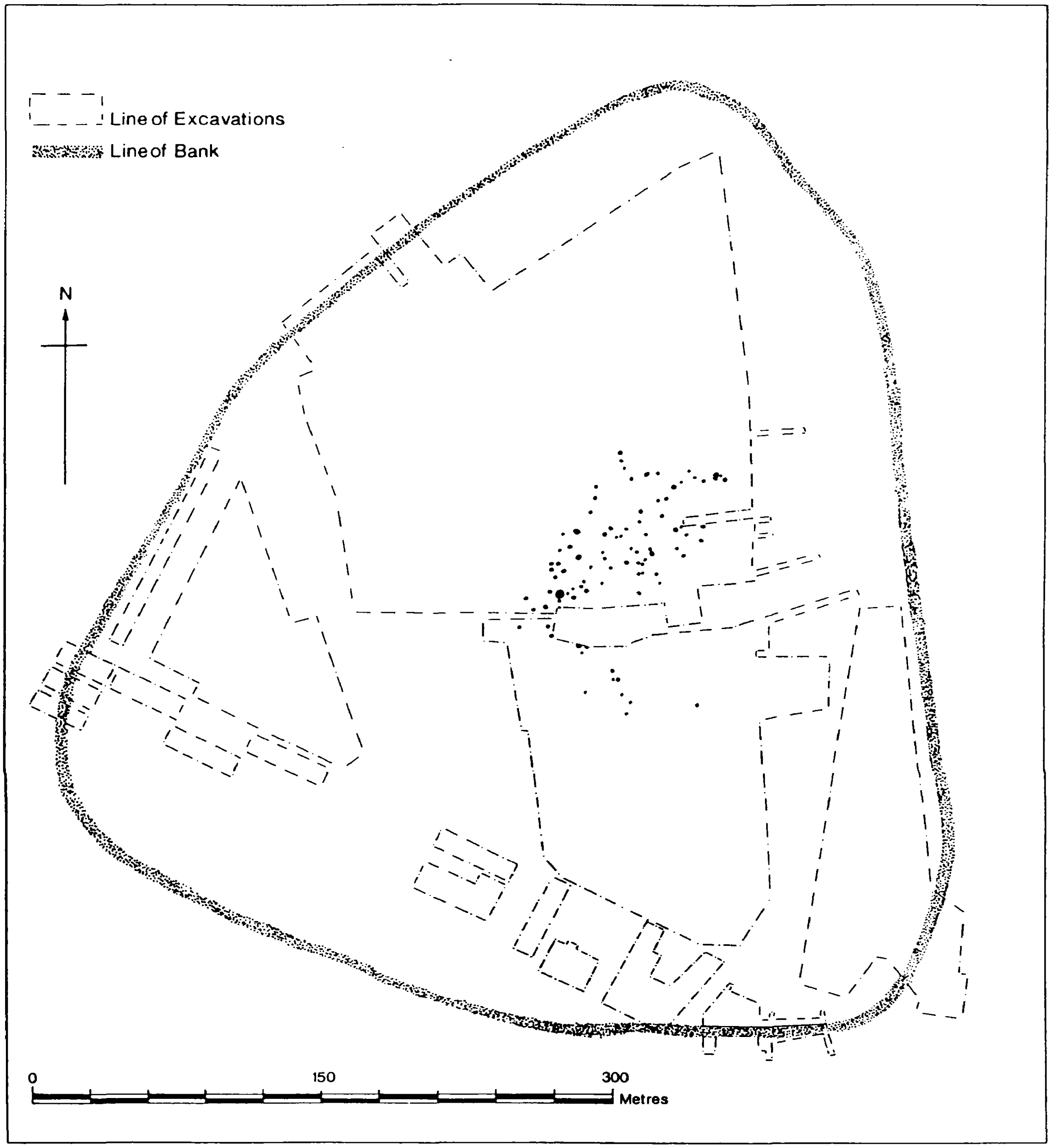


Figure F.9 - Balksbury - Plan of excavated features c400 BC - AD 50 (source: Wainwright and Davies, 1995, fig. 23)

F03 - Beacon Hill

The bivallate 'hillfort' set on the steep site of Beacon Hill, Burghclere, has been scarcely excavated at all but the site was surveyed by RCHM(E) in 1978 and 1979, allowing some useful conclusions to be drawn.

The earliest structure on the site occurs at the highest point which was surrounded by an enclosure indicated by eastern and western banks and ditches and a short scarp taken to suggest an intended link between those sections (Eagles, 1991, 101, features 2.24W and E on fig. 1, reproduced as figure F.10, below). Thus, the whole has been tentatively reconstructed as a sub-rectangular enclosure of c 1.2 ha (Eagles, 1991, 101).

Stratigraphic relationships suggest that the enclosure was earlier than the 'hillfort' and Neolithic pottery has been found, as well as middle Bronze Age pot sherds collected before and during the survey (Eagles, 1991, 101-102). Woolley dug into four features and is said to have found *'a little black 'bronze age' pottery'* (Woolley, 1913, 8-9; Eagles, 1991, 102) and Eagles (1991, 102) believes, on balance, that the Neolithic pottery is probably residual as there are no Neolithic monuments in the vicinity.

The hill top allows extensive views, of which Eagles (1991, 102) comments that they include sight of Woolbury F49 near Stockbridge (22 km to the south-west) and Rams Hill in Berkshire (32 km to the north-west) and that both of those were occupied in the middle Bronze Age. Thus, by rather tenuous associations and on slim evidence, it seems more than likely that the site was occupied at some time between the end of the second millennium and 900 BC.

The 'hillfort' itself has never been excavated and there is nothing (bar morphological comparisons) to suggest a sequence and date. That is unfortunate for the purpose of this exercise as it is an unusual site with at least 60 possible round hut sites revealed by the survey and, in that context, it is particularly noteworthy that there is a complete absence of any indication of a field system outside the 'hillfort' enclosure (Eagles, 1991, 99). Nevertheless, the lack of firm data precludes inclusion.

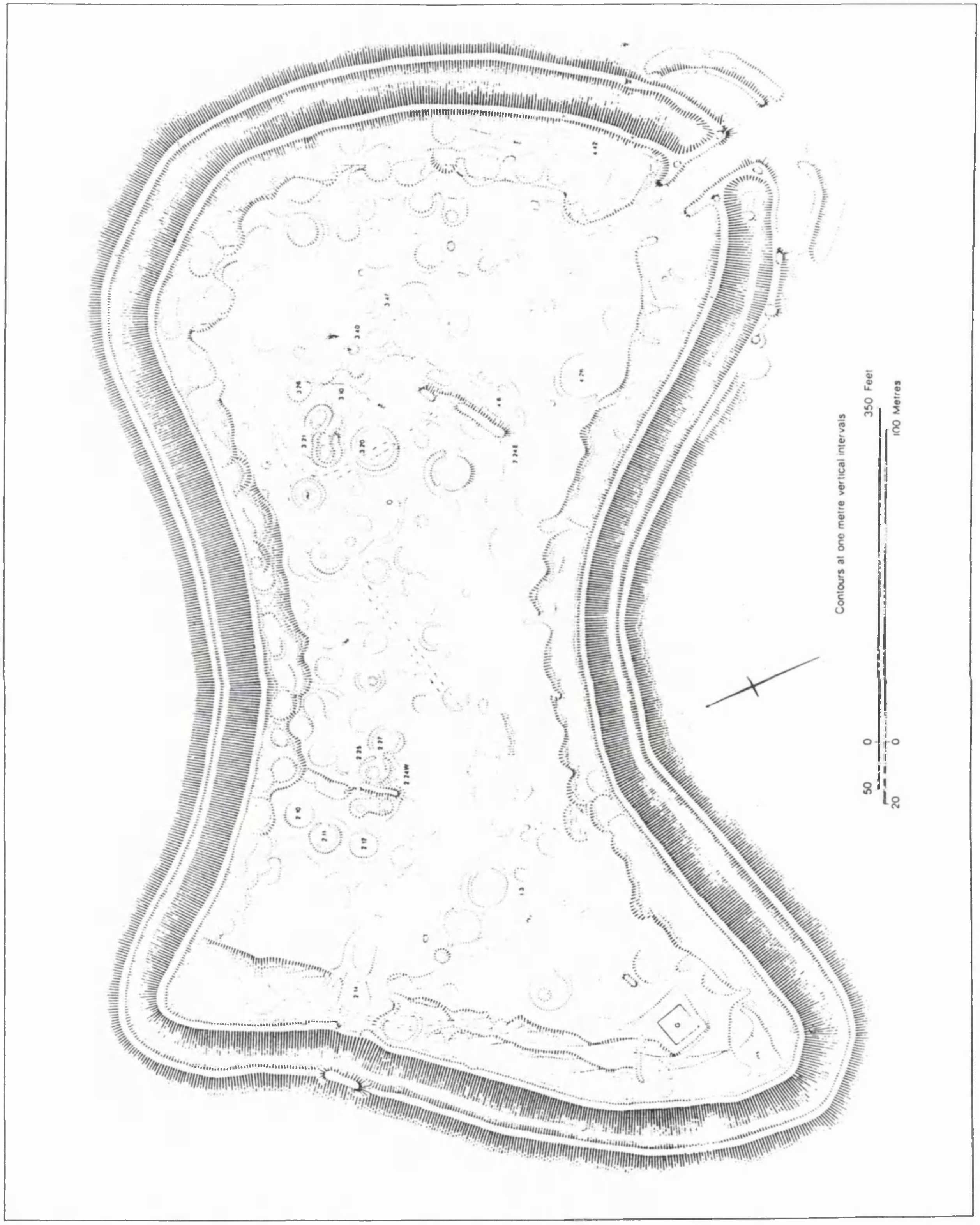


Figure F.10 - Beacon Hill - Survey (source: Eagles, 1991, fig. 1)

F04 - Blagden Copse

Within Blagden Copse lies a complex of earthworks and other features comprising a small 'banjo' enclosure (partially excavated in 1961 by Ian Stead (1968)), a field system, a linear ditch, a sub-rectangular enclosure (partially excavated but not published) and a La Tène III 'bucket' cremation burial (excavated by Dewar in 1905); modern land use as dense woodland makes wide-scale examination problematical (Corney, 1989, 112; Hawkes and Dunning, 1930, 304).

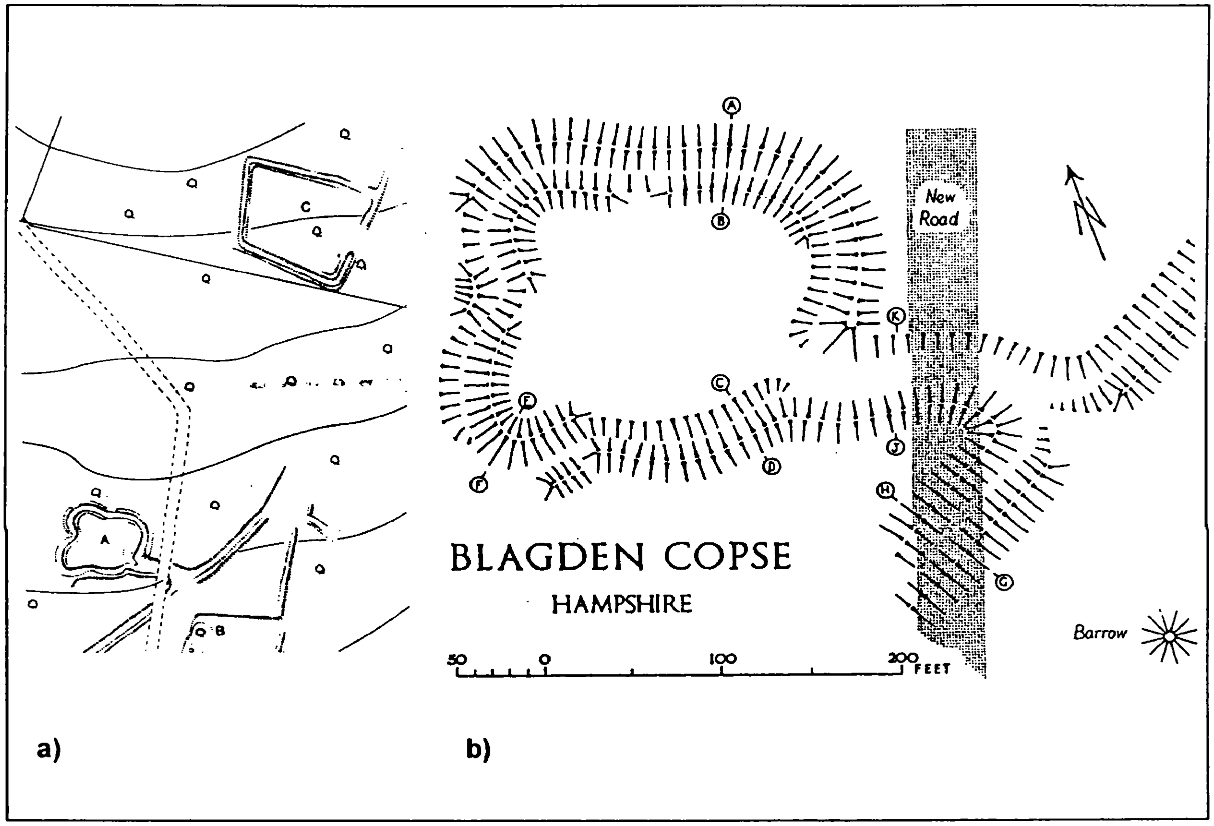


Figure F.11 - Blagden Copse - a) The complex; b) The 'banjo' enclosure (source: a) Corney, 1989, fig. 2; b) Stead, 1968, fig. 1)

The 'banjo' enclosure ('A' in fig. F.11a, above)

The roughly quadrangular enclosure of c0.2 ha is defined by an outer bank and an inner ditch, together with a much more slight internal bank in some quarters; situation on a hill slope gains extra drop from the top of the bank to the base of the ditch on the north-east side. (Stead, 1968, 83). Entrance is by a 3.7 - 6.2 metre wide track between two ditches (with outer banks) continued at c 1.5 metres wide and c 1.4 metres deep. The track is covered by large flints resting on undisturbed yellow-coloured chalk, which is thought to have been stained by manure washed out of the enclosure (Stead, 1968, 85). The entrance way is splayed out at 90 degrees to both the east and the west to join the main linear ditch c3.4 metres wide and 2.3 metres deep, integrating in such a manner as to indicate that all components were contemporary and constructed to some plan (Stead, 1968, 85). No attempts to redesign or recut any of the features was evident (Stead, 1968, 88).

The interior was not examined. Dating is by pottery of the St. Catharine's Hill - Worthy Down style (300 - 100 BC) present in the lowest levels and a number of wheel-turned sherds in unsealed contexts in the upper fill of the ditches indicate continuity into the C 1st BC. (Stead, 1968, 86).

Stead (1968, 88) interprets the outer bank as suggesting a desire to *'detain rather than defend'* and, in consequence, deduces that the structure was a pound for holding animals. The 'banjo' enclosure form is very distinctive and at least a further 13 probable and 6 possible sites of the type have been identified from aerial survey of the Hampshire Chalklands and their extension into Wiltshire but none are located on the downland between the Hampshire River Meon (where distribution ends abruptly) and the Sussex River Arun (Perry, 1969, 38-39).

The sub-rectangular enclosure ('C' in fig. F.11a, above)

The second enclosure is c250 metres distant from the 'banjo' and constructed with internal bank and an intermittent counterscarp and a wide, east-facing entrance (Corney, 1989, 113) which has been the subject of unpublished excavation of an area just inside. That work revealed extensive 'metalling' which sealed features including a 4 metre shaft with a human infant burial, a young pig skeleton and a horse skull and filled with material dating to the C 1st BC (Corney, 1989, 115). At the top of the shaft were sherds of a Dressel 1 amphora and a copper alloy fibula which was sealed by the 'metalling'. They place the top filling and closure of the shaft at a period between C 1st BC and the mid AD C 1st . (Corney, 1989, 115). The enclosure ditch fill included large quantities of pottery (particularly flagons) ranging in date from the C 1st BC to the AD C 2nd (Corney, 1989, 115).

The cremation burial ('B' in fig. F.11a, above)

A small, sub-square barrow set c30 metres south-east of the 'banjo' enclosure covered a richly-furnished 'bucket burial' which may have been part of a more extensive cemetery (Hawkes and Dunning, 1930, 302-309; Corney, 1989, 112). The bucket was set in the centre of an 8.3 metre diameter tumulus and was surrounded by a dozen pottery vessels, a bronze brooch and bracelet and fragments of a glass vessel (Hawkes and Dunning, 1930, 304-308). The pottery is a consistent group dating to the early C 1st AD and the burial form is unusual enough to be regarded as indicating differential social status with further examples known from Silkstead F41 near Winchester in Hampshire and further afield at Aylesford, Bucks., Great Chesterford, Cambs., Harpenden, Herts and Lexden in Essex (Hawkes and Dunning, 1930, 304, 308-309).

Corney (1989, 125) interprets the whole complex as suggesting a high status function through time because by the C 1st BC the 'banjo' is proximal to the unusual cremation burial and the sub-rectangular enclosure, which he suggests may be a specialised funereal and ritual complex of the *'viereckschanze'* type (comparable with that of Ebsbury and Gussage Hill, both in Wiltshire). Furthermore, the last (at least) shows evidence for Roman imports in the century before the Roman invasion of Britain which tend to add weight to the 'high status' designation.

F05 - Bramdean

On the south-east facing slope of a dry valley lies a 'banjo' enclosure of which the enclosure ditch was sectioned and approximately 25% of the interior excavated by Brian Perry in 1965 - 66 and 1973 - 77 (Perry, 1972; 1982). The site as seen on excavation probably belongs to the 400 - 100 BC period in most structural particulars but five pits (numbers 3, 4, 6, 8 and 12), scattered around the excavated area of the interior, contain quantities of Park Brow - Caesar's Camp type ceramics dating from c500 - 200 BC (Cunliffe, 1991a, 561) and no later material. (Perry, 1982, 68). The enclosure ditch and all other structural features contained none of this potentially earlier material, suggesting that it was constructed at a later time (Perry, 1982, 71), although it must be acknowledged that it is just possible that it was dug out and then thoroughly cleaned out periodically (Perry, 1982, 71). Two of the pits of the period from c500 BC (numbers 8 and 12) rather curiously each contained one ring-headed pin and a 'dog foot pendant' in association with the early pottery (Perry, 1982, 64-65) and that presages a noticeable emphasis on dogs in the subsequent period.

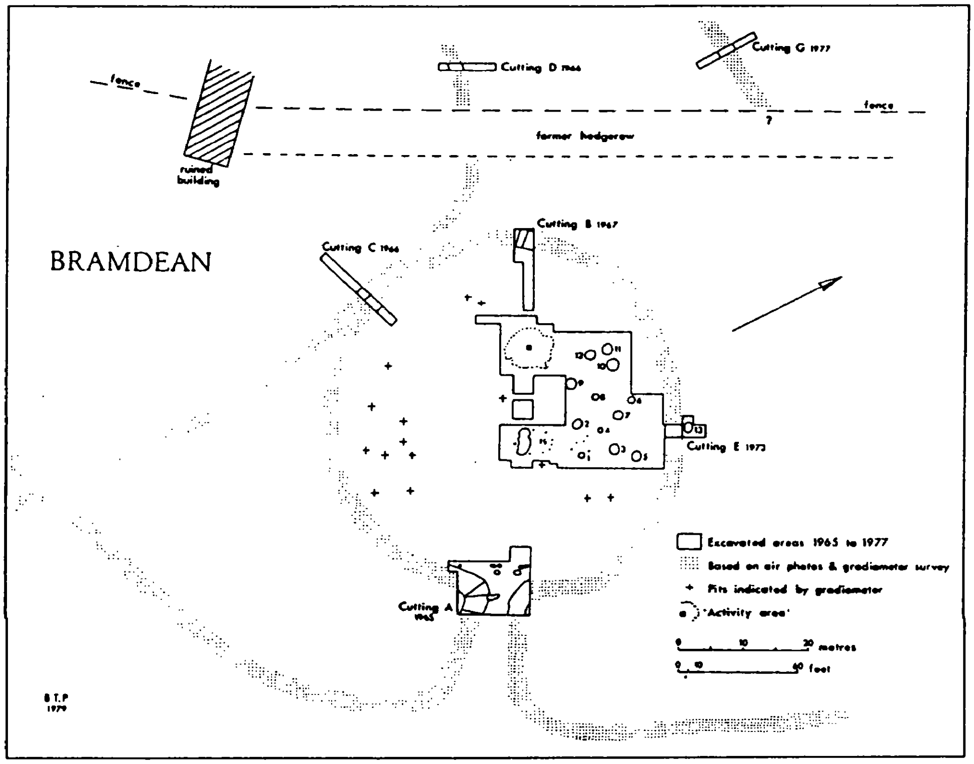


Figure F.12 - Bramdean - Plan of excavated features (source: Perry, 1982, fig. 2)

The site was developed in a form regarded as the epitome of the 'banjo enclosure' type, being the enclosure of an area of c0.67 ha approached by an entranceway more than 20 metres long funnelling from c 12 metres wide to 4 - 5 metres at the entrance to the enclosure. The defining ditches turn at c90 degrees to form further ditch complexes on a larger scale. (Perry, 1982, 7-8, fig. 2). The ditches are all V-shaped describing an (imperfect) circle and the depth varies between c1.1 - 1.8 metres in a manner which suggests that it becomes progressively more shallow uphill from the enclosure entrance (Perry, 1982, 66). The ditch width is c2.25 metres at Section E (Perry, 1982, fig. 5) and excavation at the entrance indicates that the bank must have been outside the ditch (Perry, 1982, 66).

Excavation within the enclosure revealed a further five pits belonging to the 300 - 100 BC period, each containing clearly structured deposits. Pit no. 5 contained a horse skull and part of a saddle quern, no. 7 a large quantity of burnt material and an infant burial, no. 9 two complete dog skeletons (a 4 - 5 year old male and a six month female) and a large flint layer, no. 10[1] a dog burial and the skeleton of a piglet and no. 11 a complete jar (Perry, 1982, 62-64). Gradiometer survey suggests an equally even distribution of pits on the opposite side of the enclosure, with the central area clear of pits and the total number is probably 25 (Perry, 1982, 64). A small oval pit just outside the enclosure ditch contains a few scraps of dog bone, but there are no dateable features.

Just uphill of the centre of the site, an irregular 'activity area' is seen as a c6 * 4.8 metre rectangle of soil overlying a tightly compacted floor of burnt and unburned flints (in the ratio 77% : 23%) of about 10 centimetre thickness and measuring c4.0 * 3.2 metres; embedded in this were quantities of animal bone and pottery (Perry, 1982, 64-66). The area may have been a natural clay pocket, originally, and filled with chalk and topped by the floor when the clay had been scooped out (Perry, 1982, 66). There were no indications of postholes surrounding the floor or cut into it whereas they have shown up very clearly elsewhere on the site, so no structure is assumed (Perry, 1982, 66).

All of the features were clearly dated by ceramics of the St. Catharine's Hill - Worthy Down saucepan pot and jar type, current from c300 - 100 BC by Cunliffe's (1991a, 568) analysis, and there is no indication of continued use of the features of the site past that time (Perry, 1982, 68-70).

F06 - Brighton Hill B/C and K

Two short-lived and neighbouring sites were located on a shallow slope lying on undulating Upper Chalk only 200 - 450 metres from the (earlier) site Brighton Hill X/Y F07.

Site K

Site K was the subject of an exploratory trench revealing two periods of occupation. In the first, a V-shaped ditch and three pits all contained ceramics of c500 - 200 BC (Fasham et al, 1995,

[1] NB. There is an anomaly; Perry (1982, 72) describes this pit as containing a cow and piglet (not a dog).

19-20). In the second, from c50 BC - AD 75 (dated by ceramic assemblage), the trench revealed three new ditches and the recut of the earlier (Fasham et al, 1995, 21-22).

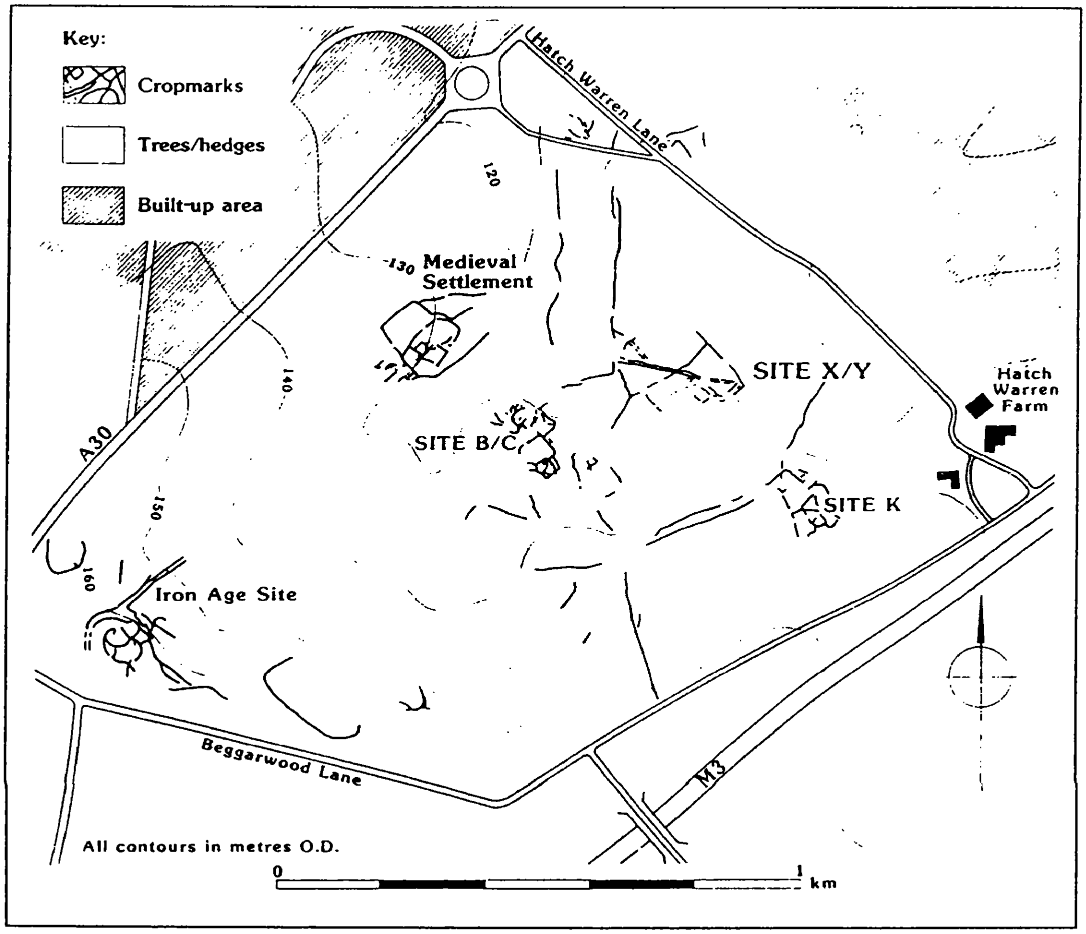


Figure F.13 - Brighton Hill South - Plan of excavated features (source: Coe et al, 1992, fig. 1)

Although this small window on the whole site suggests a gap in occupation continuity, the nature of the work has prevented any conclusions on general site form from being drawn; a more extended excavation may have revealed overall site continuity (Fasham et al, 1995, 19-20).

Site B/C

Site B/C was investigated by excavation of a larger area using exploratory trenches which revealed one ditch and two gullies, one of which joined in to an irregular enclosure with seven internal pits (Fasham et al, 1995, 22-25). All contained pottery of the 500 - 200 BC period and the enclosure ditch continued into the following phase of the site. (Fasham et al, 1995, 25).

Activity moved eastwards into an open area of pits and scoops at c 200 BC and then further south c 50 BC, with features concentrated in an enclosure complex attached to a field system (Fasham et al, 1995, 25-28) but, again, little detail of form is available as a result of the limited sampling strategy employed.

F07 - Brighton Hill South X/Y

The X/Y site was the subject of limited excavation in 1990 by The Trust for Wessex Archaeology in advance of development of a large area at Brighton Hill South (see also Brighton Hill B/C and K F06), revealing the earliest pottery assemblage from the whole, including at least nine different vessels from one context which demonstrate forms and decorative repertoire similar to C 7^{th} BC material in the area (Coe et al, 1992, 20).

The early context revealed in trench G/H is a single structure of which 17 postholes in a double arc are presumed to form the south-west side of a roundhouse with a diameter of 8 - 9 metres (Coe et al, 1992, 11-13, fig.5). Nine of the postholes contained pottery which had been vitrified at a temperature exceeding that achievable in a bonfire at some time after they had originally been fired (Coe et al, 1992, 13-16). This was interpreted as evidence of a building fire when the vessels were complete (Coe et al, 1992, 20). Therefore, the impression is of the consistent assemblage of a short-lived building destroyed by fire, cleared afterwards by sweeping the material into postholes (Coe et al, 1992, 23). Evidence from this period on the remainder of the site is slight and regarded as residual, although it is possible that some pits and hollows could be attributed to this phase.

The site was probably unenclosed and the limit of its extent has not been identified, although an earlier phosphate survey recorded high levels corresponding to the location of this structure and slightly to the north, thus hinting that it may have stood alone (Coe et al, 1992, 23-24).

F08 - Bury Hill

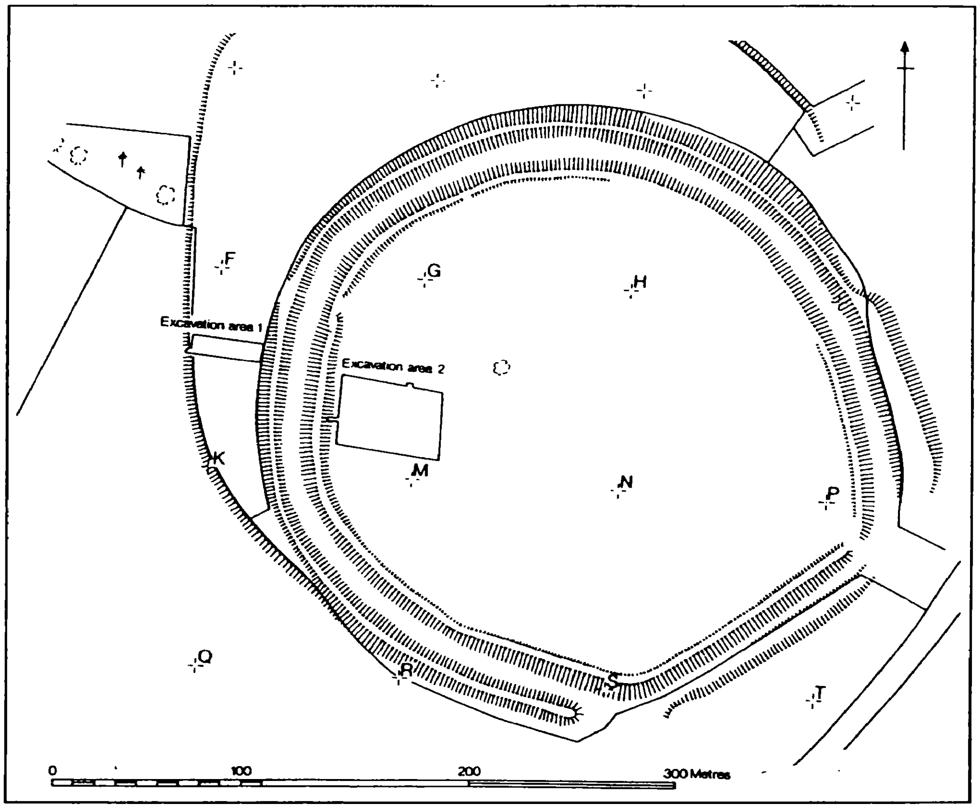


Figure F.14 - Bury Hill - Plan of site showing excavated areas (source: Cunliffe, 1994, fig. 13.3)

Bury Hill rises abruptly and is a landmark from a considerable distance with a flattened, plateau-like top. (Hawkes, 1940, 293-295). There is evidence for two successive enclosures on different lines on this site and it lies just half a mile south-west of Balksbury F02 (and is possibly contemporary with it) and a quarter of a mile from the River Anna (Hawkes, 1940, 292). A limited investigation of the enclosing banks and ditches was made by Christopher Hawkes in 1939 and that has been followed by a more extensive excavation in 1990, including some of the interior, as an element of the Danebury Environs Project led by Barry Cunliffe but that work has been published only in note form, to date.

The earlier, univallate enclosure follows the 90 metre OD contour, forming a rough oval, and the later is bivallate with a single ditch between two banks set on the hilltop and conjoined with the earlier in the east. (Hawkes, 1940, fig. 1, 295). The entrance to the enclosure is in the east, where the plateau is prolonged as a flat-topped ridge (Hawkes, 1940, 295). Modern fencing and bushes prevented excavation but the width between the bank and the ditch ends is in excess of 9 metres (Hawkes, 1940, 317).

The earlier enclosure annexes c8.9 ha by a ditch some 2.5 - 2.75 metres deep, something less than 6.2 metres wide at the top and narrowing to a flat bottom 0.75 metres wide. Avery (1993, 57) has estimated that the material from the ditch would give a bank between 2 - 3 metres high, at the most. The published dating evidence for its construction is very slight, amounting only to two tiny sherds of 'Iron Age A' pottery (Hawkes, 1940, 299) placed at c500 - 200 BC by Palmer (1984, 46). However, Cunliffe's (1994, 39-40) brief note on an unpublished sampling exercise in 1990 comments that the earliest phase on this site pre-dates the enclosure of Danebury F14 which places it in the early part of the C 6th BC at the latest.

At the point where the potsherds were discovered, the bank contained an earthen burial of a skeleton of a woman c25 years old lying on her back with head turned to the right and with left arm and shoulder blade and almost all of the lower limbs missing. The whole was covered with a pile of large flints and a tubular iron object (purpose unidentified). (Hawkes, 1940, 323).

The bank/ditch contained no evidence of a palisade, although it was sought, but does show a clear period of disuse (lack of maintenance) before the next phase of development. (Hawkes, 1940, 323).

The bivallate inner enclosure annexed c 4.75 ha and was examined in seven trenches cut into the tail of the inner bank, revealing a small quantity of pottery and two postholes associated with a burnt layer fairly close to the entrance (Hawkes, 1940, 314-315). The ditch between the banks was a steep-sided V-shape, sunk c6 metres into the chalk and c15.3 metres wide and the banks were of unretained dump form (Avery, 1993, 57; Hawkes, 1940, fig. 6).

The pottery suggested a date range from the late C 1st BC to c AD 75 but 'Excavation area 2' from the 1990 exploration revealed evidence which allow refinement of that date back to c 100 BC (*'there was no evidence of internal occupation until the site was totally redefended (Bury Hill 2) in c100 BC at the very end of the main Danebury sequence'* (Cunliffe, 1994, 39). That season included a magnetometer survey showing that the area was *'densely occupied'* by pits and that was borne out by area excavation of a part of the interior (Cunliffe, 1990, 2, 6). The area excavation revealed a circular ditched enclosure containing a '*massive post-built structure*' which was short-lived, a number of pits which did not inter-cut and an area of post-built structures lying within the lee of the bank (Cunliffe, 1990, 6-7). All pottery dated to the very limited range of the first half of the C 1st BC (Cunliffe, 1990, 8) and there were considerable quantities of horse gear from dumps made as a single act in the tops of two adjacent pits as well as finds in other pits, finds from the 1939 excavation and chance finds in the area (Cunliffe, 1990, 8-9). It is significant that there is little in the way of expected, 'normal' domestic assemblage and explicitly there are no 'weaving combs', 'spindles' or 'loom weights' (Cunliffe, 1990, 9). Cunliffe comments that *'surprisingly large quantities of horse gear may indicate specialist, high-status, activity'* (Cunliffe, 1994, 39) and the lack of a 'normal' domestic assemblage does suggest that this may have been a highly specialised settlement or something akin to a market.

A second grave was found on the outer side of the inner bank in a flat-bottomed, oval form c 60 cm deep and c 1 metre wide and the skeletal remains were *'little more than a heap of fragments'* of an adult woman aged c35 - 50 years, with no accompanying artefacts (Hawkes, 1940, 323-324).

F09 - Calleva (a.k.a. Silchester)

Modern Silchester is a town sited on a spur of plateau gravel at c 90 metres OD and has been the subject of a number of excavations to explore its Roman past, beginning with M Aylwin Cotton's work in 1938 - 39, followed by the establishment of the Silchester Excavation Committee under her chairmanship (Boon, 1969, 1-2) and their continuing efforts to the present day. Although a pre-Roman settlement on the site had long been suspected it was not confirmed until the major excavation series of 1954 - 58 (Boon, 1969, 1-2) and that work has been substantially extended by a further series (1980 - 86) working on the Roman basilica (Fulford, 1987, 271).

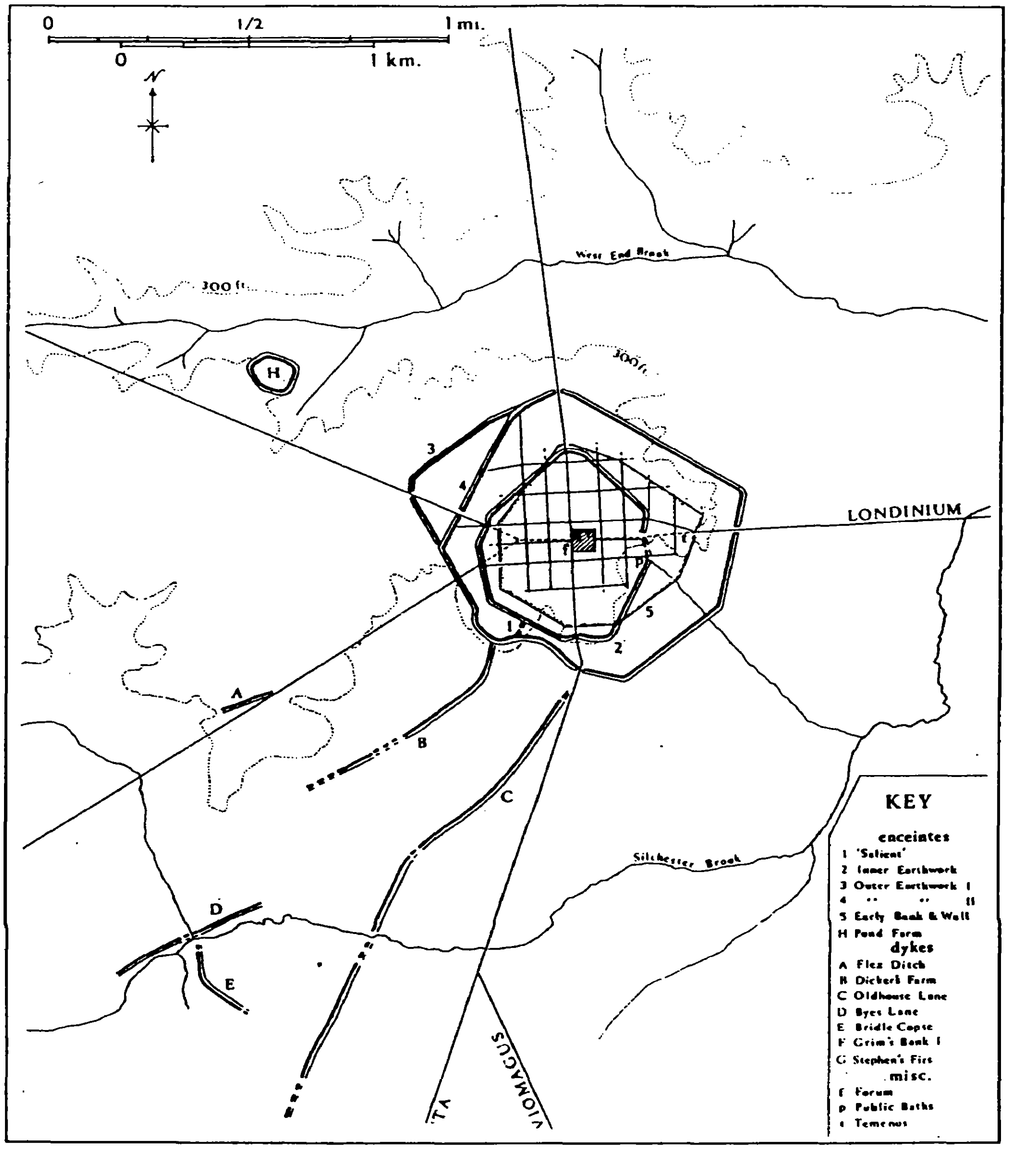


Figure F.15 - Calleva (Silchester) - General plan (source: Boon, 1969, fig. 1)

The Roman occupation of the site largely overlays an earthwork known as the 'inner earthwork' which was levelled by the town builders, but crop mark evidence and ground survey have allowed it to be accurately planned and it forms a 2.2 km, seven-sided polygonal enclosure of c 35 ha (Boon, 1969, 3-4). Five trenches were cut across the inner earthwork in the 1954 - 58 excavation series to reveal that the ditch had been flat bottomed, c 13.8 metres wide at the top sloping to c 3.1 metres wide at the bottom and about 3.7 metres deep (Boon, 1969, 4). Traces of the levelled dump-built bank suggest that it was originally c 13.8 metres wide and may have been accompanied by a small counterscarp (Boon, 1969, 4-5). There is an anomaly in the published details of work on dating the inner earthwork. Whilst it is clear that Boon did not think it was built until c AD 43 - 4 (Boon, 1969, 1), Fulford simply remarks that *'When account is taken* *of the revised date for the Inner Earthwork, the evidence pointing to a settlement already of about 80 acres (32 ha) by the end of the first century BC'* (Fulford, 1987, 277). As the Fulford (1987) report is an interim statement of progress, it appears that the detail of the evidence for that revision has not been published to date. Certainly, it was underlain by an occupation layer discovered in section J (b) which produced a thin gravel floor, a pit and a well-made circular hearth and pottery of the Southern Atrebatic B type (dated to c 50 BC - AD 43 by Cunliffe (1991a, 584)) but also an apparent copy of the *terra nigra* platter which was thought to be not much before c AD 25. Thus, the duration of occupation in this quarter was originally closely dated to c AD 25 - 43 (Boon, 1969, 79-80) but has, evidently, been revised back by c 25 years by subsequent work (Fulford, 1987, 277).

A number of small features and finds within the Roman town over the years did suggest the possibility that the pre-Roman settlement was substantial and potentially high status but this was not systematically investigated by excavation until the 1980 - 86 series targeting the Roman basilica. That work explored a comparatively small area (c 80 * 17 metres) and has produced evidence for two phases of pre-Roman occupation, albeit that a number of features were obscured by the later use of the site (Fulford, 1987, 271) (shown in figure F.16, below).

In Period I, the remains of three roundhouses (F679, 1050 and 1065), a well (F423) and a number of small shallow pits (not marked) as well as arcs of gullies which could have been further roundhouses were located. Dating is by the presence of grog-tempered pottery and a few fragments of Dressel I amphorae which place the occupation at no earlier than the middle of the C 1^{st} BC (Fulford, 1987, 272). Period 2 is signalled by a major change in the layout as two streets at right angles to each other were revealed and a number of rectangular plots front onto them (Fulford, 1987, 272-273). The rectangular structures show at least three phases and the maintenance of nearby wells (Fulford, 1987, 273). Dating is by a small quantity of 'Silchester ware' (which is hand-made, flint-tempered pottery), a bronze coin of the Volcae Arecomici (C 1^{st} BC) and a few sherds of Gallo-Belgic ware and they place the range from c 20 BC to the mid C 1^{st} AD (Fulford, 1987, 273-275).

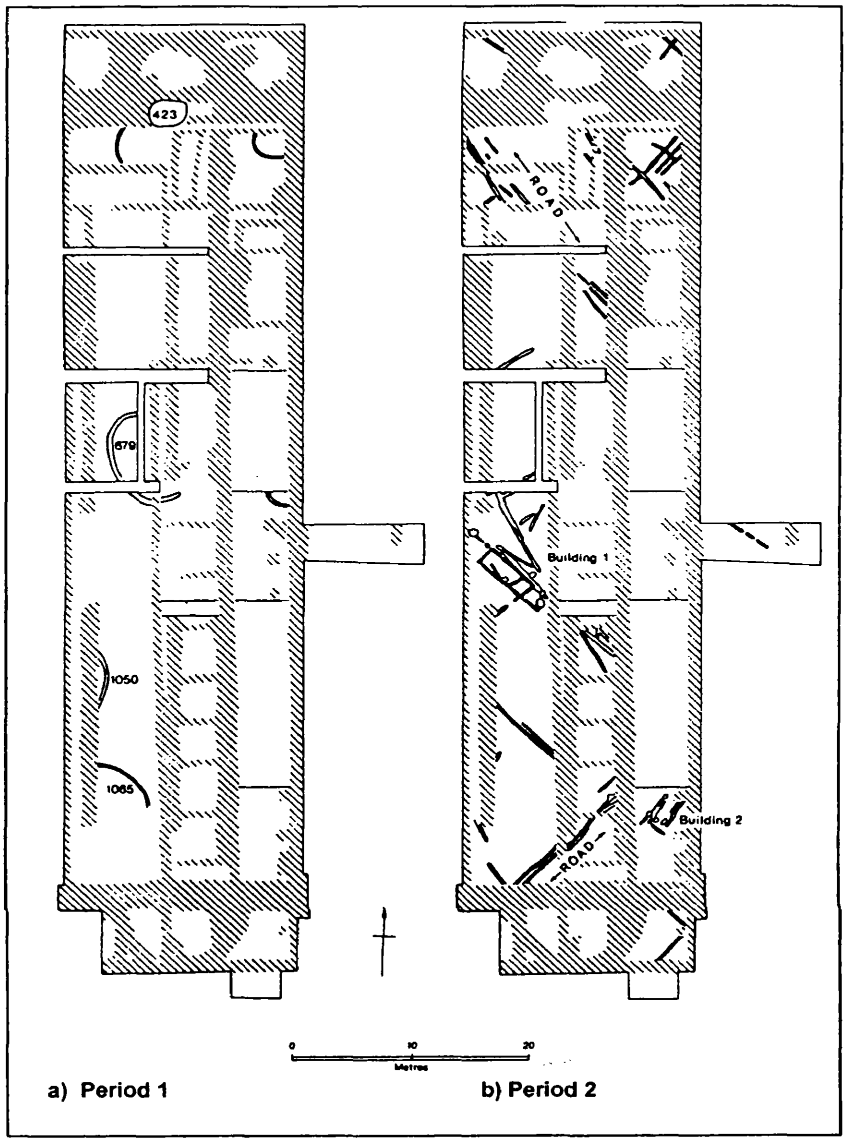


Figure F.16 - Calleva (Silchester) - Iron Age features in basilica excavations (source: Fulford, 1987, fig. 3)

Much of the detail of features located (e.g. including pit groups) has not been published in Fulford's (1987) interim-level report but on the basis of the unpublished data he argues that the proximity of features suggests dense settlement of the area within the inner earthwork (32 ha) changing to a regularly planned settlement (rectangular blocks and road grid) before the end of the C 1st BC (Fulford, 1987, 277). Arguing that that indicates early 'Romanization' of an elite group, he also cites coinages, luxury imports including the contents of amphorae and a changing diet indicated by both faunal remains and developments in table and drinking ceramic wares reflecting those of the Mediterranean, to suggest a period of change grounded in long-distance contact with Roman manners and customs (Fulford, 1987, 277).

F10 - Chalton 15

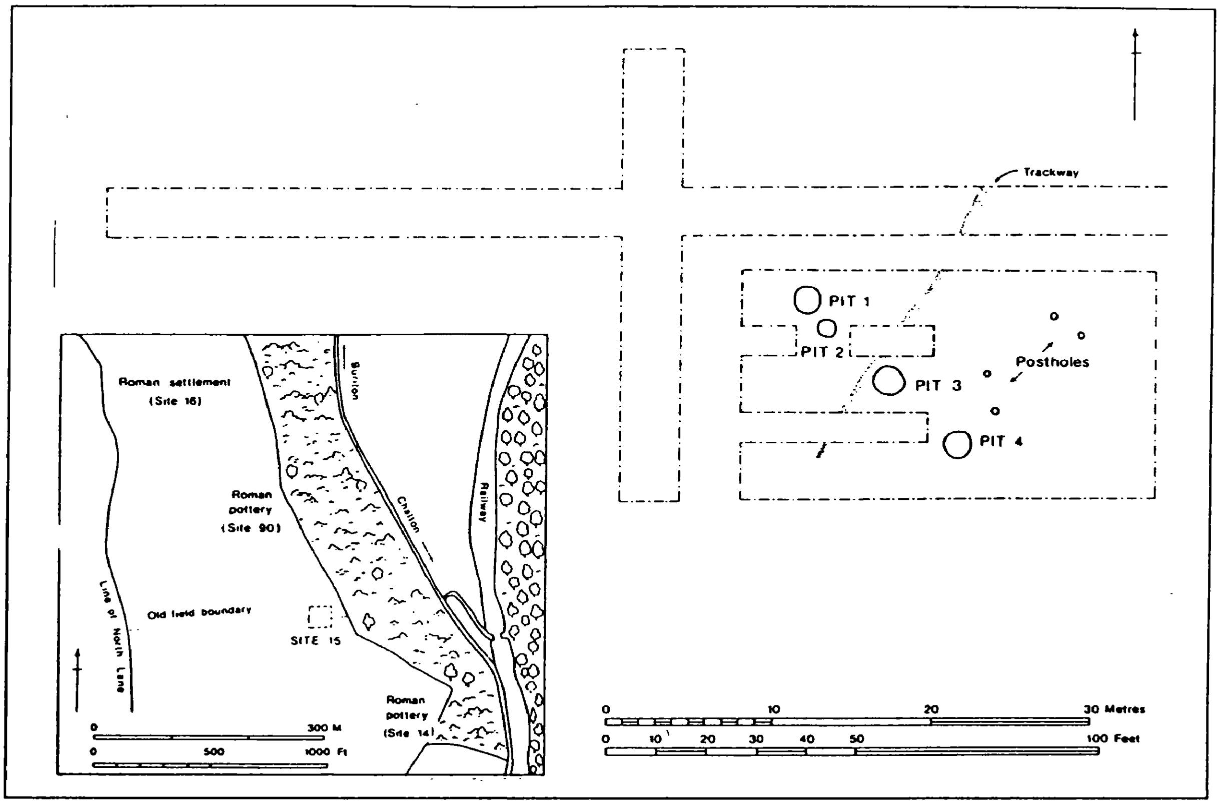


Figure F.17 - Chalton 15 - Location plan and site plan (source: Cunliffe, 1976, fig. 27)

Limited excavation of an area greatly disturbed by modern ploughing (in 1959 by A Corney and 1964 by Barry Cunliffe) revealed a late Iron Age group of four pits and four postholes in an area with considerable evidence of Romano-British settlement (Cunliffe, 1976, 33-35). The real interest in the site lies in the small ceramic assemblage which appears to be transitional between the St. Catharine's Hill - Worthy Down saucepan pot types and the succeeding Southern Atrebatic style which tentatively places the site some time late in the C 2nd BC or the early C 1st BC (Cunliffe, 1976, 46-47).

F11 - Chalton 50

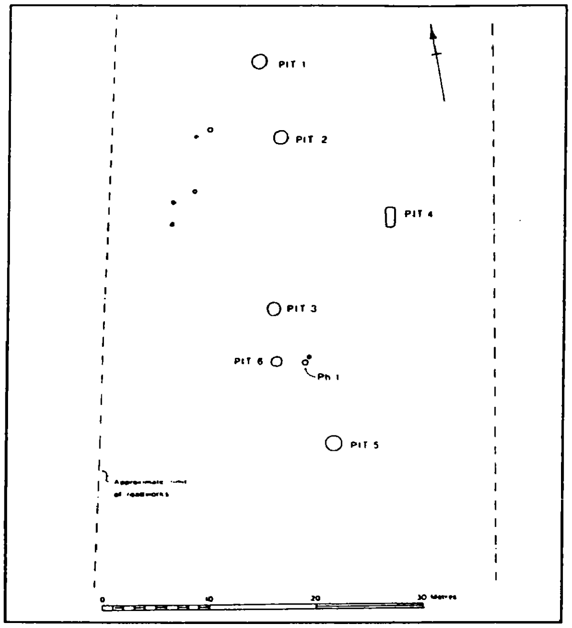


Figure F.18 - Chalton 50 - Plan of excavated features (source: Cunliffe, 1976, fig. 25)

Rescue excavation by J Budden and Barry Cunliffe at this site revealed a scatter of six pits (one of which is unlikely to be Iron Age) and seven disparate postholes (Cunliffe, 1976, 30-35). Pottery was plentiful in these features and broadly contemporary being of the Park Brow - Caesar's Camp style which is thought to span the 500 - 200 BC range (Cunliffe, 1976, 46). The pits probably indicate settlement but limited excavation revealed no structures. The site is likely to have been open as no ditches or banks were discovered in the vicinity in circumstances of modern survey and excavation.

F12 - Chalton 78

On an east-facing chalk spur amidst a landscape of 'Celtic' field systems and associated with a terraced track more than 100 metres in length to the south, the site was the subject of a limited rescue excavation by Barry Cunliffe in 1968. Thus, little area encircling the features was cleared but the excavator believes it unlikely that the site limits extend any further (Cunliffe, 1970, 12) and it was probably unenclosed.

Very few finds were located but they do include some bronze objects which would probably have been regarded as valuable. Thus, it is unlikely that the paucity can be explained by methodical clearance on site abandonment and, therefore, this argues for a short occupation period and a hasty departure. (Cunliffe, 1970, 12).

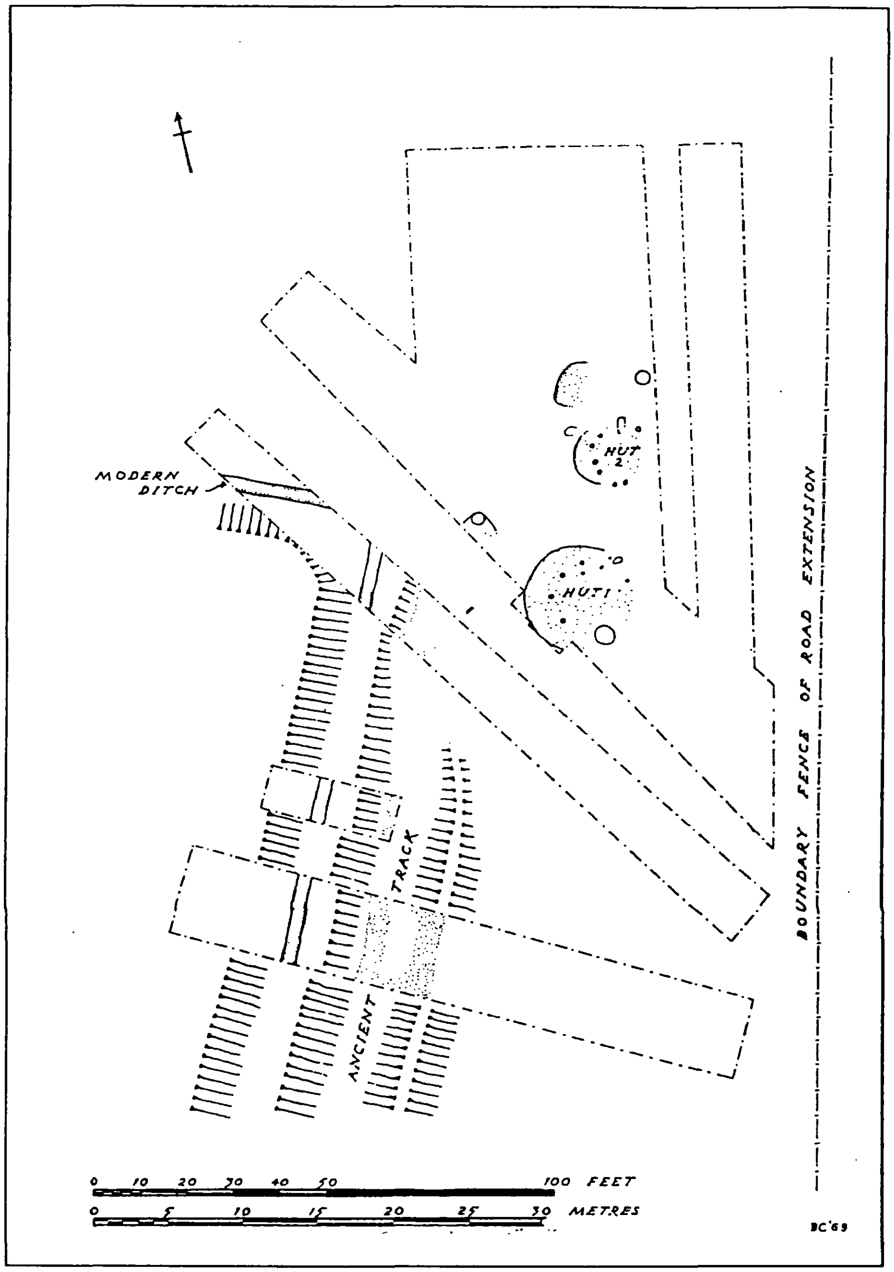


Figure F.19 - Chalton 78 - Plan of excavated area (source: Cunliffe, 1970, fig. 2)

The bronze objects include an unlooped palstave (Cunliffe, 1970, fig. 5.4) which has close parallels which are securely dated to the period 1400 - 1000 BC. Taking that together with the pottery (barrel and bucket sherds with finger-tip impressions, small bases and shoulder cordon detail) and a loom weight, a single period middle Bronze Age date is suggested (Cunliffe, 1970, 9, 13). A radiocarbon determination has been obtained from an unspecified location (a 'hut site') dating to 1531 - 1411 cal BC at one sigma precision (BM-583) (Cunliffe, 1991a, 596) and that would appear to be rather too early when compared to the other evidence; the discrepancy is not discussed but may lie in the detail of the sample's context. Notwithstanding, Cunliffe places the site's date in the range 1400 - 900 BC (Cunliffe, 1970, 13).

Two huts were excavated. The first is defined by a posthole ring approximately 5.5 metres in diameter and set within a terrace cut into the hill slope giving a circular area of 7.1 metres diameter. The associated finds include a bronze knife, an awl, a palstave and eight potsherds. (Cunliffe, 1970, 7). Review of the plan suggests that the entrance to this hut could have been by a porch (postholes 7, 8, 9, 11, 10 and 13) facing east (Cunliffe, 1970, fig. 3). Cut into the floor was a pit (Number 1) of 1.23 metres in diameter and 0.95 metres deep filled with chalk and occupation material including 9 potsherds, a non-local whetstone (Cunliffe, 1970, 11), a loomweight and 9 sherds of pottery (Cunliffe, 1970, 7). The second hut was also set on a terrace cut into the hill slope and its full extent is thought to be little more than 4.3 metres (Cunliffe, 1970, 12). The hut is defined by postholes in a ring of c4 metres diameter and contained no pits or finds but did include a hearth of c1.15 metres diameter in the centre. (Cunliffe, 1970, 6).

Two further 'floors' of shallow terraces cut into the slope are indicated and they may be characterised as sub-rectangular but they include no postholes indicating a structure. Pit number 2 is cut into the corner of floor 4 and is filled with chalky soil and flint but no finds. (Cunliffe, 1970, 7, fig.3). Pit 3 to the east of the other floor produced 28 sherds of pottery (Cunliffe, 1970, 7, fig.3).

A 4.6 metre wide terraced way runs from the south of the site and ends on the outskirts of the occupation area, traceable for more than 100 metres before it is lost beneath a modern roadway (Cunliffe, 1970, 7).

The excavation report includes a useful calculation of the storage potential of the three pits, suggesting that if all were used at the same time for grain storage, the community could have numbered four adults farming c6.5 ha of arable (Cunliffe, 1970, 12-13).

F13 - Cowdery's Down

Located on agricultural land on the crest and south side of a chalk ridge, the site was excavated under the auspices of the Hampshire County Museum Service in 1978 - 81 in advance of development. An extensive medieval settlement overlies the earlier site and thus there were few related finds; the problem is exacerbated by plough damage from an early date. (Millett and James, 1983, 151-152). In the early Bronze Age, site occupation is indicated in the form of 3 ring ditches filled with chalk rubble and subsequently cut by field boundaries, thought to have been ploughed away or levelled during the first millennium BC occupation (Millett and James, 1983, 163).

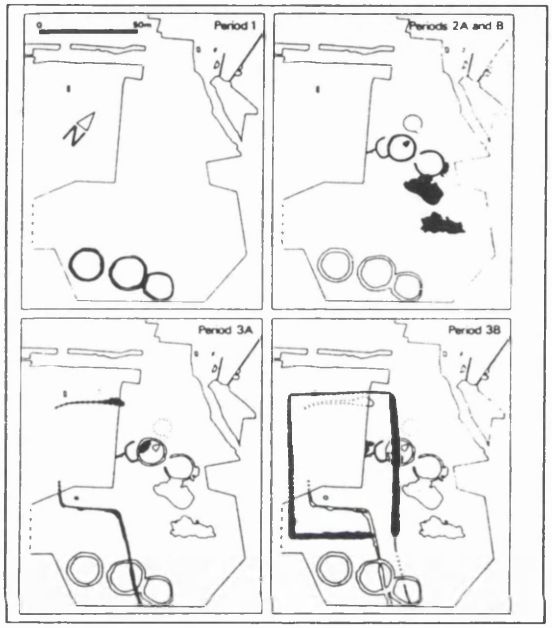


Figure F.20 - Cowdery's Down - Plan of principal features (source: Millett and James, 1983, fig. 5)

In site period 2, occupation focus shifted and two ring ditches, a post-built roundhouse and two pit complexes were built. Dating is by pottery and a lack of comparable assemblages has meant that these features are attributed to the very broad band between the C 9th - C 5th BC (Thompson, 1983, 172-176). It seems unlikely that the site was enclosed, even though the rescue excavation was limited in its extent.

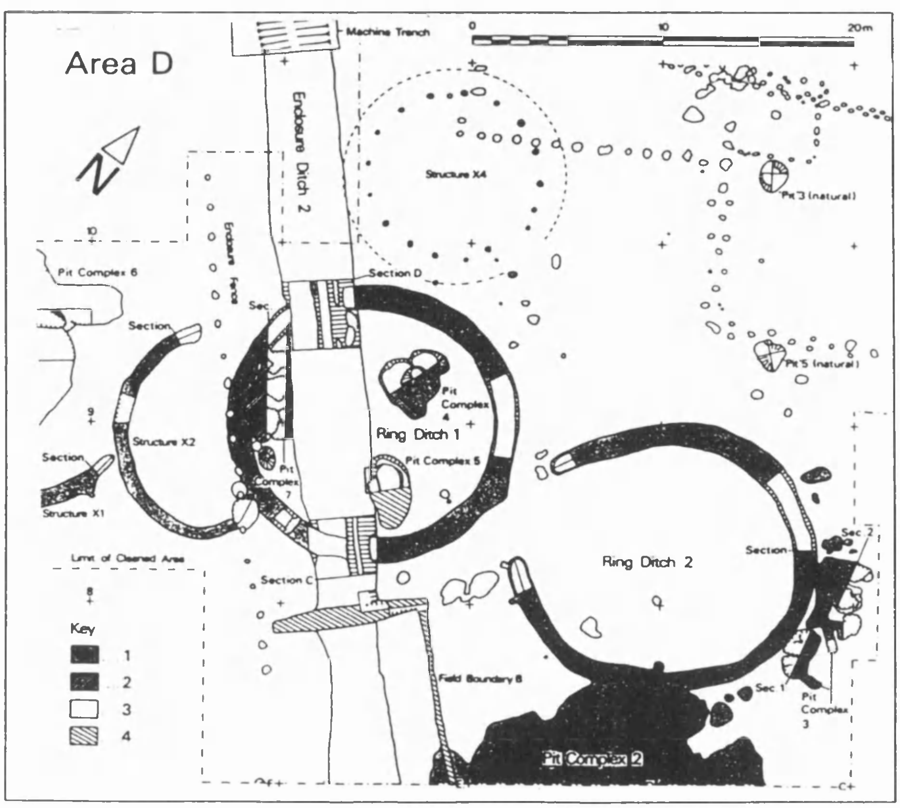


Figure F.21 - Cowdery's Down - detail of features in area D (Millett and James, 1983, fig. 14)

The first of the ring ditches ('RD1') is 14 metres in diameter, steep sided, flat bottomed and shallow (c0.5 metres deep) and filled with material thought to be derived from the interior by, for example, the pushing backward of an interior bank (Millett and James, 1983, 169). An ancillary, curving, shallow ditch is attached to the west (Structure 'X2'). The second ('RD2') is pennanular, some 13.5 metres in diameter with a 5 metre causeway at the south-west and of a flat-bottomed form similar to the first (Millett and James, 1983, 169). It is possible that structure 'X4' represents a roundhouse of c13 metres diameter. The two ring ditches are morphologically similar suggesting contemporaneity and the respect for the edges suggests that the putative roundhouse is also contemporaneous (Millett and James, 1983, 172). The function of the ring ditches is unknown and barrows or houses are placed high on the list of possibilities with the excavators favouring the latter interpretation (Millett and James, 1983, 172).

The evidence suggests that the pit complexes are later in the development of the site, although within the same general date range; the precision of dating by the poorly diagnostic pottery does not allow certainty (Millett and James, 1983, 170). In form, each is a large and irregularly shaped disturbance of the ground only partly excavated and thought to have been dug and filled over long periods. Finds include pottery, bone, carbonised seeds and burnt daub (some with wattle impressions) but the excavators were unable to relate individual pits to contents. (Millett and James, 1983, 170). Environmental evidence in the area suggests an overgrown environment and the excavators feel that the pit complexes may have been quarries for chalk for marling, subsequently reused for rubbish disposal (Millett and James, 1983, 172).

Somewhat to the south of the earlier site, there is evidence for an enclosure (No. 1) and 2 pits (nos. 1 and 7) which form site period 3A and are attributed to the first years of the AD C 1st at the earliest (Thompson, 1983, 182-187), thus suggesting that the new occupation could fall within the latest period for this study. However, the section exposed is small and the assemblage sparse (with the marked exception of a very high percentage of burnt animal bone) (Maltby, 1983, 187-188) thus minimising the contribution to analysis.

F14 - Danebury

The Danebury hilltop is surmounted by a clear and dramatic enclosure of about 5.3 ha in its form extant today and has been the subject of what is probably the most extensive and influential excavation of a site of this type and period, led by Barry Cunliffe and spanning more than 25 years from 1969. Further study of the wider environs continues (the Danebury Environs Project). The work has been published in six volumes and a brief summary of the key points, only, can be offered here.

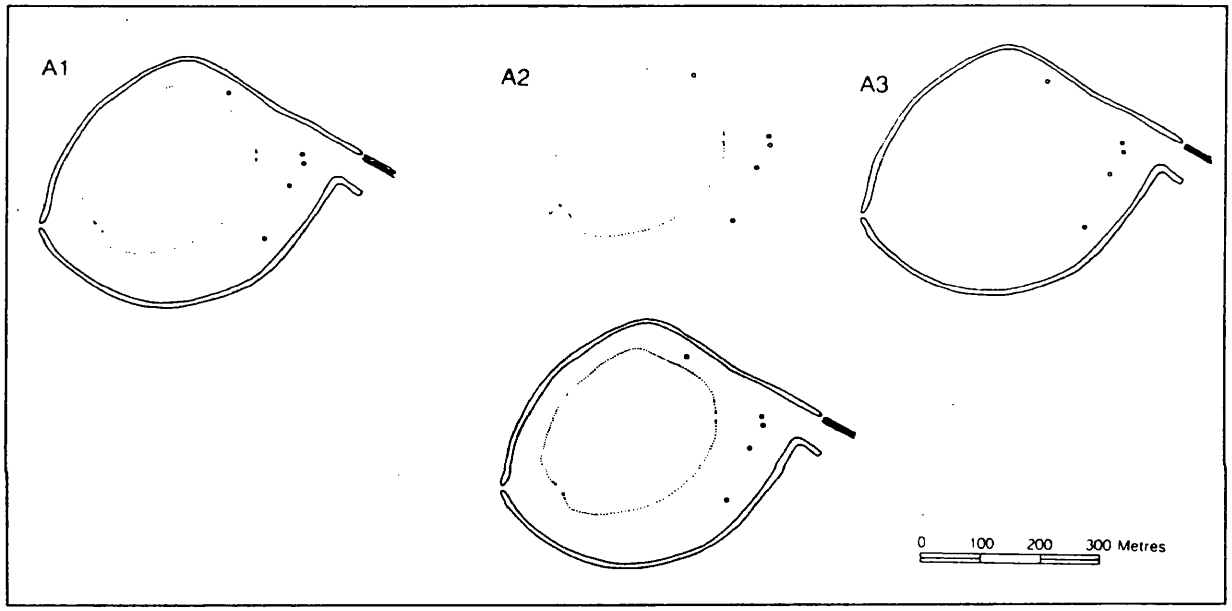


Figure F.22 - Danebury - Surveyed / Excavated features of first occupation of site (after Cunliffe, 1995, fig. 3)

The hilltop site had been used sporadically in the third and second millennia BC and a single Beaker period grave was discovered (Cunliffe, 1995, 16) but the first structural evidence at the location is for the 'outer' earthwork enclosure of c16.2 ha by a V-profiled ditch attached to a linear ditch system at the east which can be traced for more than 2 km (the 'Danebury Linear') (Cunliffe, 1995, 16). That enclosure was broken by two opposing entrances at the west and the east (which were respected by all later constructions at this site) (Cunliffe, 1995, 16). Nothing is known of the bank associated with the 'outer' ditch. A contemporary 'inner' palisaded enclosure may have encircled an area on exactly the same lines as the later 'hillfort' ditch, such that all traces of it were removed except those underlying the eastern entrance of the later construction (Cunliffe, 1995, 16). Within the enclosure was a group of five large 'ritual' pits, some with standing timbers, which were dug on an arc roughly following the contour (Cunliffe, 1995, 16). Other features include a bronze hoard and two small above-ground storage structures discovered beneath the first rampart of the (later) 'hillfort' (Cunliffe, 1995, 16).

Dating of the enclosing earthwork is not closely defined, being placed at c800 - 600 by analogy with *'similar systems in Wessex'* (Cunliffe, 1995. 16) but the internal features provide more evidence, including the bronze hoard dated to c700 - 600 BC, coincident with a small amount of C 7th BC pottery incorporated in the 'hillfort' rampart and the superimposition of the palisade and the 'hillfort' ditch thought to place it not long before the C 6th BC (Cunliffe, 1995, 16). Thus, the excavator has placed the construction of the enclosure and the Danebury Linear and some occupation of the interior at c700 BC, followed at c600 BC by the building of the palisade within (Cunliffe, 1995, 16).

The 470 - 310 BC period

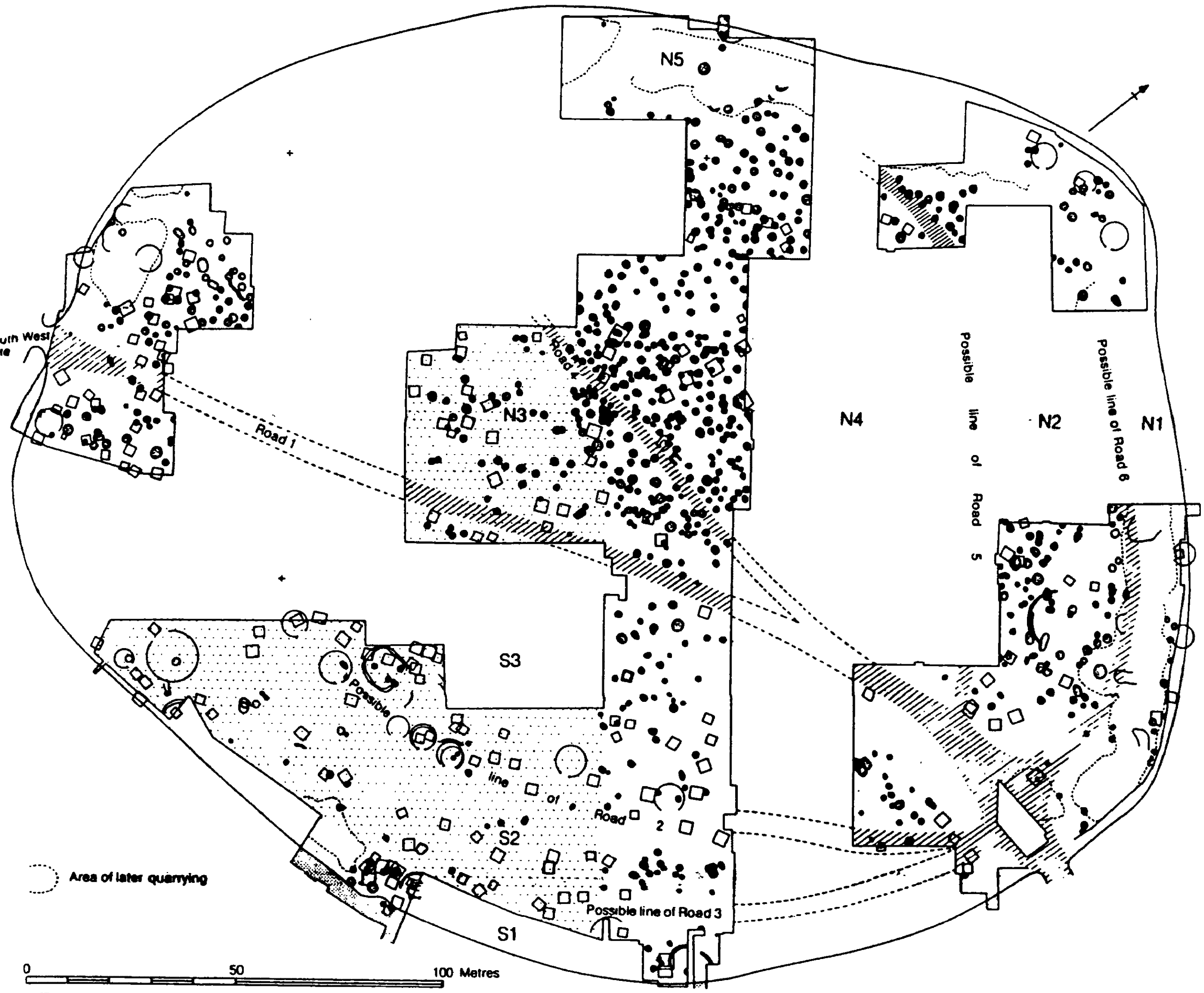


Figure F.23 - Danebury - Plan of excavated features in the period 470 - 310 BC (source: Cunliffe, 1995, fig. 8)

The 'hillfort' structure seen today was built as a double timber row, univallate enclosure in the C 5th BC. The bank was fronted vertically and broken by two entrances, one at the south-west and the other at the east, in line with the entrances and approaches of the earlier period (Cunliffe, 1995, 16). The inner line completely encircled c5.3 ha and the bank may have been as high as 4 - 5 metres and 10 metres broad (Avery, 1993, 130). Unfortunately, the profile of the ditch was

completely obliterated by the excavation of a new ditch in the following period (Avery, 1993, 130). The bank was allowed to weather and at some point (which could be as late as 310 BC) there is evidence for limited burning (Cunliffe, 1995, 16-17). The east gate was rebuilt during the currency of the first rampart but in the immediate aftermath of the fire there was a period when no gate existed. Excavation of the south-west gate has been partial, only, but what is known correlates broadly with the history of that in the eastern sector. (Cunliffe, 1995, 17).
In the period 470 - 310 BC, the dataset for occupation of the interior is huge and can only be sketched out here (see figure F.23, above). A left : right divide is argued on the evidence of a slight respect of structures for a 'road' (*Road 1)* between the two, made much more clear in later periods. By far the greatest number of pits dating to this period occur in the right-hand half (Cunliffe, 1995, 24) and they are heavily clustered in the centre of that area (Cunliffe, 1995, 24, fig. 8). By contrast, there are far fewer to the left of the path and they are scattered rather than clustered (Cunliffe, 1995, 24). Furthermore, the nature of the pit fill differs (Cunliffe, 1995, 24). However, there are several circular roundhouses in the left sector which may have been arranged in an approximate line (Cunliffe, 1995, 24, fig. 8). Thus, it would appear that whereas the left was the habitation zone, the right was for storage (perhaps longer-term grain storage). A number of above-ground storage structures are also scattered amongst the features in the left hand sector although these could be earlier than the rampart (Cunliffe, 1995, 27).

In the south of the site, six round structures are arranged in an arc around the periphery of the enclosed area which hints that a 'road' (*Road 3*) may have existed at this time, although its line becomes much more clearly defined in later periods. North of Road 3 is a zone c20 metres wide which is apparently devoid of structures but which contains a large number of pits of which a higher proportion are rectangular (23%) than in the interior as a whole (10%) (Cunliffe, 1995, 27).

To the north side of Zone B is an open strip which may have served as a 'road' but if it did it was replaced by *Road 2* placed c5 - 10 metres north at a later stage. To the north of the putative road were a further nine circular structures in the excavated area (Cunliffe, 1995, fig. 12) and where doorways have been identified they all open to the south (i.e. facing *Road 2*) (Cunliffe, 1995, 28). Some of the many four-post structures amongst the houses are likely to have been contemporary but the area between the houses and four-posters zone and *Road 1* is an area in which the only identifiable structures are pits (Cunliffe, 1995, 28).

The majority of the very large number of pits to the north belonged to this early period and some may have been arranged in lines (c.f. New Buildings F29, nearby) (Cunliffe, 1995, 28). Relatively few of the pits appear to have included 'special deposits' (Cunliffe, 1995, 29).

It is possible that the structure rather central to the site, in the right-hand side, is of special significance (the *'Sanctuary'*) (Cunliffe, 1995, fig. 18).

Enclosure - 310 - 270 BC

During this 40 year period, the collapsed remains of the bank were reconstructed with a small addition of material in the tail and the ditch dug out to a V-shaped ditch c6 metres deep and 10 metres wide (which completely obliterated the earlier ditch) (Cunliffe, 1995, 15, 16-18) (Avery, 1993, 130). The bank is estimated to have been c4 metres high and surmounted by flint-built breastwork on the crest (Avery, 1993, 130). That refurbishment programme included the addition of the 'hornworks' at the south-west entrance and the east gate was both first constructed and totally reconstructed, before the use of both gates diminished (Cunliffe, 1995, 15, 16-18). At some time during the period, the outer earthwork and ditch were also redug (Cunliffe, 1995, 15, 16-18).

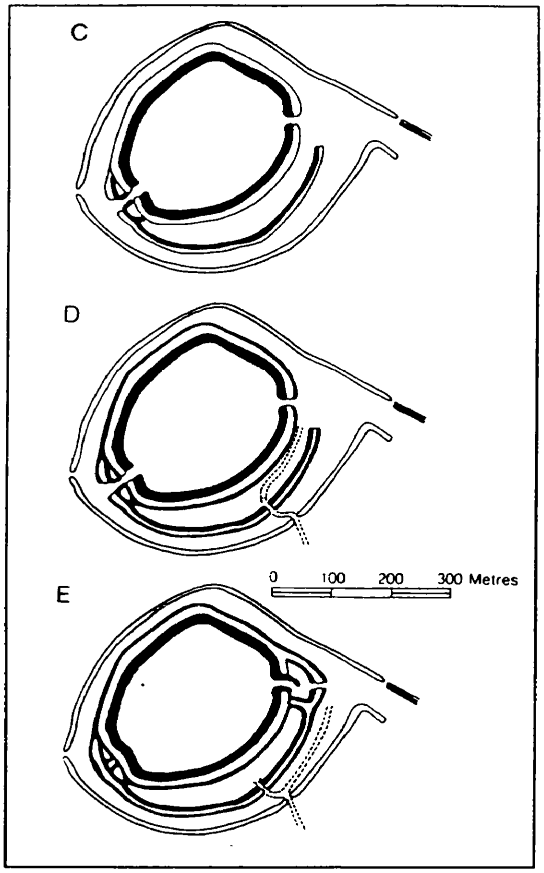


Figure F.24 - The Danebury enclosure developments in period 400 - 100 BC

Enclosure - 270 - 50 BC

Another large-scale refurbishment exercise is dated to this period, presumed to have been facilitated in part by the digging of a substantial quarry on the north and west sides (Cunliffe, 1995, 15, 16-18) but this cannot have been significantly early because the previous ditch had silted up by c4 metres before the restructuring commenced. The eroded rampart is thought to have been heightened to c3.5 metres by additions to the tail, thus decreasing its front slope, and the ditch was remodelled as a wide (11.4 metres) but shallow (2 metre) feature which may not have been intended to be defensive (Avery, 1993, 130). The refurbishment included the blocking of the south-west gate and the augmentation of the east gate by replacement with a more substantial structure and with massive forward-projecting hornworks (Cunliffe, 1995, 15, 16-18). At some date within this period (and probably before c100 BC) the east gate was destroyed by fire. (Cunliffe, 1995, 15, 16-18).

Interior occupation - 310 - 50 BC

This period saw a great alteration to the pattern of use established in the earlier in that the main zone of circular structures was reversed with the zone for above-ground storage structures:

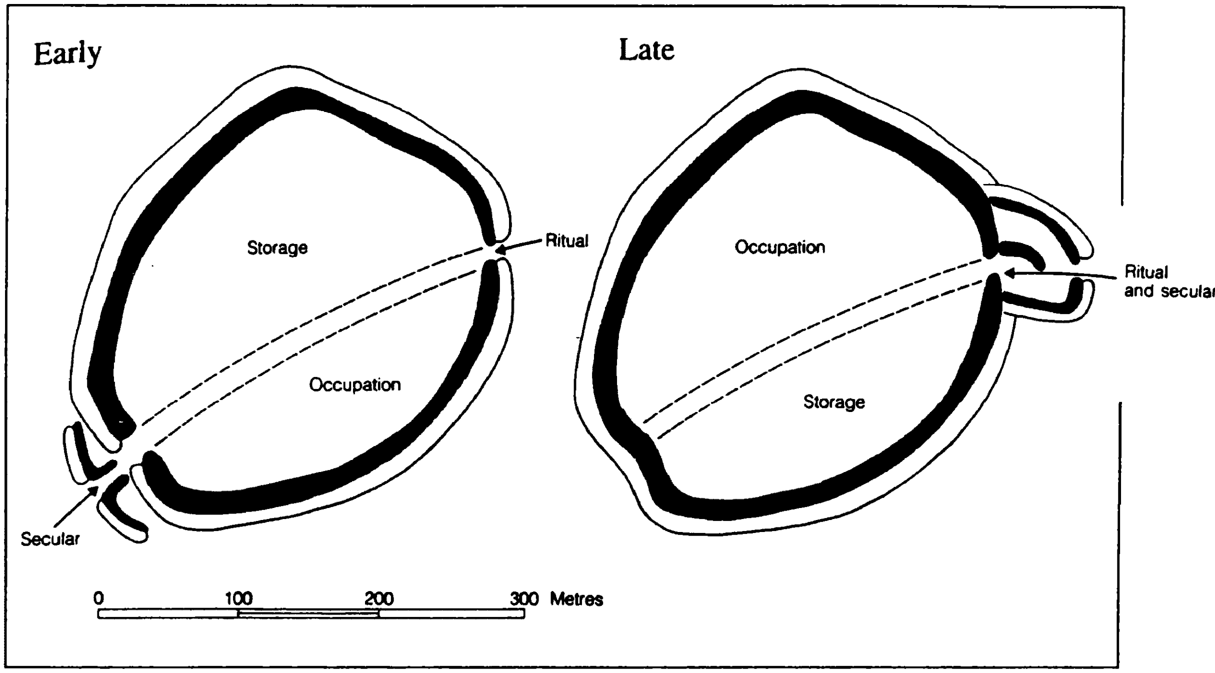


Figure F.25 - The reversal of functional zones at Danebury (source: Cunliffe, 1995, fig. 10)

It has been argued that this coincided with the blocking of the south-west gate at c270 BC such that if the south-west gate was the 'main' gate up to that time, then storage was to the left and habitation to the right and when the east gate became the main gate, the internal arrangement was reversed with the effect that the Left : Right, Storage : Habitation differential was maintained (Cunliffe, 1995, 24-25).

On the basis of the reversal, the linear arrangement of above-ground storage structures along 'roads' becomes even clearer and they tended to be rebuilt frequently by comparison with those sited between the rows (Cunliffe, 1995, 26). Furthermore, evidence of road 2, particularly, shows that it was carefully maintained by patching with gravel and chalk. New paths also appeared at this time. (Cunliffe, 1995, 26). Interestingly, the spacing of the rows of above-ground storage structures is relatively regular but shows a tendency to clustering with most gaps between neighbours being in the region of 2 - 4 metres but the occasional wider gap of between 5 - 10 metres (Cunliffe, 1995, 27) suggesting 'clumping'. The incidence of pits remained very numerous in this period. Cunliffe (1995, 27) suggests that if the above-ground storage structures were 'granaries' then the total capacity would be far in excess of the needs of the resident population but, if the items stored were varied, then they would serve a much smaller community without obvious excess.

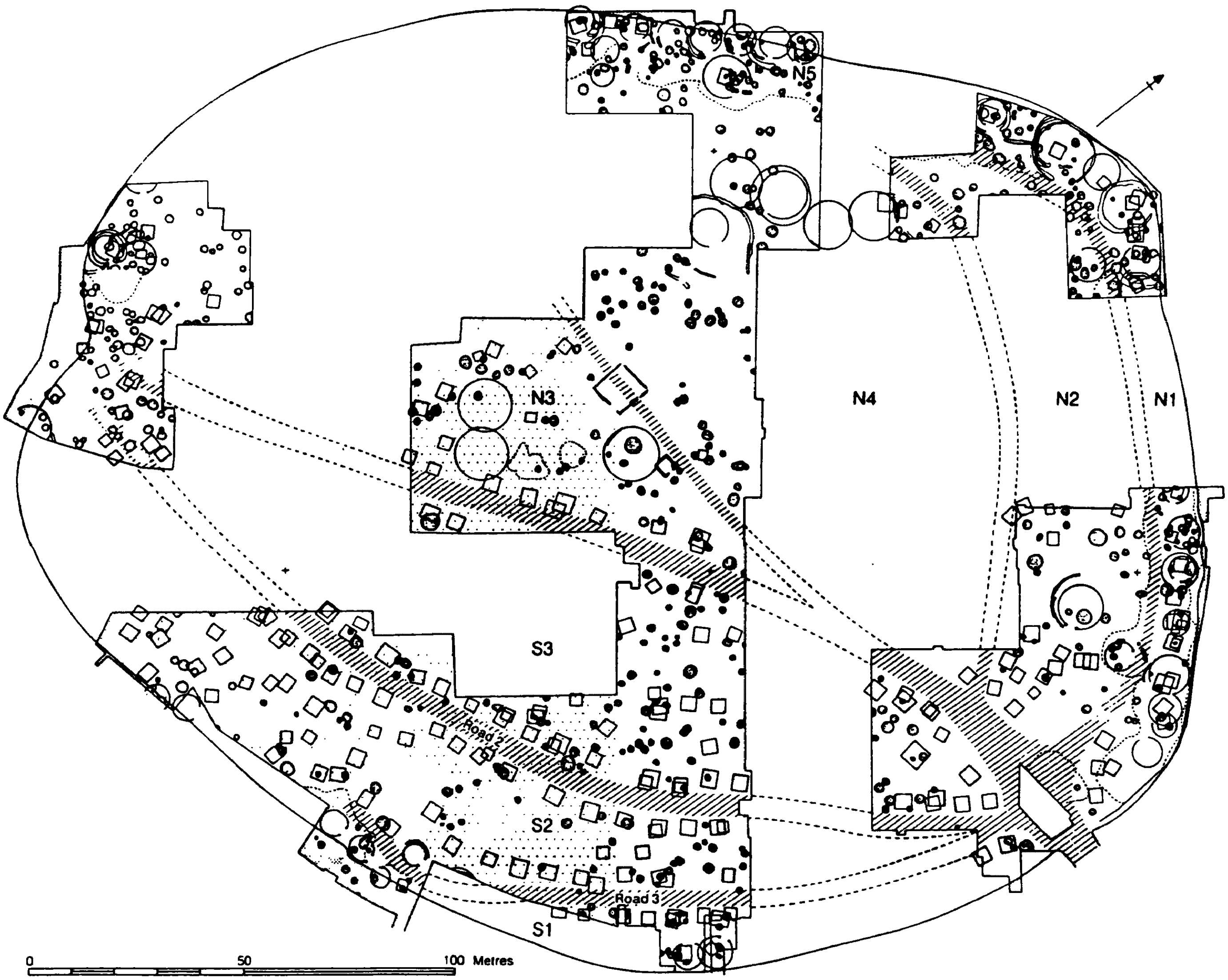


Figure F.26 - Danebury - Plan of excavated features in period 310 - 50 BC (source: Cunliffe, 1995, fig. 9)

The southern zone did retain some houses at the extreme periphery and along road 3, but more than 40 were packed in around the perimeter of the northern half in clusters and the others were comparatively more spaced out in clusters in the interior (Cunliffe, 1995, fig. 9). However, it is evident that they were not all contemporary and some localised sequence has been proposed (Cunliffe, 1995, 35-41).

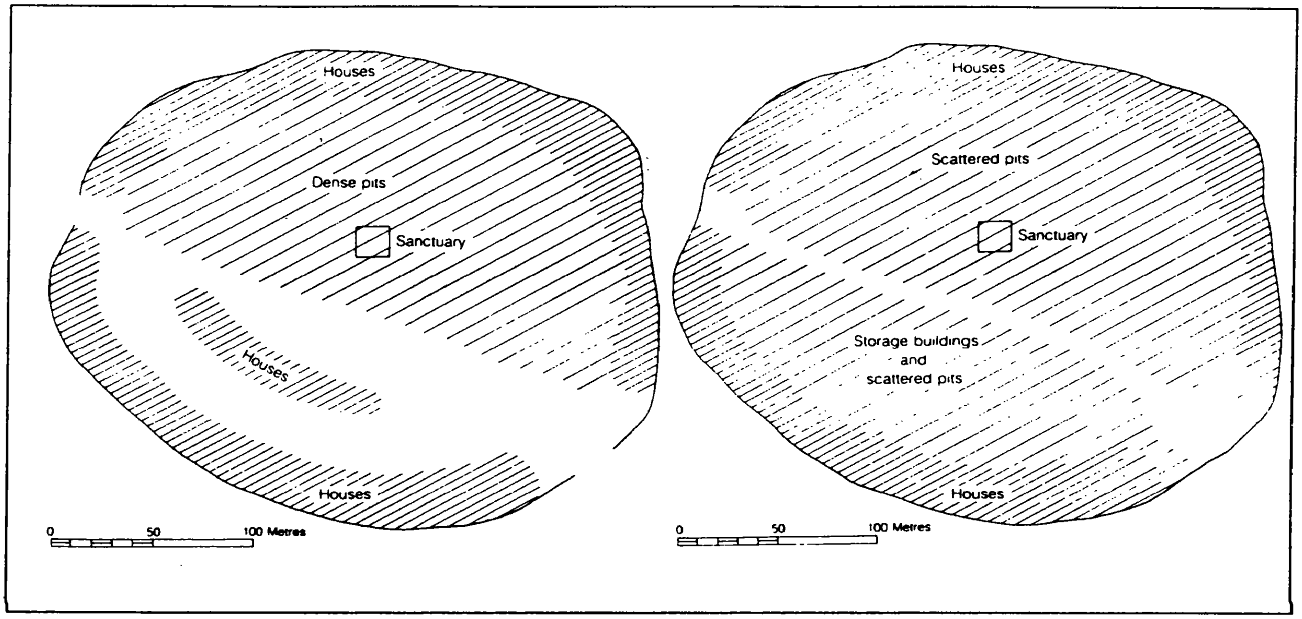


Figure F.27 - The planning evident in the layout of Danebury (after Cunliffe, 1995, fig. 18, 19)

Note on relationship with Suddern Farm F43

Danebury appears to have been largely abandoned c100 BC and, at the same time, the nearby (unpublished) site of Suddern Farm F43 was enclosed by 2 concentric banks and ditches and its assemblage included 'high status' artefacts including wine amphorae, pottery imported from the north-west region of France and a large quantity of wheel-made pottery from the Poole Harbour production centre; Cunliffe (1995, 101) suggests that it may have been a *'successor to Danebury'*.

F15 - Easton Lane / Winnall Down

Situated on downland occupied from the Neolithic and clearly used regularly, lies evidence of long-term occupation spread over an area which could be as much as 15 ha in total extent if the 2 pits of this period discovered under Winnall Industrial Estate are included (located by SC Hawkes (1969), cited by Fasham et al (1989, 144)). In the 1980s, two neighbouring areas were explored in excavations led by Peter Fasham and those were known as the 'Easton Lane' and the 'Winnall Down' exercises but it is convenient to analyse and discuss them as though they were one, for this work. The sites are located some 800 metres east of the River Itchen and c30 metres above the valley bottom, which is overlooked.

End M2 BC - 950 BC ('middle Bronze Age')

The rectilinear ditch system was laid out in this phase (site phase 4) in an open, grassland environment although the presence of a high proportion of pig bone in the faunal assemblage could suggest that there were still patches of woodland in the vicinity (Fasham et al, 1989, 144). On the Easton Lane sector of the site the features identified include 10 roundhouses, three rectangular structures and eight miscellaneous structures, together with a few minor contexts. Clustering of features is clear but many had no direct dating evidence and one or two contained both middle and late Bronze Age pottery. (Fasham et al, 1989, 33). Thus, regrettably little can be said about overall contemporaneity and it is acknowledged that some features may have been later and contemporary with the neighbouring cluster at Winnall Down, generally regarded as a little later (Fasham et al, 1989, 33).

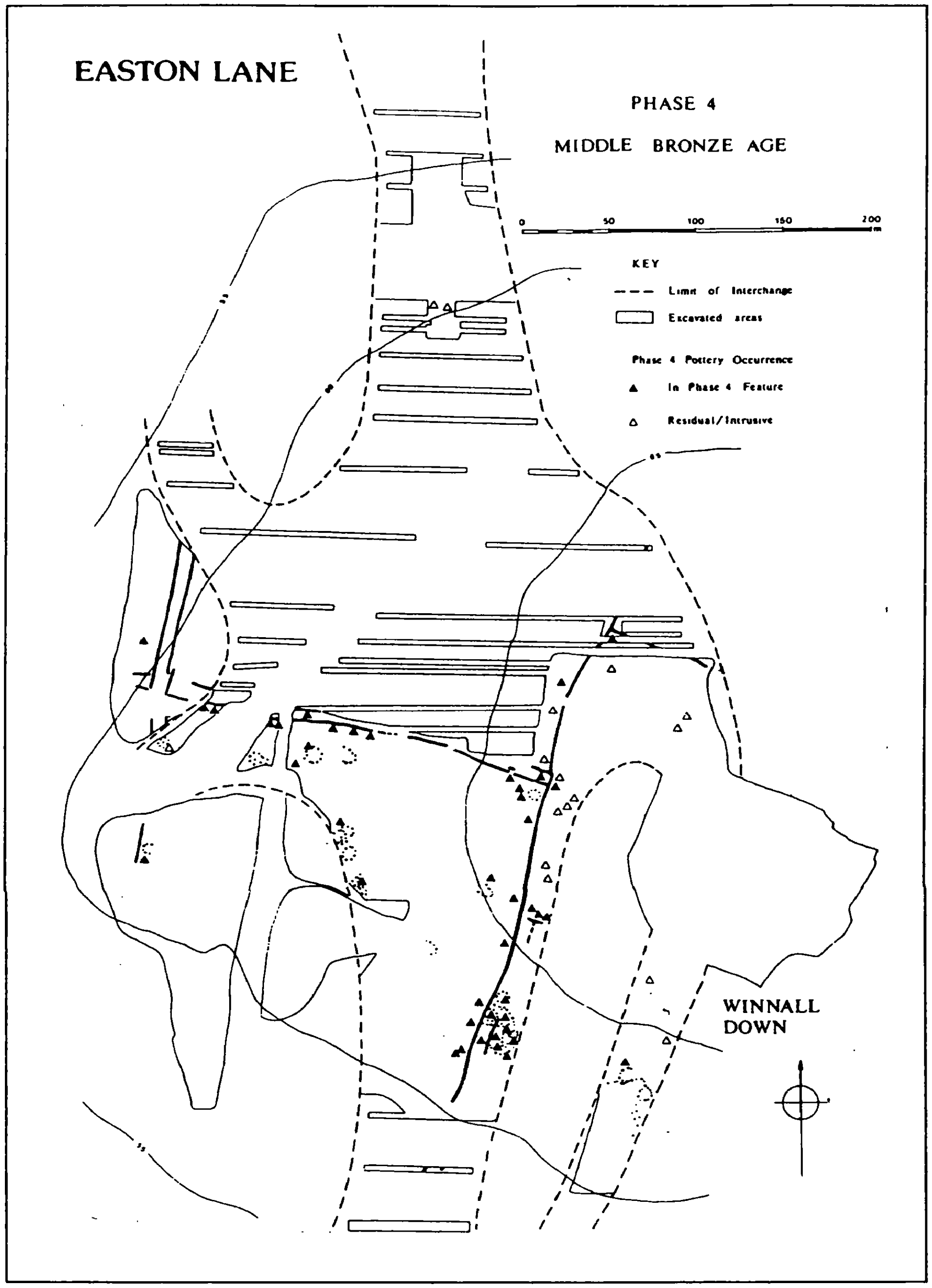


Figure F.28 - Easton Lane / Winnall Down - Plan of excavated features end second millennium - 950 BC (source: Fasham et al, 1989, fig. 30)

The whole of the Easton Lane sector is assumed to have been a square or rectangular area defined by ditches although the southernmost extent has not been identified. Within that, the important structures are discussed here:-

- Structure MS2159 is difficult to date as sherds include both late Bronze Age and early Iron Age pottery but the structure was situated in the right-angled north-east corner of the rectangular ditch system created in the middle Bronze Age, suggesting that it was extant when the structure was built and, therefore, that it falls within this period. The structure was an oval (4.1 * 3.9 metres) or sub-rectangular (4.0 * 3.7 metres) arrangement based on closely-spaced postholes with two opposed entrances discernible to the west and east. This could have been a temporary crop storage structure, positioned in the corner of a field (Fasham et al, 1989, 147).

- Some 60 metres to the south-south-west of MS2159, away from the edge of the ditched field system, lies a semi-circular construction (Structure MS 5658) and another very similar construction lies a further 40 metres to the south-south-west of that (Structure MS 5654).
- In the centre of the 'field' as excavated lies a cluster of features:-

  (i) CS2373 is an oval or sub-rectangular building with centrally placed internal postholes (c5 metres in diameter) and CS2375 is a small oval building (5 * 5.2 metres) with an elongated porch to the south some 2.8 metres long and 1.4 metres wide and very similar in form to House C on Winnall Down sector (see below). (Fasham et al, 1989, 33).

  (ii) Immediately neighbouring those, to the south, was a larger oval structure (CS2723) (@ 7.3 * 6.7 metres) which may have been entered at the north-west or the south-east - the data is ambiguous. (Fasham et al, 1989, 33).

  (iii) A few metres to the south, again, lay a discrete cluster of 24 postholes which has been interpreted as a possible circular structure (feature MS2789) consisting of a porch 4.6 metres long * 2 metres wide to the south (Fasham et al, 1989, 33) and which could have been of a diameter of as much as 10 metres (Fasham et al, 1989, fig. 40) although interpretation with any confidence is difficult.
- Moving some 50 metres to the north-west of that cluster, there lies a double-ringed roundhouse arrangement (CS2341) the outer ring of which was c8 metres in diameter with a porch to the south-west of 1.25 metres long and 3.25 metres wide (Fasham et al, 1989, 33). The inner ring appears rather oddly constructed of 4 pairs of postholes, each set c1 metre apart and a complete circuit would appear to have needed at least another 3 pairs (Fasham et al, 1989, 33). Thus, the structure may have served a function not directly integrated with the superstructure *per se*. In the immediate environs there are a number of scattered postholes, a few of which appear to assemble into a discrete group to the west (MS5657).

- Some 30 metres west of the CS2341 roundhouse lay a structure CS2782, comprising roundhouse of 5.15 metres diameter with one central posthole and a porch 1.9 metres wide and 1.6 metres long, facing south-east (Fasham et al, 1989, 38).
- A further 50 metres to the west of that, in the north-east corner of the ditched enclosure, lay a comparatively isolated circular structure (CS 3290) around a central posthole and with a diameter of 4.25 metres and a simple entrance c1.5 metres wide, facing east (Fasham et al, 1989, 43).

Moving to the east of the ditched enclosure, to the neighbouring ditched enclosure, there are two large concentration of middle Bronze Age features. Immediately adjacent to the ditch 'boundary' lies 'Area D' containing a jumble of c300 features from which it has proved difficult to isolate the middle Bronze Age element by eye but which has been conveniently arranged into three main combinations:

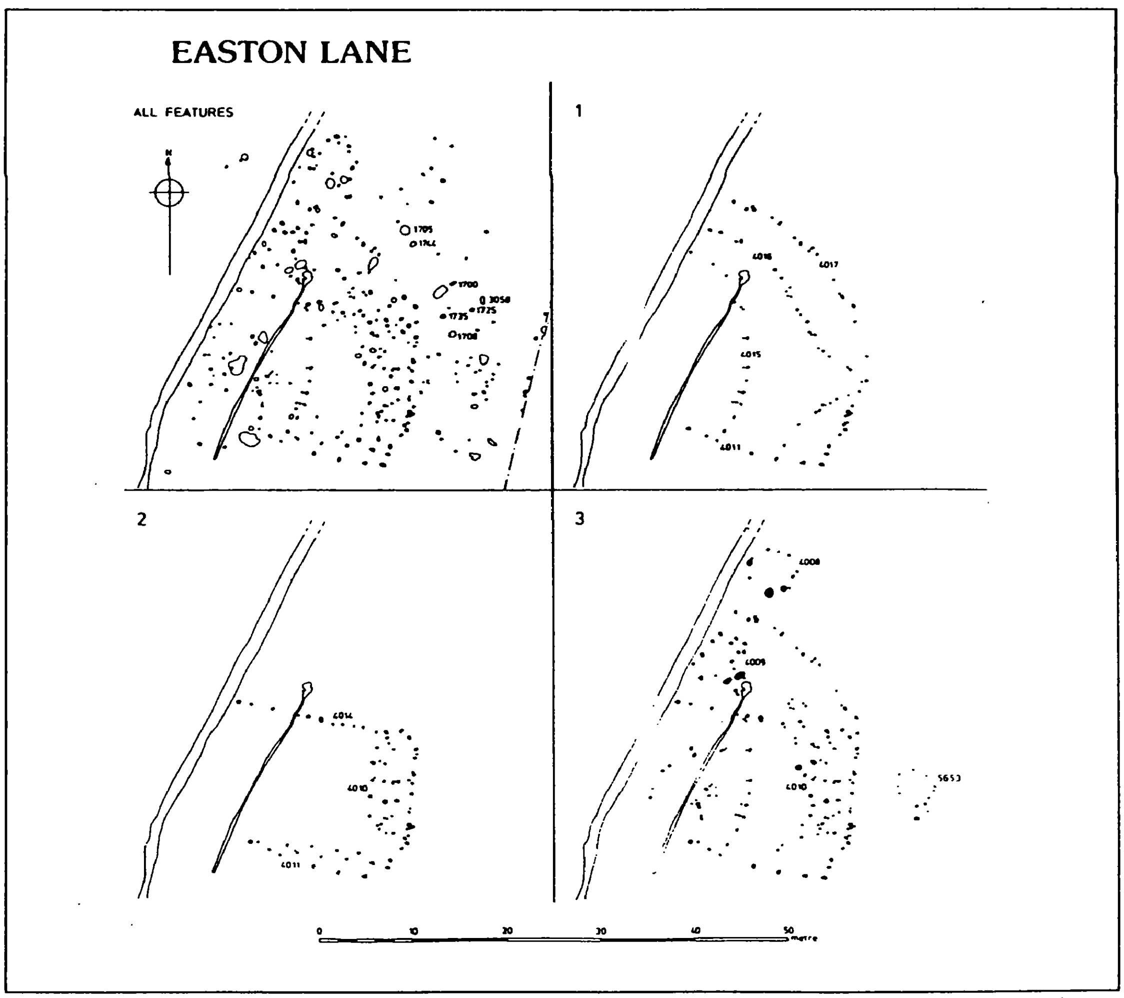


Figure F.29 - Easton Lane / Winnall Down - Area D (after Fasham et al 1989: fig. 53)

There is no chronological ordering and interpretations could be varied:-

i. Combination 1 - Fencing division of the area (Fasham et al, 1989, fig. 53.1)

ii. Combination 2 - A large, rectangular structure (MS4010) associated with fencing division (Fasham et al, 1989, fig. 53.2). This is a most unusual structure which could also be worked into combination 3, below, and which occurred within the junction of fence lines. The postholes make a round-ended rectangular structure of symmetrical proportions some 11.5 metres long and 4.5 metres wide with posts set somewhat irregularly but in the region of 1.75 - 2.0 metres apart. In-turned entrances have been identified at the north and the south ends. (Fasham et al, 1989, 39-40).

iii. Combination 3 - Four 'house' structures in association with fencing (CS4008, 4009, 5653 and MS4010) and access, or courtyard, areas (Fasham et al, 1989, fig. 53.3). CS4008 is a 4.75 metre diameter circle with a simple entrance c0.75 metres wide, to the east, CS4009 is a 5.50 metre diameter circle with a short (1.5 metre) porch to the south-east and CS5653 is a 4 metre diameter circle with two central postholes and a 0.65 metre wide, 1.5 metre long porch to the south (Fasham et al, 1989, 38-39).

- Just to the south-east of Area D lay a further discrete combination of a small, simple south-eastern entrance, post-built roundhouse of c5.5 metres diameter (CS5636) in combination with a four-post structures (RS5637) and what may have been a fenced enclosure for livestock (MS5652).
- Over the whole area, six pits included middle Bronze Age material and two of these contained late Bronze Age material as well. The middle Bronze Age ditches were all of rather slight construction and they formed a coherent, rectilinear pattern which was modified in the late Bronze Age. (Fasham et al, 1989, 39).
- An inhumation burial of a 25 - 35 year old female (Fasham et al, 1989, 121) was discovered in a rectangular grave which also contained three sherds of middle Bronze Age pottery (Feature 3695 - Fasham et al, 1989, 50) located to the east of the main concentration of settlement some 60 metres north of an earlier cemetery and a possible cremation in a middle Bronze Age urn (Feature 6099) was located to the north, with a second possibility

(4683) at the field edge near the first settlement cluster discussed (above) (Fasham et al, 1989, fig. 68).

Material in residual contexts indicates that the Winnall Down area of the site was occupied in the middle Bronze Age period but settlement appears concentrated in the Easton Lane sector until c950 BC when it shifted to the Winnall Down.

950BC - 700 BC ('late Bronze Age')

In the Easton Lane sector, few specific features are attributable to the late Bronze Age but those which are include the replacement of the ditch system by two larger north-south ditches (Fasham et al, 1989, 55). Nineteen of the 34 contexts within which late Bronze Age pottery was found are ditches (Fasham et al, 1989, 56) and, together with the new cluster of settlement at Winnall Down to the east, that suggests a move and one which is emphasised by the alignment of all later first millennium BC developments in the same quarter.

The Winnall Down sector developed as an open site in an area of 'Celtic' fields with a probable double-lynchet trackway to connect and integrate the site and the fields (Fasham, 1985, 126). There is no evidence for storage facilities at this time, either above or below ground (Fasham, 1985, 126). The site is thought to have comprised at least four post-built roundhouses and a fence at this time although there are no stratigraphic relationships between them and two of them cannot be dated by association with finds. However, the fence is likely to have been broadly contemporary as the fence line and one of the houses intersect (Fasham, 1985, 126).

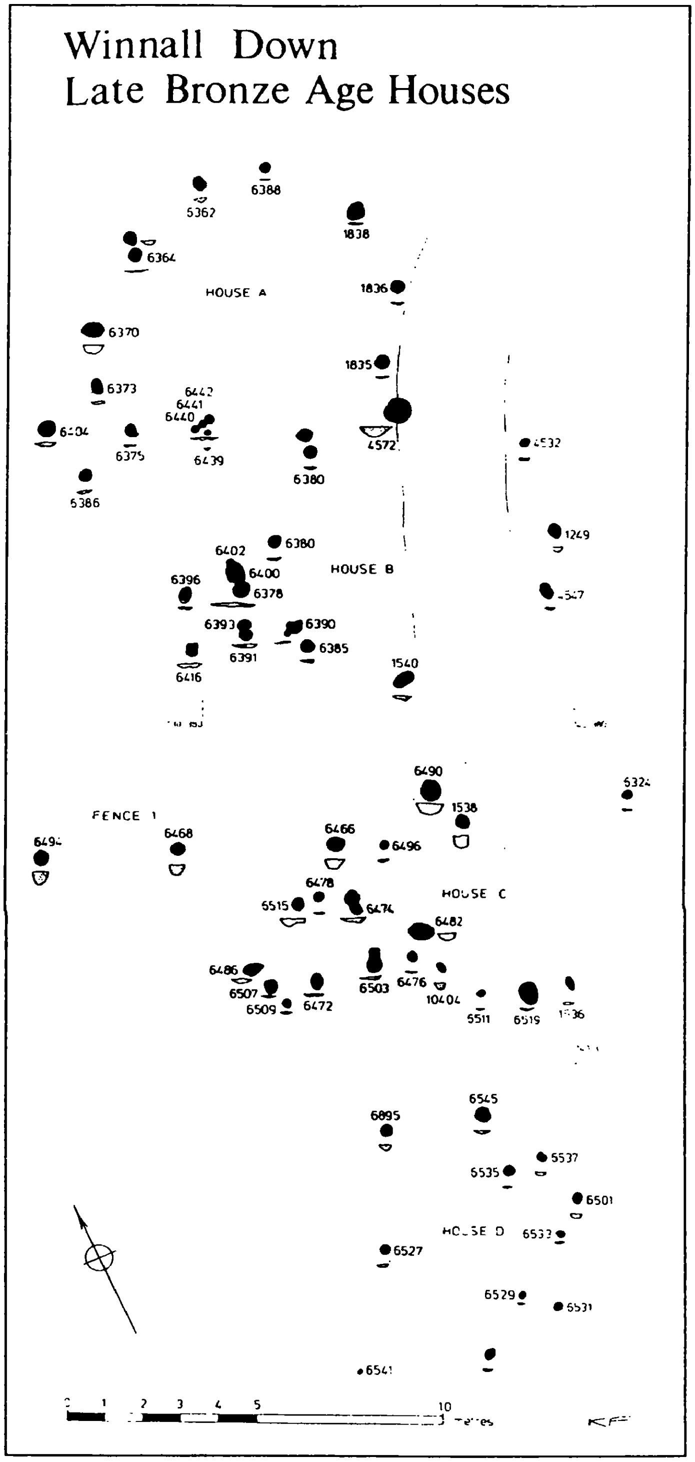


Figure F.30 - Easton Lane / Winnall Down - Plan of excavated features 950 - 800 BC (source: Fasham, 1985, fig. 8)

House A is an oval (8 * 7.5 metres) with an entrance porch facing south-west and dated by pottery in the postholes (Fasham, 1985, 9). B is exactly the same size as A but has a more elaborate and larger porch, probably with a double door and facing west. There are no finds associated but it is cut by the early Iron Age ditch, suggesting that it is earlier. (Fasham, 1985, 9). C is almost the same size (@ 7.75 * 7 metres) with a 'splayed' entrance porch facing west and is also cut by the early Iron Age ditch and gate structure but its date is confirmed by pottery in an internal posthole (found along with burnt bone and a quern fragment). Furthermore, its lines are respected by a fence which creates a division between houses A and B and houses C and D and one posthole of that fence contained pottery of this period (along with fragments of a quern and a triangular loomweight). (Fasham, 1985, 9-10, fig. 8). Identification of house D as a roundhouse structure is rather less certain but it is thought to be the eastern half of a structure of 7.5 metres diameter defined by rather shallow postholes, suggesting that the remainder could have been ploughed out (Fasham, 1985, 10). Thus, if it was a roundhouse it may have been comparatively flimsy. There are no finds associated with the structure. The fence, introduced above, extends for a distance of c38 metres and is dated by pottery, burnt bone and two cylindrical loomweights (Fasham, 1985, 10-11). Finally, a number of scattered postholes were located at c50 metres to the south-west of this cluster and it is just possible that they may have been another roundhouse (Fasham, 1985, 10-11). Excavation did not continue to the west of the cluster and it is quite possible that there was more of the settlement in that direction (Fasham et al, 1989, 147).

700 - 450 BC

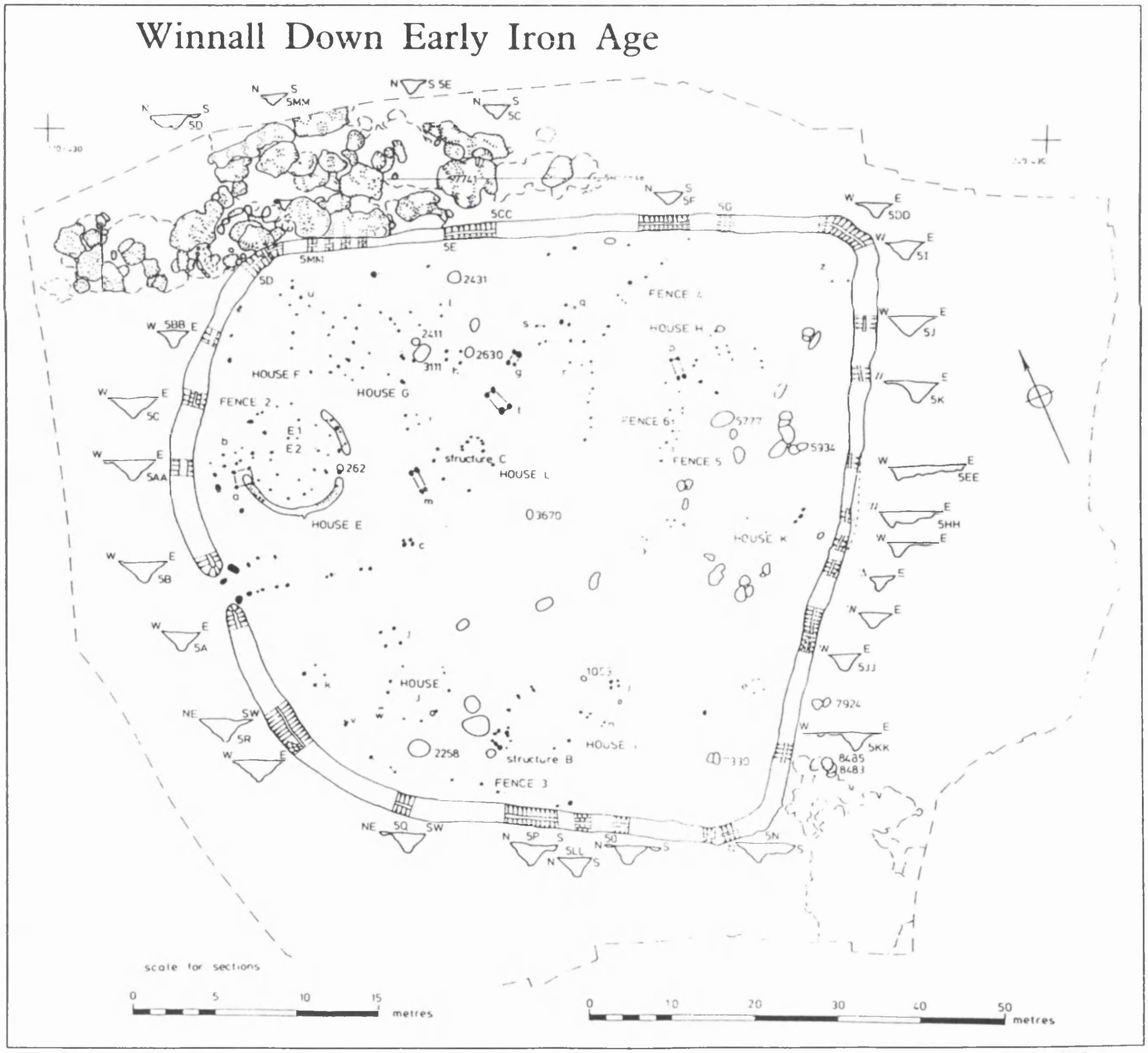


Figure F.31 - Easton Lane / Winnall Down - Plan of excavated features in period c700 - 450 BC (source: Fasham, 1985, fig. 9)

At c700 BC the earlier agglomeration was overlain by a V-shaped ditched enclosure of c0.4 ha, forming a 'D' shape with the entrance on the curving west side (Fasham, 1985, 11). The ditch is c267 metres long, 1.3 - 3.35 metres at the top (mean 2.16 metres), 0.7 - 1.48 metres deep (mean 1.12 metres), giving a volume of 330 cubic metres and built to be larger and more impressive by the entrance (Fasham, 1985, 11). Over the whole period that ditch was c85% filled (Fasham, 1985, 11). There was no clear detail of the bank but an irregular series of large, shallow postholes in sections to the north and south of the enclosure are thought to have been related to internal, structural timber work (Fasham, 1985, 11).

Entrance was by way of a 3.8 metre wide causeway which was rebuilt at least twice, starting as a rectangle of four posts set 2 - 2.5 metres wide, rebuilt to c5.8 metres long and 2.1 metres wide, splaying to 3.4 metres at the interior where a central post divided the way and then remodelled again as a trapezoidal structure with two central posts creating two narrow entrances 0.6 - 0.7 metres wide (Fasham, 1985, 11-12).

Within the enclosure lay five complete and two partially complete post-built circular structures and one circular gully with internal post settings as well as two two-post structures, nineteen four-posters and one six-poster and 27 pits scattered across the interior. The circular structures are noted here:

- Structure E: Set immediately to the left of the entrance was a gully defining an external diameter of 14 metres surrounding an internal double row of posts (at 10.5 metres diameter and 6.5 metres diameter), the whole making an elaborate building with an entrance to the south-east. This must have been fairly early in the development as it was cut by a four-post structure dated by pottery to the early Iron Age (c700 - 450 BC range).
- Structure F: 8 metre diameter post-built structure with a simple porch facing south-east.
- Structure G: 8 metre diameter post-built structure which replaced structure F (or *vice versa*).
- Structure H: 8.5 metre diameter post-built structure.
- Structure I: 8 metre diameter post-built structure with a small porch facing north.
- Structure J: 7.5 metre diameter post-built structure.

- Structure K: 7 - 8 metre diameter post-built structure either incomplete or may have been an earlier structure.
- Structure L: 7 metre diameter post-built structure.

Also within the enclosure lay a small circle of 9 close postholes set at c2 - 2.5 metres diameter and fences, as well as a possible enclosed area between Hut J and fence 3. Outside there were quarry sites and a group of pits (Fasham, 1985, 17). Within the ditch of the enclosure were buried a neo-natal infant skeleton and, separately, the skull of a neo-natal infant as well as 21 isolated adult bones. A further infant skeleton was found in a pit.

Dating has been mostly by pottery associations but these are related to confirmatory radiocarbon dates in three contexts which date them to 640 - 460 cal BC (Shennan, 1985, 18). Thus, the excavators date this phase of activity to c700 - 450 BC in total.

In the Easton Lane excavation of the site, no structures were dated to this period. The few identifiable early Iron Age sherds occurred as residual material in later pits and structures in an area (*A*) just to the north-west of the Winnall Down enclosure settlement (see below) strongly suggesting deposition as a result of agricultural activity rather than occupation, although the features did include five small, shallow pits.

400 - 300 BC - Easton Lane open settlement phase 7

The century from c400 - 300 BC saw the focus of settlement on this site in an unenclosed form, roughly delimited by the surviving part of the Bronze Age ditch system (Fasham et al, 1989, 58) and designated site phase 7. The settlement features comprise some 15 gully and post-built roundhouses, four above-ground storage structures and a number of fence lengths as well as a few miscellaneous structures all in the same area and divided physically into two groups by a curving ditch line built in this phase or, perhaps, a little earlier (Fasham et al, 1989, 65). It is possible that feature no. MS2159 (an oval or sub-rectangular post-built structure) placed in the corner of the junction of two Bronze Age ditches could be better assigned to this period, given the radiocarbon determination of 2220 +/- 100 BP (HAR-6118) although it has been attributed to an earlier, in view of the siting (Fasham et al, 1989, 65). The areas are generally referred to as the 'northern' and the 'southern' sectors and the southern could have extended further east into the large area which remains unexcavated.

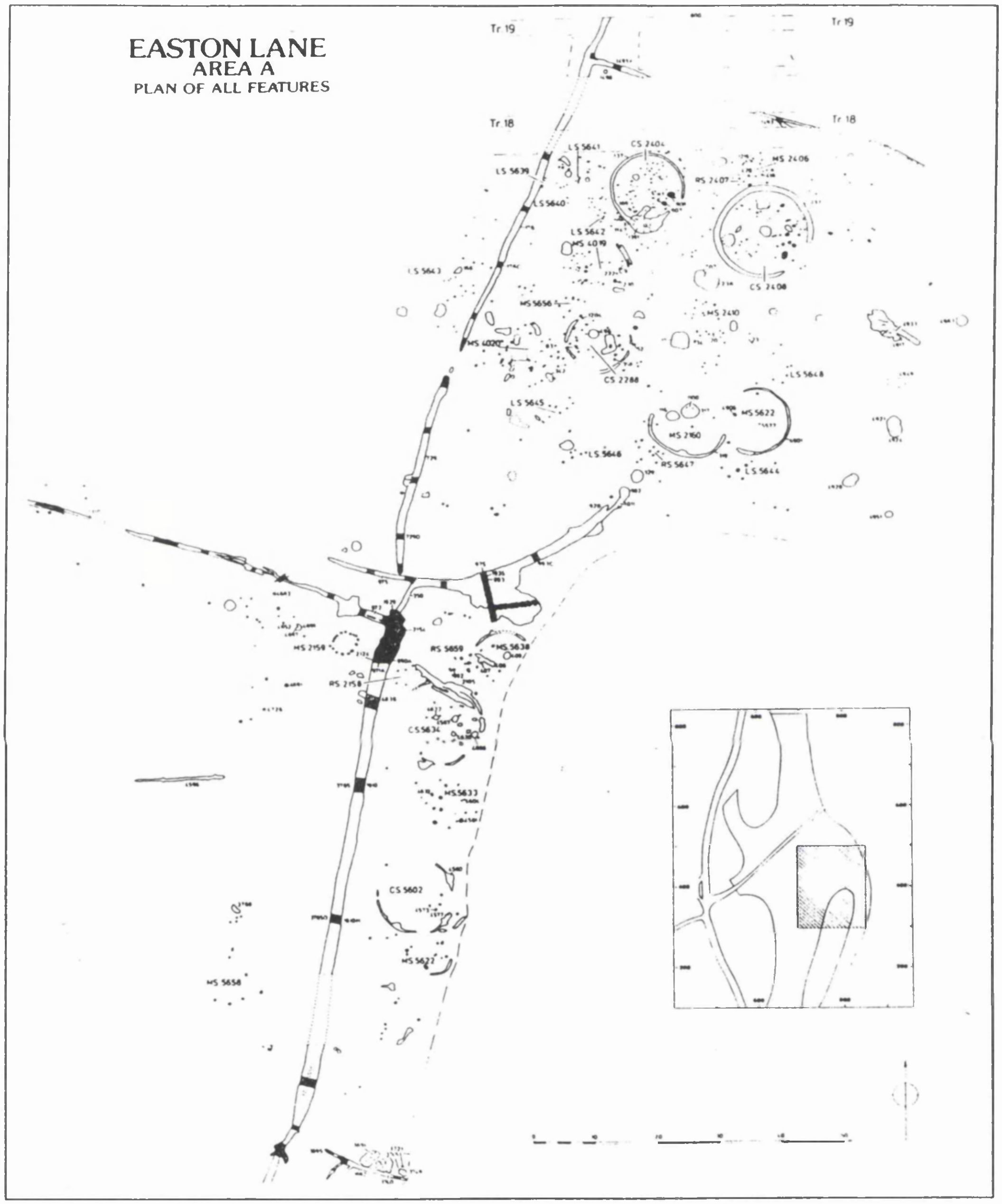


Figure F.32 - Easton Lane open settlement - Plan of excavated features (source: Fasham et al, 1989, fig. 68)

Northern sector

The structures in this area were organised around a clear north : south axis (probably a pathway) which probably turned south-west at the southern end to pass between the fence lines

LS5645 and LS5646 (Fasham et al, 1989, 65). The whole gives the impression of clear organisation and the excavators have suggested that structures are grouped into domestic-units:-

(i) CS2404 group

The roundhouse CS2404 is a circular, gully defined structure of c11.25 metres diameter with a simple 2.85 metre wide entrance to the south-east and associated with a post-built oval enclosure of c9.75 * 5.75 metres (MS4019) which may have been roofed and which included paired postholes and an arc of 4 - 5 posts. In the general area are four lines of 4 postholes thought to constitute short fences (LS5639, 40, 41 and 42). (Fasham et al, 1989, 65).

(ii) CS2408 group

The CS2408 roundhouse is a circular, gully-built structure of c15 metres diameter with a simple entrance (5.6 metres wide) to the south-east and associated with an oval post-built structure of c5.75 * 4.5 metres (MS2406) and the RS2407 four-post above-ground storage structure. (Fasham et al, 1989, 65).

(iii) CS2288 group

The circular CS2288 roundhouse is gully-defined and c10.25 metres diameter, with a simple east facing entrance of c1.1 metres and / or a west facing entrance c1.2 metres and contains a pit (496). MS4020 could be a further roundhouse, post-built and circular with a diameter c10.5 metres but with no clear entrance and housing three pits (one of which is from an earlier period) and two hollows. Finally, this group contains an oval post-built area of c4.5 * 3.3 metres. (Fasham et al, 1989, 67).

(iv) MS5622 group

MS5622 is a gully which defines about 2/3rds of the circumference of a circle of 10.5 metres diameter which may have been a roundhouse with a remarkably wide entrance in an unusual direction (west) but it is clear that the entrance is complete and deliberate, as the terminals are clearly defined. Associated with the structure are two short fence lines (LS5644 - 4 posts and LS5648 - 3 posts). (Fasham et al, 1989, 67).

(v) MS2160 group

The semi-circular gully describes an area c11.6 metres diameter but opens out to the north-east and ends in clear terminals. The pits within are probably later. In the immediate vicinity lies RS5647, a four-post above-ground storage structure. (Fasham et al, 1989, 67).

(vi) Other stand-alone structures include two miscellaneous structures, not clearly defined, and a number of fence line features.

Southern sector

Again, the excavators have identified groups within the structures and features of the more southern strip of the open settlement.

(i) CS5634 group

The CS5634 circular, gully-defined roundhouse is c13.5 metres in diameter but incomplete survival prevents assessment of the entrance. It is accompanied by a short arc of gully which includes pits (MS5638) and two four-post above-ground storage structures (RS5659 and RS2158). (Fasham et al, 1989, 67)

(ii) CS5602 group

The circular gully defined roundhouse CS5602 has a diameter c12.5 metres and a simple entrance of c3.75 metres wide, facing east. (Fasham et al, 1989, 67).

Pits

There are only eight pits regarded as definitely belonging to this period (329, 407, 409, 496, 707, 982, 1391, 5038) which contain rather few finds and which total 8.75 cubic metres in volume (average volume 1.07 cubic metres) (Fasham et al, 1989, 68).

300 - 100 BC - Winnall Down open settlement Phase 4

The previously enclosed settlement area was overlain by a new settlement, apparently unenclosed and extending beyond the boundary of the earlier. Features include circular houses mainly defined by gullies (9 in total), one post-built circular structure, a rectangular structure, four above-ground storage structures and pits. Assignment to this phase is primarily on the basis of pottery of the St. Catharine's Hill - Worthy Down style, dated to c300 - 100 BC by Cunliffe

(1991a, 598) and that range is supported by a range of radiocarbon determinations for features with a 95% probability that the mean date of those tested lies between 245 - 105 cal BC (Shennan, 1985, 30).

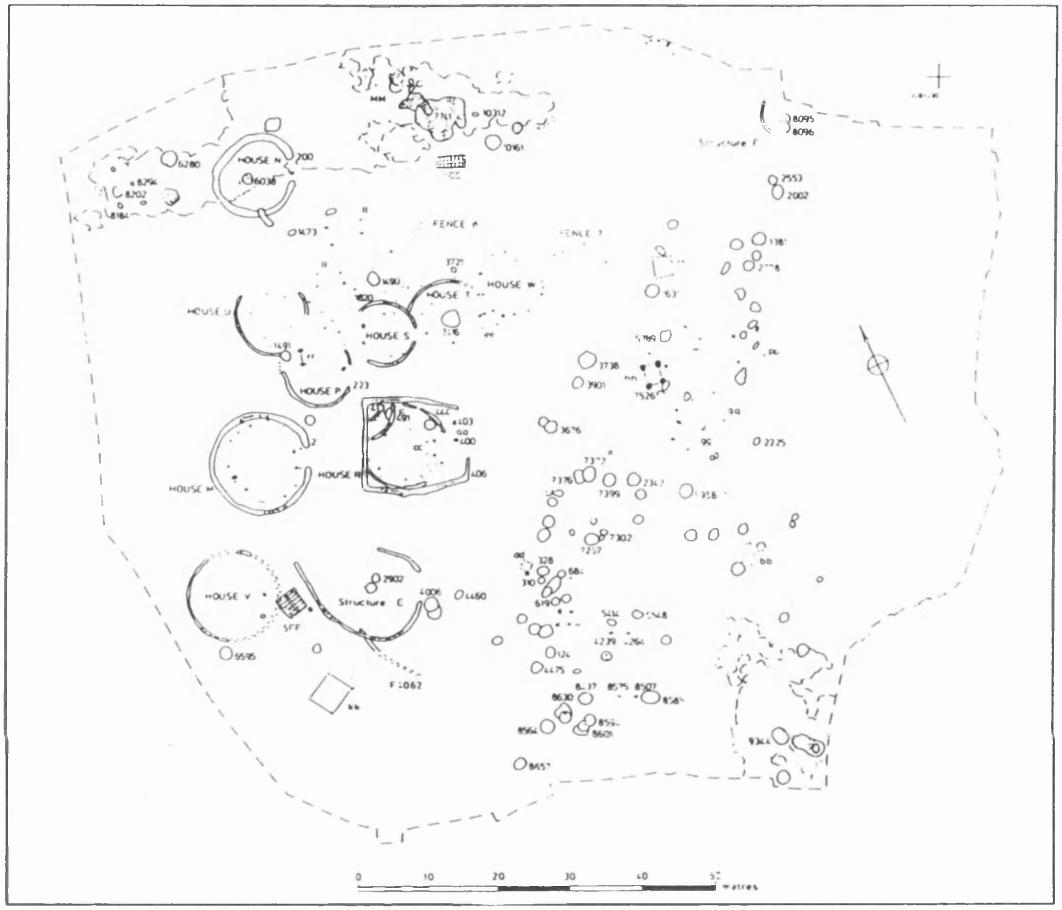


Figure F.33 - Winnall Down open settlement - plan of excavated features (source: Fasham, 1985, fig. 15)

Houses and other built structures

(i) House M

A circular, gully-defined roundhouse of c14.7 metres diameter with a simple entrance (2.6 metres) facing east and which encircled an internal ring of posts with the same orientation and width of entrance at c11 - 11.15 metres diameter and with stake holes between this and the gully. The excavators cannot be absolutely certain that they are associated, thus allocating a separate structure number. (M1). Finds in the gully include a jar and animal bones in the southern terminal and a quernstone fragment in the northern. (Fasham, 1985, 18).

(ii) House N

A circular, gully-defined roundhouse of c11.75 metres diameter with a simple entrance (3.0 metres wide) facing east and enclosing a pit (6038 - 2.14 cubic metres volume) containing a high density of pot, quernstone fragments, animal bones, a piece of slag and a very large number of flints (of which 50% were burnt). The southern terminal of the gully included a dog skull and animal bones. (Fasham, 1985, 18).

(iii) House P

This gully-defined roundhouse of c10.2 metres diameter with a simple entrance (3.0 metres wide) facing east cut house U [2]. No finds. (Fasham, 1985, 18).

(iv) House R

A circular gully-defined roundhouse of c11.8 metres diameter with the detail of the entrance unknown but facing east overlies rectangular structure D. The pit within is earlier. (Fasham, 1985, 18).

(iv) House S

This circular gully-defined roundhouse of 9.7 metres diameter and a simple entrance (1.6 metres wide) facing east cut house T. (Fasham, 1985, 19).

(v) House T

A circular gully defined roundhouse completed by shallow postholes defining an area 10.5 metres in diameter, but with the entrance unidentified. It contained the largest pit on site (No. 2416 @ 6.096 cubic metres) which included potsherds, the upper stone of a rotary quern, an infant skeleton and bones of at least two other infants. (Fasham, 1985, 19).

(vi) House U

This is a circular gully-defined roundhouse of c11.4 metres in diameter but with the entrance unidentified and included a six post ring within. (Fasham, 1985, 19).

(vii) Structure E

This gully defined an opened out circle (with the circle itself c12.5 metres in diameter) and contained a considerable quantity of pottery, bone, flint flakes and two iron nails suggesting that it included a working area of some kind. (Fasham, 1985, 22).

[2] The excavation report records it as cutting House E but that is assumed to be a typographic error.

(viii) House V

A 13 metre diameter circular, gully-defined roundhouse with a possible entrance facing north, which would be 4.5 metres wide if correctly identified and with a few small finds scattered along the gully. (Fasham, 1985, 22).

(ix) House F

An isolated stretch of gully at the north-east of the site of which very little survives may have defined a roundhouse of c9 metres but identification is uncertain. (Fasham, 1985, 22).

(x) House W

A post-built circular roundhouse of c9 metres diameter with no identified entrance and containing no finds. (Fasham, 1985, 22).

(xi) Rectangle D

A gully-defined rectangle of c15.25 * 14 metres (area 178 square metres) with a simple, gated entrance 7 metres wide at the east. The gully included post and stake holes as well as pottery, daub and quern fragments suggesting some kind of an occupied building or fenced area and the whole enclosed pit no. 413 in the corner which seems to have contained a fire. (Fasham, 1985, 22).

(xii) Above-ground storage structures

Sixteen four-post structures were identified and do not appear to be concentrated to the excavator (Fasham, 1985, 22) but do appear to be zoned.

(xiii) Two Fences

Pits

More than 80 pits of this period were located on the site and contained a wide range of artefacts and fill materials (detailed in Fasham, 1985, 22-25) and include evidence of the redeposition of early Iron Age midden material in this later period (Fasham, 1985, 25). They appear to be zoned with the four-post structures.

Human Remains

There were a total of 18 complete or fairly complete burials and 25 caches of 'loose' human bone as well as a number of burials and bone collections which were not firmly phased, most of which are not noted here (Fasham, 1985, 25-26).

To the north-west of the site lay a 'quarry' area which included a small area of a concentration of burials including a 20 - 25 year old female (508) in pit 8265, a child c12 years old in grave 8294, and 8 - 9 year old child (505) together with fragments of an infant (460) in grave 8184, an infant (397) in scoop 6280 and, finally, two complete skeletons and a bone collection of infants not dated. (Fasham, 1985, 25-26)

Toward the south of the site lay three closely spaced pits which included an adult male (500) and infant bone collection (3563) in pit 8564, an adult female (574), two infants (470 and 531), a collection of unsexed adult bones (3566) and those of an elderly person (3566a) in pit 8630 and an infant burial (567) in pit 8594. (Fasham, 1985, 25-26).

Several fragments of human bone were found in postholes but also infant burials nos. 487 and 488 were buried in postholes 8547 and 8576, respectively. Three burials dating to this period were included in ditches. Into an earlier ditch was buried infant 1035 and adult male burial 4978 (c35 - 40 years old) was interred in a grave cut into an earlier ditch. In contemporary ditch no. 176, a disturbed female burial (about half of the skeleton) and a few fragments from a male adult were lodged. (Fasham et al, 1989, 68). The remainder were buried in pits and include a neo-natal infant (156) and adult bone (3576) in pit no. 4006 and an adolescent male (174) in pit 4475, along with a number of other adolescent bones and adult skull fragments and grave goods including a shale bracelet on his left forearm and a bronze thumb ring on his left hand. (Fasham et al, 1989, 26).

300-100 BC - Easton Lane open settlement Phase 8

Within the Easton Lane sector of the site eight pits contained the St. Catharine's Hill - Worthy Down style of pottery and a further eight contained that mixed with earlier material, giving a combined volume of 50.68 cubic metres (average 3.17 cubic metres) and a number of which contained small finds. All other material would appear to be intrusive. (Fasham et al, 1989, 70).

F18 - Grange Road

In 1992, a field evaluation and watching brief conducted by Thames Valley Archaeological Services uncovered a small, unenclosed settlement at Grange Road at Gosport. The site is central on the coastal plain, c 200 metres to the east of the River Alver and set on a relatively flat, low-lying terrace. A rectangular area of 0.96 ha (125 * 70 metres) was selectively excavated after mechanical topsoil stripping revealed two main areas of archaeological features. (Hall and Ford, 1994, 5-6).

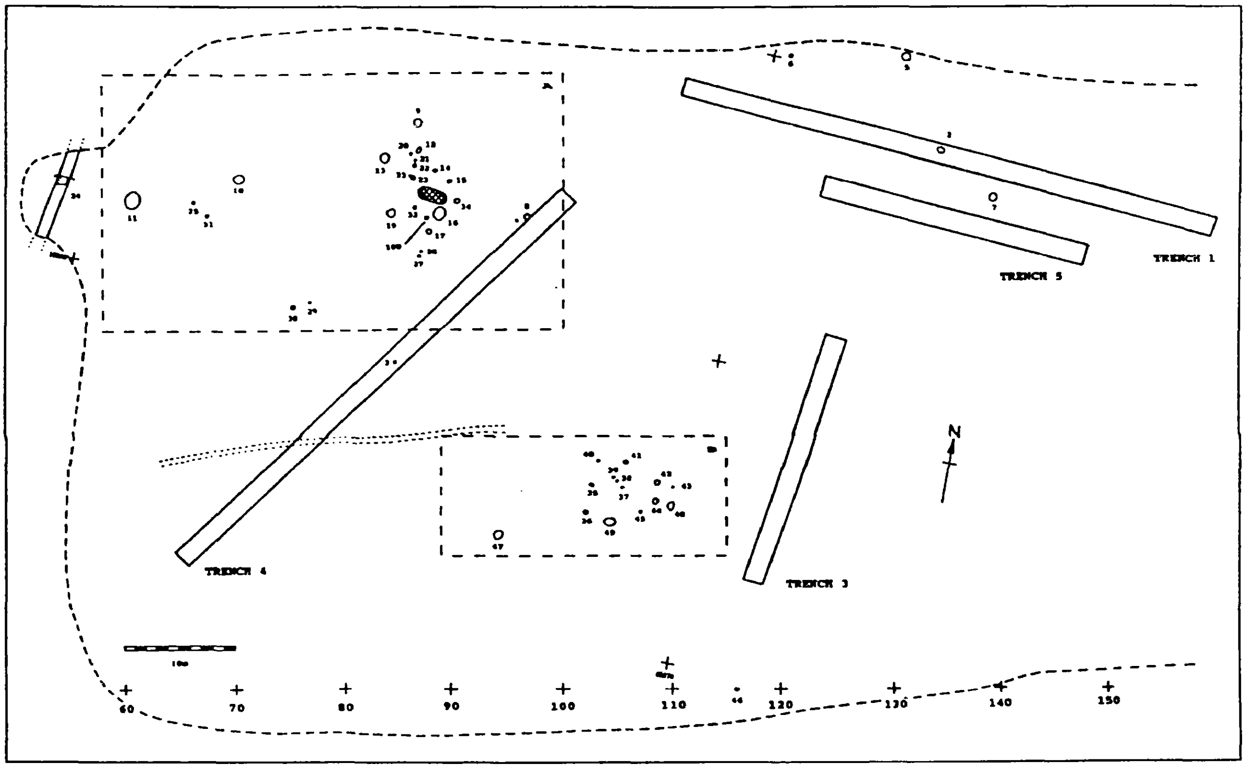


Figure F.34 - Grange Road - Plan of excavated features (source: Hall and Ford, 1994, fig.3)

Those features include seven shallow scoops and seven clear pits, containing sherds of pottery, worked flints and fired clay and pit F16 is particularly noteworthy for having contained four almost complete saddle querns (made of greensand from a source at Lodsworth, West Sussex) in very good condition, together with a very large quantity of potsherds (Hall and Ford, 1994, 13-14; Williams, 1994, 29-30).

Area A contained one oval structure of c 6.5 * 4.5 metres with a hearth in the (presumed) simple gap entrance facing north-west. Within the hut was pit F16 (above) and other pits were scattered around the external perimeter. Further internal features may have been obliterated by a modern pit in the area of the structure (Hall and Ford, 1994, 14, fig. 11).

Area B also has evidence of a post-built structure in the form of an oval c 6.75 * 4.5 metres but with no internal hearth. The entrance is not clear but may have been a porch constructed to include postholes 43 and 48, facing south-east (i.e. opposite that of the A structure). Internal features comprise postholes but no pits. (Hall and Ford, 1994, 19).

All of the considerable pottery assemblage comprises post-Deverel-Rimbury ware and most of it is plainware comparable with sites in inland Sussex, Yapton E69 on the Sussex Coastal Plain and further afield in Berkshire. It is a single-period assemblage dating to the C 9^{th} - C 8^{th} BC (Timby, 1994, 19-25).

F19 - Hayling Island

In 1976, a research programme to investigate and excavate the long-recognised Romano-British temple at Hayling Island on the South Coast was inaugurated, with the wholly unexpected result of the uncovering of an earlier enclosed structure (Downey et al, 1980, 289). Identification of the earlier complex as a shrine or 'temple' not only depends on the physical continuity with the later temple which completely overlays it, but also on an unusual assemblage of 'votive objects' and evidence for non-domestic activities quite atypical for the Iron Age.

The complex comprises a gully-defined circular building set within a 22.5 metre square courtyard, entered at the east. The courtyard is defined by a ditch and this was probably the setting for a hedge supplemented by fencing in places, rather than a formal palisade, as the ditch was not found in the south part of the enclosure where a shallow gully was found in its postulated position (Downey et al, 1980, 290). There are some larger postholes in the enclosing structure including, especially, K89 on the south-east corner and D69/K17 to the left of the entrance, as viewed from outside (Downey et al, 1980, 290). The circular structure is c 10 metres in diameter has an entrance to the east and may have had a porch. Within the structure are a number of post- and stake-holes forming no recognisable pattern and the central pit is not thought to have been structural as few buildings of the period had a central support. (Downey et al, 1980, 289-290).

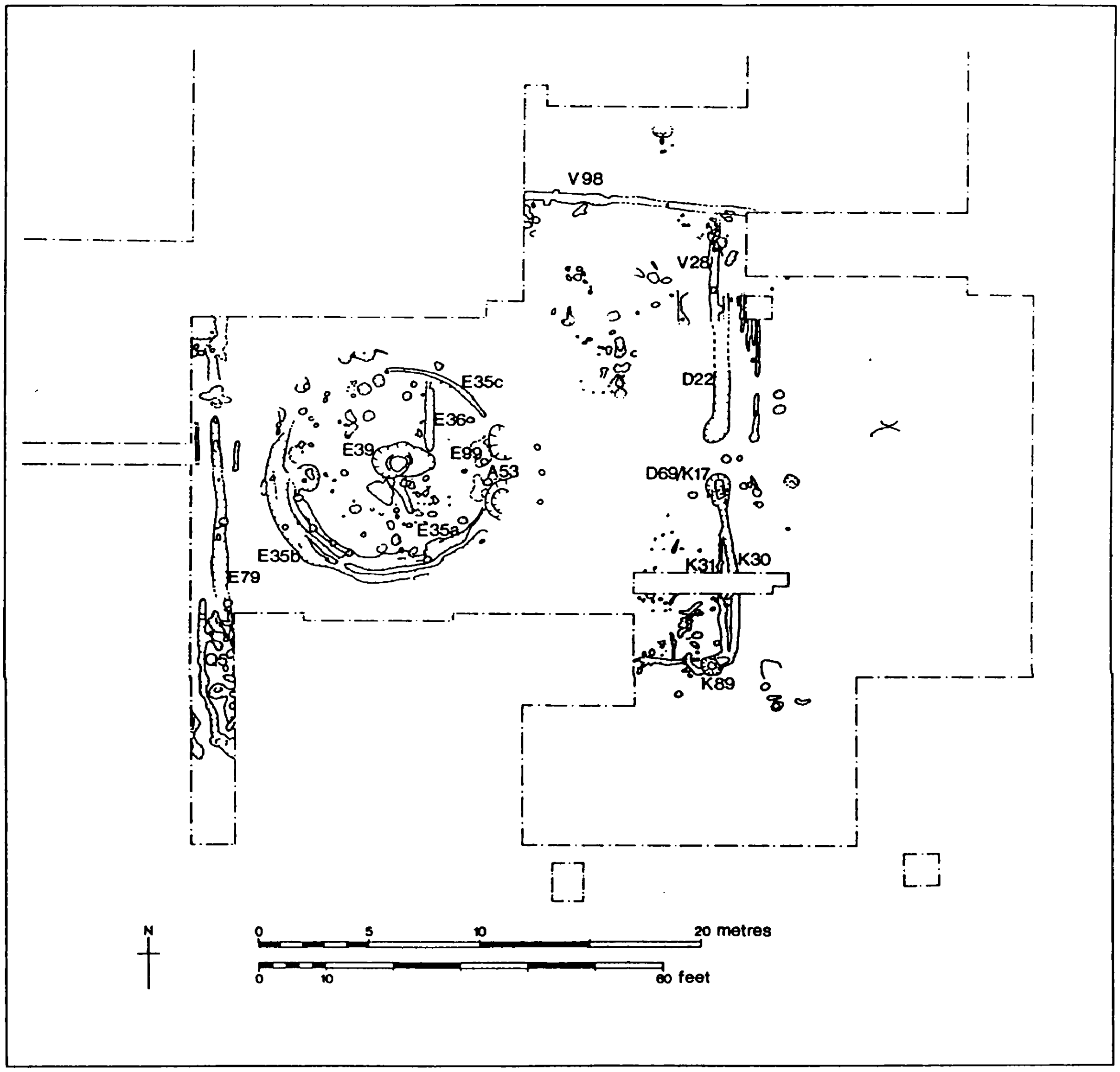


Figure F.35 - Hayling Island - plan of Iron Age features (source: Downey et al, 1980, fig. 14.1)

Iron Age finds are numerous but it is noteworthy that there are many more in the courtyard than within the building and almost none outside the enclosed area; that ratio may have been affected by clearance of the earlier building to make way for the Roman antecedent (Downey et al, 1980, 290). Many items seem to have been deliberately bent or broken before deposition and there is an element of patterning by correspondence with burnt areas of gravel discernible, suggesting interpretation as offering points (Downey et al, 1980, 290). The assemblage includes a number of objects which are usually interpreted as associated with horse-drawn chariots or carts and a further emphasis on objects of a martial character is evident (Downey et al, 1980, 290-293). As the excavators remark, the assemblage has affinities with the late La Tène warrior burial group (concentrated in eastern Britain and the Continent but with one contemporary local example at Owslebury F34) (Downey et al, 1980, 293). Furthermore, there appear to be grouping patterns; for example, seventeen socketed spearheads are grouped around the north-eastern area of the porch of the central building. The metalwork finds and parallels elsewhere allow fairly close dating to the period from the mid to late C 1st BC - AD early C 1st (Downey et al, 1980, 293).

Apart from the two key themes of weaponry and horse and chariot, deposits also included brooches, coins, tankard handles and broken sword-shaped iron currency bars (Downey et al, 1980, 293-294). The animal bone assemblage is noteworthy for the complete absence of cattle (as it comprises sheep/goat and pig, only), ubiquitous elsewhere in this period, which suggests that the cult practised must have prohibited the offering of beef; selective bone assemblages are noted at contemporary shrine sites both in Britain and the Continent although the selection itself varies (Downey et al, 1980, 294).

F20 - Hook

No published report has been located, although the site was excavated by Paul Ashbee in 1954 (Ashbee, 1955, 70). On a level gravel promontory flanked by two streams and much disturbed by gravel digging, the site comprises a V-shaped ditch defining a roughly rectangular area of which one side is at least 40 metres in length and included an entrance. That ditch included two rim sherds typical of the late Bronze Age, from which the site can be dated tentatively to the period late c950 - 700 BC. It is apparent that there must have been an inner bank pushed into the ditch at some point. (Ashbee, 1955, 70-71).

F22 - La Sagesse Covent

An ancient water channel in a former stream bed, fed from the River Test, produced abundant artefactual evidence in a context associated with a plank-built walkway which could have connected the small islands in this part of the flood plain (Green, 1994, 49). The site is adjacent to land with good conditions for arable and a nearby settlement is assumed but has not been located (Green, 1994, 52).

Animal bone, both articulated and fragmented, was dominated by cattle and horse, included some sheep/goat, some deer and a cormorant; wild pig was present in a much greater quantity than would be regarded as usual (Green, 1994, 50-51). Other finds included human bone, worked animal bone, fired clay loomweights and material connected with iron smelting and, possibly, bronze working (Green, 1994, 49-51). Pottery was present in quantity and comprised an assemblage with a very large mean sherd size (@19.4g) which could have been made locally as there are suitable clays within 3 - 6 km of the site; the repertoire included a hitherto unknown 'miniature' (<100cc) vessel form and the range of designs is regarded as *'strikingly individual'* (Green, 1994, 49).

The assemblage has been very closely dated to c700 - 575 BC at the outside and is thought to represent deposition over more than a 20 year period but certainly less than 100 years (Green, 1994, 52).

F23 - Lain's Farm

A watching brief by the Trust for Wessex Archaeology on the A303 road improvement programme resulted in a small rescue excavation on a slight chalk ridge within 2 km of a small tributary of the Pillhill Brook, where the D-shaped enclosed settlement at Lain's Farm lies within a clear field system divided by maintained U-shaped ditches bounded by a linear feature to the north and immediately neighbouring the Quarley F38 linear ditch system (Bellamy et al, 1991, 5-7, 47, fig. 16). The system incorporates two 'local' linear ditches in the field layout and these are much larger and V-shaped (Bellamy et al, 1991, 47-48). Environmental evidence from the field system and the site enclosure ditches reveals that they were all constructed in open, dry downland and clearance is thought to have occurred in the early - middle Bronze Age (in association with the linear ditch development) (Bellamy et al, 1991, 62-63). The local field system ditches incorporated a few potsherds of Iron Age and Romano-British dates but cannot be more closely dated than that; it seems reasonable to assume contemporaneity with the site itself (Bellamy et al, 1991, 47).

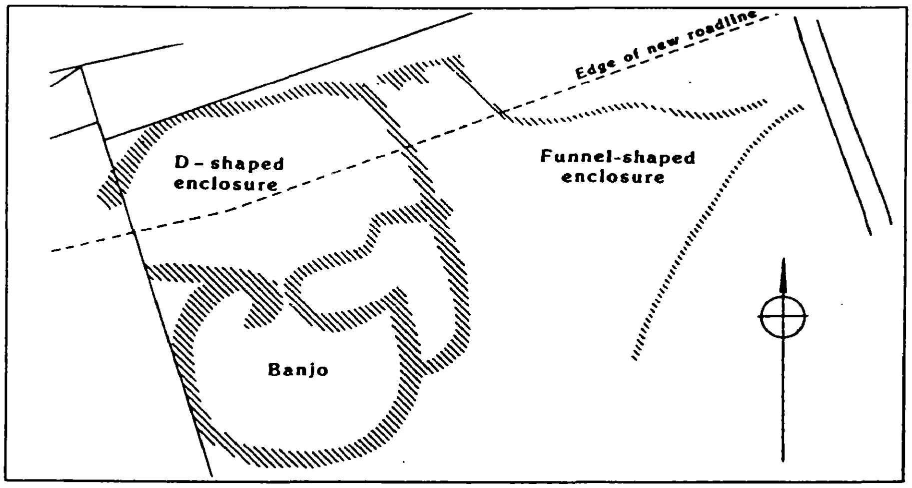


Figure F.36 - Lain's Farm - Plot of aerial photographic survey (source: Bellamy et al, 1991, fig. 2)

The D-shaped enclosure of c1.83 ha connects with a smaller enclosure to the south (c0.57 ha) by two ditches curving outwards to form what may be considered a 'banjo' enclosure (Bellamy et al, 1991, 7, fig. 2). The interior of the northern enclosure has been partially excavated but the south has not. Attached to the eastern side of the complex is a large funnel-shaped enclosure, also investigated. (Bellamy et al, 1991, 7). Stratigraphically, it would appear that the northern 'D' was built first and the 'banjo' later (overlaying it) but could have been integrated contemporaneously. The 'funnel' is almost certainly later. (Bellamy et al, 1991, 7).

The main enclosure ditch of the 'D' indicates at least three phases:-

1. Single, flat-bottomed and 0.6 metres wide and 1 metre deep (feature 173) replaced by -
2. Two similar flat-bottomed ditches @ 2.3 metres wide and 1 metre deep and 4.5 metres apart; one of these is an enlargement of the original. (Features 159 and 160). The double ditching is apparent for part of the circuit, only.

3. A large, irregular V-shaped ditch with flat bottom; 5.1 metres wide and 2.5 metres deep (feature 140).

No evidence of a bank has been located. (Bellamy et al, 1991, 10). Only ditch feature 140 (3rd phase) contained any potsherds and, numbering only six, they were considered inadequate for reliable dating although they were of the type of local ceramic phases 3 - 5 (c.f. Danebury F14 ceramic sequence) thus falling in the range c500 - 200 BC (Bellamy et al, 1991, 24, tab. 6).

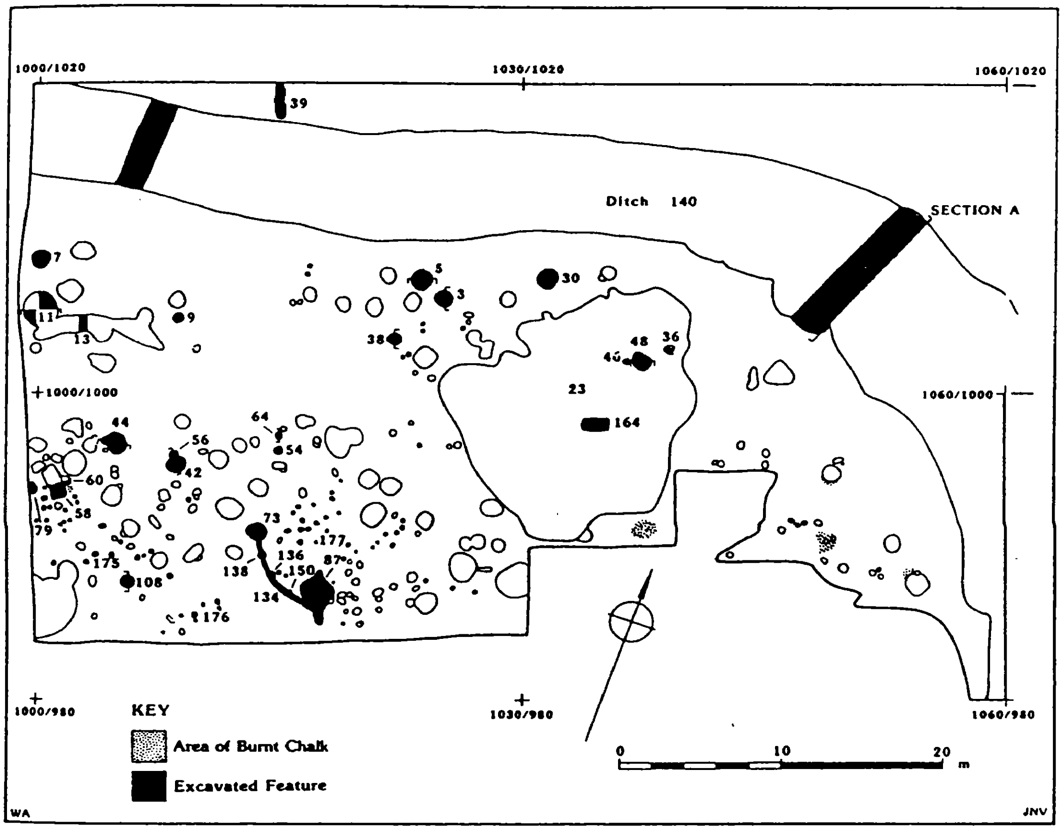


Figure F.37 - Lain's Farm - Plan of excavated features (source: Bellamy et al, 1991, fig. 4)

Approximately 25% of the D-enclosure was excavated (the north-east corner) revealing a quarry scoop c16 * 16 metres (feature 23) and at least 0.5 metres deep (Bellamy et al, 1991, 12). Within that scoop was located a hearth or fire pit (feature 48) and four other burnt patches on the chalk bedrock (as well as a Roman grave) (Bellamy et al, 1991, 14). A selection of the pits were excavated (sixteen) and all appear to have been deliberately filled and sealed, including a few with noteworthy content:-

- Pit no.11: Large number of loomweights
- No. 36: Large quantity pottery

- Nos. 3, 11, 64, 73, 79, 108: Concentrations of burnt flint and other evidence of burning
- No. 44: Oven built into pit

  48: Some *in situ* burning (Bellamy et al, 1991, 12-14).

Other finds included 22 postholes but no patterns indicating structures are evident (Bellamy et al, 1991, 14). Three of the pits (9, 11 and 73) represent the sole features on the site attributable to the latest phase (100 BC +) (Bellamy et al, 1991, 24-27) but the remainder of all dated features span the range 500 - 100 BC with no greater breakdown available (Bellamy et al, 1991, 24-27). Interestingly, 51% of the vessels are unlikely to have been produced from local materials (Bellamy et al, 1991, 27).

The ditch of the funnel enclosure appears to have been developed in three phases but no dating evidence was found, at all (Bellamy et al, 1991, 15).

Artefacts include worked stone and flint, small quern fragments, three broken whetstones, two spindle whorls, loomweights, worked bone and other animal bone but surprisingly little dog for sites of this period (Bellamy et al, 1991, 28-41).

F24 - Little Somborne

Situated on a south-facing slope on chalk, the ground to the north-east of the site rises to Windmill Hill. It is thought that the stream extant today may have risen further to the north-east and within 450 metres of the site (Neal, 1980, 94). The enclosure is linked from the entrance by a ditch to series of 'Celtic' fields spreading over an area of at least 24 ha to the west and south of the enclosure but no finds were spotted during casual fieldwalking of this area (Neal, 1980, 91). The site was entirely detected by aerial photography and in advance of the Wessex British

Gas Pipeline development it was the subject of limited excavation by in a tranche across the site and geophysical survey to complement that by wider examination.

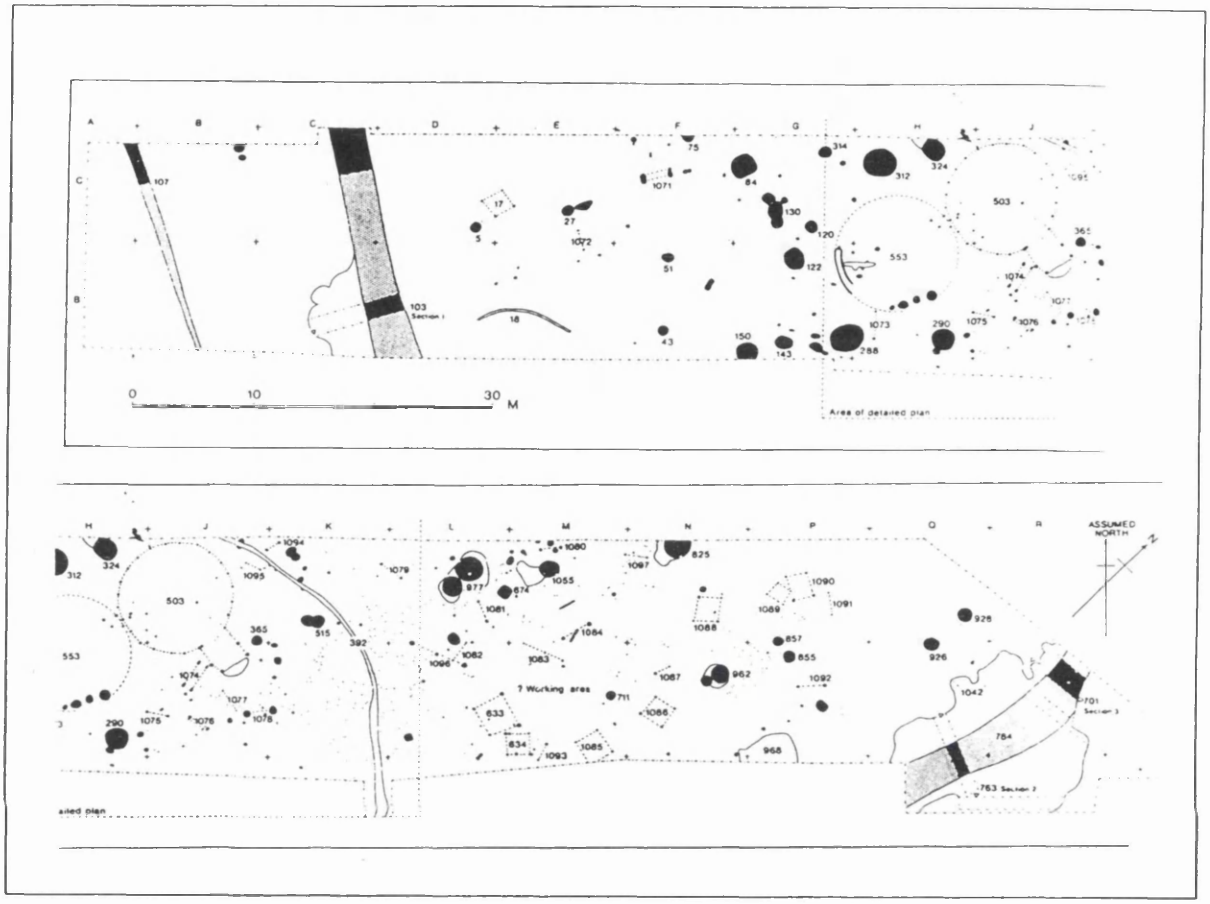


Figure F.38 - Little Somborne - Plan of excavated features (source: Neal, 1980, fig. 4)

It is thought to have begun as an open settlement, as suggested by a number of chalk quarry hollows underlying what appears to be an internal bank in addition to pits (suspected from aerial photographs, only) outside the enclosure ditch (Neal, 1980, 125). Dating for this phase is poor but it appears to be no earlier than c500 - 300 BC (on pottery evidence) (Neal, 1980, 125). Interior features are almost entirely dated by ceramics and there is little stratigraphy so it is difficult to assess which structural features predated enclosure. The ceramic typology simply allows broad division into c500 - 200 BC and 300 - 100 BC bands. There is no evidence for any later occupation than that but the presence of a Romano-British site very nearby shows continuity in the area.

The enclosing ditch was redug on one occasion but it contained no pottery in the lower fill and it appears that it was left to silt up in the 300 - 100 BC period (Neal, 1980, 125). A layer of burnt flint in that fill appears deliberate (Neal, 1980, 95).

The tranche across the interior is densely packed with archaeological features including two roundhouses near the centre point of the enclosure but the distribution pattern of the features taken together with the aerial survey indications makes it very likely that further structures are present (Neal, 1980, fig. 4, fig. 6, 97). Very little survives of roundhouse feature no. 553 but remains on the west side indicate a diameter of c10 metres and the entrance points to the south. The walls were set into two concentric, narrow U-shaped slots set 0.6 metres apart and are thought to have been constructed of hurdles retaining an in-fill (of, perhaps, loose chalk, cob or turf) (Neal, 1980, 97). The relation of the features identified within the structure to the structure itself is unknown. Roundhouse feature no. 503 is too close to no. 553 to have allowed eaves and, therefore, is thought to be not contemporary (Neal, 1980, 97). The structure was post-built on a diameter of c9.6 metres with a porch on the south-east side c 2.8 metres square (Neal, 1980, 98). Oak charcoal in the fill of the postholes indicates destruction by fire and has been dated to 530 +/- 90 cal BC (HAR-2222) (standard deviation not specified) which, together with a single diagnostic sherd of c500 - 200 BC, suggests that the house was extant in this period on the balance of likelihood (Neal, 1980, 98). It is possible that a third roundhouse is indicated by a two post setting which could be construed as an entrance; again, this dates to the 500 - 200 BC period on the basis of ceramic evidence (Neal, 1980, 98).

Thirty pits were partly or totally excavated and appear slightly grouped in that 19 are located to the west and south of the houses and 11 to the north of a 'working area' defined by comparative absence of features other than scattered postholes and appearing demarcated by avoidance by four-post structures and pits (Neal, 1980, 98-99, fig. 4). Furthermore, a gully of uncertain purpose, but dated to 500 - 200 BC by pottery association, appears to divide off the huts and south side of the enclosure from the rest (Neal, 1980, 109). Eight of the pits are likely to belong to the earlier period and eleven are undated; it is possible that those to the south and west have more structured deposition but there is no patterning by period immediately apparent (Neal, 1980, 108-109).

F25 - Maddison Street

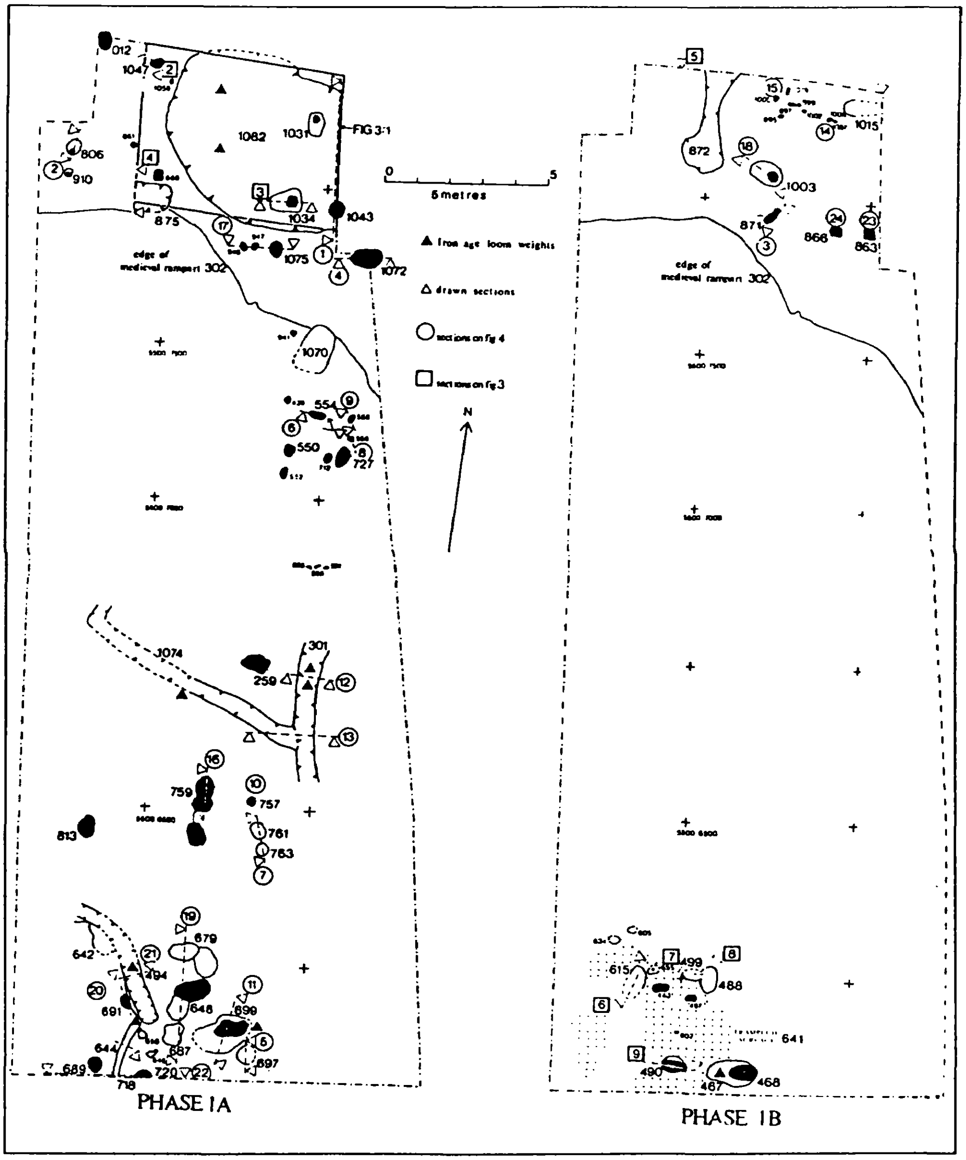


Figure F.39 - Maddison Street - Plan of excavated features (source: Smith, 1984, fig. 2)

Excavations within the bailey of Southampton Castle in 1980 - 81revealed Iron Age features in two separated areas with no continuous stratigraphic relationship between them but with sufficient similarity of fills and finds to suggest contemporaneity (Smith, 1984, 37). No structural features were identified in the limited area but a number of post holes and gullies and a hollow were uncovered and included ceramic material which is best categorised as of the St.

Catharine's Hill - Worthy Down type, interpreted as falling within the period 300 - 100 BC (Smith, 1984, 37-44). Finds were few but domestic occupation is thought to be indicated by the presence of potsherds, loom weights, fragments of fired clay which may have been a mould and evidence for burning in the hollow (feature 1082) (Smith, 1984, 43).

F26 - Meon Hill

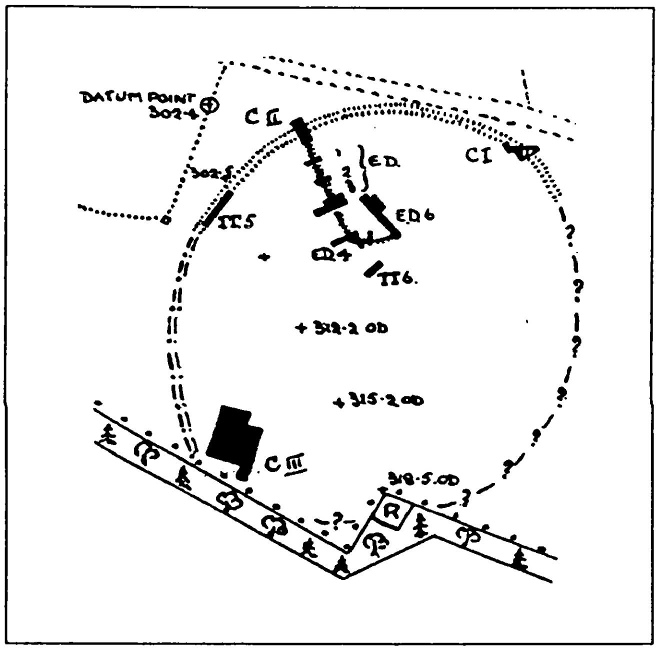


Figure F.40 - Meon Hill - Sketch plan of excavated features (source: Liddell, 1934, fig. 1)

The crown of Meon Hill is well situated to have a wide view of the Test Valley and of near neighbours which include Woolbury F49 (2 miles to the east), Danebury F14 (2 miles to the north-west) and Quarley F38 (6.5 miles to the north-west (Liddell, 1934, 127). The sub-circular site at the top of the hill was plotted from aerial photographs and investigated by excavation by Dorothy Liddell in 1932. A roughly circular area of c 1.7 ha was enclosed by a V-shaped ditch, 5.2 metres wide at the top and 2.3 metres deep, silted at the bottom and covered by a well-defined turf line. All sealed pottery is of 'La Tène II' type (Liddell, 1935, 129-132). The ditch was deliberately filled above those finds and made into a flint-packed causeway (Liddell, 1935, 131-132). A second cutting across the ditch revealed an earlier ditch on a different course, dated to the Hallstatt/La Tène I period (Liddell, 1935, 131-132). Cunliffe (1991a, 559) has analysed the pottery in detail, identifying it as All Canning's Cross - Meon Hill ware spanning the period c500 - 200 BC. That is the range used in analysis.

In the small area of the interior excavated, 24 pits and 29 postholes were revealed although it is very difficult to interpret the findings as they are not clearly illustrated in the excavation report (Liddell, 1935, fig. 8) and the excavator's analysis was based on the assumption that they were 'underground dwellings' and 'rectangular houses' (as was the rudimentary chronological analysis) (Liddell, 1935, 8).

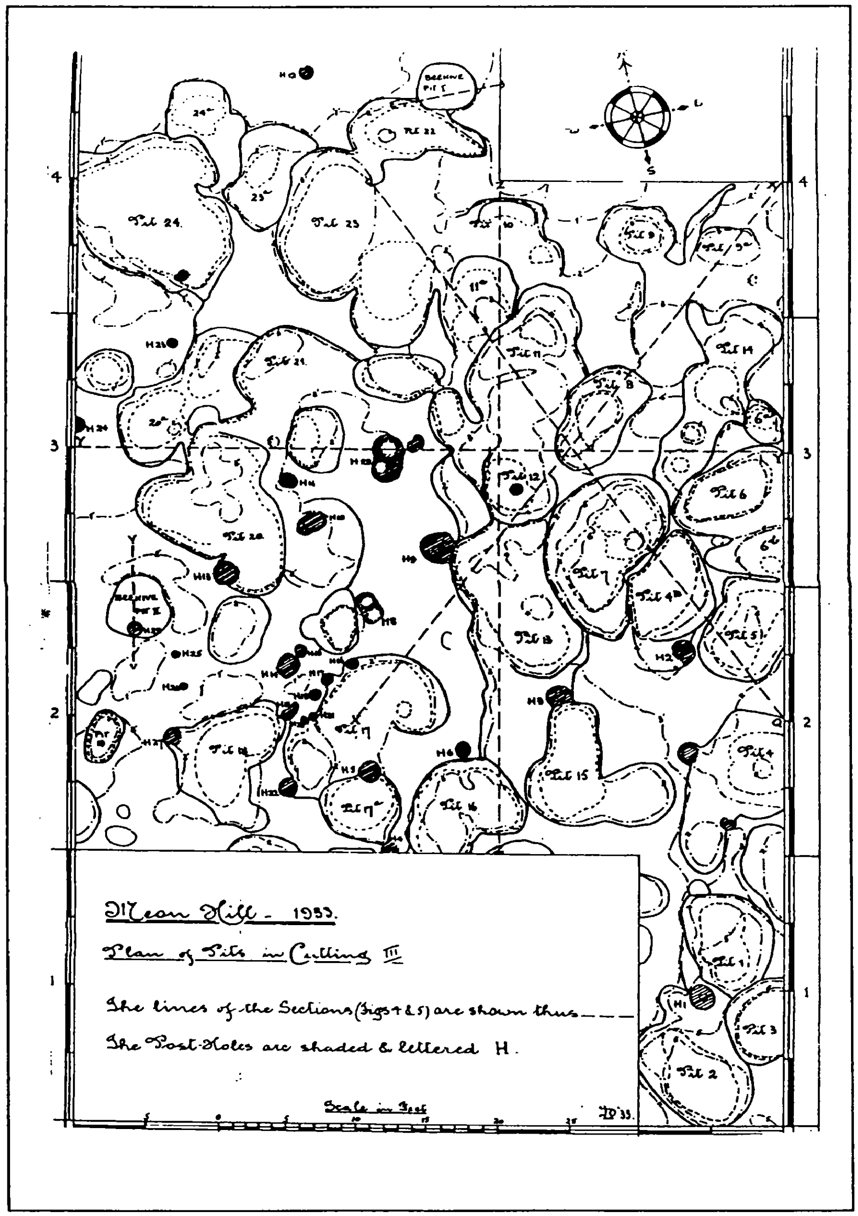


Figure F.41 - Sketch of findings in interior of Meon Hill (Liddell, 1934, fig. 3)

An interesting double row of postholes c2.15 metres apart is redolent of the Park Brow E44 'long house' but the whole, regrettably, is of little value to interpretation without a considerable amount of work to re-create the site from the records.

F27 - Micheldever Wood

Within Micheldever Wood lies an example of a 'banjo' enclosure excavated by Peter Fasham in the 1980s, together with another site at the south-east thought to be a 'banjo' enclosure, too, which can be seen to contain pits but is unexcavated (Fasham, 1987, 63).

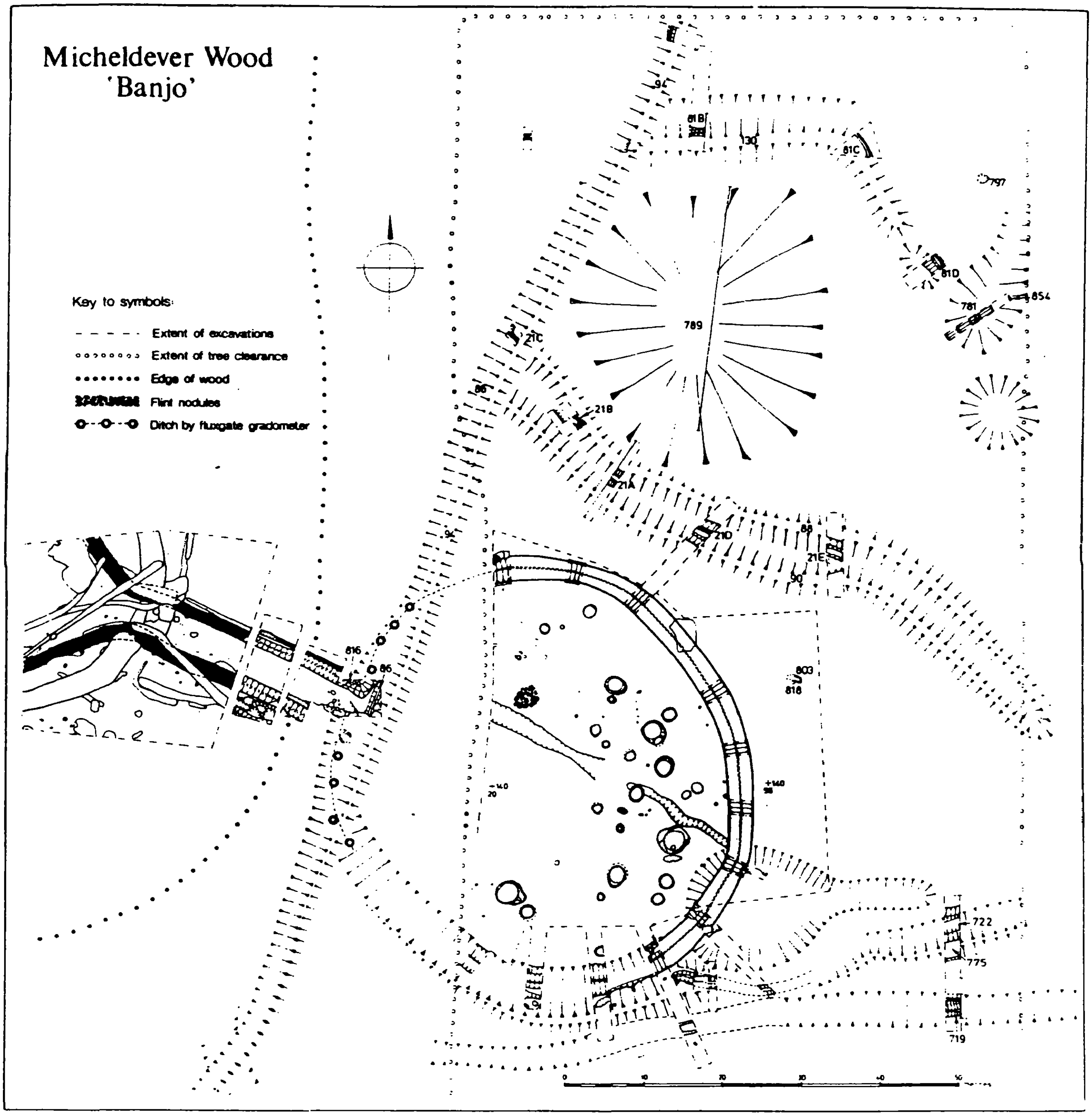


Figure F.42 - Micheldever Wood - Plan of excavated features (source: Fasham, 1987, fig. 3)

The enclosure comprises a ditch and an external bank surrounding a sub-circular area of c0.2 ha with an east facing entrance and with a possible dew pond just outside it, to the north (Fasham, 1987, 8). Environmental evidence shows that it is likely to have been set amongst arable and pasture, together with managed woodland and scrub and that crop processing took place on or near the site (Fasham, 1987, 62). The ditch is c164 metres long, V-shaped, 2.06 - 2.39 metres deep and 3.0 - 3.8 metres wide (Fasham, 1987, 9) but not enough survives of the bank to allow any assessment of the original profile. The entrance is defined by ditches contemporary with the enclosure and running parallel for c30 metres and then splaying out. The causeway between them is c4 metres wide and there are no features suggesting an entrance structure. (Fasham, 1987, 8).

Nineteen pits were discovered within, as well as feature 487 which was a roughly oval spread of broken flint and burnt flints c2.5 * 0.9 metres filling a shallow depression but with no associated finds (Fasham, 1987, 15) and Fasham (1987, 63) has suggested that this may have been a floor for grain threshing, given the environmental evidence for the site (Fasham, 1987, 63). Each pit volume has been calculated and the four largest are all about twice as large as the rest (nos. 14, 300, 311 and 415) and it has been suggested that they could have been of a size better adapted to silage than to grain storage (Fasham, 1987, 11-15).

Excavation revealed twelve complete burials and six occurrences of fragments (4 infant and 2 adult). All of the burials were of young people, with eight being infants under 7 months, three aged 7 - 12 months and one adolescent. The adolescent (193) and two of the infants (possibly twins) were buried in graves and the others within the ditch and in pits. (Fasham, 1987, 15). That is a very high proportion of infant burials (11 / 12) when compared with the national survey of contemporary burials known in 1981 which demonstrated that the overall proportion is 54 / 174 (i.e. less than a third). (Fasham, 1987, 62).

Dating is primarily by pottery and includes undecorated saucepan pottery forms comparable with Danebury ceramic phase 6 (dated to c400 - 300 BC) in areas of the site which are not associated with any features, and saucepan pots of the St. Catharine's Hill - Worthy Down style (dated to c300 - 100 BC) for the majority of the assemblage, moving on to wheel-thrown pottery of the next period. (Fasham, 1987, 24-26, 33). Other finds include briquetage, loom weights, daub and burnt clay, fragments of quernstone and animal bone. Examination of the animal bone evidence reveals no sign of slaughter on any substantial scale on this site (Fasham, 1987, 63).

Interpretation of the exact role of 'banjo' enclosure sites remains elusive, except to say that in general they do not appear to have been occupied by any permanent structures and do not seem to have served any particular 'ritual' purpose (e.g. not slaughter) but the high number of young people buried here could represent something of the sort. On the other hand, Fasham (1987, 63) does point out that Micheldever Wood is comparable to the size of the circle that horse-trainers use today to train horses on a rope. However, no horse or riding-related artefacts have been located here and it is clear that other activities did take place (perhaps threshing and silage making; probably stock-keeping viz. the dew pond nearby) and the unusual arrangement of external bank and internal ditch suggests that the aim was to keep stock in rather than people or animals out.

F28 - Nettlebank Copse

Located on the north slope of a low spur at the head of a long valley leading to the River Test, this site was fully explored by magnetometer survey and excavation in 1993 in association with the Danebury Environs Project but has not been published fully, to date. In period 1, centring around c 400 BC, the site comprised a boundary which must have been a small ditch, slight palisade or hedge and which had a gated entrance coinciding with the later (below) (Cunliffe, 1993c, 6-9). In the interior there are 26 pits and five pairs of postholes but no above-ground storage structures which has suggested to Cunliffe (1993c, 6-9) that they may represent door frames (given that there is 'clear space' around them such that they could have been backed by circular structures of 'typical' size). Thus, this is interpreted as a 'farmstead' and it was clearly abandoned by c350 BC at the latest and, therefore, fairly short-lived (Cunliffe, 1993c, 6-9).

The abandoned site was left for at least 250 years before being developed as a 'banjo' enclosure in period 2, dating from c 100 BC - AD 50, with the same entrance position as the earlier site (Cunliffe, 1993c, 9; 1994, 40). The 'banjo' had no bank at all, being simply defined by a ditch (dimensions unspecified) and the ditch was allowed to silt up for a considerable period before being redug (Cunliffe, 1993c, 9-12). During that time an area outside was quarried (presumably for material for marling) and it is suggested that the ditch spoil may have been used for the same purpose (Cunliffe, 1993c, 9-12). In the interior, Cunliffe (1993c, 13) noted that delves were dug (to get some chalk) and that there are possibly postholes but he sees no pattern suggesting significant structures and there are no storage pits. In the ditch itself are a number of 'special deposits' including 3 dog skeletons at the bottom and a cow and a horse in a single horizon higher up (Cunliffe, 1993c, 13).

The excavator does not interpret this as a settlement site although he does remark on the continuity of boundary despite abandonment of the settlement some 250 years earlier, suggesting that a visible boundary may have been left in the interim (e.g. a hedge) and that the interior, at least, cannot have been ploughed in that time (Cunliffe, 1993c, 15).

F29 - New Buildings

Recently excavated in association with the Danebury Environs Project, the details of this site are unpublished but useful advance information has been reported (Cunliffe, 1993a; 1994; 1995), from which a sketch outline of the nature of the occupation can be drawn. In the middle to late Bronze Age a sub-rectangular, ditched enclosure was laid out, fronting on to a long, straight track which ran from the Test river valley to a large area of co-axial fields immediately to the south-east of Danebury F14 (Cunliffe, 1993a, 21). The enclosure was used sporadically and the ditch re-cut on at least one occasion and in the late Bronze Age it would appear to have been a focus for quarrying operations (as dated by two late Bronze Age pins) (Cunliffe, 1993a, 21).

In site period 2, dating to C 8^{th} - C 6^{th} BC, the complex was joined to the Danebury F14 outer enclosure (built at that time) by a double ditched track (Cunliffe, 1993a, 21).

In the C 6^{th} BC (period 3) the enclosure was partially re-dug and extended. As well as a number of scattered pits, 24 pits set 1 - 2 metres apart and a number of four-post above-ground storage structures were identified by magnetometer survey and seen to be aligned along the boundary ditch. A second enclosure was also built, some distance to the west. (Cunliffe, 1993, 21; 1994, 28-29). A sample of those were excavated, proving to contain *'special deposits'* (details n.p.) (Cunliffe, 1994, 28 - 29). Occupation ceased by the end of the C 5th BC (Cunliffe, 1993, 21; 1994, 40).

F30 - Oakridge

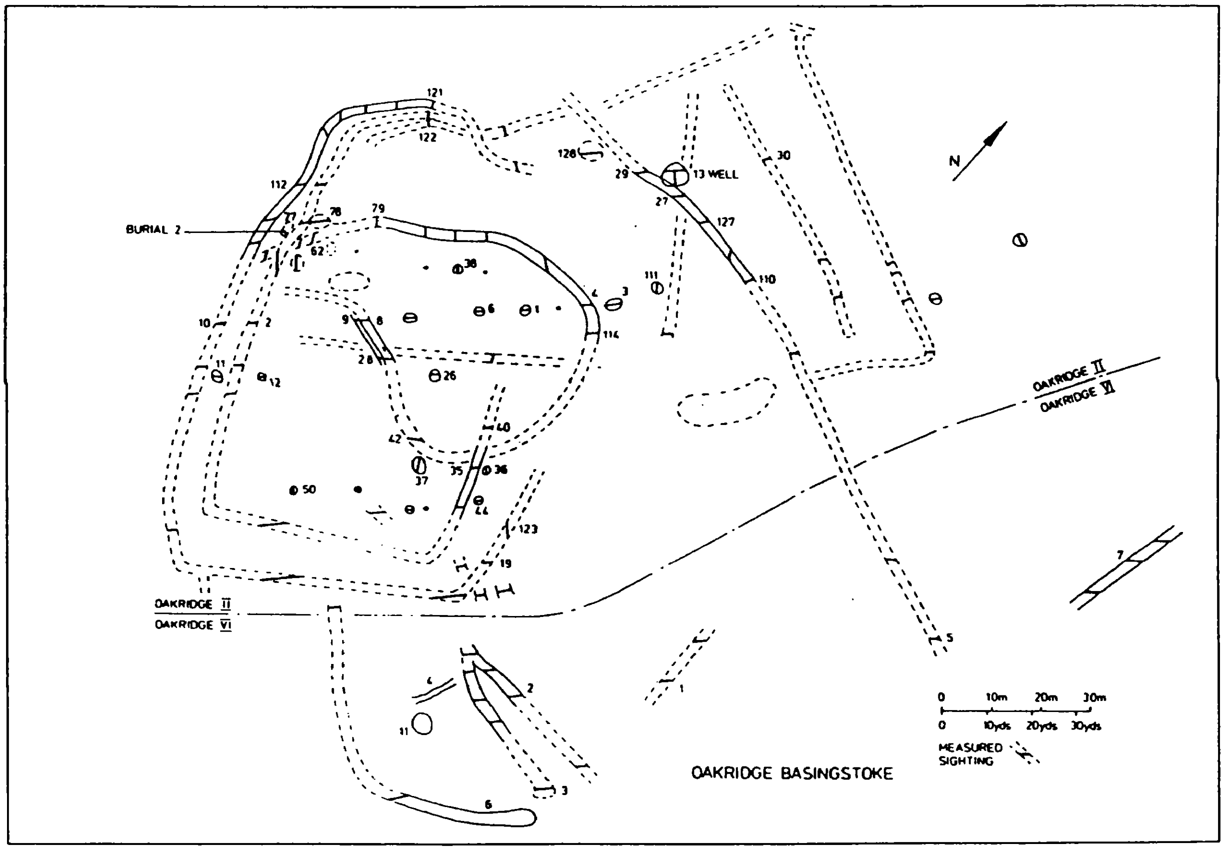


Figure F.43 - Oakridge - Plan of excavated features (source: Oliver et al, 1992, fig. 3)

Situated on the gentle north-facing slope of a small dry valley on chalk downland, this site was identified and excavated on a rescue basis in parallel with development in 1965 - 66 (Oliver et al, 1992, 55). A rough circle was defined by a V-shaped ditch c1.37 - 1.75 metres wide at the top and 0.15 - 0.23 metres wide at the bottom with depth varying from 0.97 - 1.30 metres (Oliver et al, 1992, tab. 1). Finds from the ditch and at least two pits within included a small amount of metalwork and slag, worked antler, worked stone and quern fragments and daub fragments as well as a pottery assemblage dominated by sand-tempered coarsewares dated to c600 - 300 BC (Oliver et al, 1992, 60-62).

Dated by ceramic typology, a further four pits were filled in the period from c300 - 50 BC and the enclosure ditch remained open to a degree as it included saucepan pottery dating to c300 - 100 BC (Oliver et al, 1992, 60, tab. 1).

In the period from the late C 1st BC - early AD C 1st the focus of activity moved south, up the side of the valley, and is represented by two small ditch section (features 3 and 6) and just one pit (11) within the excavated extent (Oliver et al, 1992, 63-64, tab. 4, fig. 3).

F32 - Old Down Farm

Excavated by the Test Valley Archaeological Committee between 1974 - 77, the site is situated on fairly flat ground on a spur of Upper Chalk just above a tributary of the River Anton and adjacent to the probable route of the ancient east-west trackway known locally as Harrow Way (Davies, 1981, 81). A few scattered pits containing some working debris indicate that it was visited sporadically in the Neolithic (Davies, 1981, 141).

800-700 BC

The original enclosure of a sub-rectangular area of c1.2 ha by a shallow, U-shaped ditch is known as 'Site Phase 2' and is closely dated by pottery to the C 8th BC. The enclosure had a single entrance, indicated by a slight inward-turn of the ditch on the north-west side, and it is possible that there was a palisade around the interior as there is an undated short length of a 'palisade trench' in the north-east corner. (Davies, 1981, 83). Internally, the only features definitely attributed to this period are three pits which contained a large quantity of animal bone fragments. Pit 937 contained one complete carcass and several partial skeletons of young lambs, as well as parts of at least seven adult sheep. Pit 2493 contained thirty fragments of dog and it is noteworthy that it had been butchered. Cattle, horse and pig were also present in small numbers. (Davies, 1981, 98-100).

700-600 BC

In the next phase (site phase 3) the enclosure ditch was recut in a V-shape c 2 metres deep, with a base 0.35 - 0.50 metres wide and an upper width varying between 2 - 4 metres and it was almost certainly surrounded by a bank, although nothing of it survives (Davies, 1981, 83, 100, fig. 12).

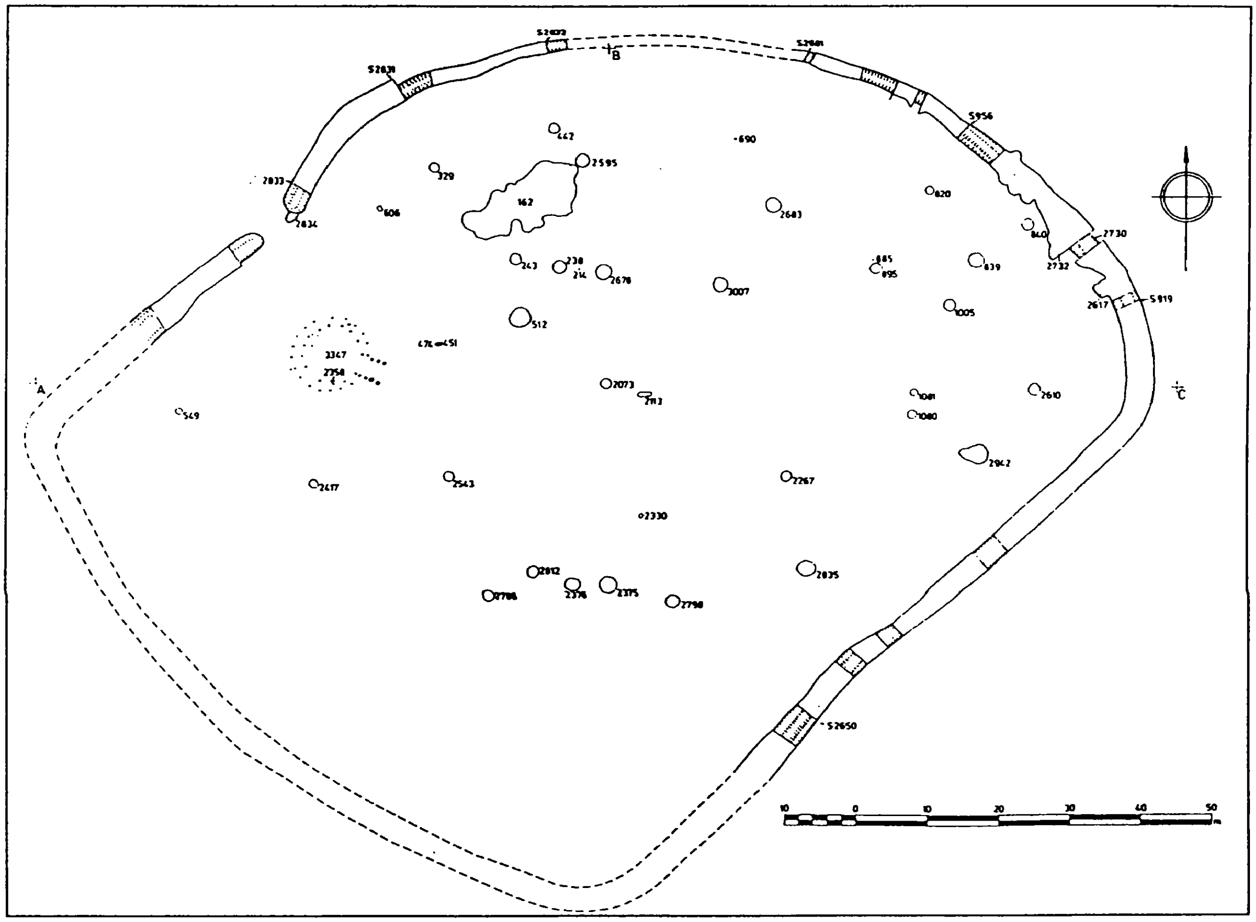


Figure F.44 - Old Down Farm - Plan of excavated features phase 3 (C 7th BC) (source: Davies, 1981, fig. 11)

The entrance was moved to a westerly position and was c5 metres wide (Davies, 1981, 102). The phase is closely dated by diagnostic pottery which is distinctly different to the earlier phase and attributed to the C 7th BC (Davies, 1981, 83, 105).

Twenty seven of the 114 internal pits examined were attributed to this phase and no spatial clustering is apparent. Most were between 1 and 2 metres deep and contents include a fragment of a triangular clay loomweight, a fragment of a copper pin, bone and antler artefacts, a spindle whorl and a large number of animal bone fragments (also found in ditch and postholes). (Davies, 1981, 108-110, fig. 4). Unusually for the period, pit assemblages provide evidence for oats and barley in this phase and it is thought possible that wheat was not processed on the site (Davies, 1981, 111). There is a clear indication of differential structured deposition in some pits at least (Davies, 1981, 110). Pit number 2683 contained a neonatal infant human skeleton and a stand-alone post-hole (No. 451 located near a roundhouse) contained a bone of a child as well as adult cranial fragments (Davies, 1981, 111).

In this phase at least one large post-built roundhouse was built (3347) just to the south-east of the site entrance.

It took the form of a double ring of postholes with an internal diameter of 8 metres and was entered by a 2 metre wide and 3.5 metre long porch at the east (i.e. away from the site entrance) which may have been replaced at one time (Davies, 1981, 102-103). The only internal feature was an oval pit (no. 2538) (Davies, 1981, 102-103). A second roundhouse, feature no. 3471, could have belonged to this phase but it contained no dating evidence (Davies, 1981, 100). Other features attributed to this phase include quarrying areas and a few isolated postholes (Davies, 1981, 100).

Although the dating by pottery seems precise and confident, there is an anomaly in that radiocarbon dating of material from phase 2 and 3 context samples gives dates much later than expected, at:-

Pit no. 937 (phase 2): 180 cal BC - AD 55 (Har-3495)

Pit no. 1080 (phase 3): 150 cal BC - AD 115 (Har-3494) (both at 68% confidence level)

(Davies, 1981, 144-145). The excavator and the laboratory agree in arguing that there may have been a problem of contamination of sample or that the pits may have been reopened and used for later deposits but re-examination of the stratigraphy within the pits revealed no suggestion of missed pit recuts, so the former is assumed (Davies, 1981, 144-145).

600 - 300 BC

The site excavator's phase 4 ranges from 600 - 300 BC and comprises seventeen pits and four buildings as well as continued use of the quarry area (Davies, 1981, 162) but the large enclosure ditch silted up. Three of the buildings are indicated by pennanular gullies (features 104, 191 and 1166) and two are relatively complete but the third (191) was partly destroyed by later activity. The fill of all three gullies comprised a mid-brown loam with chalk fragments and the fill of 1166 incorporated one possible posthole. The internal diameters of all three were between 9 and 10 metres. (Davies, 1981, 113-114).

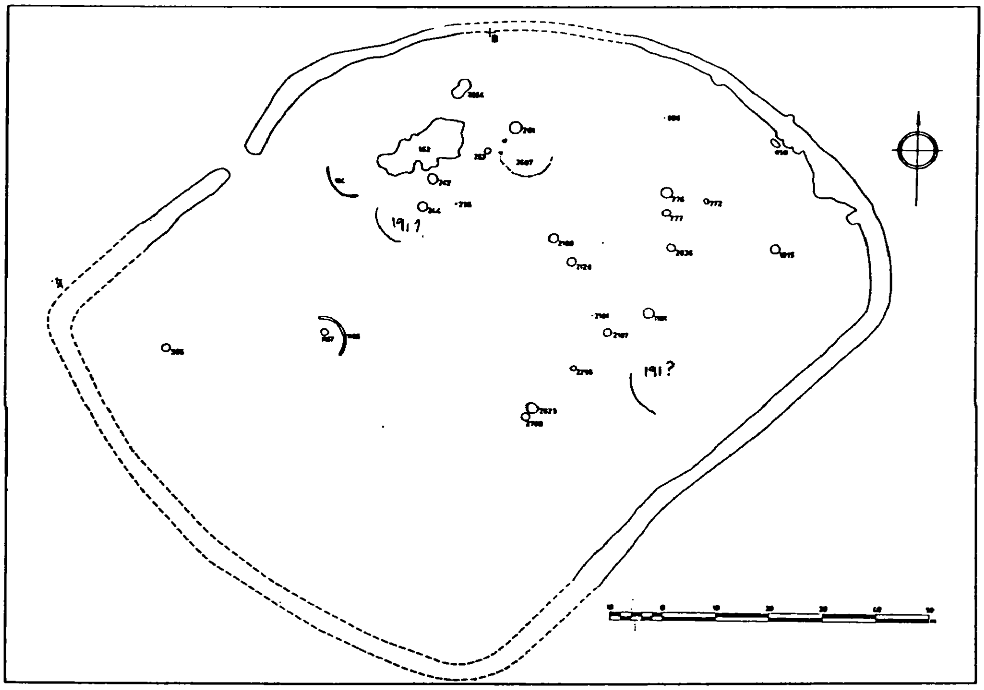


Figure F.45 - Old Down Farm - Plan of excavated features dating to 600 - 300 BC (source: Davies, 1981, fig. 18)

The fourth building, number 2687, was a pennanular structure with an entrance gap of c2 metres to the west (Davies, 1981, fig. 19). The internal diameter was c9.5 metres and it is possible that some internal structure was present (Davies, 1981, 114). All pit fills appear to have been the result of deliberate in-filling and included some substantial burnt deposits. (Davies, 1981, 114). The pottery is of the Meon Hill type and represents a marked departure from the forms and decoration of the earlier phases (Davies, 1981, 114). Finds are all from pits and include 2 iron fragments, worked bone and antler, greenstone fragments and a whetstone (Davies, 1981, 114-115). The majority of the considerable animal bone assemblage comes from pits and includes articulated groups and structured deposition (Davies, 1981, 115-117). Crop processing was evidently taking place, with waste being burnt on site (Davies, 1981, 118).

300 - 50 BC

Site phase 4/5 is a narrow period dated to the late C 4th BC and features comprise only four pits, all apparently deliberately filled and identified by a very particular pottery assemblage (Davies, 1981, 242).

Site phase 5 is characterised by standardised and high quality pottery forms and fabrics representing a localised variant of saucepan pottery presented in well-finished products and which may represent a north-west Hampshire tradition (Davies, 1981, 122-123) dating to c300 - 50 BC. By that time, it is likely that the enclosure ditch of the earlier period would have existed as a shallow depression only, making the settlement effectively open at this time (Davies, 1981, 122). No buildings or above-ground storage structures are assigned to this phase but it would appear that 38 pits were deliberately filled, of which the following included human remains:-

- Pit 240 - crouched burial of an 18 - 22 year old male covered by a layer of large flint nodules and with a number of cuts on the back of the head and the torso which are mostly wounds from slashing cuts but two are thrusts (Davies, 1981, 132-133).
- Pit 1091 - adult skull fragment
- Pit 2032 - adult skull fragment
- Pit 2134 - Neonatal infant skeleton - half complete
- Pit 2793 - Crouched burial (not markedly covered) and rib fragment of an adolescent and a whole male skeleton of a 15 - 16 year old (Davies, 1981, 122, 133).

Other human remains included two incomplete foetal skeletons (probably twins) in posthole no. 2647 (Davies, 1981, 122).

Pit fills included evidence for iron working in the form of extensive smithing residues in pit nos. 2598 and 386 but there was no complementary evidence for iron smelting or bronze working (Davies, 1981, 122). Several triangular clay loom/thatch weights and a spindle whorl were located in pits and the quarry (Davies, 1981, 124). The earliest iron tools found on the site date to this period and iron ware includes 'currency bars' and a hoard of metal objects deposited below a heap of clay loom-weight fragments in pit 2420 (said to have parallels with similar finds at Owslebury F34 and All Canning's Cross), suggesting concealment (Davies, 1981, 124).

Other artefacts include bone, antler and stone items associated with spinning and weaving and a whetstone and a Greensand quern (Davies, 1981, 127-129).

Occupation ceased at the very end of this period and the site was not resettled until the mid AD C 1st (Davies, 1981, 144).

F33 - Oram's Arbour (a.k.a. Erdberi)

The western quarters of the modern city of Winchester overlay a very large enclosure, built and occupied in the middle Iron Age (c 300 BC onwards), and that presents considerable difficulty for excavating and interpreting this very important site. Excavations in varying locations in the vicinity of the Oram's Arbour enclosure are almost continuous, as development work in the City arises, but none is very great in extent and the whole picture has been patched together over the years following recognition of the site as early as 1949. Thus, for example, Cunliffe (1978) provides an important summary of work from 1949 - 1960 and Biddle (1966, 310-312; 1967, 254-259; 1968, 251-257; 1975, 98-100) provides updates since. Qualmann has been developing a synthesis of all work for publication of the site as a whole and aspects of that work are reported by Whinney (1994) and James (1997) which provide useful summaries of the current published state of knowledge in advance of the full report. Figure F.46, below, is taken from that work and shows the location of all excavation sites by a reference number used in discussion of particular features.

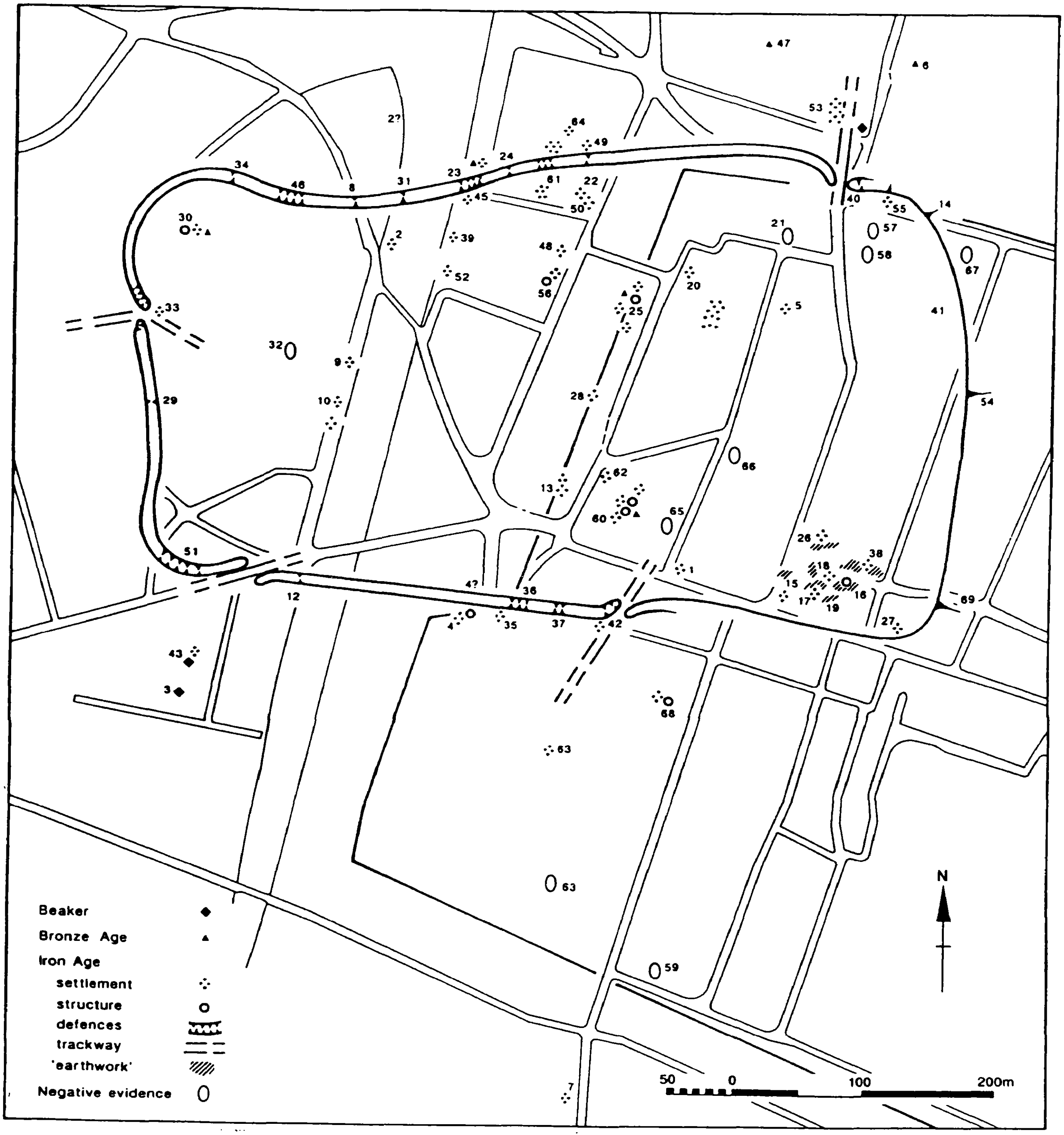


Figure F.46 - Oram's Arbour - General Plan (source: Whinney, 1994, fig. 25.2)

The site is situated on the western side of the Itchen at a point where the floodplain is considerably narrowed by the presence of a low knoll which provides the only suitable point for a ford or crossing for many miles to the north or south (Whinney, 1994, 86). Furthermore, it is the point of a crossing of two routes, where east-west movement indicated by a trackway which runs along the downland ridges meets north-south traffic by a trackway on the western edge of the Itchen floodplain (Whinney, 1994, 86). The general area may have been occupied prior to enclosure from c 600 BC onwards (James, 1997, 121) but the enclosure itself annexed c 20 ha, defined by a sub-rectangular bank and a ditch c 1.7 km long (NB. not fully traced at the east), 3.5 - 4.0 metres deep in most parts (c 4.8 metres at site 33, though) and 7.0 - 7.5 metres wide originally (Whinney, 1994, 88). There is reason to believe that the bank could have been c 8.0 metres at the base, as indicated at the Carfax (61) site. Entrances are currently known or postulated to the west, the north-east, the south and the south-west but only the western one (site 33) has been excavated, revealing an 8 metre wide causeway across the ditch with the northern arm of the ditch in-turning and approached by a hollow way (Biddle, 1968, 251-255).

Only 3 % of the interior has been excavated, of which two-thirds of sites show some first millennium BC activity (Whinney, 1994, 88). Coherent plans have proved difficult as the evidence is patchy, but it is clear that whilst some areas have evidence for single period structures (e.g. Staple Gardens (60) four-post structure and circular building, Tower Street (25) roundhouse) others show replacements over longer periods (e.g. Westgate Car Park (13) and Sussex St. (48-50)) (Whinney, 1994, 88-89). Palaeoenvironmental analysis shows that the soils immediately outside the enclosure were ploughed and the presence of four-post structures and quernstones immediately inside the enclosure (e.g. at New Road (45)) suggests involvement in cultivation, storage and processing of grain (Whinney, 1994, 88). It is also claimed that there is a hint that occupation was seasonal (late summer and early autumn) although, regrettably, Whinney's (1994, 89) summary is not explicit about the evidence for that.

From the unpublished evidence from which he has drawn, James (1997, 27-29) argues that the 100 BC - AD 43 period saw a reduction in the level of permanent settlement at the site and that any impression otherwise is caused by the Roman settlement plan which was probably guided by re-utilisation of the extant and large earthworks of the enclosure. At the same time, however, it would appear that *'industrial activity'* both inside and immediately outside the enclosure was important in the C 1st BC (James, 1997, 27) although the nature of the evidence for that is not specified.

Finds are not detailed in the summary syntheses drawn on here but it is clear that contact over a wide area is indicated by querns (from Lodsworth, Sussex), some non-local pottery, sea fish and salt and into the 100 BC period native and 'exotic' coin finds (Whinney, 1994, 90; Biddle, 1975, 213-215). Local pottery is of the St. Catharine's Hill - Worthy Down style dating it to c300 - 100 BC in the main (Whinney, 1994, 90) and, indeed, the site is only c 2 km to the north-west of St. Catharine's Hill F42.

F34 - Owslebury

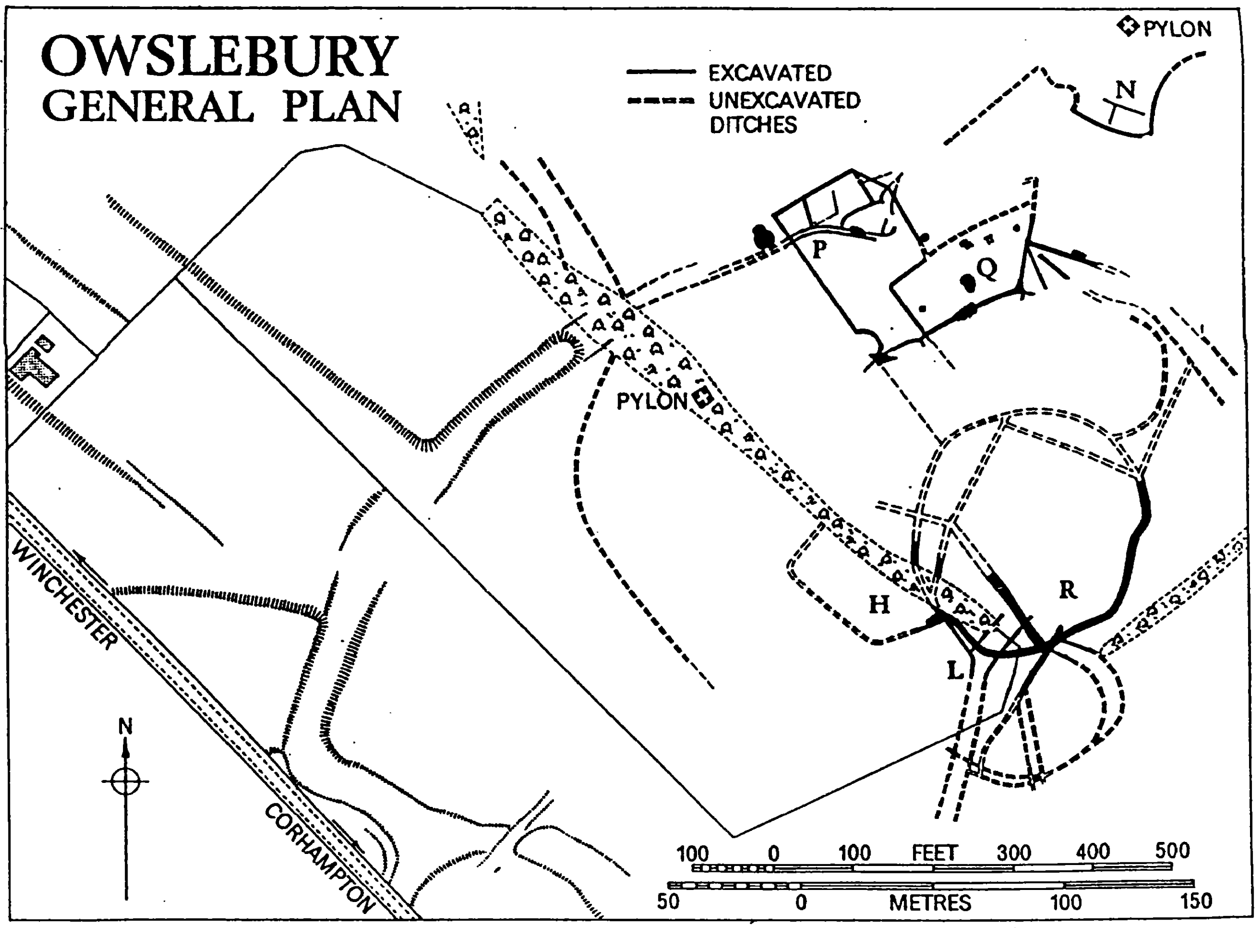


Figure F.47 - Owslebury - General plan (source: Collis, 1970, fig. 2)

The oval ditched enclosure of c 0.6 ha has been explored partly by aerial survey and partly by excavation directed by John Collis and conducted intermittently between 1963 - 69. No entrance was found and, therefore, it is thought to have been located in the obscured, unexcavated northern sector which would place it to overlook the main valley below (Collis, 1970, 248). Enclosure is by a V-shaped ditch c1.5 - 2.2 metres deep and the silt within the ditch contained chalk slabs, suggesting that the bank (presumed to have been interior) had originally been revetted by chalk (Collis, 1970, 248). Dating is by pottery, all of which comprises saucepan forms and includes three fairly complete vessels (Collis, 1970, 248). Similarity of diagnostic pottery from the silting and the in-fill, combined with stratigraphic observation, suggests that the ditch was filled in (slighted) not long after it had been dug although the episode may have followed two recuts, on the evidence from the eastern ditch, but certainly soon after 100 BC and there can have been no trace of it by AD C 1st (Collis, 1970, 248).

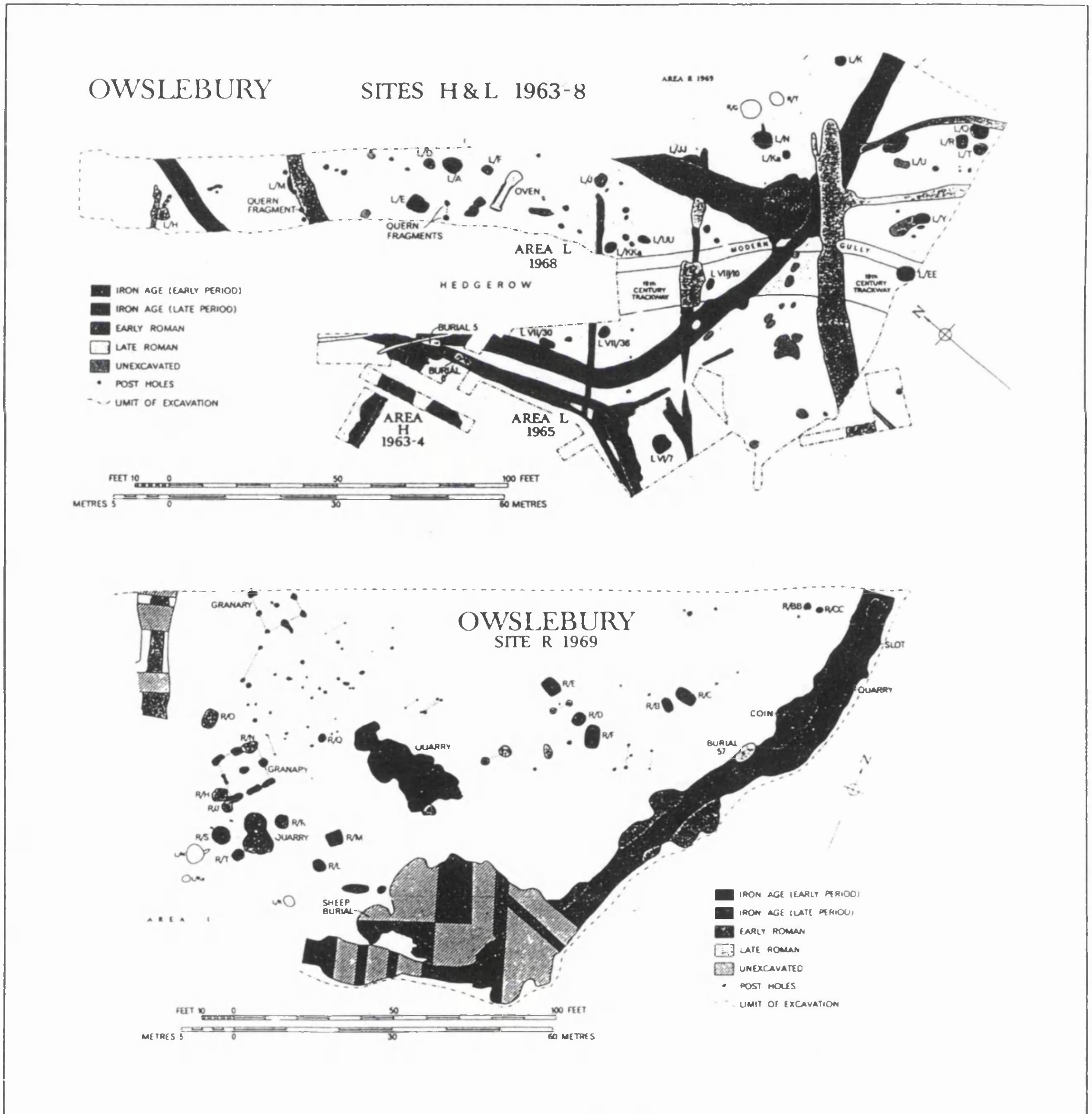


Figure F.48 - Owslebury - Plan of excavated features (source: Collis, 1970, figs. 3 & 4)

On the outside of the enclosure, in the east and south stretches, extensive chalk quarries are assumed to have been for marling the fields and a large 'borrow pit' in the interior in area R is presumed to have provided material for house construction and included a dog skeleton and a few potsherds (Collis, 1970, 248). The quarry area is quite distinct, in that it consisted of a series of irregular holes of different sizes and periods, with some of the chalk spilling over into other pits (Collis, 1970, 248).

Areas of postholes within the enclosure include several matched pairs (Collis, 1970, 250) which might indicate roundhouse entrances with just one storage pit amongst them and with other pits zoned down the western edge of the enclosure and a further single example near the eastern ditch which contains considerable evidence of burning and burnt material. Pit fills include dumps of red clay and three included clearly structured deposition, namely R/M (an exceptionally large pit) which included 3 piglets, a young pig and two infant humans (all complete skeletons), L/E (another exceptionally large pit) contained a dog and a lamb and R/G which contained a dog, a rotary quern and a handled iron object. There are no other instances of human remains located on the excavated areas of the site dating to the middle Iron Age period. (Collis, 1970, 250-253).

The confined area of the earlier settlement was increased to 4 - 6 ha in the late Iron Age period, with ditches and gullies annexing most of the tongue of land on which it lies. The new form of the site was a series of linked enclosures approached by a ditched trackway from the west reaching the settlement at site P, funnelling in such a way that it was c 15.4 metres wide at the combe bottom but narrowed to c 62 centimetres on reaching the settlement. (Collis, 1968, 21). Storage pits continued in use and these and ditch sections (including cutting the trackway) produced both local and imported ceramic material allowing attribution to the c100 BC - AD C 1st period (Collis, 1968, 23).

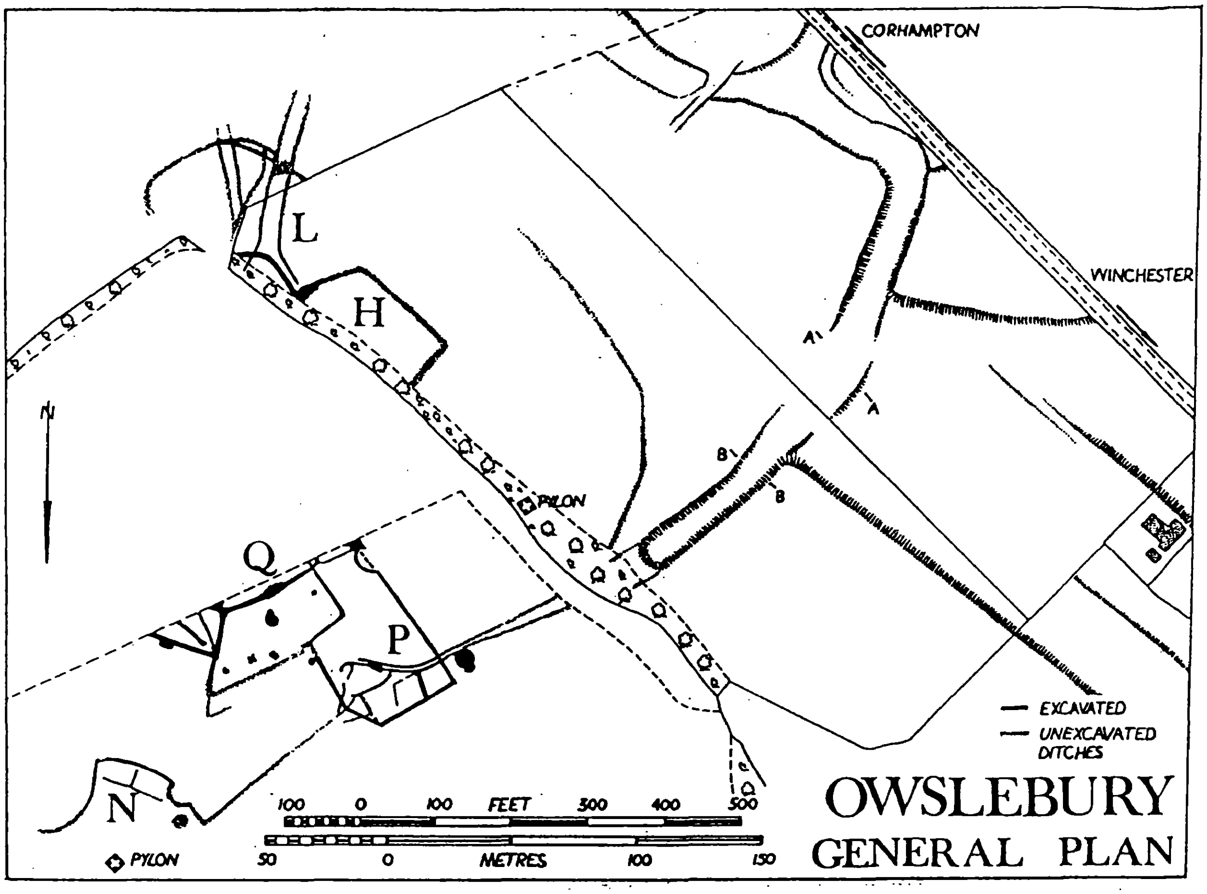


Figure F.49 - Owslebury - site plan for the late Iron Age period (source: Collis, 1968, fig. 2)

Of considerable importance, site N in the north-east corner of the settlement is a cemetery of at least one inhumation and eighteen cremation burials dating to this period. The inhumation is thought to be the earliest burial in the cemetery on the grounds of siting but as its own assemblage of grave goods includes no ceramics, whereas the cremations are accompanied almost exclusively by ceramics only, direct comparisons of date by pottery are impossible. The inhumation is of the 'warrior burial' form common enough on the Continent but rare in Britain. (Collis, 1968, 23-25). Unfortunately, these site details have not been published in full to date, so some details are sadly lacking. Thus, whilst it is clear that there was an inhumed body, details of sex and age are not reported. The body lay extended on its back with head to the north and was accompanied by a leaf-shaped iron spear to the left of the head (presumed to have been broken in two), a heavy iron sword sheathed in a wooden scabbard to the right, sword belt and accoutrements and a shield (probably wooden) with a bronze boss across the body (Collis, 1968, 25). Most of the cremation burials were un-urned, although no. 10 was not only urned but also contained 10 ceramic vessels, most of which are wheel-turned. The wealthiest burial, in terms of the energetics of production of the assemblage, was no. 41 containing ceramics, an axe shaped knife, a pig's jaw, part of a stone pendant and fragments of studded bronze strips (Collis, 1968, 25-28).

F35 - Portsdown I

Discovered from the air, the crop mark site on the isolated chalk ridge of Portsdown Hill was excavated between 1963 - 1965 under the direction of Richard Bradley (Bradley, 1967, 42).

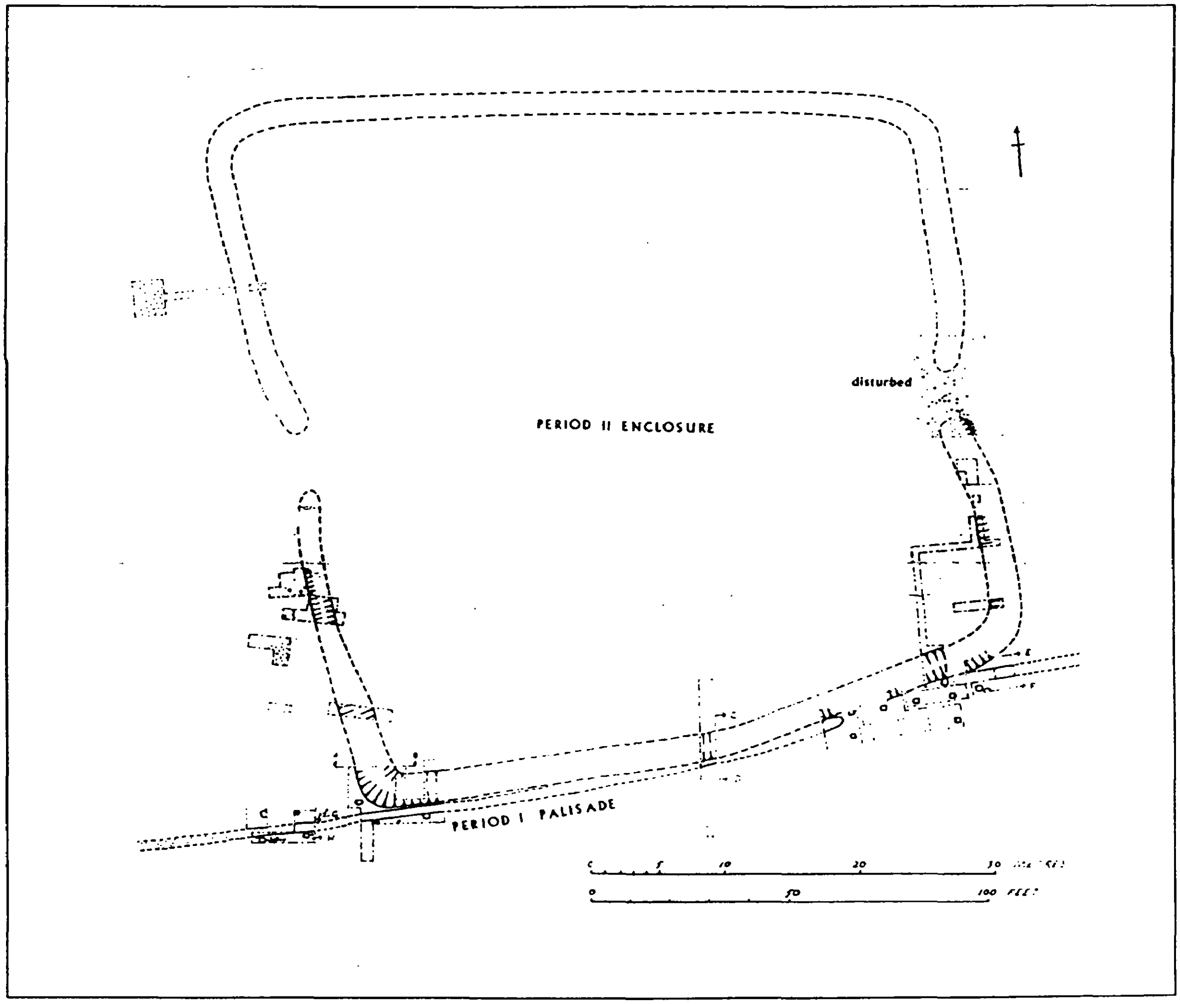


Figure F.50 - Portsdown I - General site plan (source: Bradley, 1967, fig. 6)

The first development of the site (*'period I'*) was in the form of a linear ditch running east-west for a distance of at least 100 metres, of which at least 60 metres was excavated; the ditch was flat-bottomed, averaged 85 centimetres wide and was rather shallow as its depth ranged from 23 to

56 cm (Bradley, 1967, 44). The westernmost ditch ran straight for most of the length and then veered to the north at a slight angle for 11.3 metres; at that point there was a gap of 8.3 metres (*'the entrance'*) before the easternmost section commenced on a line parallel to the westernmost (Bradley, 1967, 44). The westernmost section of the ditch was flanked on either side by postholes spaced 2.5 - 5.5 metres apart and the line continued to the south side only of the easternmost (Bradley, 1967, 44). Just outside the entrance lay a small pit (feature 8) and a quantity of scattered 'sling stones' (Bradley, 1967, 44-46).

The whole has been interpreted as a 'ranch boundary' of substantial fences joined by horizontal bars and probably supporting stake and brushwood infill, in a double row to the west of the entrance and a single row to the east and the entrance is likely to have been closed by removable wicker gates (Bradley, 1967, 46).

At some time after the 'ranch boundary' was built (*period II)*, a sub-rectangular enclosure measuring 45 * 36 metres was constructed abutting it and with entrances to the east and west below the crest of the ridge (Bradley, 1967, 48). The ditch was of V-profile form, 0.85 - 1.33 metres deep and 2.0 - 3.5 metres wide and contained very little occupation material (which was evenly spread) (Bradley, 1967, 48). The eastern entrance was examined and found to contain a number of stakeholes (some in lines) suggesting rows of removable hurdles used to funnel livestock into the enclosure (Bradley, 1967, 48). The whole has been interpreted as a stock enclosure in association with a 'ranch boundary' dividing tracts of grazing land and forming a boundary between arable on the fertile southern slope of the hill (evidenced at Portsdown II F36) and pasture on the more shaded land to the north of the ridge (Bradley, 1967, 50).

Dating is tenuous being based on few sherds with a number of affinities both in Hampshire to the west and Sussex to the east of the site but they broadly suggest that the two site periods span the late Bronze Age to early Iron Age changes (Bradley, 1967, 52) meaning that the 'ranch boundary' could have been constructed in the 800 - 600 BC period, followed by the stock enclosure rather early in the 600 - 400 BC.

F38 - Quarley Hill

Quarley Hill is the most conspicuous landmark in north-west Hampshire on the line of the ancient Harrow Way track which runs east to west (Hawkes, 1939c, 137). Underlying the enclosed site is a junction of a series of ditches some 1 - 1.2 metres deep forming part of an extensive land division in the immediate vicinity (Avery, 1993, 273) and these cover more than one period of construction and a turf line had started to form before the hilltop enclosure was constructed (Avery, 1993, 273).

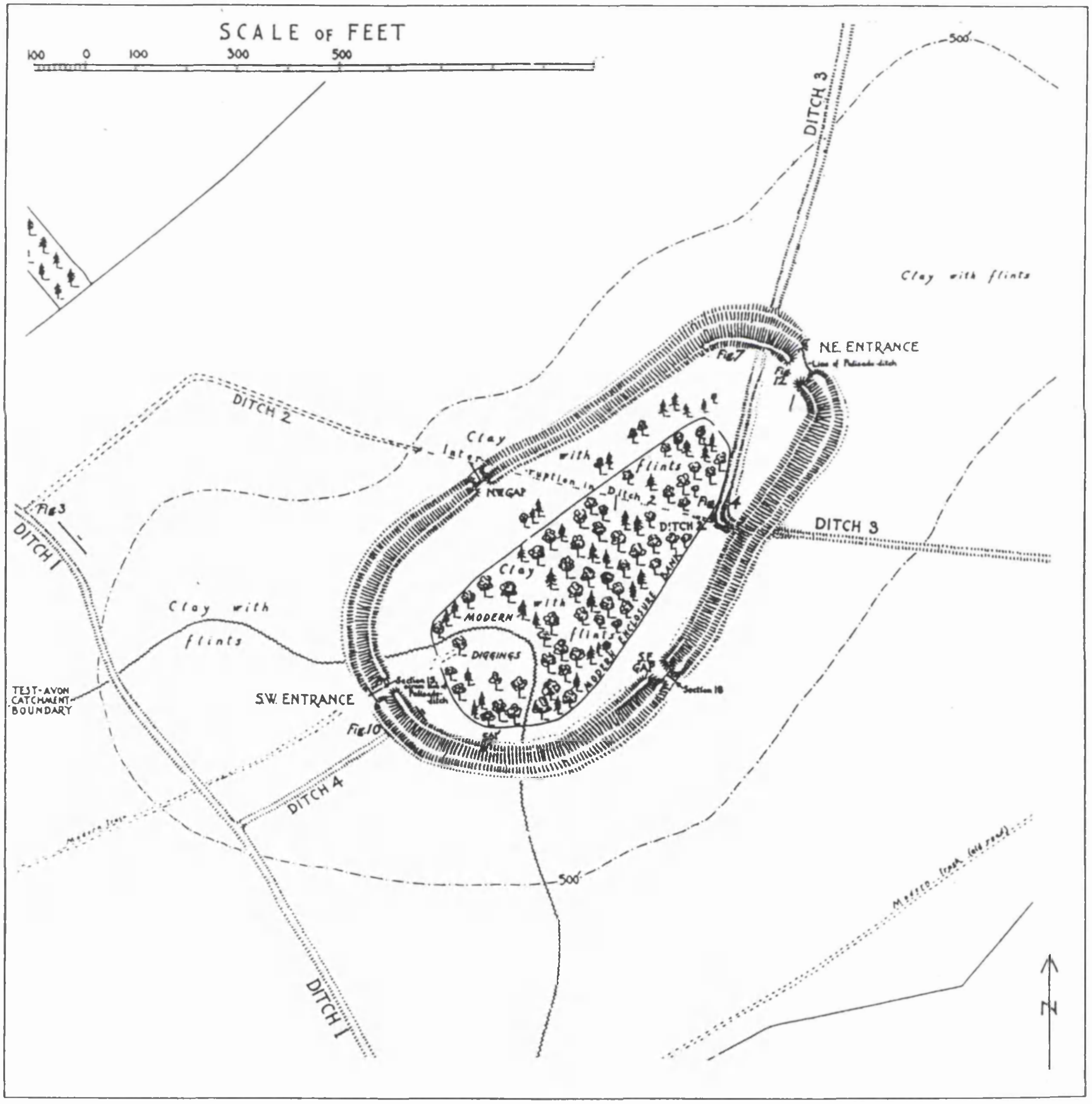


Figure F.51 - Quarley - Plan showing excavated areas (source: Hawkes, 1939c, fig. 2)

The first evidence of enclosure of an area consists only of two short stretches of bedding trench where they crossed the causeways at the subsequent entrances to the enclosure as it is seen today. Those ditch stretches were c1.2 metres across and c0.6 metres deep and with a 15 - 23 cm thick chalk packing to one side and filled with chalk rubble with flecks of charcoal for the main part (Hawkes, 1939c, 168). This has been interpreted as a palisade ditch directly under the subsequent ditch (on the line of it and presumed to have been mainly removed by subsequent digging), thus suggesting that the original circuit was defined as a stockaded enclosure (Hawkes, 1939c, 167-169).

No finds were located in the early ditch sections bar two pieces of worked flint, so no direct dating is possible but the excavator felt that it predated the enclosure by a considerable period of time as nearly 0.3 metres of silting had accumulated before the subsequent ditch and counterscarp bank were built across and over its end (Hawkes, 1939c, 170, fig. 10, sections 13 and 14). Avery (1993, 273, note 8) has counter-proposed that it was possible that the counterscarp was not a feature of the initial construction but, rather, an effect of ditch clearing at a later date.

The subsequent univallate bank and ditch was constructed, enclosing c3.5 ha on chalk with entrances at the north-east and the south-west (Avery, 1993, 273). Again, although the excavator argued that it was never completed, on the evidence that gaps are visible (Hawkes, 1939c, 173-174), Avery (1993, 273-275) counterclaims that these are more likely to be modern breaks as the 'hillfort' ditch was continuous across them at its full depth (citing Hawkes, 1939c, figs. 2 and 11 - esp. Section 18). Additionally, Avery's (1993, 273) analysis finds traces of reconstruction of the bank and clear evidence that the north-east entrance portal was rebuilt, interpreting that as representing two phases in the site's history. Those phases were separated by enough time for a turf line to form between and the second may be associated with a quarry hollow in the chalk (Avery, 1993, 274).

The ditch was originally a steep-sided V-shape in profile and thought to be c 5 - 6 metres wide and c 3 - 3.5 metres deep with an inner slope of c50 degrees (although much weathered) and the bank c9 metres broad and raked at an angle greater than 30 degrees, suggesting to Avery (1993, 274) that a front-retaining wall (presumed to be of timber) was originally present. Unfortunately, the excavator's cross-trench was only c0.9 metres wide (Hawkes, 1939c, fig. 7) so it is likely that postholes would have been missed (Avery, 1993, 274). It is noteworthy that Bradley, Entwistle and Raymond (1994, 143-144) independently concur with this viewpoint.

The north-east entrance was explored, revealing evidence for a timber-lined entrance passage at least 12 metres in from the inner edge of the ditch and probably funnel-shaped, narrowing from c7.5 metres wide at the causeway to a neck of c5.5 metres wide (Avery, 1993, 274). However, the passage was narrowed at two points by timber structures of unknown form to c3.6 metres across on one interpretation, or as narrow as 2.0 metres on another (Avery, 1993, 274) thus suggesting a gate and some sort of 'guard room' structure or a second gate at the interior end of the passage (Avery, 1993, 274). Interestingly, all of the pits and postholes of the entrance were clearly in-filled and unweathered; either they were never used for timbers or else the timbers were dug out and the holes made good (Avery, 1993, 274).

The entrance was refurbished in some unidentified manner at a later stage and evidence suggests that part of it, at least, was burnt (Avery, 1993, 275). Either it was left unfinished (as Hawkes (1939c, 174-179)) suggested) or else it was more than 9 metres wide and the left-hand side (looking from the exterior) was located in unexcavated ground; certainly, a hollow way of c9 metres wide followed the passage at a small offset to the central line and this is taken as limited support for the second hypothesis (Avery, 1993, 275).

Finds were few and the dating of the bank and ditch offered only by two coarse rim sherds with finger-tip impressions. They could have belonged to either phase of the construction of the north-east entrance and similar vessels (not finger-tipped) overlay the in-fill of the pre-enclosure ditch phase, along with numerous sherds of 'Meon Hill' type bowls. (Avery, 1993, 275; Hawkes, 1939c, 183-186). Cunliffe (1991a, 559) dates that series to c500 - 200 BC although he also places the range at c600 - 400 BC (1991a, 215) and places Quarley, specifically (i.e. the dump bank) to 500 - 300 BC (1991a, 322) and the gate to typical of 500 - 400 BC (1991a, 330) and the 'hillfort' to the period 500 - 400 BC (1991a, 383). That confusion highlights the difficulty in dating this site. However, Bradley, Entwistle and Raymond (1994, 144) interpret the only diagnostic material as coming toward the end of a lengthy sequence and argue that it is most likely that enclosure of the site was first in the C 7th - early C 6th BC and reconstruction in the C 5th BC at the latest.

Finally, that group explored part of the area surrounding the 'hillfort' in the context of their review of the Wessex Linear Ditch systems, commenting that *'Excavation behind the rampart at Quarley Hill provided evidence of a substantial midden, completely sealing the filling of two of the ditches. This midden contained pottery which would now be dated to the sixth century BC'* (Bradley et al, 1994, 144).

F39 - Rooksdown

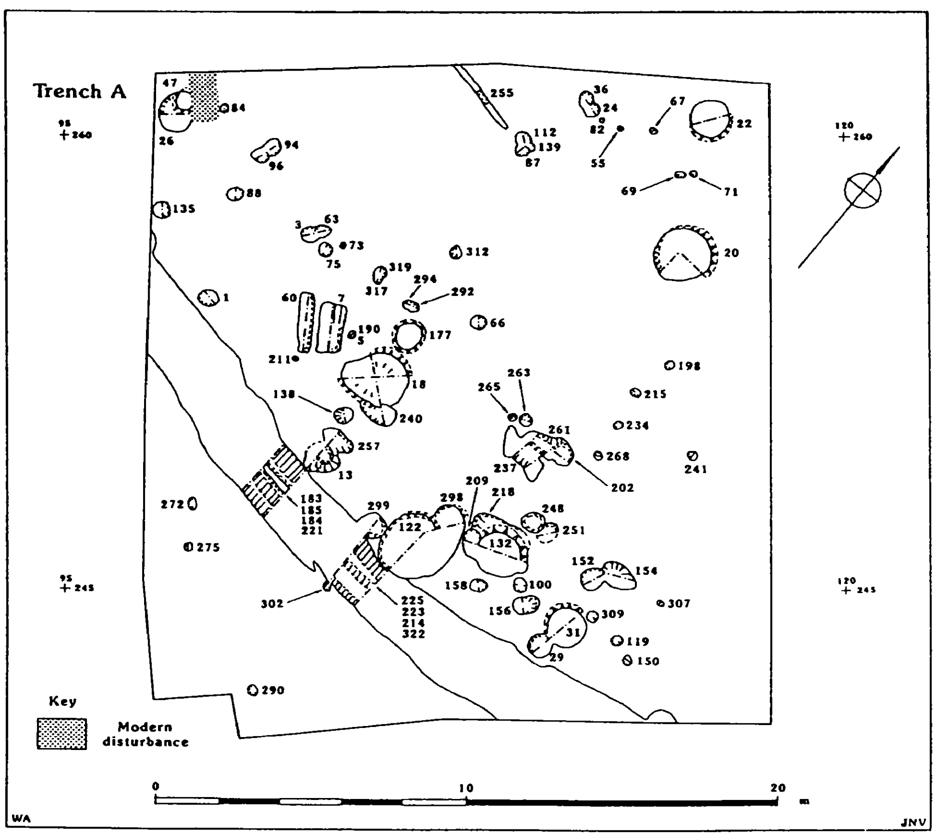


Figure F.52 - Plan of Trench A at Rooksdown Hospital (source: Butterworth, 1994, fig. 22.1)

Situated on chalk on high ground c 1 km north-west of Winklebury F48, a 1.5 ha spread of material indicating Iron Age activity was partially excavated in 1989 in two trenches (A and B) by Wessex Archaeology, in advance of development (Butterworth, 1994, 76).

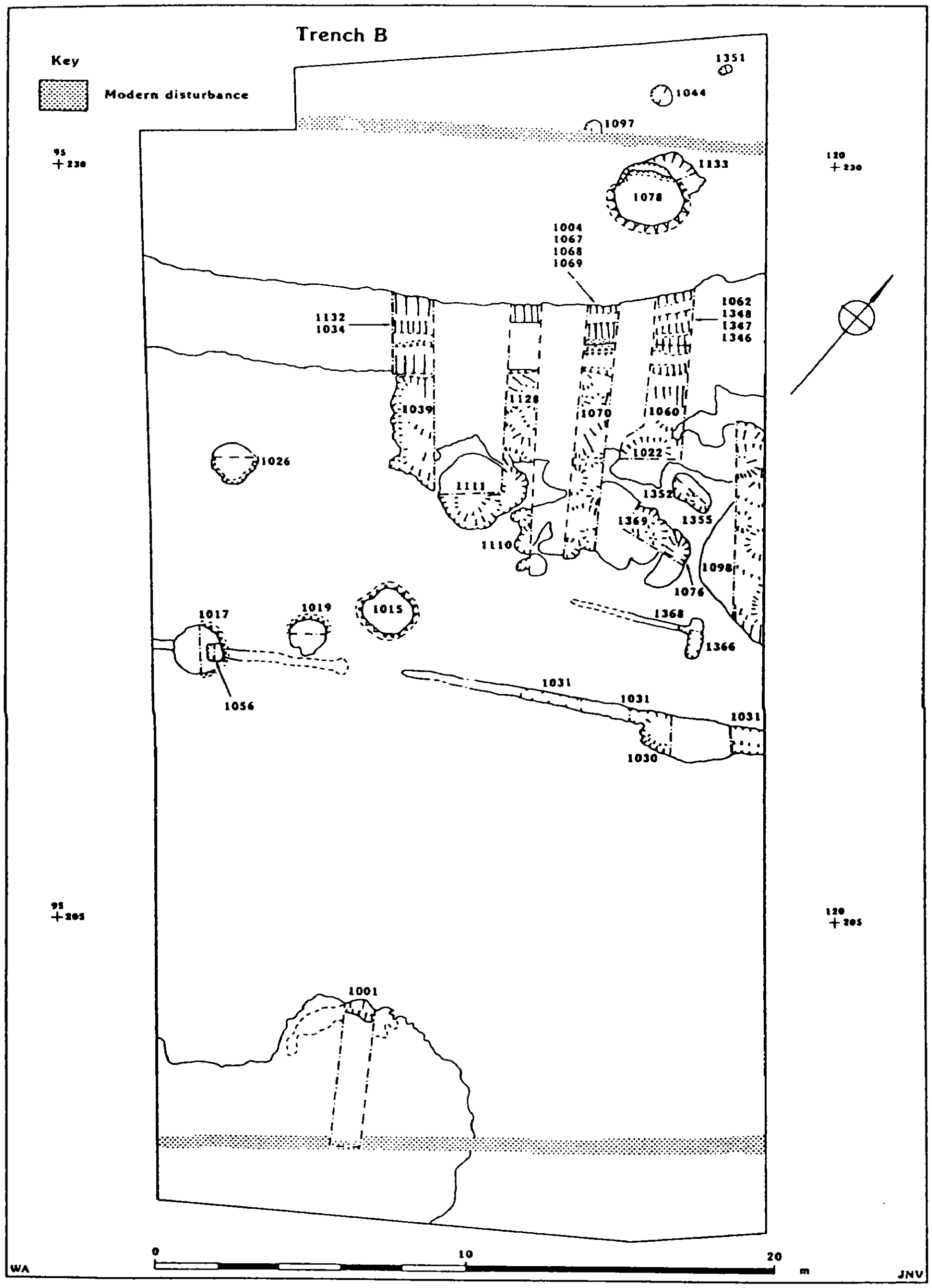


Figure F.53 - Plan of Trench B at Rooksdown Hospital (source: Butterworth, 1994, fig. 22.2)

The site was probably enclosed by a ditch in the 600 - 400 BC, early Iron Age, period and was recut three times on almost the same lines (in the early / middle c500 - 300 BC, the middle c400 - 100 BC and the late Iron Age or early Roman period c100 BC - AD 100) (Butterworth, 1994, 77). No bank could be recognised although it is thought that some postholes near the inner edge of the ditch could have been a component of timber-lacing (Butterworth, 1994, 77). There are 12 pits (8 inside the enclosure and 4 outside) but no evidence of any houses or other structures. All of the pits seem to have been deliberately back-filled (mainly with chalk rubble) but finds include burnt flint, iron slag, pottery, spindle whorls, a clay loomweight, a weaving comb and faunal remains. Of special note, several pits included articulated skeletons of young pig at the base and one contained a horse, complete except for the legs. (Butterworth, 1994, 77).

Trench B revealed detail of the area outside the enclosure and included an area of quarry hollows and a smaller ditch (purpose unknown) (Butterworth, 1994, 79). There is hope for a further excavation before full reporting and destruction by development but the excavators' working hypothesis is that this represents a small, enclosed farmstead (Butterworth, 1994, 76, 79).

F40 - Ructstalls Hill

The site lies at c 100 metres OD on a gentle slope of chalk downland above a small valley where several other settlement sites have been detected by air photographs and are suspected of being of Iron Age date (Oliver and Applin, 1979, 41). Excavation by the Hampshire County Museum Service in advance of extension of the M3 revealed a 'kite shaped' enclosure developed over two phases in the first millennium BC and subsequently left abandoned for about a century until resettled in the early Roman period (Oliver and Applin, 1979, 88).

In the earliest phase (*phase IA*), the site was enclosed by a shallow gully in a trapezoidal shape c 90 * 50 metres (the inner enclosure shown on figure F.54) with an entrance at the west and probably one in the south-eastern corner (Oliver and Applin, 1979, 46-47, fig. 5). The gully was slight, at c 0.6 metres wide and 0.25 metres deep for most of the length (Oliver and Applin, 1979, 46). The only features attributed to this phase with confidence are six pits (Nos. 67/246, 112, 115, 245) although there are a large number of features undated (Oliver and Applin, 1979, 46). The earlier phase is symptomised by pottery which is analogous with the All Cannings

Cross - Meon Hill ware of the C 5th - C 3rd BC period (Oliver and Applin, 1979, 89; Cunliffe, 1991a, 559).

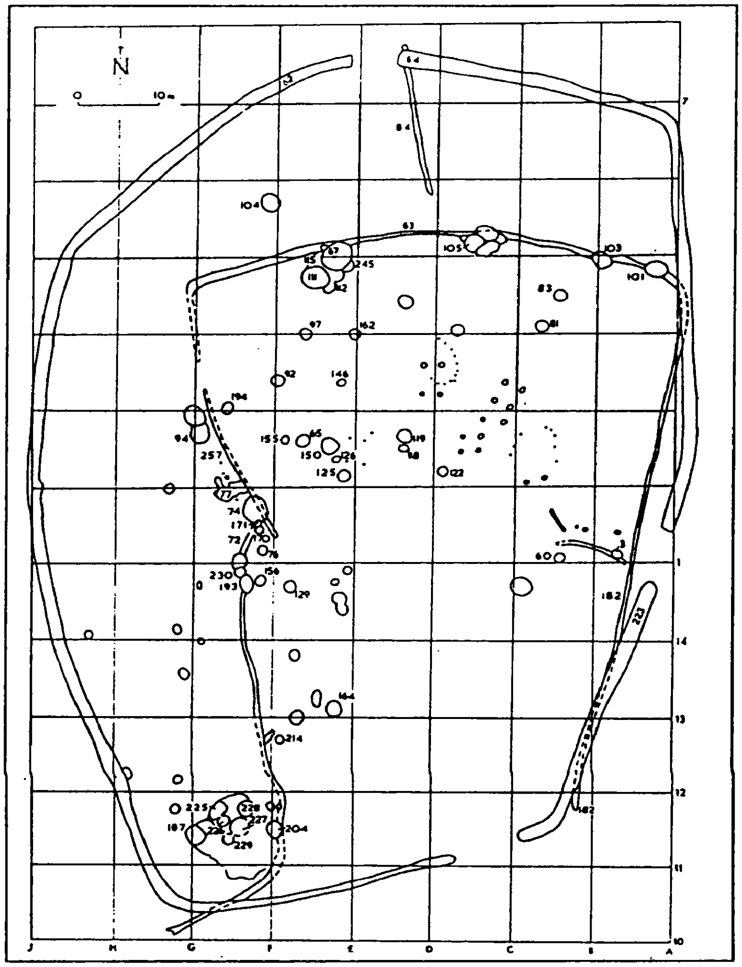


Figure F.54 - Ructstalls Hill - Plan showing Iron Age features (source: Oliver and Applin, 1979, fig. 5)

In the second Iron Age phase at the site (*Phase IB*) the area enclosed was expanded to the outer kite shape of c 100 * 80 metres, defined by a V-shaped ditch c 1.1 - 1.5 metres wide and 0.6 - 0.8 metres deep and with entrances to the north, the east and the south; no trace of a bank remains (Oliver and Applin, 1979, 46-47, fig. 5).

Many more features are attributed to phase IB and these include at least four of five roundhouses, together with 29 pits (although eight of these could have been chalk quarry pits or 'working hollows' as they are irregular in shape, had stepped profiles and comparatively few finds) (Oliver and Applin, 1979, 46-47). The round houses all clustered within a 30 metre square approximately central to the outer enclosure and are shown in figure F.55, below.

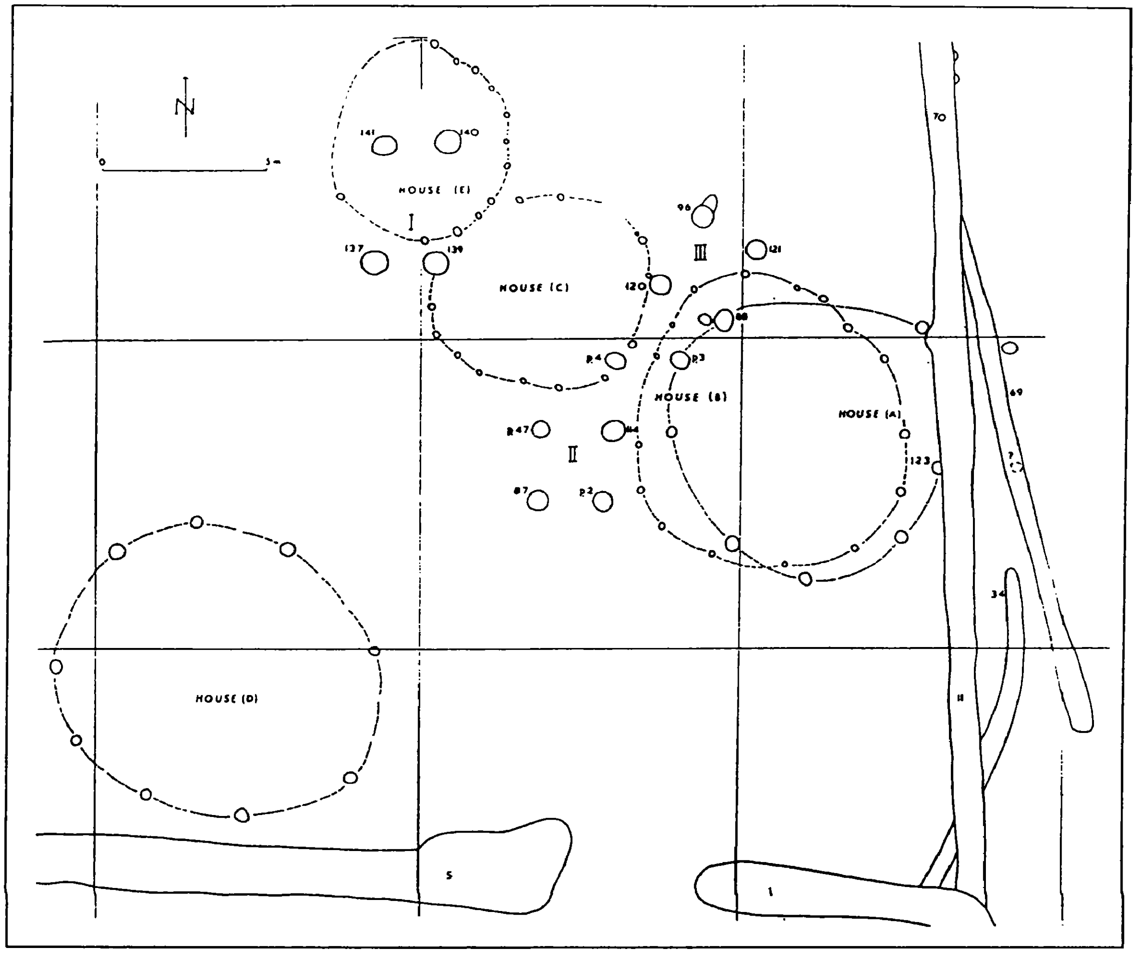


Figure F.55 - Ructstalls Hill - roundhouses (source: Oliver and Applin, 1979, fig. 10)

All are defined by rings of postholes and are of diameters 8.5 metres (House A), 9 metres (House B), 6.5 metres (House C), 9.1 metres (House D) and 6 metres (House E) (Oliver and Applin, 1979, 49); no details of internal features are recorded. It is clear that houses A and B cannot have been contemporary but there is nothing to allow further refinement of the dates; house B could belong to phase IB or the early Roman period whilst all others belong to the IB phase (Oliver and Applin, 1979, 48). The general evidence of the site assemblage is for agricultural and domestic occupation, although it is noteworthy that iron and bronze slag is present in some quantity for this period as well (Oliver and Applin, 1979, 88-89).

Dating of the site Phase IB is by ceramic typology, based on an assemblage of the St. Catharine's Hill - Worthy Down group suggesting a date range from C 2nd - C 1st BC (Oliver and Applin, 1979, 89; Cunliffe, 1991a, 568).

F42 - St. Catharine's Hill

The steep sided hill and the 'hillfort' which surmounts it is a notable landmark today, lying to the south-east of the modern city of Winchester at c 70 metres OD and above the River Itchen (to its east); to the north-east the hill slopes down to a saddle connecting to the main chalk plateau which extends round to the east (Hawkes et al, 1930, 12; Hawkes, 1976, 60).

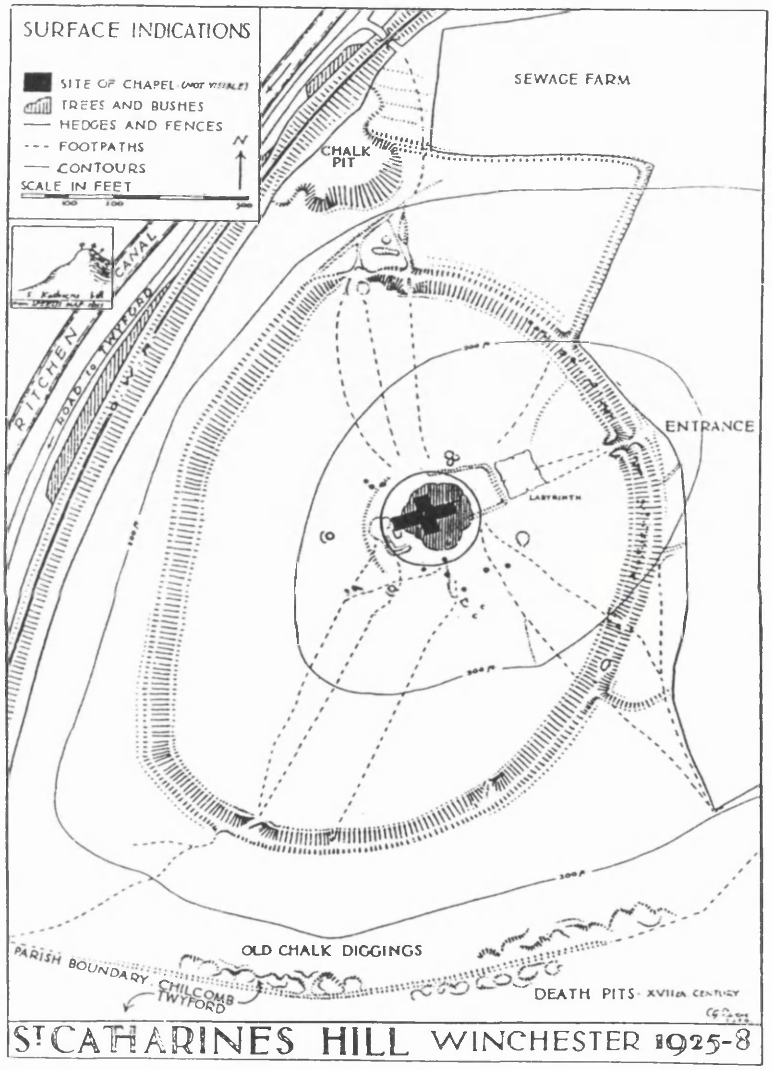


Figure F.56 - St. Catharine's Hill - general site plan (Hawkes et al, 1930, fig. 1)

The site was excavated by CFC Hawkes, JNL Myres and CG Stevens with volunteers in 1925 - 1928 and the results presented in a pioneering study (Hawkes et al, 1930) which has greatly influenced 'hillfort' studies subsequently, albeit that as Hawkes has remarked more recently (1976, 74) *'Digging St. Catharine's Hill, though so worth while, was too long ago';* dating, sequencing and interpretation have to be analysed and updated in the light of current understanding.

It is probable that the site was first occupied without enclosure, as indicated by a scatter of ten large pits located on comparatively level ground in the north-east sector of the hill top (pits A, K, P, Q, R, S, W, X, Y and Z) (Hawkes et al, 1930, 85-95). The discovery of the pits was by surface indications and trial holes only, without any more generalised area stripping strategy, thus these are likely to be a small subset of the total (Hawkes, 1976, 63). Furthermore, *'post-hole planning had hardly been heard of'* (Hawkes, 1976, 63) so it would be reasonable to assume that his commenting thus suggests that no structures were sought; certainly, the excavators thought that the purpose of pits was varied and included habitation (Hawkes et al, 1930, 85; Hawkes, 1976, 64) and so it is unlikely that they would have looked further for above-ground housing.

The dateable finds in the pits were few and they may have extended into the enclosure phase of the site, but the highly unusual pit A is very important for the evidence it offers for early occupation. Pit A is much larger than the 'normal' large Iron Age pit as a broad oval c 3.7 * 4.0 metres, splayed more broadly around the top and with a 60 - 90 cm wide flat shelf set c 60 cm down in the chalk and within it a narrower oval c 3.1 * 1.4 metres with its floor at 1.7 metres. The base was covered with a 15 cm layer of trodden sand which showed charcoal and traces of burning and the lower part of the walls were scorched; the layer was covered with a fill of bones (cattle, horse, pig and sheep/goat) and a large quantity of fairly clean chalk rubble. (Hawkes et al, 1930, 88-89). In the sand layer was set a stratified group of pottery which could not be confidently dated at the time (given few parallels) but which is now better understood as having a number of affinities which are heavily influenced by the Park Brow - Caesar's Camp group and the All Cannings Cross - Meon Hill types, both of which are dated by Cunliffe (1991a, 559, 561) to C 5^{th} - C 3^{rd} BC (c 500 - 200 BC), a range which Hawkes (1976, 68) extends back to possibly c 600 BC for the pit group as a whole. That is tacitly agreed in more recent interpretations of the site (e.g. James, 1997, 121). Three further pits (V, M and T) were found in the entrance excavations (see below) apparently underlying structural aspects of the entrance (Hawkes et al, 1930, 30) but the possibility of them indicating earlier occupation is not emphasised strongly here as they could have been an integral part of the entrance works on current knowledge.

That early occupation was followed by the enclosure of c 9 hectares in a rough oval, following the c 62 metre OD contour line of the hill considerably below the summit which is rather north of the centre (Hawkes et al, 1930, 11-12). The earthworks took the form of a *glacis* style bank and outer ditch with a more slight counterscarp bank beyond and the entrance is at the north-east facing the gentle approach across the saddle from the main chalk plateau (Hawkes et al, 1930, 11-12). The main circuit was explored by two sections across all banks and the ditch revealing the ditch to be V- shaped, 8.3 metres wide and 3.6 metres deep and the bank itself to be c 12.3 metres wide and 2.5 metres high, making a total drop of c 6 metres (Hawkes et al, 1930, 16, 18-19, 22). One section contained no artefacts at all but section 2 contained fragments of a coarse, hand-made ware in lower levels which tends to confirm that the enclosure was built within the same time range as the pre-enclosure occupation (Hawkes et al, 1930, 19-20).

The larger excavation of the entrance provides much more detail. The entrance is in the form of an 18.5 metre long passage c 7.7 metres wide between the counterscarp banks and the ditch, widening to 10.8 metres between the inner banks and entering the enclosure at a slight angle (Hawkes et al, 1930, 29, fig. 5). Its history is very revealing and detailed here following the excavators' interpretation of its evolution (Hawkes et al, 1930, 58-63, fig.7), tempered where necessary by more recent interpretation. In period A, the pre-existing pits were filled in and the entrance passage revetted with a timber palisade lined with clay (possibly to attempt to prevent rotting). The ends of the main banks were cut back to form 'bays' and it is thought likely that those housed timber oblong buildings as indicated by pottery spreads and two pairs of possible door posts (Hawkes et al, 1930, 58-60). After a period, the buildings were dismantled and their postholes filled with clean chalk and it would appear that the banks and ditch were neglected for a comparatively long time (Hawkes et al, 1930, 60). In period C, a considerable effort was expended on reconditioning the defences in that the ditch was cleaned and recut, the bank ends heightened and edged with a chalk kerb-line, the passage re-lined with timber and clay and a narrow neck built into the passage to support double gates (Hawkes et al, 1930, 61-62).

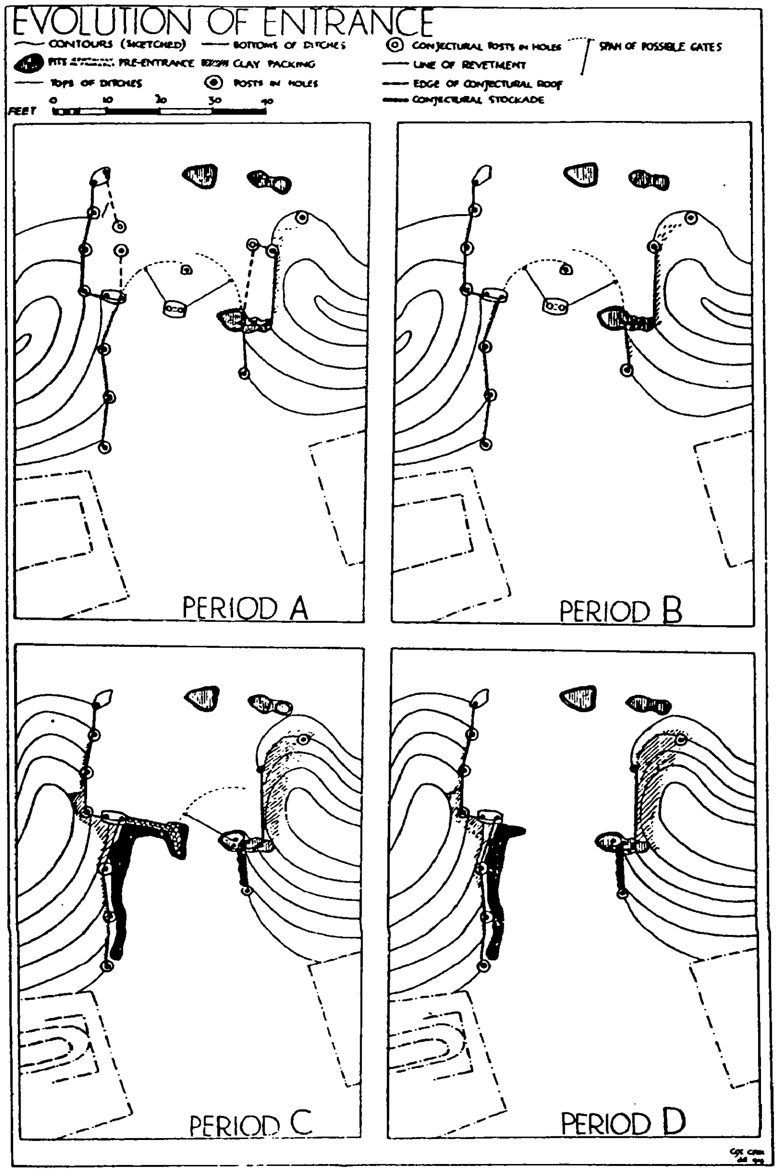


Figure F.57 - St. Catharine's Hill - development of entrance (source: Hawkes et al, 1930, fig. 7)

It is likely that a fourth phase, D, involved the complete dismantling of all previous work after a short duration (Hawkes et al, 1930, 62-63). Despite the care shown up to that point, it is clear that there was no preparation for what appears to be a surprise attack (*'fatal onset'*) signalled by abundant traces of fire around the entrance, going deep into the earthworks themselves and leaving a widespread deposit under a much later track into the enclosure (Hawkes et al, 1930, 64-66, 30).

The destruction phase appears to be associated with the ware which Barry Cunliffe has more recently described as St. Catharine's Hill - Worthy Down type of the C 2nd BC (1991a, 568) and it is now widely accepted that the firing of the site is most likely to have taken place at that time (e.g. Hawkes, 1976, 59; Cunliffe, 1978, 9; James, 1997, 26-27, 121).

F43 - Suddern Farm

Set on a low spur of chalk at c 85 metres OD and 4 km west of Danebury F14, this site was surveyed and partially excavated in 1991 as an element of the Danebury Environs Project (Cunliffe, 1991b, 1). The whole comprises an extensive linear ditch complex (which can be traced for several kilometres) and a triple ditched enclosure linking with two of those linear ditches (Cunliffe, 1991b, 1-2). That Project has not been fully published to date, but interim notes indicate that the site is of particular importance; unfortunately, no outline plan is available for reproduction here.

The linear ditch system probably pre-dates the enclosure which was first built as a single ditched circle (the *middle ditch*) c 210 metres across and annexing c 2.2 ha in the C 7th BC or a little earlier (Cunliffe, 1991b, 14; 1992, 12). The ditch is c 500 metres around and V-profiled in form with an upper width varying from 2.5 - 3.4 metres and a depth of 1.4 - 1.7 metres (Cunliffe, 1991b, 6-7, fig. 2). The interior was occupied as indicated by pits, quarries, shallow scoops, gullies, postholes and stakeholes which span the period from the C 7th BC - AD C 4th within the 1200 square metres excavated (Cunliffe, 1991b, 9). The dateable Iron Age occupation features comprise 50 - 60 pits, three pit / quarry complexes and some shallow hollows which are not broken down by time band in the interim report but are said to have had '*particularly prolific material and some datable imports*' in the late Iron Age (i.e. from c 100 BC) (Cunliffe, 1991b, 9-10). The majority of the pits had a 'special deposit' laid on or very close to the bottom and those included, in order of frequency, dog, horse, sheep and cattle as well as broken pots, a human skeleton with cattle skulls placed around the pit perimeter after a layer of broken chalk had accumulated and a human pelvis set in the centre of a pit bottom (Cunliffe, 1991b, 10). The Suddern Farm deposits *'resemble those at Danebury but tended to be richer'* (Cunliffe, 1991b, 10).

In the C 6th - C 5th BC there was an hiatus in occupation and maintenance of the site but in the C 3rd - C 2nd BC the site was enclosed again by the inner ditch which is V-profiled, c 6.3 metres wide at the top and c 2.75 metres deep (Cunliffe, 1991b, 6-7 - dimensions; 1997, 36 - date). By this period, a large rectangular quarry had developed outside the enclosure (thought to have been to provide chalk for marling) and was used for the disposal of human bodies (which may have been excarnated for a period before burial) in small graves cut into the quarry fill. The total area is c 500 - 600 square metres and extrapolation from the 30 square metres sampled (revealing 40 - 50 bodies) suggests that the whole may have covered 800 burials (Cunliffe, 1997, 36).

In the late Iron Age, the outer ditch was built, cutting through the quarry/cemetery, and the inner ditch was redug. The outer ditch was built in a flat bottomed form c 5.7 metres wide at the top and 1 metre at the bottom and c 3.1 metres deep. (Cunliffe, 1991b, 7-8 - dimensions; 1997, 36 - date). Occupation continued in this period and into the AD C 1st, which is very unusual for sites around this area, and the *'particularly prolific'* material included high quality Gallo-Belgic imports said to *'contrast dramatically with other LIA sites'* (Cunliffe, 1991b, 15).

Although no structures for living in have been explicitly identified in the interim reports of the excavated area, there appears to be an unencumbered strip which suggests a road running diagonally across the western corner of the site (Cunliffe, 1991b, 11). Finally, the connecting linear ditches appear to have been maintained throughout (Cunliffe, 1997, 36).

F44 - Swanwick

Discovered in the 1920s, the extent of Charles Fox' excavation of the site is regrettably limited and an occupation area postulated only on the basis of the co-location of some important features. Primarily, the site comprises a shaft some 5.4 metres deep with a 2.15 metre diameter at the bottom widening to 4.30 metres at the top and which contains depositions which appear to have been structured.

At the base lies 2.15 metres of clay covered by an 5 cm layer of charcoal lain upon which are 20 burnt clay loom weights and a broken piece of saddle quern (presumably mixed in a quantity of other material) and the whole covered by clay to ground level. (Fox, 1928, 331-334). The dating is rather tenuous being based on the equation of cylindrical loom weights with the late Bronze

Age (per Fox, 1928, 334) and that has been interpreted as c950 - 700 BC. Some 18.5 metres from the shaft, a hoard of four bronze palstaves (2 looped) were located and it is though that these could have been in the vicinity of a settlement but nothing is known of its character (Fox, 1928, 334).

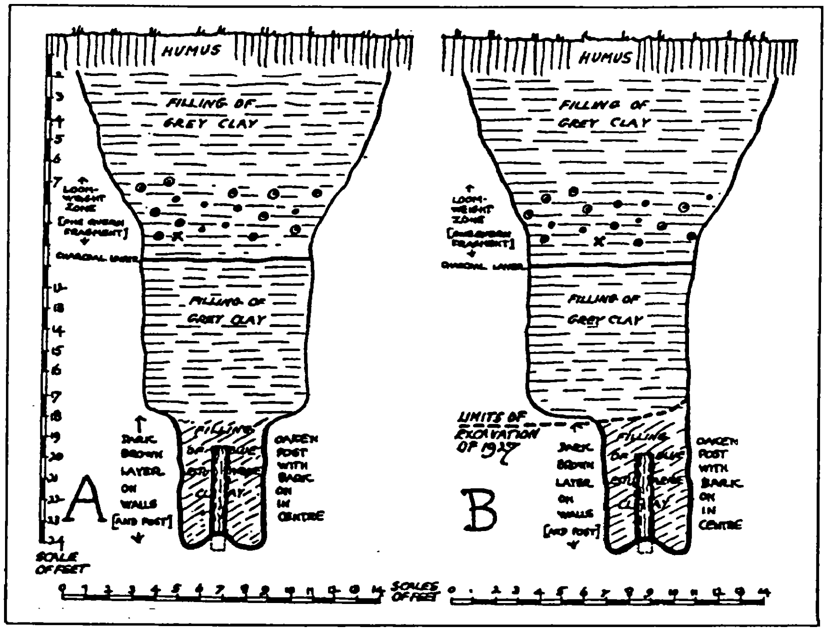


Figure F.58 - Swanwick - Section of shaft (source: Fox, 1930, 31)

F45 - Twyford Down

On a spur at about 100 metres OD just one mile south of modern Winchester lies a cluster of pits, ditches and ponds within a much greater area of small fields (defined by lynchets) investigated by survey and excavation by JDM Stuart and JM Birkbeck in 1933 - 34 (Stuart and Birkbeck, 1936, 188). The site plan offered is a mere sketch (reproduced in figure F.59, below) for which an apology was made at the point of publication (Stuart and Birkbeck, 1936, 207) but which does make interpretation difficult.

Two lynchets were examined, revealing pottery of La Tène I / II and III character (Stuart and Birkbeck, 1936, 188-190), suggesting that the fields in the area were cultivated from c 600 BC to the end of the case study period. Above the fields, the higher, uncultivated ground and the occupation area were accessed by a double-banked track ('bivallate track') at some time toward the end of the period, to judge by the very limited pottery assemblage (Stuart and Birkbeck, 1936, 191-192).

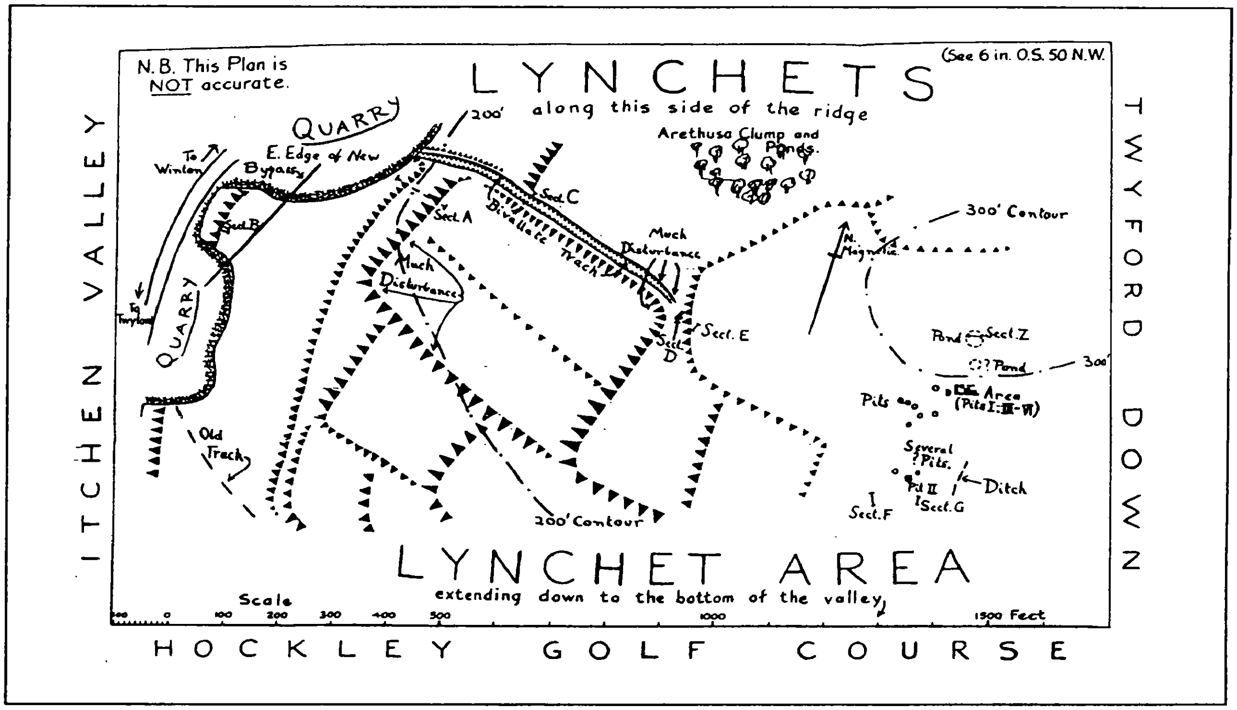


Figure F.59 - Twyford Down - General site plan (source: Stuart and Birkbeck, 1936, fig. 1)

An occupation area is indicated by a scatter of pits, a distinct area of dark occupation soil, a shallow ditch and a pond (Stuart and Birkbeck, 1936, fig.1). Six pits were examined in varying degrees and fills included burnt daub, animal bones, 'pot boilers', pottery, charcoal, two fragmentary chalk loom weights and the upper stone of a 'beehive' rotary quern (Stuart and Birkbeck, 1936, 192-194). The pottery is described as 'La Tène II and III' periods and 'Belgic' (Stuart and Birkbeck, 1936, 193), suggesting a range from c 400 BC to the end of the case study period on current interpretation. Excavation of the occupation spread of dark soil revealed just one post hole to indicate a structure but also a large square fire pit and two pits, producing fragments of a Roman amphora and La Tène III ('Belgic') pottery (Stuart and Birkbeck, 1936, 194) which suggest a date no earlier than the beginning of the C 1st AD. Finally, the 10 metre diameter pond proved to contain sherds of a 'cord rim pot' of the C 1st AD and Romano-British material but, as the excavators remark, could well have been earlier as periodic cleaning of ponds is essential (Stuart and Birkbeck, 1936, 194-195).

Excavation appears to have been piecemeal and the possibility of permanent, open settlement in the region of the 'occupation area' cannot be ruled out; it seems quite likely that the investigation could have missed small features like postholes.

F46 - Viables Farm

On a slight, north facing chalk slope at c110 metres OD, the outline of an enclosed site at Viables Farm is clearly indicated by geophysical survey and a date ranging from the Iron Age into the Romano-British period was confirmed by excavation by Martin Millett and Duncan Russell in 1974 - 1976 (Millett and Russell, 1984, 49-50). The enclosure, itself, is not attributed to the first occupation of the site which is thought to have been open and is indicated by four pits and a curving section of ditch. The features are dated to c300 - 100 BC by the presence of saucepan pottery (c300 - 100 BC) in considerable quantities. (Millett and Russell, 1984, 54).

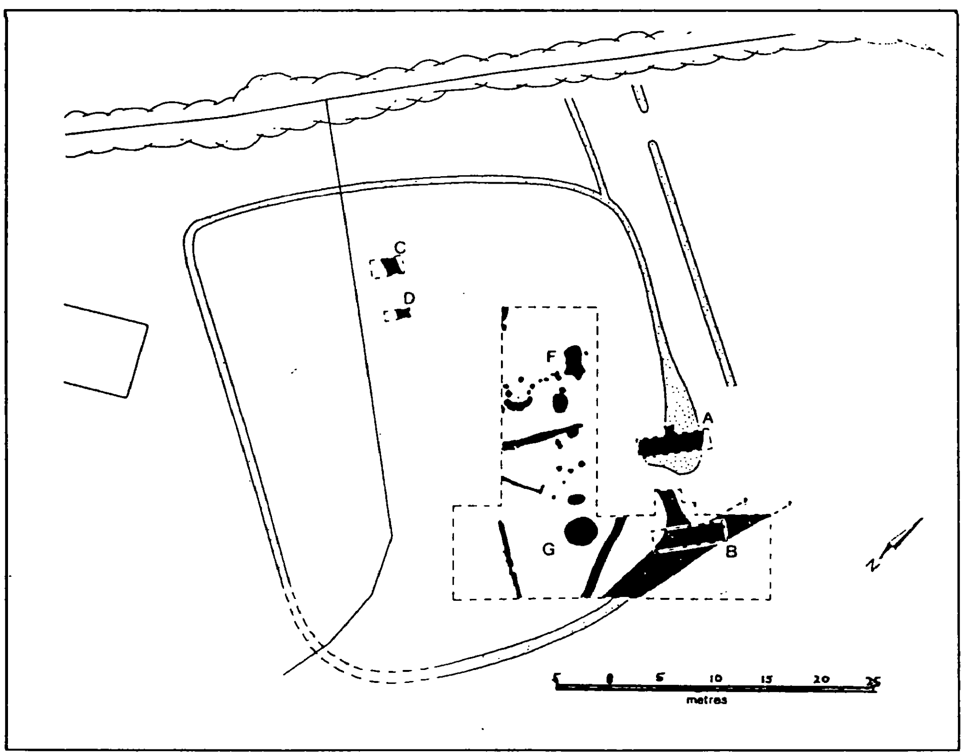


Figure F.60 - Viables Farm - overall site plan (source: Millett and Russell, 1984, fig.2)

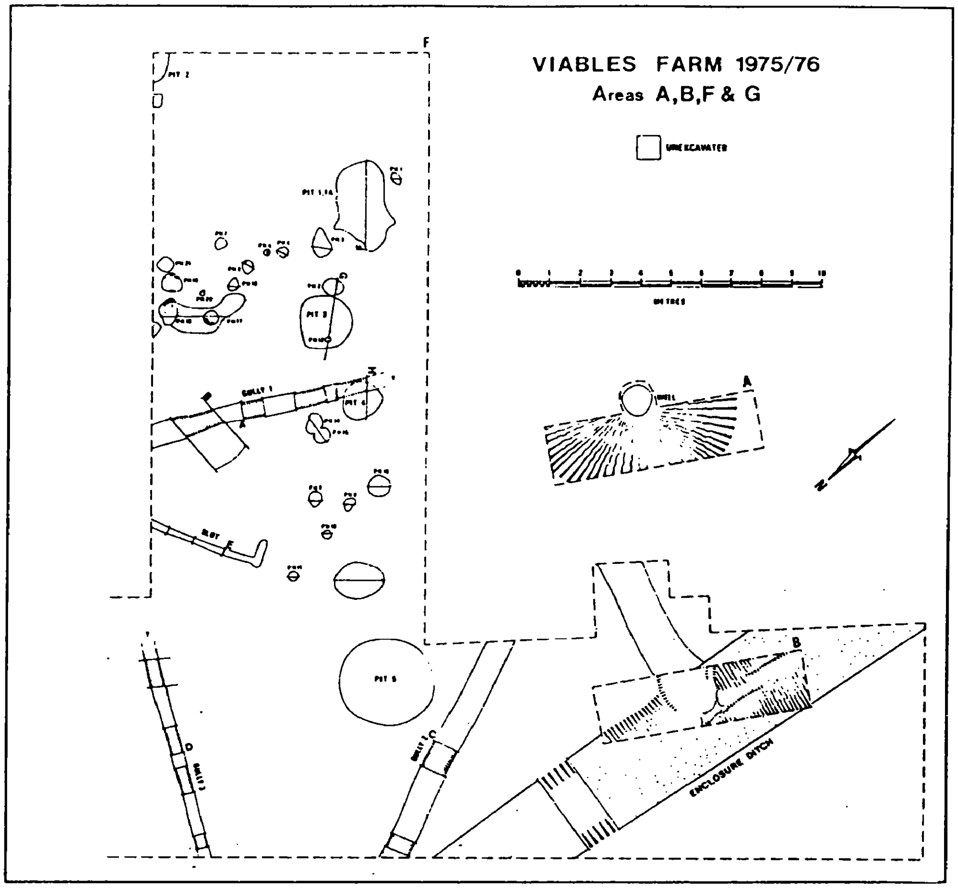


Figure F.61 - Viables Farm - Excavated features (source: Millett and Russell, 1984, fig. 3)

The enclosure ditch appears to have been constructed at some time in the C 1st BC - AD C 1st (as indicated by hand made, bead rim jars in the lower levels) but little detail of internal features relating to that period has been published as the raw data were unavailable to Millett and Russell at the time of their printed publication of the site (Millett and Russell, 1984, 50, 54).

The site continued without a break into the Romano-British period (Millett and Russell, 1984, 55-56).

F47 - Westbury

A small area of a domestic garden was excavated to reveal a shallow terraced platform in the north-east punctuated by postholes and three pits, including pit 9 which contained worked flint, animal bones and hearth debris (pre-dating the floor), pit 5 containing a bucket urn and 'pit' 3 (a shallow scoop) containing burnt flint and pot boilers (Lewis et al, 1977, 35-36).

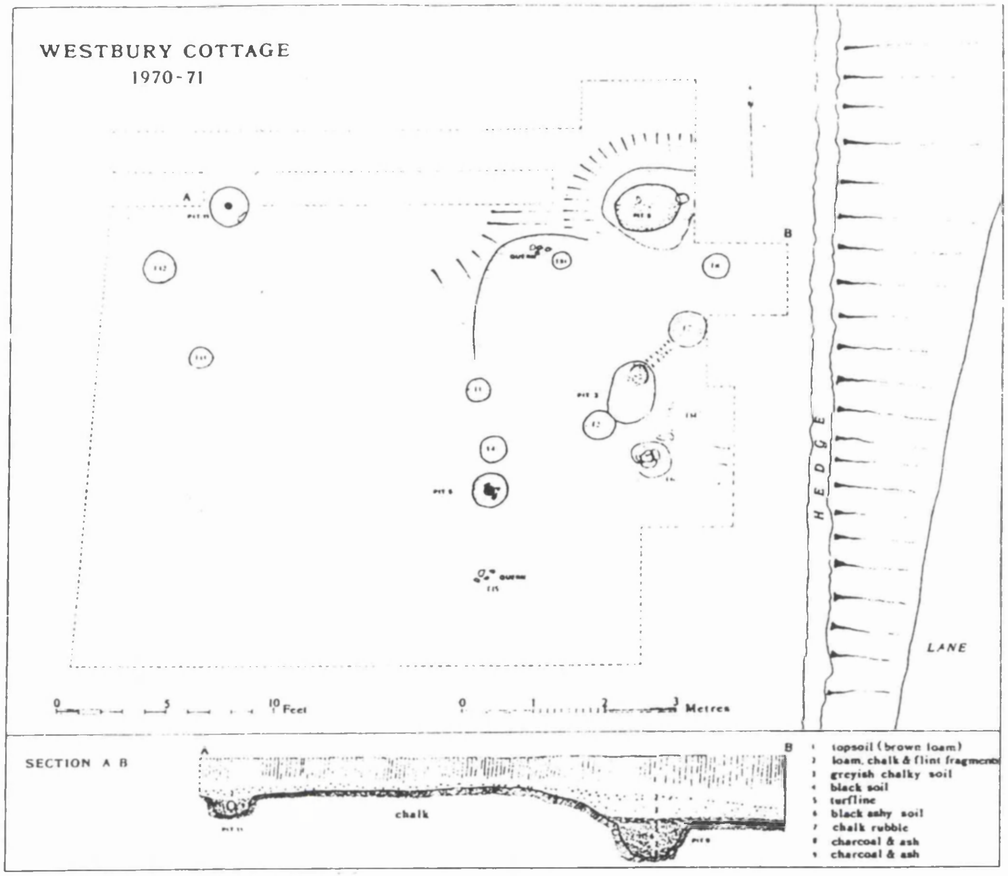


Figure F.62 - Westbury - Plan of excavated area (source: Lewis et al, 1977, fig. 2)

This may have been a hut site with a lower outer wall and a roof supported by stout posts set centrally, in which case its diameter would be 4 - 5 metres. (Lewis et al, 1977, 36). Additional features include a further pit (number 11) containing a complete pot with evidence of exposure to fire subsequent to its own firing (Lewis et al, 1977, 36, fig. 3.4). Although it is not in a stratigraphic relationship with any other site feature, it is consistent with a middle Bronze Age date (Lewis et al, 1977, 38) as are the considerable quantity of pot fragments in pits and scattered over the 'hut' floor, with the exception of one Beaker sherd assumed to be residual. Therefore, the site is placed in the range from the end of the second millennium to 950 BC.

Interestingly, the pottery has parallels with some Sussex sites in a peculiarity of the pottery as well as with Wessex (particularly Wiltshire sites) (Lewis et al , 1977, 39). Several fragments of a single smashed quern and of others in pits are made from a Sussex ironstone (Lewis et al, 1977, 39-40). Other finds include a whetstone, a number of flint artefacts, two worked bone items and small fragments of animal bone, two of which have evidence of butchery. (Lewis et al, 1977, 40).

F48 - Winklebury

The site lies on Upper Chalk on a comparatively low-lying plateau hill top isolated from the mass of the North Hampshire Downs by two dry river valleys (both tributaries of the Loddon) and half a mile from the nearest water source (Smith, 1977, 31). That location is on the southern edge of the Lower Thames Valley where there is a gap through the Hampshire Downs which connects the Thames Valley with that of the Test (Robertson-Mackay, 1977, 131). The site is eroded, ploughed out and developed now but has been the subject of excavations in the 1950s and 1970s, so a considerable amount is known. Palaeo-environmental analysis of pit contents shows that for the later period, at least, the site was set in short grassland and local aquatic habitats were exploited (Thomas, 1977, 74).

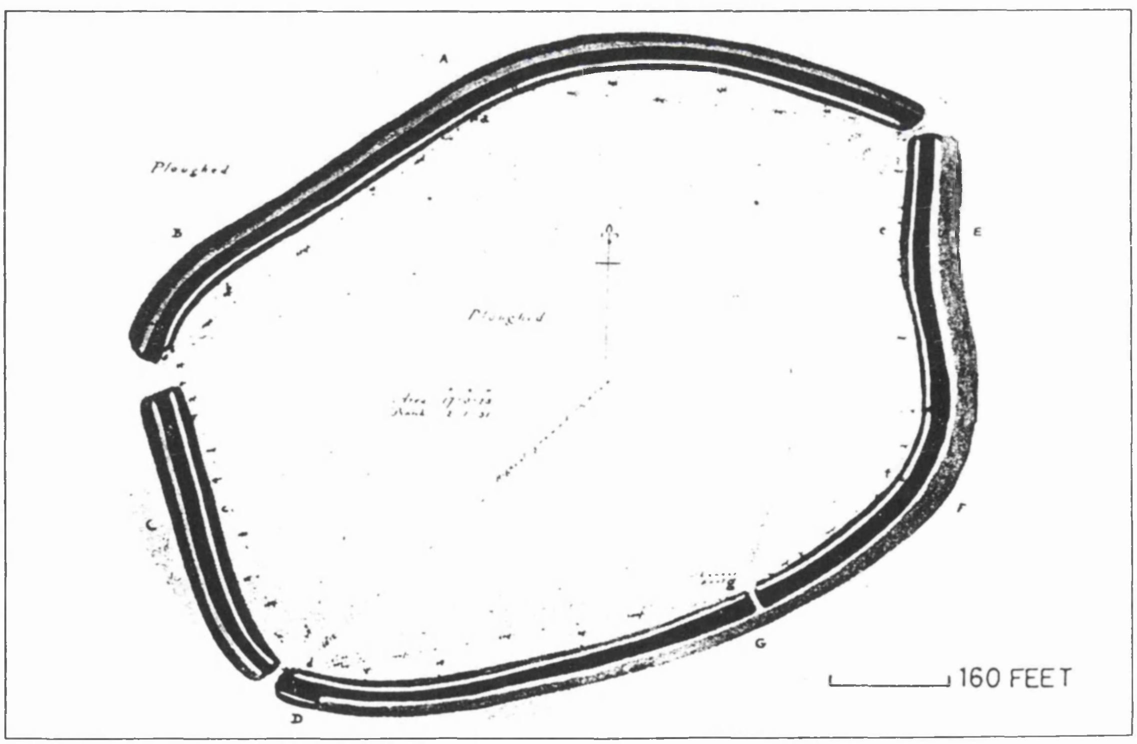


Figure F.63 - Winklebury - Survey of enclosure in 1844 (source: Smith, 1979, plate 36)

Excavation of the enclosure itself has been rather slight but conducted by modern standards and provides useful data. In its first guise, an area of c7.6 ha was enclosed by a flat-bottomed, steep-sided ditch varying between 2.5 - 5 metres wide and thought to be between 1.2 - 2.6 metres deep (but that is an estimate as the ditch is largely ploughed out) (Avery, 1993, 363). The dimensions of the bank are unknown. It would appear to have been separated from the ditch (to the interior) by a berm 4 - 8 metres wide (Avery, 1993, 363) and took the form of an upright-timbered bank with a row of clearly set uprights (every 40 - 60cm) inserted into a bedding trench and, to the rear of that, a row of uprights set in individual holes and presumed to have been anchored between (Avery, 1993, 364). There is reason to believe that there may have been another row of uprights further forward, at the true front face of the bank (removed by the cutting of the replacement ditch in the later phase) (Avery, 1993, 364). It is assumed that the whole was on the same line as the later replacement.

Although they had disappeared by the C 20th, there are thought to have been entrances at the north-east and the west and smaller gaps at the south-east and the south-west, as shown clearly in a survey conducted in 1844 (figure F.63, above) (Smith, 1979, 320-321). These appear to have been seen as simple gaps with causeways across ditches at a width of c6.5 metres in the north-west, c3 metres at both the north-east and the south-west; that at the south-east is thought to have been relatively recent as there is no causeway across the ditch (Smith, 1979, 321).

Almost all of the material from the circuit was unstratified but the main bulk of the ceramic assemblage belonged to the Kimmeridge-Caburn type of the late C 7th and C 6th BC (Robertson-Mackay, 1977, 145). A small group of sherds show Deverel-Rimbury characteristics (of the late Bronze Age) showing presence at that time and it is possible that there could have been an earlier enclosure on the site that was not revealed within the area excavated (Robertson-Mackay, 1977, 145). That finding is so tenuous that no confidence is placed in it for the purpose of this analysis.

Interior excavation of a considerable proportion of the site (c1.9 ha) under rescue conditions provides invaluable data. In some areas, agricultural practice and tree roots had completely destroyed surface stratigraphy but the data still proves amenable to analysis (Smith, 1977, 33). Finds fairly clearly divide features into an 'early period' (*Phase 1*) dated to 600 - 400 BC (see below) and a later period from c300 - 50 BC, with a probable gap between.

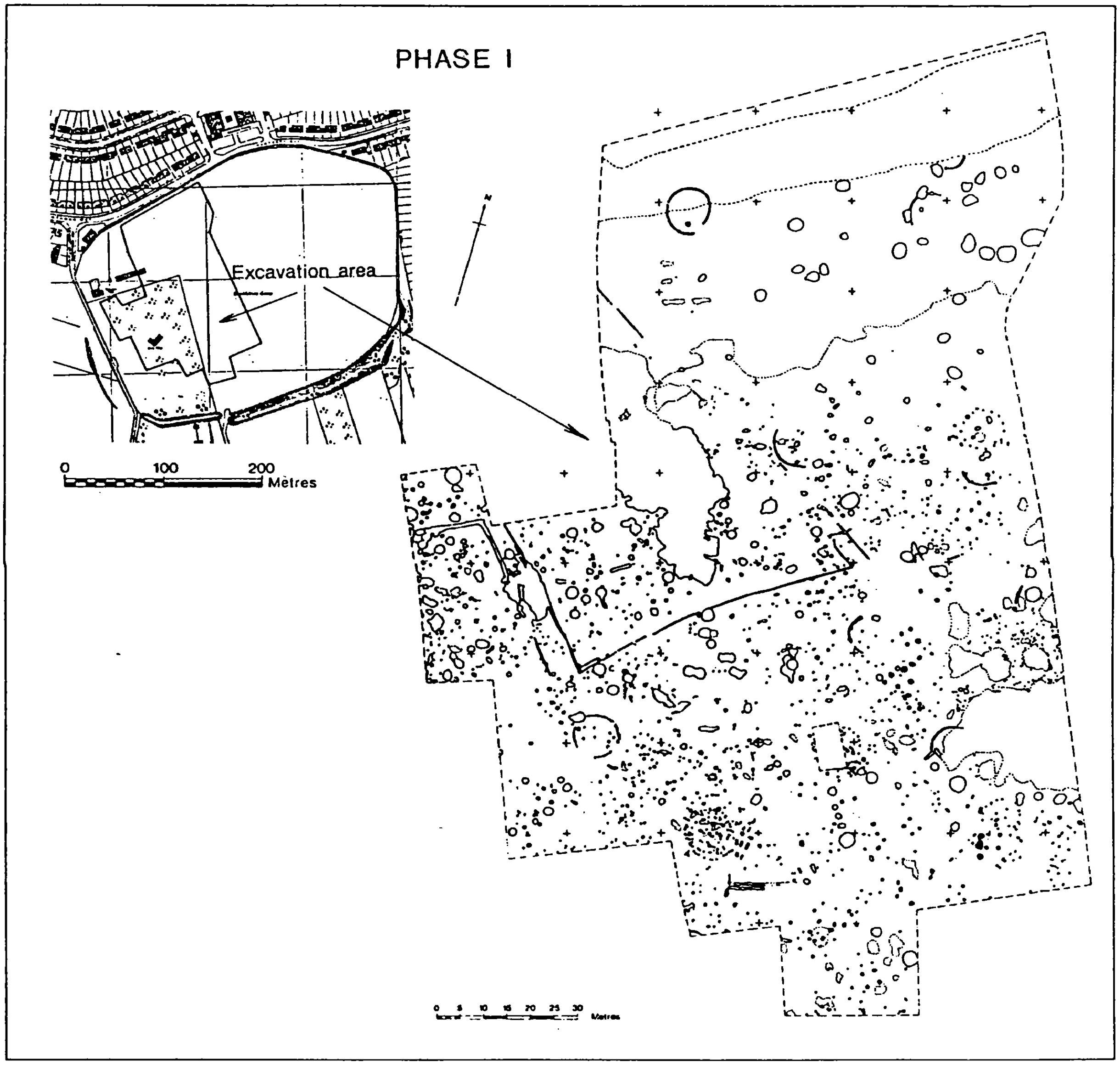


Figure F.64 - Winklebury - Plan of excavated features of the interior (source: Smith, 1977, figs. 1 & 3) [3]

[3] Smith's (1977, fig. 1) appears to show a much larger proportion of the site excavated than he claims on pp. 33.

600 - 400 BC

The interior features constitute pits, postholes, gullies and 'working hollows' but it is interesting to note that most posthole-related features contain early period pottery whereas most pits are later. The periods are differentiated on the basis of ceramics, with the early period signalled by the presence of a ware similar to both the West-Harling / Staple Howe type and the Kimmeridge-Caburn, both of which are dated to 600 - 400 BC by Cunliffe (Smith, 1977, 83). Thus, in this period, most of the features resolve into four-post structures and circular arrangements.

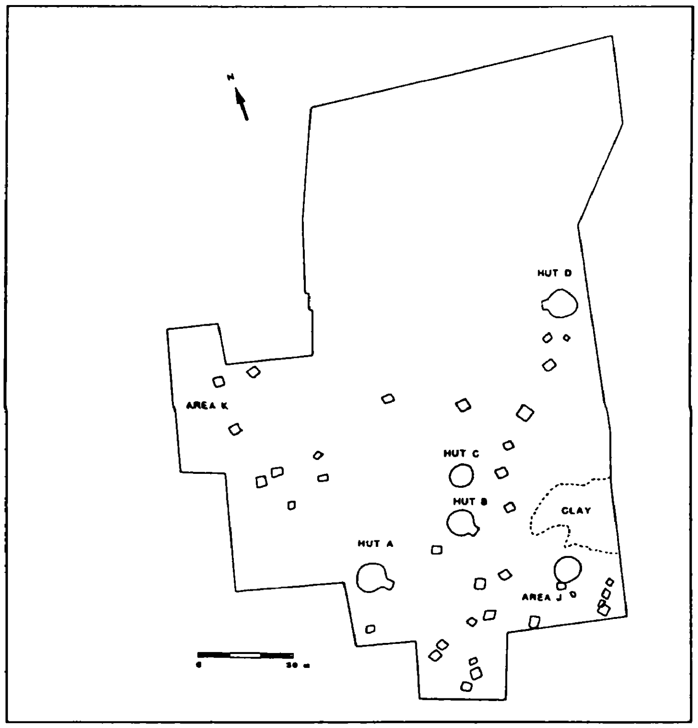


Figure F.65 - Winklebury - Sketch plan of excavated, 600 - 400 BC phase features (source: Fisher, 1985, fig. 2)

Feature 3887 (Hut A) has been deconstructed into a three phase, post-built structure with each manifestation referenced separately. The first arrangement, number 3889, comprises a single ring of comparatively closely-set postholes of c9.2 metres diameter and with a simple gap entrance c2.8 metres wide to the south-east; no interior postholes are evident and it is assumed that the roof was supported by a ring-beam structure (Smith, 1977, 35). That was probably replaced by a double-ringed roundhouse (feature 3888) with an internal diameter exactly the same (@ c9.2 metres) and an external ring defining a circle with diameter c12.2 metres; the whole was entered by a six-post porch some 6.5 metres long and 2.5 - 2.7 metres wide in the same orientation as the previous structure (Smith, 1977, 35-36). Finally, that appears to have been superseded by a single ring of 18 posts (feature 3890) describing a circle of diameter 10.2 metres and accessed by a porch, again to the south-east, c3 metres long and 3.5 metres wide (Smith, 1977, 36).

Just to the north-east of the 3887 complex, and not completely excavated, lies a further single ring roundhouse of 9.5 metres diameter (feature 1611 = Hut B) with a south-east facing simple entrance 2.2 metres wide suggested but which could have been a porched entrance of that width (Smith, 1977, 36).

Feature 3870 (= Hut D) was, again, a simple ring of 9.0 metres diameter with an external porch c2.6 metres wide but that faced west and a charred post was enough to allow radiocarbon dating of 320 +/- 75 cal BC (at 68% confidence level) (HAR-1764), so this structure is thought to be rather late in this period, or early in the next (Smith, 1977, 36, 39).

Finally, of the circular features, feature 2550 (= Hut C) is a simple ring of only 7 metres diameter with no entrance obvious but which just may have been a gap of 2.8 metres width to the south-east; it is located only 7 metres north of feature 1611 and artefactual distribution analysis has suggested that its function may have been different to the other structures (perhaps for storage) (Smith, 1977, 40).

The four-post structures allocated to this period number forty two and are concentrated in the south-east of the excavated area. Interestingly, artefact distribution analysis shows them to have less 'rubbish' around them, adding weight to the general view that the purpose of these structures was storage. One structure deserves special comment, namely the four-post arrangement (feature 2197) located on the crown of the hill; the postholes are set in a 3 metre square and are exceptionally large (@ 1 metre + diameter) although the post voids are only a quarter of that. The excavator suggests that this may represent a case where the structure was manufactured elsewhere and then moved into position (Smith, 1977, 40) but this does not seem entirely convincing; alternatives may be that it was intended as a watchtower or, indeed, represent the reuse of another structure.

Of the total of 79 pits excavated (out of a possible c180) only three definitely belong to the early phase (Numbers 1399, 3660 and 3916) and 10 are undated. Pit details are not given fully in this report but clearly contained some animal bone and pottery. There is some evidence for bronze and iron working at this site but where finds are stratified they are probably later period contexts (Smith, 1977, 106).

300 - 100 BC

Figure F.66 - Winklebury - Sketch of features in period 300 - 100 BC (source: Fisher, 1985, fig. 3)

Site phase 2 of this enclosed settlement is dated by the saucepan pottery assemblage which is predominantly of the St. Catharine's Hill - Worthy Down style (c300 - 100 BC) but which does include examples of a number of other influences (Smith, 1977, 106-108). The bank and ditch were refurbished in this period, with modifications to form a sloping *glacis* bank and a recut of the V-shaped ditch (extending it to 7 - 8 metres wide and 3.2 metres deep (Avery, 1993, 363)), together with the blockage of the south-east entrance (although the causeway was left) (Smith, 1977, 111). The bank modification involved cutting away the front part of the earlier bank and covering the exposed area by chalk upcast from the ditch, extending it to c8 metres broad and 3 metres high with a chalk rubble 'tail' of c1.2 metres in the interior (Avery, 1993, 365-366). There is believed to have been a period of abandonment between occupation phases, signalled by a turf line over the earlier bank and ditch and an wholesale change in the style of buildings and pottery.

Excavated features include two circular gullies, four arc lengths of gullies (and two more of the latter have been located but not examined) and pits. Circular gully feature no. 3140 in the lee of the northern bank has an internal diameter of c9.5 metres (external 10.2 metres) and a simple 3.0 metre gap entrance facing south-east, into the centre of the enclosure (Smith, 1977, 42). The second roundhouse, circular feature no. 3231 is situated on a hilltop and, as a consequence, more eroded than the first but does show a circle of diameter 9.4 metres and a simple gap entrance of 3.4 metres facing south-east (Smith, 1977, 42-43); the four-post structure within is earlier (Smith, 1977, 43).

The arcs of curved gullies are thought to have performed a function related to water catchment and careful examination found no associated pattern of stakes or postholes or, indeed, further stretches of gully and the same applies to the areas embraced by them (Smith, 1977, 44). Nevertheless, the arc described by gullies 2187, 2245, 3131 and 2637 (Smith, 1977, figs. 16, 17, 18, 10) would represent diameters of c9 - 11 metres if they continued in a circle, suggesting that they may represent partly ploughed out, eroded or unevenly sculpted gullies of roundhouses.

Sixty six pits date to this phase (and a further ten are undated), several of which appear to have been deliberately filled in a structured way (Smith, 1977, 44; 46). For example, pit no. 2129 contains a loom weight and three skulls of small ponies and no. 260, a rectangular pit (unusual), contains the foetus of a calf, the remains of five badgers and a cow (Smith, 1977, 48). An unexpectedly high number of pits have layers of burnt material including charcoal, ash and burnt flint (e.g. nos. 2611, 593, 2129, 3413, 3787) and evidence for burning is also clear in 'working hollows' (Smith, 1977, 45-47). Additionally, a total of eleven of the excavated pits were partly or completely filled with vari-coloured clay from the Reading beds which outcrop c1.5 miles north-east of the site in the colours represented. Petrological analysis showed, however, that the clay in the pits was not used for any of the pottery fabrics in sherds on the site (Smith, 1977, 92) but did show that the best match was with daub, suggesting that this reserve of clay could have been used for repair and it is further argued that it may have been the clay used for unbaked *pithoi* for storage (Smith, 1977, 48-52).

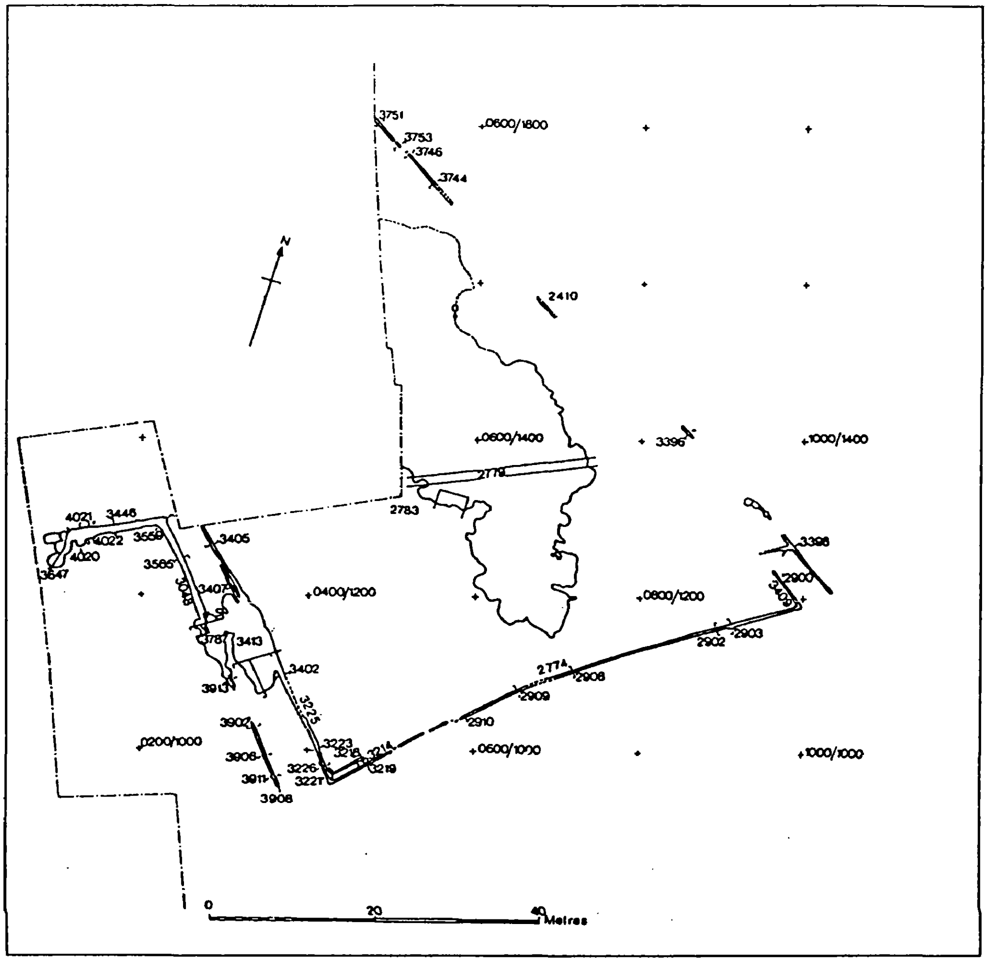


Figure F.67 - Large enclosure 2911 at Winklebury (source: Smith, 1977, fig. 25)

A large part of the northern half of the site was enclosed by a trapezoidal, narrow and unusually shallow gully (c1800 square metres at least and could be as much as 3000) (Smith, 1977, 50-51). It is interpreted as probably the base for something like wattle hurdles, probably for enclosing animals and with a 'marshalling' area to its south-west corner but it is recut which suggests that it was of some permanent importance, even though physically slight (Smith, 1977, 52).

A number of fragments of human remains were found in pit fills (Smith, 1977, 78-79) and the more complete depositions are noted here:-

- Pit no. 2615 - a female skeleton no. 2745 (aged 15 - 17) in a fragmentary and very disturbed form, missing both the skull and all long bones (Smith, 1977, 74)
- Pit no. 1614 - mature female skeleton no. 1624 in fragmentary condition and missing the skull, scattered throughout the pit content in three dimension (Smith, 1977, 74-76). Also, in the layer above, other fragments from one or more small adult individuals representing all parts of the body and with no duplication (Smith, 1977, 74-76)

- Pit no. 979 - male skeleton no. 1111 (aged 35 - 45) reasonably complete, lying on his back (north-south) with crossed legs lying crouched and to his right hand side. Left arm missing and skull placed at the base of his spine. (Smith, 1977, 76).
- Pit no. 3834 - unsexed skeleton no. 4010 (aged 25 - 35), reasonably complete (Smith, 1977, 78).

Most dating of this phase depends on potsherds but radiocarbon dating of a layer of burnt material in pit no. 2129 gives 108 +/- 95 cal BC (HAR-1794) and a layer of charcoal in pit no. 2611 is dated to 60 +/- 100 cal BC (HAR-1778) (both at 68% confidence level) (Smith, 1977, 82-83). Most pottery is saucepan forms of the St. Catharine's Hill - Worthy Down style but other influences are noted. Important other finds include a bronze crucible found in a working hollow, iron tools, fragments of currency bar, a piece of bronze ingot, a fragments of a decorated bronze rod, fragments of bronze sheet, worked stone, bone and antler, clay and stone loomweights and quern fragments. (Smith, 1977, 106-108).

The excavator believes that occupation in this phase was not continuous and that the site provided a centre for the surrounding community for safety of grain, stock and people (Smith, 1977, 111). Whilst there is little to deny that possibility, it need not be assumed in that there would appear to have been a rather greater number of roundhouses at this time than as the previous and there is still a large area unexcavated.

The site was abandoned in the C 1st BC (Smith, 1977, 111).

F49 - Woolbury

Six kilometres south-east of Danebury F14, this site was excavated in 1989 in association with the Danebury Environs Project, to test the nature and duration of occupation and to examine the relationship of the hilltop enclosure with a number of linear boundaries defining areas of coaxial fields (Cunliffe, 1994, 39). That work has been published in interim form only but suggests that the ordered partition of the landscape was dated to the middle - late Bronze Age (Cunliffe, 1994, 39). On a 'focal point' in the landscape, the hilltop enclosure was built by a single bank and ditch enclosing c 8 ha and one section of that bank aligned on one of the main linear ditches (Cunliffe, 1989,12) Enclosure was during the C 5th BC and the upkeep of the superstructure abandoned within a decade or two (Cunliffe, 1989, 12). Internal occupation was *'slight and sporadic'* and represented by five pits only, dating to the period from c 400 - 100 BC (Cunliffe, 1989, 5). In the late C 1st BC - early AD C 1st a farmstead was established in the eastern part of the enclosure, obliterating the bank and the ditch and extending beyond (Cunliffe, 1989, 12).

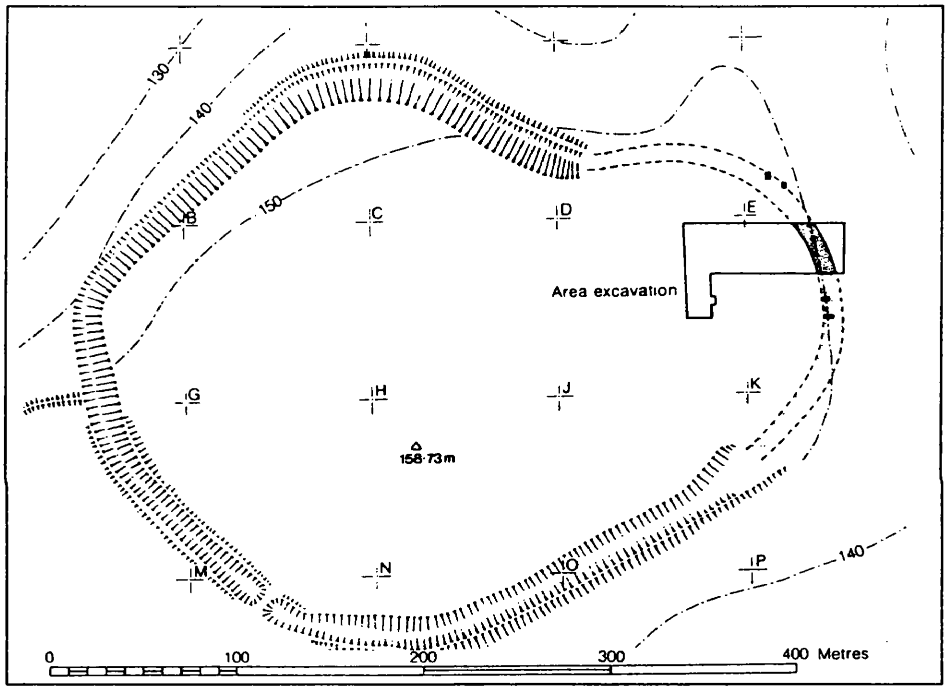


Figure F.68 - Woolbury - Plan showing extent of excavation (source: Cunliffe, 1994, fig. 13.2)

F50 - Worthy Down

Three miles north-west of modern Winchester lies the site of the former Winchester race course, used as an airfield by the RAF when it was the subject of excavation by Reginald Hooley in 1921 (Hooley, 1931, 178). Publication was posthumous and is revealed to be incomplete as there are anomalies between the plan of the excavated areas and the detail of the finds. For example, pits 7 and 8 are indicated on the plan (reproduced as figure F.69, below) but the text of the excavation report reads '. . [following detail of pits 1 and 2) . .*the remaining pits, Nos. 3 to 6), are assigned to a later period . . .'* (Hooley, 1931, 180-181).

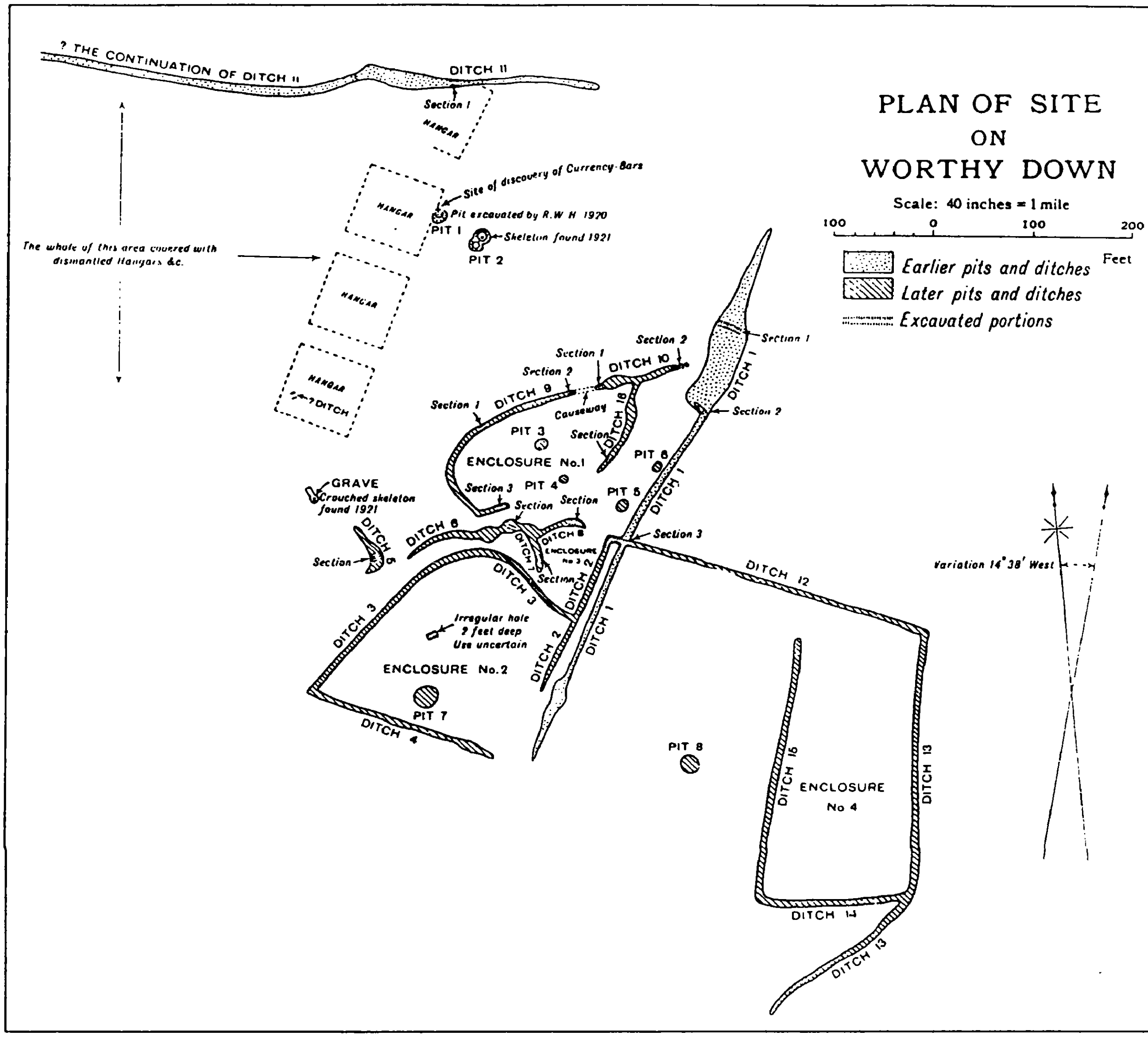


Figure F.69 - Worthy Down - Site plan (source Hooley, 1931, plate I)

One pit had been discovered by OGS Crawford (Pit 1) and, as a result, seven hectares of ground were surveyed and 'tapped' with an iron ram to locate underground features by percussion, revealing a number of ditches, a further seven pits and a grave; elements of the discovered features were then explored further by excavation (Hooley, 1931, 178-182). Two broad periods for the site were discovered on the basis of the pottery evidence, the first of which gave the type name to the 'St. Catharine's Hill - Worthy Down' saucepan pot range of c300 - 100 BC (Cunliffe, 1991a, 81, 568) and the second moving on to wheel-turned wares and hand-made bead rims, suggesting the late Iron Age period.

Features of the earlier phase comprised at least ditches I and II being long ditches of both V- and U- shape (dimensions not given) which may have met at c90 degrees. Those partly enclosed pit no. 1 which contained a currency bar cache (in layers of burnt flint, animal bones and pottery) and pit no. 2 which contained a headless but otherwise articulated human skeleton lain on its back with legs bent to its left which appeared to have been *'cast unceremoniously into the pit'* on top of c30 cm of other material (unspecified but which included dateable pottery). (Hooley, 1931, 180).

In the later period, ditches I and II had largely silted up and the site took a rather different form of a series of inter-linked, ditched enclosures. In a rather ambiguous piece of description of the 'extended' fill of ditch I, Hooley (1931, 179) refers to the feature as having an *'irregular and hummocky floor, cut into rude platforms with much-worn edges, which was found in the 'swelling' at the northern end of ditch I'* which does tend to suggest the possibility of the hut platforms of permanent settlement to an analyst with the benefit of hindsight. Otherwise, the other features recorded were a further six pits within the ditched enclosure network and which contained a variety of sherds, bone and small finds (Hooley, 1931, 180-181, 186-191) but it is quite likely that posthole structures would have been entirely missed by the selective nature of the 'percussion' method. Iron slag and fragments of a clay Tuyere show that iron was produced on the site and it is possible that there was a pottery kiln, too (Hooley, 1931, 192).

Finally, an earthen grave contained the crouched skeleton of a male aged c 50 years (Keith, 1931, 193-195) accompanied by one piece of handmade pottery which cannot be dated closely to one or the other phases of occupation of this site (Hooley, 1931, 181-182).

APPENDIX G - CALCULATIONS USED IN GDM ANALYSIS

G1 Population of the Sussex Downs

G2 Ditch Labour Calculations

G3 Hut area calculations

Appendix G1 - Population of the Sussex Downs

Purpose

The number of people that the land of the Sussex South Downs could support in the first millennium BC can be crudely estimated in order to give an idea of the order of magnitude of the maximum population for use in the GDM analysis for Sussex (Chapter Six - The GDM of Sussex, above).

Production variables

The first step is to calculate what land was available for production and how much it could produce (the 'supply side' of the equation). As the evidence appears to suggest a gradual movement of population in the area from East to West, it is useful to consider the Downland 'blocks' separately and area is estimated at:-

East of Ouse	11,300 ha
Adur : Ouse	15,900 ha
Arun : Adur	8,500 ha
West of Arun	20,500 ha (to modern Sussex county border)

Modern figures for harvested grain yield of 'old' cereal cultivars of wheat show production at 2.35 - 2.59 tonnes per hectare per annum and barley at 4.38 tonnes per hectare (Tivy, 1990, tab. 6.3, 92) and the Butser Iron Age Farm experiments have established that the farming techniques practised were capable of averaging two tonnes of emmer wheat per hectare (in today's climate) (Reynolds, 1979, 61). It has been suggested that the growing season was likely to have been 5 weeks shorter in the poorer climate of the first half of the first millennium BC, which would have a concomitant effect on yield, so that average achieved today is probably a little high and could be further reduced by 20% to 1.6 tonnes per hectare to reflect poorer conditions. It is justifiable to assert with some confidence that the fertilisers which can maintain soil nutrients at a level adequate for sustaining the yield were not available in the first millennium BC, as environmental evidence (both modern and palaeo-environmental) shows the downland soil to be severely depleted in this respect (Chapter Five - The Case Study). At the end of the second millennium BC the most easterly excavated examples (Black Patch E04, Itford Hill E31 and Plumpton Plain A E47) were occupied for no longer than 50 years (see entries for these sites in Appendix E - Sussex Dataset). Of the possible explanations, one obvious alternative is that terminally diminishing returns from the immediate fields prompted the move. As an estimate must be made, 50 years of annual use of the same land without easement (e.g. by leaving fallow and crop rotation) may be a reasonable figure. If we expect land deserted to recover in, say, 50 years then a rough estimate of 50% occupancy is suggested. Finally, arable and pastoral agriculture were mixed (as evidenced at, for example, Black Patch E04, Itford Hill E31 and Plumpton Plain A E47) although relative proportions are not known and neither is the detail of the annual routine of agricultural life. For the purpose of seeking an estimate of a maximum for an order of magnitude, a simple assumption of maximum arable exploitation of the land and pastoral use only of highlands and lowland stubble should suffice. Obviously, that is unrealistic on the actual evidence alone, and a factor can be built in to the model for land unsuitable for arable (e.g. because too high, too steep, too rocky) and a conservative estimate might be in the region of 25%. Thus, all variables for production capacity of the land can be estimated for the model.

On the consumption side, modern levels of *per capita* food consumption world-wide average 2590 calories a day (with 39.8g of protein) (Narain, 1975, 33). Wholemeal wheat flour (a 1:1 product by weight from wheat grain) supplies 310 calories per 100g (and 12.7g of protein).

The calculation

Yield per hectare *(a)*	=	1.6 tonnes	
Calories per hectare *(b)*	=	*a* * (310 per 100g)	= 4,960,000
Calorie requirement per day ©	=	2,590	
Calorie requirement per annum *(d)*	=	365 * *c*	= 945,350
People per hectare per annum *(e)*	=	*b / d*	= 5.25
Hectare area *(f)*	=	as above	
Usable percentage of f *(g)*	=	75%	
Maximum occupancy rate *(h)*	=	50%	

If the population was steady at a level of *p* people, then:-

p	=	hectares * usable percentage * max. occupancy rate * people per hectare per annum
	=	*f * g * h * e*
	=	11,300 * 0.75 * 0.50 * 5.25
	=	22, 250 people could be supported by arable production in the East of Ouse Downland block

In all blocks, then:-

	Hectares	*Population*
East of Ouse	11,300	22,250
Adur : Ouse	15,900	31,300
Arun : Adur	8,500	16,750
West of Arun	20,500	40,350
	Total:	*>110,000*

Table G1.1 - Population of Sussex Downs based on land area

It is imperative to emphasise that these figures are for the population that the downlands could have supported in the first millennium BC but not, necessarily, any indication of how many actually did live there.

However, there is very little evidence for any settled occupation of the area east of the Adur for the first 150 years and a general east to west move is indicated over time. Thus, the maximum population could have been in the region of 50,000 in that initial period. Furthermore, though, the area east of the Ouse, particularly, does not appear to have been resettled in the same places as the earliest occupation at least and settlement as indicated by the excavated evidence declined considerably altogether in that sector. It is just possible that the maximum occupancy rate greatly overstates the actual case and, at the other extreme, that no area was resettled once it had been abandoned. Examining that requires factoring in the length of time that a settled population occupied a downland block *(j)* and calculating a variable maximum occupancy rate dependent on that e.g. East of Ouse was settled at varying levels over 800 years for a maximum of 50 years each on average and, therefore, the overall maximum occupancy rate was 50 / 800 = 6.25%:

	Hectares	Value of j	Population
East of Ouse	11,300	800 years	2,750
Adur : Ouse	15,900	800 years	3,900
Arun : Adur	8,500	650 years	2,550
West of Arun	20,500	650 years	6,150
		Total	c15,350

Table G1.2 - Population of Sussex Downs factoring in complete land exhaustion

Cross-check with other evidence

In the period 750 - 600 BC, Harrow Hill E23 in the Arun to Adur sector is interpreted as a centre for cattle culling activities by a meeting of herd managers (pp. 152). In that discussion, it is argued that the area required to pasture the herd represented by extrapolating from the cull figures would have been between 600 - 2,250 hectares. If that meeting were drawn from the three downland 'sectors' regularly used at that time it would represent 2 - 6% of the downland area available but if it were only the Arun to Adur sector it would be 7 - 26%. That tends to support the view that the cull was of a cattle population spread wider than just that sector. If it were only the Arun to Adur, then the 25% allowance made for land unusable for arable in the model (above) would probably be too low making the population estimate too high, but to balance that it must be recognised that people also had available the calories and protein represented in meat (of cattle and sheep, mainly).

The populations of the communities settled in the sites in the dataset were probably larger in the earliest period, with smaller farmsteads becoming typical from c1000 BC and increasing again from c600 BC. Peter Drewett (1980, 393) estimated that the Black Patch E04 site housed only 4 or 5 adults per hut 'platform' and argued that extrapolation from the site's 'territory' (assigned on the basis of 2 km diameter circles) would suggest that there were 11 sites between the Ouse and the Cuckmere and that would represent only c50 adults and, perhaps, twice as many children. That appears to be a minimal estimate for the site, assuming serial replacement rather than some contemporaneity of the enclosures and may be based on Drewett's inherent view that each roundhouse housed a male and female adult pair (made rather more explicit in Drewett

(1982b, 341-343)). However, those larger sites are unlikely to have housed more than c 25 adults in total at their greatest size (probably Itford Hill E31 or Black Patch E04) and probably far fewer. That would suggest a figure nearer 250 adults for this small sector, on Drewett's (1980) basis of calculation. Given that that is approximately one half of the area of the East of Ouse Downland region, and adding in the same again for children, that would approximate to a third to a half of the figures derived. If Drewett were right in the conservative estimate, that would reduce the estimate by 91 - 93% bringing it down to c1,500 - 2,000 people in total on the Sussex Downs. That gap is too wide to be convincing and certainly suggests either that the potential production capacity of the Sussex Downs was nowhere near fully utilised in the study period or that the distribution of known archaeological sites is not representative of actual site distribution and density in the first millennium BC. Certainly, it seems most unlikely that there was any population pressure on resources in these regions.

Appendix G2 - Ditch Labour Calculations

Approach

A crude estimate of the comparative effort needed to construct enclosed sites can be made by calculating the time needed to dig the ditch and using that to stand as a measure of the minimum possible labour cost of building the earthworks. This is not intended to represent the actual labour cost, as there are any number of variable factors including, for example, the terrain, the structural form of the enclosure and the accessibility of bank retaining materials where that is applicable. However, it does allow some broad comparisons to be made and helps in assessment of whether sites were likely to have been built by one community or more, on the basis of order of magnitude differences in the minima.

Variables

Reynolds (1974, 121) has measured the effort involved in digging a 'standard' pit in chalk, in experimental conditions, using a simple hand pick and hand shovel and it averages out to 25 person hours (men) for 1.8 cubic metres. The pit requires some shaping, suggesting a degree of care greater than would be required for a ditch, but the 'standard' depth was 1.5 metres and, therefore, on a par with much of the dataset. A second experimental series with the same pit size recorded 6 person hours (men) for pit digging with a modern pick (Bowen and Wood, 1967, 7-8). For a crude estimate, it seems reasonable to split the difference between these values and estimate 16 person hours for digging 1.8 cubic metres. Thus a 'soil movement rate' of (1.8 / 16) = 0.1125 cubic metres per hour is derived. The ditch volume is calculated and the soil movement rate applied to derive an estimate of the person hours required to dig the ditch for each enclosed site.

Results

	Length (m)	Depth (m)	Ave. width (m)	Shape	Capacity (cu m)	Person hours	Person days	Person months
1000 - 750 BC								
Belle Tout E02	1,250	0.700	1.500	Flat	1,313	11,667	1,458	49
Bishopstone E03	480	0.750	1.025	V Shaped	369	3,280	410	14
Hollingbury E29	n/k							
Seaford Head (min.) E54	680	2.000	3.000	Flat	4,080	36,267	4,533	151
Thundersbarrow E61	295	0.850	0.500	V Shaped	125	1,114	139	5
Wolstonbury - 1 E68	400	0.500	2.000	Flat	400	3,556	444	15
Wolstonbury - 2 E68	600	1.250	2.000	Flat	1,500	13,333	1,667	56
							Average:	48
750 - 600 BC								
Chanctonbury E08	450	1.500	2.500	Flat	1,688	15,000	1,875	63
Harrow Hill E23	270	1.000	2.000	Flat	540	4,800	600	20
Harting Beacon E24	1240	1.300	2.750	Flat	4,433	39,404	4,926	164
Highdown E28	500	2.000	4.200	Flat	4,200	37,333	4,667	156
							Average:	101
600 - 400 BC								
Caburn pre-hillfort E05	n/k							
Ditchling Beacon E14	890	1.000	3.000	Flat	2,670	23,733	2,967	99
Goosehill - inner E19	240	1.700	1.250	V Shaped	510	4,533	567	19
Goosehill - outer E19	450	1.500	1.200	V Shaped	810	7,200	900	30
Hollingbury E29	755	2.000	3.700	Flat	5,587	49,662	6,208	207
Thundersbarrow - 2 E61	492	1.150	3.000	Flat	1,698	15,097	1,887	63
Torberry cross-ditch E62	90	2.400	5.750	Flat	1,242	11,040	1,380	46
							Average:	93
400 - 100 BC								
Caburn E05	511	2.000	1.750	V Shaped	1,789	15,898	1,987	66
Cissbury E10	1923	3.000	5.500	Flat	31,730	282,040	35,255	1,175
Torberry E62	840	1.600	1.350	V Shaped	1,814	16,128	2,016	67
Trundle E64	980	n/k	n/k	n/k				
							Average:	436
100 BC - AD 43								
Garden Hill E18	n/k	n/k	n/k	n/k				
Hammer Wood - out E22	877	1.731	3.154	U shaped	4,787	42,549	5,319	177
Hammer Wood - inn E22	844	2.077	2.019	V Shaped	3,539	31,461	3,933	131
High Rocks - 1 E26	758	0.900	1.200	U shaped	819	7,277	910	30
High Rocks - 2 E26	758	0.830	2.300	Flat	1,447	12,862	1,608	54
Lordington E36	320	1.750	0.500	V Shaped	280	2,489	311	10
Philpots E45	333	2.154	6.154	Flat	4,418	39,272	4,909	164
Piper's Copse E46	291	2.154	4.815	V Shaped	3,014	26,791	3,349	112
Saxonbury - outer E53	306	n/k	n/k	n/k				
							Average:	167

Table G2.1 - Ditch labour calculations for Sussex sites in the first millennium BC

Table G2.2 - Hampshire

	Length (m	Depth (m)	Ave. width (m)	Shape	Capacity (cu m)	Person hours	Person days	Person months
End M2 - 800 BC								
Balksbury Ph. I F02	1,588	n/k	n/k	n/k	n/k	n/k	n/k	n/k
Balksbury Ph.2 F02	1588	3.300	3.650	V Shaped	19,127	170,022	21,253	708
Beacon Hill F03	n/k	n/k	n/k	n/k	n/k	n/k	n/k	n/k
Hook F20	n/k	n/k	n/k	V Shaped	n/k	n/k	n/k	n/k
New Buildings F29	n/k	n/k	n/k	n/k	n/k	n/k	n/k	n/k
							Average:	n/k
800 - 600 BC								
Balksbury Ph. 2 ? F02	1588	3.300	3.650	V Shaped	19,127	170,022	21,253	708
Danebury outer F14	1087	n/k	n/k	n/k	n/k	n/k	n/k	485
Easton/Winnall F15	not calc	not calc	not calc	not calc	330	2,933	367	12
New Buildings Ph. 2 F29	n/k	n/k	n/k	n/k	n/k	n/k	n/k	n/k
Old Down Farm F32	355	2.000	1.700	V Shaped	1,207	10,729	1,341	45
Portsdown I - encl F35	162	1.090	1.375	V Shaped	243	2,158	270	9
Quarley Hill F38	879	0.615	1.230	Trench	665	5,911	739	25
Suddern Farm F43 - mid	500	1.550	1.425	V Shaped	1,104	9,817	1,227	41
							Average:	189
600 - 400 BC								
Bury Hill F08	1200	2.615	3.455	V Shaped	10,842	96,371	12,046	402
Danebury F14	815	n/k	n/k	n/k	32,600	289,778	36,222	1,207
Lain's Farm F23 (Ph. 1 - D)	55	0.600	1.000	U Shaped	33	293	37	1
Lain's Farm F23 (Ph. 2 - D)	110	2.300	1.000	U Shaped	253	2,249	281	9
Meon Hill F26	559	2.307	2.615	V Shaped	3,375	30,000	3,750	125
Oakridge F30	189	1.130	0.875	V Shaped	187	1,665	208	7
Ructstalls Hill F40	360	0.700	1.300	V Shaped	328	2,912	364	12
Winklebury F48	955	1.900	3.750	U Shaped	6,801	60,455	7,557	252
							Average:	252
400 - 100 BC								
Blagden F04 (encl. only)	280	1.385	0.769	V Shaped	298	2,651	331	11
Bramdean F05 (encl. only)	206	1.450	1.125	V Shaped	336	2,987	373	12
Danebury F14 (inner-encl)	815	6.000	5.000	V Shaped	24,450	217,333	27,167	906
Danebury F14 (outer)	1087	n/k	n/k	n/k	n/k	n/k	n/k	n/k
Lain's Farm F23 'banjo'	n/k	n/k	n/k	n/k	n/k	n/k	n/k	n/k
Micheldever F27 (encl. only)	164	2.220	1.700	V Shaped	619	5,502	688	23
Nettlebank F28 farmstead	n/k	n/k	n/k	n/k	n/k	n/k	n/k	n/k
Oram's Arbour F33	1700	3.750	7.250	Flat	46,219	410,833	51,354	1,712
Owslebury F34	302	1.850	0.769	V Shaped	430	3,819	477	16
St. Catharine's Hill F42	1210	3.600	4.150	V Shaped	18,077	160,688	20,086	670
Suddern Farm F43 - inn	500	2.750	3.150	V Shaped	4,331	38,500	4,813	160
Winklebury F48	955	3.200	1.875	V Shaped	5,730	50,933	6,367	212
Woolbury F49	1200	n/k	n/k	n/k	n/k	n/k	n/k	n/k
							Average:	414

Table G2.2 - Hampshire (continued)

100 BC - AD 43	Length (m	Depth (m)	Ave. width (m)	Shape	Capacity (cu m)	Person hours	Person days	Person months
Bury Hill F08	850	6.000	7.650	V Shaped	39,015	346,800	43,350	1,445
Calleva F09	2200	3.700	8.450	Flat	68,783	611,404	76,426	2,548
Cowdery's Down F13 Ph.3A	n/k	n/k	n/k	n/k	n/k	n/k	n/k	n/k
Hayling Island F19	90	n/k	n/k	n/k	n/k	n/k	n/k	n/k
Nettlebank F28 'banjo'	n/k	n/k	n/k	n/k	n/k	n/k	n/k	n/k
Suddern Farm F43 - inn	500	2.750	3.150	V Shaped	4,331	38,500	4,813	160
Suddern Farm F43 - out	500	3.100	2.350	Flat	3,643	32,378	4,047	135
Viables F46	n/k	n/k	n/k	n/k	n/k	n/k	n/k	n/k
							Average:	1,072

Table G2.2 - Ditch labour calculations for Hampshire sites in the first millennium BC

Appendix G3 - Hut area calculations

Approach

Ground area is calculated for those 'roundhouses' with sufficient data from excavation (detailed in the corresponding entries in Appendix E - Sussex Dataset and Appendix F - Hampshire Dataset) and the results presented in tables G3.1 for Sussex and G3.2 for Hampshire:

Results

Table G3.1 - Sussex

		Diameter (m)	Area (m2)	Living?
Late second millennium BC:				
Black Patch E04 - hut platform 4				
(Calculation base = terrace)				
Hut 1	Circle	8.5	57	Y
Hut 2	Circle	6.5	33	
Hut 3	Circle	8.0	50	Y
Hut 4	Circle	7.0	38	Y
Hut 5	Circle	6.0	28	
Itford Hill E31 - all				
(Calculation base = posthole diameter)				
Hut A	Oval	5.5	24	
Hut B	Circle	6.1	29	Y
Hut C	Circle	4.9	19	
Hut D	Circle	6.8	36	Y
Hut E	Oval	5.8	26	
Hut F	Circle	4.9	19	
Hut G	?	0.0	0	
Hut H	?	0.0	0	
Hut J	Circle	4.9	19	
Hut K	Circle	6.2	30	
Hut L	?	0.0	0	
Hut M	Circle	4.6	17	Y
Plumpton Plain A E47				
(Calculation base = posthole diameter)				
Encl II - Hut	Circle	6.2	30	Y
Encl III - Hut	Circle	6.2	30	Y

Table G3.1 - Sussex (continued)		*Diameter (m)*	*Area (m2)*	*Living?*
Late second millennium BC (continued):				
Cock Hill E11				
(Calculation base = posthole diameter)				
Hut I	Circle	6.2	30	Y
Hut II	Circle	5.5	24	Y
Hut III	Circle	5.5	24	Y
New Barn Down E40				
(Calculation base = posthole diameter)				
Area III	Circle	7.9	49	Y
Area VIII	Circle	5.7	26	Y
Varley Halls E65				
(Calculation base = posthole diameter)				
Hut 1	Circle	4.0	13	Y
Hut 1 - ph. II	Circle	5.0	20	Y
Hut 2	Circle	3.5	10	Y
Hut 2 - ph. II	Circle	4.5	16	Y
Hut 3	n/k			N
Hut 4	Circle	5.5	24	Y
600 - 400 BC				
Hollingbury E29				
(Calculation base = Terrace/gullies)				
Site A	Circle	12.0	113	Y
(Inner A)	*Circle*	*6.8*	*36*	
Site B	Circle	5.0	20	Y?
Site C	Circle	4.5	16	Y?
Site D	Circle	3.7	11	Y
Site E	Circle	6.2	30	Y
400 - 100 BC				
Lavant E35				
(Calculation base = posthole diameter)				
Hut 1	Circle	8.8	61	n/k
Hut 2	Circle	8.2	53	n/k
Hut 3	Circle	8.8	61	n/k
Hut 4	Circle	7.4	43	n/k
Hut 5	Circle	5.9	27	n/k
Hut 6	Circle	7.6	45	n/k
Hut 7/8	Circle	7.1	40	n/k
Hut 9	Circle	7.4	43	n/k
Hut 10	Circle	3.8	11	n/k

Table G3.1 - Sussex (continued)		Diameter (m)	Area (m2)	Living?
400 - 100 BC				
Garden Hill E18				
(Calculation base = gully diameter)				
Hut D	Circle	11.0	95	n/k
Hut G	Circle	12.0	113	Y
Under B	n/k	n/k	n/k	n/k

Table G3.1 - Hut area calculations for Sussex sites

Table G3.2 - Hampshire			Facing	Rings	Dia. (m)	Area (m2)	Notes
1200 - 800 BC							
Chalton 78 F12							
(Calculation base = posthole diameter)							
Hut 1	Circle	Porch	E	Single	5.5	24	(Terrace 7m)
Hut 2	Circle	n/k	n/k	Single	4.0	13	(Terrace 4.3m)
Cowdery's Down F13							
(Calculation base = ring ditches)							
RD1	Circle	Corridor?	W	Single	14.0	154	
RD2	Circle	Simple	SW	Single	13.5	143	
X4	Circle	Porch	E	PH&gully	13.0	133	
Easton Lane / Winnall Down F15							
(Calculation base = posthole diameter)							
(End M2 - 950 BC)							
MS2159	Oval	Simple	W&E	Single	4.0	13	Crop storage?
CS2373	Oval	n/k	n/k	Single	5.0	20	Replaces CS2375 or v.v.
CS2375	Oval	Porch	S	Single	5.1	20	Replaces CS2373 or v.v.
CS2723	Oval	Simple	NW& SE	Single	7.0	38	
MS2789	Circle	Porch	S	Single	10.0	79	
CS2341	Circle	Porch	SW	Double	8.0	50	
CS2782	Circle	Porch	SE	Single	5.2	21	
CS3290	Circle	Simple	E	Single	4.3	15	
MS4010	Rectangle	In-turned	N&S	Single	11.4 * 4.5	51	
CS4008	Circle	Simple	E	Single	4.8	18	
CS4009	Circle	Porch	SE	Single	5.5	24	
CS5653	Circle	Porch	S	Single	4.0	13	
CS5636	Circle	Simple	SE	Single	5.5	24	
(950 - 800 BC)							
House A	Oval	Porch	SW	Single	7.8	47	
House B	Oval	Porch	W	Single	7.8	48	
House C	Oval	Porch	W	Single	7.4	43	
House D	Circle	n/k	n/k	Single	7.5	44	

Table G3.2 - Hampshire (continued)

1200 - 800 BC (continued):

			Facing	Rings	Dia. (m)	Area (m2)	Notes
Grange Road F18							
(Calculation base = posthole diameter)							
Area A	Oval	Simple	NW	Single	6.5	33	
Area B	Oval	Porch?	SE	Single	6.8	36	
Westbury F47							
(Calculation base = posthole diameter)							
Hut 1	Circle	n/k	n/k	Single	4.5	16	

800 - 600 BC

			Facing	Rings	Dia. (m)	Area (m2)	Notes
Balksbury F02							
(Calculation base = posthole diameter)							
Hut AJ	Circle	Porch	E	Single	8.5	57	
Hut 2075	Circle	n/k	n/k	Double	12.4	121	
Hut 2150	Circle	n/k	n/k	Single	7.7	47	
Brighton Hill X/Y F07							
(Calculation base = posthole diameter)							
Trench G/H	Circle	n/k	n/k	Double	8.5	57	
Easton Lane / Winnall Down F15							
(Calculation base = posthole diameter)							
Structure E	Circle	Simple	SE	Double	10.5	87	
Structure F	Circle	Porch	SE	Single	8.0	50	
Structure G	Circle	Simple	SE	Single	8.0	50	
Structure H	Circle	Simple	n/k	Single	8.5	57	
Structure I	Circle	Porch	N	Single	8.0	50	
Structure J	Circle	Simple	n/k	Single	7.5	44	
Structure K	Circle	Simple	n/k	Single	7.5	44	
Structure L	Circle	Simple	n/k	Single	7.0	38	
Old Down Farm F32							
(Calculation base = posthole diameter)							
3347	Circle	Porch	E	Double	8.0	50	
3471	Circle	Porch	W	Single	10.0	79	

600 - 400 BC

			Facing	Rings	Dia. (m)	Area (m2)	Notes
Danebury F14 *(figs. very approx.)*							
(Calculation base = posthole diameter)							
CS1	Circle	Simple	NE	Single	3.8	11	
CS2	Circle	Simple	SW	Single	6.3	31	
CS3	Circle	Simple	SE	Single	6.3	31	
CS4	Circle	Simple	E	Single	3.8	11	
CS5	Circle	Simple	W	Single	12.0	113	
CS6	Circle	Simple	E	Single	5.0	20	
CS7	Circle	Simple	SE	Single	7.5	44	
CS8	Circle	Simple	SE	Single	5.0	20	
CS9	Circle	Simple	SE	Single	5.0	20	
CS10	Circle	Simple	SE	Single	7.5	44	

Table G3.2 - Hampshire (continued)

			Facing	Rings	Dia. (m)	Area (m2)	Notes
600-400 BC (continued):							
Danebury F14 (continued):							
CS11	Circle	Simple	S	Single	7.5	44	
CS12	Circle	Simple	SE	Single	7.5	44	
CS13	Circle	Simple	E	Single	5.0	20	
CS14	Circle	Simple	E	Single	5.0	20	
CS15	Circle	Simple	S	Single	6.3	31	
CS16	Circle	Simple	E	Single	5.0	20	
CS17	Circle	Simple	SE	Single	6.3	31	
Little Somborne F24							
(Calculation base = wall slots for 533; posthole dia. 503)							
533	Circle	Simple	S	Single	10.0	79	
503	Circle	Porch	SE	Single	9.6	72	
Old Down Farm F32							
(Calculation base = gullies)							
104	Circle	Simple	n/k	Single	9.5	71	
1191	Circle	Simple	n/k	Single	9.5	71	
1166	Circle	Simple	n/k	Single	9.5	71	
2687	Circle	Simple	W	Single	9.5	71	
Winklebury F48							
(Calculation base = posthole diameter)							
(3887)							
3889	Circle	Simple	SE	Single	9.2	66	
3888	Circle	Porch	SE	Double	12.2	117	
3890	Circle	Porch	SE	Single	10.2	82	
(Remainder)							
1611	Circle	Simple	SE	Single	9.5	71	
3870	Circle	Porch	W	Single	9.0	64	
2550	Circle	n/k	n/k	Single	7.0	38	
400 - 100 BC							
Danebury F14							
Too many to list individually							
Easton Lane F15 - 400 - 300 BC							
(Calculation base = gullies)							
CS2404	Circle	Simple	SE	Si/Do?	11.3	99	
CS2408	Circle	Simple	SE	Single	15.0	177	
CS2288	Circle	Simple	E/W?	Single	10.3	83	
MS5622?	Circle	Simple	W	Single	10.5	87	
MS2160?	Circle ?	Channel?	NE	Single	11.6	106	
CS5634	Circle	n/k	n/k	Single	13.5	143	
CS5602	Circle	Simple	E	Single	12.5	123	

Table G3.2 - Hampshire (continued)

400 - 100 BC
(continued):

			Facing	*Rings*	*Dia. (m)*	*Area (m2)*	*Notes*
Ructstalls Hill F40							
(Calculation base = posthole diameter)							
A	Circle	Simple	n/k	Single	8.5	57	Replaces B or v.v.
B	Circle	Simple	n/k	Single	9.0	64	Replaces A or v.v.
C	Circle	Simple	n/k	Single	6.5	33	
D	Circle	Simple	n/k	Single	9.1	65	
E	Circle	Simple	n/k	Single	6.0	28	
Winnall Down F15 - 300 - 100 BC							
(Calculation base = gully, except W = post-built)							
House M	Circle	Simple	E	Double	14.7	170	
House N	Circle	Simple	E	Single	11.8	108	
House P	Circle	Simple	E	Single	10.2	82	
House R	Circle	n/k	E	Single	11.8	109	Cut house U (i.e. later)
House S	Circle	Simple	E	Single	9.7	74	Cut house T (i.e. later)
House T	Circle	n/k	n/k	Single	10.5	87	Cut by house S
House U	Circle	n/k	n/k	Single?	11.4	102	Cut by house R
House V	Circle	Simple	N	Single	13.0	133	
House F?	Circle	n/k	n/k	Single	9.0	64	
House W	Circle	n/k	n/k	Single	9.0	64	
Rectangle D	Rectangle	Gated	W	Single	15.3*14	178	
Winklebury F48							
(Calculation base = gullies)							
3140	Circle	Simple	SE	Single	10.2	82	
3231	Circle	Simple	SE	Single	9.4	69	
2187?	Circle?	n/k	n/k	Single	10.0	79	
2245?	Circle?	n/k	n/k	Single	10.0	79	
3131?	Circle?	n/k	n/k	Single	10.0	79	
2637?	Circle?	n/k	n/k	Single	10.0	79	

Table G3.2 - Hut area calculations for Hampshire sites

APPENDIX H - ADJUSTMENT OF GDM RESULTS

Appendix H1 - Adjustment of Sussex and Hampshire GDM results

Requirement

Analysis of a dataset to derive a GDM position is an imprecise activity requiring qualitative rather than quantitative judgement on the part of the analyst and a recognition that no social structure in the past is likely to match exactly the profile assumed for the analysis guidelines. The GDM analysis exercise for a study area provides a number of results for lines of evidence categorised as being *Strong* or *Weak* indicators for one or more density or centrality category. Simply summing those over all lines of evidence gives a crude indication of the GDM analysis category(s) for each period in time but that needs to be refined to:-

a. Weight the difference in likelihood between a *Strong* indicator and a *Weak*.
b. Ensure that the result of analysis of each line of evidence is given the same weighting in the final result (applicable where the dataset does not allow differentiation between two, or more categories).

Additionally, given that the accumulation of the results of all lines of evidence is likely to suggest the possibility of more than one GDM cell, it is useful to be able to provide a basis for judging the comparative likelihood of GDM categories where more than one is indicated in an analysis.

The GDM results of the Sussex analysis (Chapter Six) and the Hampshire study (Chapter 7) are adjusted in this Appendix.

Adjustment

Weight the results

a. Allow STRONG : WEAK a 2 : 1 ratio (reflecting author's subjective view of how they were rated)

b. Allow each line of evidence a total of 1 unit contribution to the total. If split, assign fractions according to number of alternatives and STRONG : WEAK ratio.

c. If a line of evidence is made up from *weak* results only, allow that a contribution of one half of a unit.

The analysis results, quantified

Sussex **End M2 - 1000 BC**								**1000 - 750 BC**					
	Cir.	Con.	Cor.	Eq.	Dif.	Ins.	[1]	Cir.	Con.	Cor.	Eq.	Dif	Ins
Whole study area													
Population	W 1/4	W 1/4						W 1/4	W 1/4				
Style		W 1/2							W 1/2				
Specialisation		Null		S 1					Null			W ¼	W ¼
Community site pattern				S 1							S 1		
Access				S 1							S 1		
Community architecture													
Territory and boundaries		S 1							S 1				
Public spaces	S 1							S 1					
Monumental architecture	S 1							S 1					
Memorials		Null							Null				
Intra-community													
Spatial patterning		S 1						S ½	S 1/2				
Domestic wealth					S 1							S 1	
Boundedness					S 1							S 1	
Storage					S 1						W 1/4	W 1/4	
Domestic/social spec.					S 2/3	W 1/3						S 2/3	W 1/3
Artefactual analysis													
Status symbols					S 1/2	S 1/2						S 1/2	S 1/2
Specialisation					Null							Null	
Weights and measures					Null							Null	
The Individual													
Mortuary practice					Null							Null	
Total:	2 ¼	2 ¾	0	3	4 1/6	5/6		2 ¾	2 2/3	0	2 ¼	3 2/3	1 1/12

[1] Cir = circumstantial, Con = contingent, Cor = corporate network density range
Eq. = equal, Dif. = differential, Ins = insulated network centrality range

Sussex results (cont'd)	Cir.	Con.	Cor.	Eq.	Dif.	Ins.	Cir.	Con.	Cor.	Eq.	Dif	Ins
750 - 600 BC							**600 - 400 BC**					
Whole study area												
Population	S 1						S 1					
Style		S 1						S 1				
Specialisation		Null			W ¼	W ¼		Null			W ¼	W ¼
Community site pattern					S 1						S 1	
Access					W 1/3	S 2/3					S 2/3	W 1/3
Community architecture												
Territory and boundaries		S 1						S 1				
Public spaces	W 1/3	S 2/3					W 1/3	S 2/3				
Monumental architecture		S 1						S 1				
Memorials		Null						Null				
Intra-community												
Spatial patterning	S 1/2	S 1/2						S 1				
Domestic wealth					Null						S 2/3	W 1/3
Boundedness					Null						S 2/3	W 1/3
Storage				W 1/4	W 1/4					W 1/4	W 1/4	
Domestic/social spec.					Null						S 2/3	W 1/3
Artefactual analysis												
Status symbols					Null						Null	
Specialisation					S 1/2	S 1/2					S 1/2	S 1/2
Weights and measures					Null						Null	
The Individual												
Mortuary practice					Null						Null	
Total:	1 5/6	4 1/6	0	¼	2 1/3	1 5/12	1 1/3	4 2/3	0	¼	4 2/3	2 1/12

	Cir.	Con.	Cor.	Eq.	Dif.	Ins.	Cir.	Con.	Cor.	Eq.	Dif	Ins
400 - 100 BC							**100 BC - AD 43**					
Whole study area												
Population		Null						Null				
Style		S 1						S 2/3	W 1/3			
Specialisation		Null			W 1/4	W 1/4		Null			S ½	S ½
Community site pattern					S 1						S 1	
Access					S 2/3	W 1/3					S 2/3	W 1/3
Community architecture												
Territory and boundaries		S 2/3	W 1/3					Null				
Public spaces		Null						S 1				
Monumental architecture		S 2/3	W 1/3					S 2/3	W 1/3			
Memorials		Null						S 1				
Intra-community												
Spatial patterning	W 1/3	S 2/3						W ½				
Domestic wealth					W 1/2					W ½		
Boundedness				W ¼	W 1/4						S 1	
Storage					S 1/2	S 1/2					Null	
Domestic/social spec.					Null						Null	
Artefactual analysis												
Status symbols					Null						Null	
Specialisation					S 1/2	S 1/2					S ½	S ½
Weights and Measures					S 1/2	S 1/2					S ½	S ½
The Individual												
Mortuary practice											Null	
Total:	1/3	3	2/3	1/4	4 1/6	2 1/12	0	3 5/6	2/3	½	4 1/6	1 5/6

Table H1.1 - Quantified Sussex GDM results

Hampshire **End M2 - 950 BC**	Cir.	Con.	Cor.	Eq.	Dif.	Ins.	**950 - 800 BC** Cir.	Con.	Cor.	Eq.	Dif	Ins
Whole study area												
Population		Null						Null				
Style	S 1						W 1/3	S 2/3				
Specialisation		Null		W ½				Null		W ½		
Community site pattern					S 1					S 1		
Access				S 1						S 1		
Community architecture												
Territory and boundaries	W 1/3	S 2/3					W 1/3	S 2/3				
Public spaces	S 1						S 1					
Monumental architecture	S 1						S 1					
Memorials		Null						Null				
Intra-community												
Spatial patterning	W 1/3	S 2/3					W 1/3	S 2/3				
Domestic wealth					S 1					S 2/3	W 1/3	
Boundedness					S 1						S 1	
Storage					Null						Null	
Domestic/social spec.					Null						Null	
Artefactual analysis												
Status symbols					Null						Null	
Specialisation				S 1						S 1		
Weights and measures					Null						Null	
The Individual												
Mortuary practice					Null						Null	
Total:	3 2/3	1 1/3	0	2 1/2	3	0	3	2	0	4 1/6	1 1/3	0

800 - 600 BC	Cir.	Con.	Cor.	Eq.	Dif.	Ins.	**600 - 400 BC** Cir.	Con.	Cor.	Eq.	Dif	Ins
Whole study area												
Population		Null						Null				
Style		S 2/3	W 1/3					S 2/3	W 1/3			
Specialisation		Null		W ½				Null		W ½		
Community site pattern				S 1							S 1	
Access					S ½	S ½					S ½	S ½
Community architecture												
Territory and boundaries	S ½	S ½						S ½	S ½			
Public spaces	S 1							S 1				
Monumental architecture		S 1						S 1				
Memorials		Null						Null				
Intra-community												
Spatial patterning	S 2/3	W 1/3						S 2/3	W 1/3			
Domestic wealth					Null					S ½	S ½	
Boundedness					S 1					S ½	S ½	
Storage					Null					S 2/3	W 1/3	
Domestic/social spec.					Null					W ½		
Artefactual analysis												
Status symbols					Null						Null	
Specialisation					S 1						S 1	
Weights and measures					Null						Null	
The Individual												
Mortuary practice					Null						Null	
Total:	2 1/6	2 ½	1/3	1 ½	2 ½	½	0	3 5/6	1 1/6	2 2/3	3 5/6	½

Hampshire results (continued)	Cir.	Con.	Cor.	Eq.	Dif.	Ins.	Cir.	Con.	Cor.	Eq.	Dif	Ins
400 - 100 BC							**100 BC - AD 43**					
Whole study area												
Population		Null						Null				
Style		W 1/3	S 2/3					W 1/3	S 2/3			
Specialisation		Null		W ½				Null			W ¼	W ¼
Community site pattern					S 1						S 1	
Access					S 2/3	W 1/3					S 2/3	W 1/3
Community architecture												
Territory and boundaries		W 1/3	S 2/3					Null				
Public spaces		S 1						S 1				
Monumental architecture		S ½	S ½					W ¼	W ¼			
Memorials		Null						Null				
Intra-community												
Spatial patterning		S 2/3	W 1/3					W ¼	W ¼			
Domestic wealth				W 1/3	S 2/3						Null	
Boundedness				S 2/3	W 1/3						Null	
Storage				W 1/3	S 2/3						Null	
Domestic/social spec.					Null						Null	
Artefactual analysis												
Status symbols					Null						Null	
Specialisation					S 1/2	S 1/2					S ½	S ½
Weights and Measures					S 1/2	S 1/2					S ½	S ½
The Individual												
Mortuary practice					Null						Null	
Total:	0	2 5/6	2 1/6	1 5/6	4 1/3	1 1/3	0	1 5/6	1 1/6	0	2 11/12	1 7/12

Table H1.2 - Quantified Hampshire GDM results

	Circ	*Cont*	*Corp*	*Total Density*	*Equal*	*Diff*	*Insul*	*Total Centrality*	*Total*
Sussex									
End M2-1000 BC	2.250000	2.750000	0.000000	5.000000	3.000000	4.166667	0.833333	8.000000	13.0
1000-750 BC	2.750000	2.250000	0.000000	5.000000	2.250000	3.666667	1.083333	7.000000	12.5
750-600 BC	1.833333	4.166667	0.000000	6.000000	0.250000	2.333333	1.416667	4.000000	10.0
600-400 BC	1.333333	4.666667	0.000000	6.000000	0.250000	4.666667	2.083333	7.000000	13.0
400-100 BC	0.333333	3.000000	0.666667	4.000000	0.250000	4.166667	2.083333	6.500000	10.5
100 BC - AD 43	0.000000	3.833333	0.666667	4.500000	0.500000	4.166667	1.833333	6.500000	11.0
Hampshire									
End M2-950 BC	3.666667	1.333333	0.000000	5.000000	2.500000	3.000000	0.000000	5.500000	10.5
950-800 BC	3.000000	2.000000	0.000000	5.000000	4.166667	1.333333	0.000000	5.500000	10.5
800-600 BC	2.166667	2.500000	0.333333	5.000000	1.500000	2.500000	0.500000	4.500000	9.5
600-400 BC	0.000000	3.833333	1.166667	5.000000	2.666667	3.833333	0.500000	7.000000	12.0
400-100 BC	0.000000	2.833333	2.166667	5.000000	1.833333	4.333333	1.333333	7.500000	12.5
100 BC - AD 43	0.000000	1.833333	1.166667	3.000000	0.000000	2.916667	1.583333	4.500000	7.5

Table H1.3 - Summary of quantified results for Hampshire and Sussex GDMs

Representing GDM trends through time

If there were no base for coherent analysis vested in the GDM method then the probability of any one line of evidence falling into any one of the three categories in a GDM dimension would be one third (all else being equal). Therefore, the probability of the result being in one GDM cell would be one ninth. The variance between the observed result for any one GDM cell and that probability of random assignment provides a measure of comparative strength of an analysis of all lines of evidence for a period between GDM cells.

Actual (O)	=	(Value in centrality category / total value of all centrality results) * (Same for density category) * 100%
Predicted (E)	=	11.1 recurring %
Variance	=	(O - E)

The calculations:-

Table H1.4

Sussex

End M2 - 1000 BC	***Actual (O)***	***Predicted (E)***	***Variance (O-E)***	**1000 - 750 BC** ***Actual (O)***	***Predicted (E)***	***Variance (O-E)***
Circ / Insul	4.69	11.11	-6.42	8.51	11.11	-2.60
Cont / Insul	5.73	11.11	-5.38	6.96	11.11	-4.15
Corp / Insul	0.00	11.11	-11.11	0.00	11.11	-11.11
Circ / Diff	23.44	11.11	12.33	28.81	11.11	17.70
Cont / Diff	28.65	11.11	17.53	23.57	11.11	12.46
Corp / Diff	0.00	11.11	-11.11	0.00	11.11	-11.11
Circ / Equal	16.88	11.11	5.76	17.68	11.11	6.57
Cont / Equal	20.63	11.11	9.51	14.46	11.11	3.35
Corp / Equal	0.00	11.11	-11.11	0.00	11.11	-11.11
Total	100.00	100.00	0.00	100.00	100.00	0.00

750 - 600 BC				**600 - 400 BC**		
Circ / Insul	10.82	11.11	-0.29	6.61	11.11	-4.50
Cont / Insul	24.59	11.11	13.48	23.15	11.11	12.04
Corp / Insul	0.00	11.11	-11.11	0.00	11.11	-11.11
Circ / Diff	17.82	11.11	6.71	14.81	11.11	3.70
Cont / Diff	40.51	11.11	29.40	51.85	11.11	40.74
Corp / Diff	0.00	11.11	-11.11	0.00	11.11	-11.11
Circ / Equal	1.91	11.11	-9.20	0.79	11.11	-10.32
Cont / Equal	4.34	11.11	-6.77	2.78	11.11	-8.33
Corp / Equal	0.00	11.11	-11.11	0.00	11.11	-11.11
Total	100.00	100.00	0.00	100.00	100.00	0.00

Table H1.4 (continued)

	Actual (O)	Predicted (E)	Variance (O-E)		Actual (O)	Predicted (E)	Variance (O-E)
400 - 100 BC				**100 BC - AD 43**			
Circ / Insul	2.67	11.11	-8.44		0.00	11.11	-11.11
Cont / Insul	24.04	11.11	12.93		24.03	11.11	12.92
Corp / Insul	5.34	11.11	-5.77		4.18	11.11	-6.93
Circ / Diff	5.34	11.11	-5.77		0.00	11.11	-11.11
Cont / Diff	48.08	11.11	36.97		54.61	11.11	43.49
Corp / Diff	10.68	11.11	-0.43		9.50	11.11	-1.61
Circ / Equal	0.32	11.11	-10.79		0.00	11.11	-11.11
Cont / Equal	2.88	11.11	-8.23		6.55	11.11	-4.56
Corp / Equal	0.64	11.11	-10.47		1.14	11.11	-9.97
Total	100.00	100.00	0.00		100.00	100.00	0.00

Table H1.4 - Sussex GDM - Variance calculations

Table H1.5

Hampshire

End M2 - 950 BC	Actual (O)	Predicted (E)	Variance (O - E)	**950 - 800 BC**	Actual (O)	Predicted (E)	Variance (O - E)
Circ / Insul	0.00	11.11	-11.11		0.00	11.11	-11.11
Cont / Insul	0.00	11.11	-11.11		0.00	11.11	-11.11
Corp / Insul	0.00	11.11	-11.11		0.00	11.11	-11.11
Circ / Diff	40.00	11.11	28.89		14.55	11.11	3.43
Cont / Diff	14.55	11.11	3.43		9.70	11.11	-1.41
Corp / Diff	0.00	11.11	-11.11		0.00	11.11	-11.11
Circ / Equal	33.33	11.11	22.22		45.45	11.11	34.34
Cont / Equal	12.12	11.11	1.01		30.30	11.11	19.19
Corp / Equal	0.00	11.11	-11.11		0.00	11.11	-11.11
Total	100.00	100.00	0.00		100.00	100.00	0.00
800 - 600 BC				**600 - 400 BC**			
Circ / Insul	4.81	11.11	-6.30		0.00	11.11	-11.11
Cont / Insul	5.56	11.11	-5.56		5.48	11.11	-5.63
Corp / Insul	0.74	11.11	-10.37		1.67	11.11	-9.44
Circ / Diff	24.07	11.11	12.96		0.00	11.11	-11.11
Cont / Diff	27.78	11.11	16.67		41.98	11.11	30.87
Corp / Diff	3.70	11.11	-7.41		12.78	11.11	1.67
Circ / Equal	14.44	11.11	3.33		0.00	11.11	-11.11
Cont / Equal	16.67	11.11	5.56		29.21	11.11	18.10
Corp / Equal	2.22	11.11	-8.89		8.89	11.11	-2.22
Total	100.00	100.00	0.00		100.00	100.00	0.00

Table H1.5 (continued)	*Actual (O)*	*Predicted (E)*	*Variance (O-E)*	*Actual (O)*	*Predicted (E)*	*Variance (O-E)*
400 - 100 BC				**100 BC - AD 43**		
Circ / Insul	0.00	11.11	-11.11	0.00	11.11	-11.11
Cont / Insul	10.07	11.11	-1.04	21.50	11.11	10.39
Corp / Insul	7.70	11.11	-3.41	13.68	11.11	2.57
Circ / Diff	0.00	11.11	-11.11	0.00	11.11	-11.11
Cont / Diff	32.74	11.11	21.63	39.61	11.11	28.50
Corp / Diff	25.04	11.11	13.93	25.21	11.11	14.09
Circ / Equal	0.00	11.11	-11.11	0.00	11.11	-11.11
Cont / Equal	13.85	11.11	2.74	0.00	11.11	-11.11
Corp / Equal	10.59	11.11	-0.52	0.00	11.11	-11.11
Total	100.00	100.00	0.00	100.00	100.00	0.00

Table H1.5 - Hampshire GDM - Variance calculations

Despite adjustment, there is still a range of possibilities for any one period. The variance from random (O-E) value is a useful indicator of the comparative likelihood of a social network in a particular GDM cell. Using that, then, noting only values greater than + 10% and shading other cells which have positive values for the difference gives a visually intuitive indicator:-

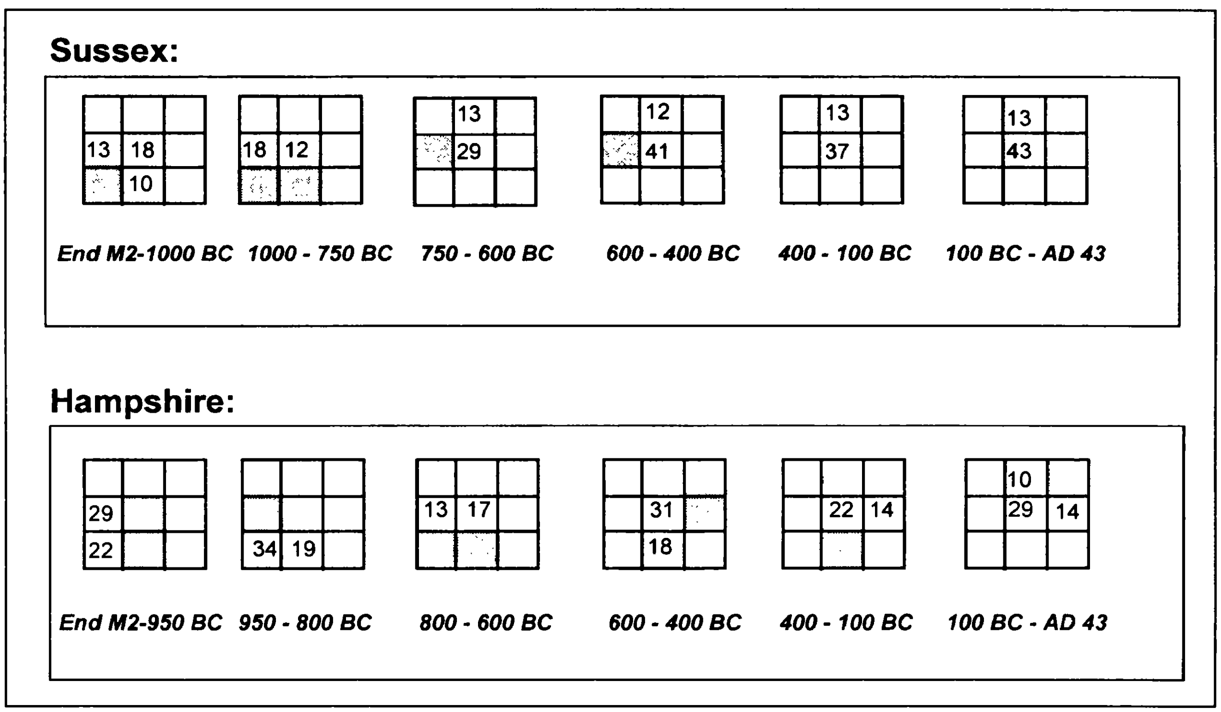


Figure H1.1 - The adjusted GDM trajectory, expressed diagrammatically

The pictorial representation highlights areas to follow up, makes trends and patterns clear and allows direct comparison with ease. For example, it can readily be seen that in Hampshire, in the early part of the period, *circumstantial* network density indicators are strongest and that inter-individual differentials were all but eradicated by c 950 - 800 BC, suggesting a line of enquiry in the detailed differences in the data. The two datasets can be compared as, for example, it is clear that whilst the social structure in Hampshire in the 800 - 600 BC period was in a state of flux, Sussex appears to have been more consolidated. Additionally, differences in tendencies to shade into other categories may be taken into account; for example, it is clear that although social networks in both Counties in the 600 - 400 BC period are most likely to have been *contingent* density and *differential* centrality network range, there is an element of an up-centrality tendency in Sussex whereas the picture for Hampshire is more up-density.

Appendix H2 - The Sussex 'what if' example

To test fragility, the Sussex results can be remodelled as if the 'Population' line of evidence had been *null* in all periods:

The re-valued results per GDM category:

Sussex	*Circ*	*Cont*	*Corp*	*Total Density*	*Equal*	*Diff*	*Insul*	*Total Centrality*
End M2-1000 BC	2.000000	2.500000	0.000000	4.500000	3.000000	4.166667	0.833333	8.000000
1000-750 BC	2.500000	2.000000	0.000000	4.500000	2.250000	3.666667	1.083333	7.000000
750-600 BC	0.833333	4.166667	0.000000	5.000000	0.250000	2.333333	1.416667	4.000000
600-400 BC	0.333333	4.666667	0.000000	5.000000	0.250000	4.666667	2.083333	7.000000
400-100 BC	0.333333	3.000000	0.666667	4.000000	0.250000	4.166667	2.083333	6.500000
100 BC - AD 43	0	3.833333	0.666667	4.500000	0.500000	4.166667	1.833333	6.500000

Table H2.1 - Summary of quantified results re-valued for Sussex 'what if' example

The recalculated variances:

Sussex ('what if')

End M2-1000 BC	*Actual (O)*	*Predicted (E)*	*Variance (O-E)*	1000-750 BC	*Actual (O)*	*Predicted (E)*	*Variance (O-E)*
Circ / Insul	4.63	11.11	-6.48		8.60	11.11	-2.51
Cont / Insul	5.79	11.11	-5.32		6.88	11.11	-4.23
Corp / Insul	0.00	11.11	-11.11		0.00	11.11	-11.11
Circ / Diff	23.15	11.11	12.04		29.10	11.11	17.99
Cont / Diff	28.94	11.11	17.82		23.28	11.11	12.17
Corp / Diff	0.00	11.11	-11.11		0.00	11.11	-11.11
Circ / Equal	16.67	11.11	5.56		17.86	11.11	6.75
Cont / Equal	20.83	11.11	9.72		14.29	11.11	3.17
Corp / Equal	0.00	11.11	-11.11		0.00	11.11	-11.11
Total	100.00	100.00	0.00		100.00	100.00	0.00
750 - 600 BC				**600 - 400 BC**			
Circ / Insul	5.90	11.11	-5.21		1.98	11.11	-9.13
Cont / Insul	29.51	11.11	18.40		27.78	11.11	16.67
Corp / Insul	0.00	11.11	-11.11		0.00	11.11	-11.11
Circ / Diff	9.72	11.11	-1.39		4.44	11.11	-6.67
Cont / Diff	48.61	11.11	37.50		62.22	11.11	51.11
Corp / Diff	0.00	11.11	-11.11		0.00	11.11	-11.11
Circ / Equal	1.04	11.11	-10.07		0.24	11.11	-10.87
Cont / Equal	5.21	11.11	-5.90		3.33	11.11	-7.78
Corp / Equal	0.00	11.11	-11.11		0.00	11.11	-11.11
Total	100.00	100.00	0.00		100.00	100.00	0.00

Sussex ('what if')
(continued)

	400 - 100 BC				100 BC - AD 43		
Circ / Insul	2.67	11.11	-8.44		0.00	11.11	-11.11
Cont / Insul	24.04	11.11	12.93		24.03	11.11	12.92
Corp / Insul	5.34	11.11	-5.77		4.18	11.11	-6.93
Circ / Diff	5.34	11.11	-5.77		0.00	11.11	-11.11
Cont / Diff	48.08	11.11	36.97		54.61	11.11	43.49
Corp / Diff	10.68	11.11	-0.43		9.50	11.11	-1.61
Circ / Equal	0.32	11.11	-10.79		0.00	11.11	-11.11
Cont / Equal	2.88	11.11	-8.23		6.55	11.11	-4.56
Corp / Equal	0.64	11.11	-10.47		1.14	11.11	-9.97
Total	100.00	100.00	0.00		100.00	100.00	0.00

Table H2.2 - Sussex 'what if' example - variance calculations

The demonstration model of revised results:

The 'what if' model's results are shown in figure H2.1:

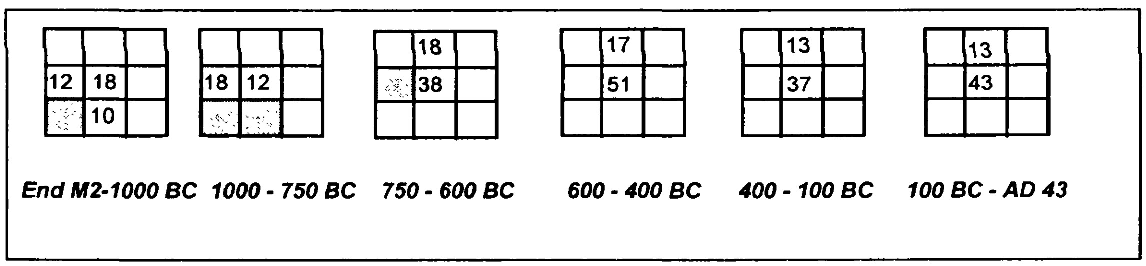


Figure H2.1 - The 'what if' model results (Population)

Compare with the original:

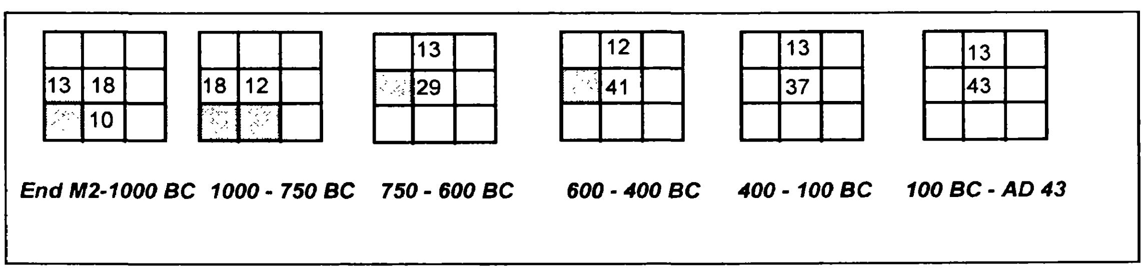


Figure H2.2 - The original results, for comparison

APPENDIX I - THE GDM OF HAMPSHIRE

Organising the base data

As for the Sussex dataset (pp. 143-160), a view is taken on those sites which are community settlement sites and the general purpose of those which are not. Using the dataset detailed in Appendix F (Hampshire Dataset), the prime purpose is assessed here on the balance of likelihood, to prepare for the GDM analysis which follows.

Community settlement sites

The criteria parallel those used for Sussex (pp. 143-144) and the sites are listed by period in table I.1, below, together with a brief note of how they have been interpreted and those which are considered community settlement sites are marked 'Sett.' in the final column:-

Table I.1 **SITE BY PERIOD**	**PHASE**	**INTERPRETATION / NOTES**	**Type**[1]
End M 2nd - 950 BC			
Ashley F01		Ditch feature only	n/k
Balksbury F02	Clearance and Phase I	Enclosure; storage - stock-related aggregation likely	Agg.
Beacon Hill F03	Small enclosure	No internal investigation; special place, small and not associated with fields	n/k
Chalton 78 F12		Roundhouses	Sett.
Easton / Winnall F15	Phase 4	Roundhouses	Sett.
Ellingham Farm F16		Pits only; domestic assemblage	Sett.
Franconia Drive F17		Pits, ditches and domestic assemblage	Sett.
New Buildings F29	Period 1	Enclosure; unoccupied?; not published; connected with coaxial field system	Stock ?
Westbury F47		Roundhouse	Sett.
950 - 800 BC			
Balksbury F02	Phase 2 - this period or next?	Refurbished enclosure; roundhouses; not defensible location but elaborate; stock-related aggregation?	Agg.
Cowdery's Down F13	This period or next?	Two ring ditches and a roundhouse	Sett.
Easton / Winnall F15	Phase 5	Roundhouses	Sett.
Franconia Drive F17		Pits and ditches; domestic assemblage	Sett.
Grange Road F18		Roundhouses	Sett.
Hook F20	This period or next?	Enclosure; little interior investigation	n/k
New Buildings F29	Continued	As above	Stock?
Swanwick F44	This period?	'Ritual' shaft and bronze hoard(s)	n/k.
800 - 600 BC			
Balksbury F02	This period, next or previous?	As above	Agg.
Brighton Hill X/Y F07		Roundhouses	Sett.
Cowdery's Down F13	This period, next or previous?	As above	Sett.

[1] KEY:
'Sett.' = Community settlement site
'Agg.' = Inter-community aggregation site or meeting place
'Stock' = Stock enclosure
'N/k' = Not known
'Cem' = Cemetery

Table I.1 (continued)

SITE BY PERIOD	PHASE	INTERPRETATION / NOTES	Type
800 - 600 BC (continued)			
Danebury F14	Outer enclosure	'Ritual' pits and later focus; interior stockade? Stock-related aggregation?	Agg.
Easton / Winnall F15	Enclosed	Roundhouses	Sett.
Grange Road F18	Continued	As above	Sett.
Hook F20	Previous period?	As above	n/k
La Sagesse F22		Special deposits in rivulets; some domestic	n/k
New Buildings F29	Period 2	Site linked to Danebury F14	Stock
Odiham F31		Roundhouse	Sett.
Old Down Farm F32		Roundhouses	Sett.
Portsdown I F35		Linear ditch; enclosure	Stock
Quarley Hill F38	Stockade enclosure	Junction of earlier linear ditch system; midden - feasting?	Agg.
Suddern Farm F43	Middle ditch	Occupation is domestic assemblage although no structures identified; node of linear ditches.	Agg.
Swanwick F44	Previous period?	As above	n/k.
600 - 400 / 350 BC			
Balksbury F02	Phase 2 this period?	As above	Agg.
Bramdean F05		Pits and domestic assemblage	Sett.
Brighton Hill B/C and K F06	This period or next?	Pits, ditches and domestic assemblage	Sett.
Bury Hill F08		Unoccupied enclosure - horse associations?	Agg?
Chalton 50 F11	This period or next?	Pits, postholes and domestic assemblage	Sett.
Cowdery's Down F13	Continued	As above and pit complex	Sett.
Danebury F14	'Hillfort'	Roundhouses, storage structures	Sett.
Easton / Winnall F15	Continued	As above	Sett.
Ellingham Farm F16		Pits; domestic assemblage	Sett.
Lain's Farm F23		Roundhouses	Sett.
Little Somborne F24		Roundhouses	Sett.
Meon Hill F26		Pits, postholes and domestic assemblage	Sett.
New Buildings F29	Period III	Pit alignment along linear; second enclosure	Stock?
Oakridge F30		Pits, ditches and domestic assemblage	Sett.
Old Down Farm F32	Continued	Roundhouses	Sett.
Portsdown I F35	Continued	As above	Stock
Portsdown II F36		Field system	Sett.
Quarley Hill F38	Bank/ditch enclosure	As above	Agg.
Rooksdown F39		Pits, ditches and domestic assemblage	Sett.
Ructstalls Hill F40	Phase IA	Pits and domestic assemblage	Sett.
St. Catharine's Hill F42	Pre-enclosure	Pits; interpretation difficult	n/k
Suddern Farm F43	Continued	Hiatus in occupation; quarry area burials	Agg.?
Twyford Down F45		Pits and domestic features	Sett.
Winklebury F48	Enclosure	Roundhouses	Sett.
400 - 100 BC			
Balksbury F02	Phase 3	> 90 pits	Agg.
Blagden Copse F04	'Banjo' enclosure	No domestic assemblage	Stock?
Bramdean F05	'Banjo' enclosure	No domestic assemblage	Stock?
Brighton Hill B/C and K F06	Previous period?	As above	Sett.
Bury Hill F08	Continued	As above	Stock
Chalton 50 F11	Previous period?	As above	Sett.
Danebury F14	Refurbishment; reorientation	Roundhouses	Sett.
Easton / Winnall F15	Open	Roundhouses	Sett.
Lain's Farm F23	'Banjo' added	As above	Sett.
Little Somborne F24	Continued	As above	Sett.
Maddison Street F25		Domestic assemblage	Sett.
Meon Hill F26	Continued	As above	Sett.
Micheldever Wood F27	'Banjo' enclosure	No domestic assemblage	Stock?
Nettlebank Copse F28	Period I	Probable farmstead; abandoned after c 50 years	Sett.
Oakridge F30	Continued	As above	Sett.
Old Down Farm F32	Phase 5 - ditch silted	Many pits but no structures	n/k
Oram's Arbour F33		Roundhouses	Sett.

Table I.1 (continued)			
SITE BY PERIOD	**PHASE**	**INTERPRETATION / NOTES**	**Type**
400 - 100 BC (continued)			
Owslebury F34		Pits, postholes and domestic assemblage	Sett.
Portsdown II F36	Continued	As above	Sett.
Rooksdown F39	Continued	As above	Sett.
Ructstalls Hill F40	Phase IB	Roundhouses	Sett.
St. Catharine's Hill F42	Enclosed	Pits within?	Agg.
Suddern Farm F43	Inner ditch (i.e. double)	Occupation deposits back to former level? No structures; quarry burials.	Agg.?
Twyford Down F45	Continued	As above	Sett.
Viables Farm F46	Open	Pits, ditches and domestic assemblage	Sett.
Winklebury F48	Continued	As above	Sett.
Woolbury F49	Enclosure	Unoccupied; connecting with linear ditch system but nodal?	Agg.?
Worthy Down F50		Large ditches; pits; not especially domestic assemblage	n/k
100 BC - AD 43			
Balksbury F02	Continued	As above	Agg.
Blagden Copse F04	Continued and funereal complex	'Ritual complex' and barrow bucket burial added	Agg.
Brighton Hill B/C and K F06	Shift of sett.	B/C = Enclosure complex and field system; K = pits, ditches and domestic assemblage	Sett.
Bury Hill F08	Bury Hill 2	Internal occupation - not detailed (Cunliffe, 1994, 39); may not be domestic	Sett?.
Calleva F09		Roundhouses	Sett.
Chalton 15 F10		Pits, postholes and domestic assemblage	Sett.
Cowdery's Down F13	Phase 3A	Enclosure and pits and sparse assemblage	n/k
Easton / Winnall F15	Continued	As above	Sett.
Hayling Island F19		Shrine within enclosure (predecessor of Romano-British temple)	Agg.
Horndean F21		Gully, domestic assemblage	Sett.
Lain's Farm F23	Continued	As above	Sett.
Micheldever Wood F27	Continued	As above	Stock?
Nettlebank Copse F28	Period 2 - 'Banjo' phase	No domestic assemblage	Stock?
Oakridge F30	Move uphill	Pit, ditch and domestic assemblage	Sett.
Oram's Arbour F33	Continued	As above and concentration on industrial activity	Sett.
Owslebury F34	Ditch filled	As above	Sett.
Portsdown III F37		Pits, gully and domestic assemblage	Sett.
Rooksdown F39	Continued	As above	Sett.
Ructstalls Hill F40	Continued	As above	Sett.
Silkstead F41		Bucket burial in barrow	Cem.
Suddern Farm F43	Outer ditch (i.e. triple)	Domestic assemblage includes high status imports; burials cease; no structures but much higher deposition rates	Sett.?
Twyford Down F45	Continued	As above	Sett.
Viables Farm F46	Enclosed	As above	Sett.
Woolbury F49	Farmstead over enclosure	Domestic.	Sett.
Worthy Down F50	Linked enclosures	Pits; possible roundhouses	Sett.

Table I.1 - The Hampshire dataset analysed by case study period

Not community settlement sites

Ditch labour cost calculations have been made for the ditches of Hampshire sites in the same way as for Sussex (p. 147). The detailed work is included as Appendix G2 (Ditch Labour Calculations) and the summary of results repeated here:

End M 2nd - 800 BC	***Person months***	**800 - 600 BC**	***Person months***	**600 - 400 BC**	***Person months***
Balksbury Ph. 1 F02	n/k	*Balksbury Ph. 2 F02 ?*	708	*Bury Hill F08*	402
Balksbury Ph. 2 F02	708	*Danebury outer F14*	485	*Danebury F14*	1,207
Beacon Hill F03	n/k	*Easton/Winnall F15*	12	*Lain's Farm E23 (Ph. 1 - D)*	1
Hook F20	n/k	*New Buildings Ph.2 F29*	n/k	*Lain's Farm E23 (Ph. 2 - D)*	9
New Buildings F29	n/k	*Old Down Farm F32*	45	*Meon Hill F26*	125
Average:	n/k	*Portsdown ! - encl. F35*	9	*Oakridge F30*	7
		Quarley Hill F38	25	*Ructstall's Hill F40*	12
		Suddern Farm F43 - mid	41	*Winklebury F48*	252
		Average:	189	*Average:*	252
400 - 100 BC		**100 BC - AD 43**			
Blagden F04 (encl. Only)	11	*Bury Hill F08*	1,445		
Bramdean F05 (encl. Only)	12	*Calleva F09*	2,548		
Danebury F14 (inner-encl.)	906	*Cowdery's Down F13 - 3A*	n/k		
Danebury F14 (outer)	n/k	*Hayling Island F19*	n/k		
Lain's Farm f23 'banjo'	n/k	*Nettlebank F28 'banjo'*	n/k		
Micheldever F27 (encl.)	23	*Suddern Farm F43 -inner*	160		
Nettlebank F28 f'stead	n/k	*Suddern Farm F43 -outer*	135		
Oram's Arbour F33	1,712	*Viables F46*	n/k		
Owslebury F34	16	*Average:*	1,072		
St. Catharine's Hill F42	670				
Winklebury F48	212				
Woolbury F49	n/k				
Average:	414				

Table I.2 - Ditch labour calculations for Hampshire

End M 2nd - 950 BC

Beacon Hill F03 is a small enclosure on a hilltop which had been visited sporadically since the Neolithic and is so spectacularly sited as to suggest a 'special place'; no field systems have been located in the vicinity, despite having been sought. Whilst it may have been a stock enclosure it is quite possible that it facilitated inter-community meeting for stock management or other purposes. Balksbury F02 was enclosed on the same lines as the (later) Phase II development (c900 - 400 BC) and contained above-ground storage structures; although the dimensions of the Phase I enclosure have not been revealed by excavation, the enclosure of the 18 ha site in the following period was at a cost great enough to suggest construction by enough people to indicate involvement of more than one community in the enterprise. Tentatively, this looks like an inter-community aggregation site for meeting for stock-related purposes. Finally, very little detail of the New Buildings F29 site has been published but as it is an unoccupied enclosure (size unknown) directly connected to a coaxial field system, a stock management function is likely.

950 - 800 BC

A limited excavation at Swanwick F44 investigated a 'ritual shaft' and hoards which could indicate inter-community knowledge of, and involvement in, ritual activity involving water but, alternatively, they could simply indicate a nearby (open) settlement not discovered by this early excavation. Balksbury F02 continued but was enclosed in the Phase II form at a *ditch labour cost* of c 59 person years (Table I.2) and included three roundhouses (not necessarily contemporary) of which one was very large, being a 12.4 metre diameter double ring. The rather low-lying site is not especially favoured for defence in terms of its siting yet its bank and ditch were enlarged to provide a 6 to 7 metre drop from top of bank to bottom of ditch; the bank widened toward the entrance and a causeway some 8 metres wide is thought to have fronted a gate. This could have been a defended stock enclosure designed to protect the livestock of a single community (in which case it was either atypically nervous or especially 'wealthy') but if it was then it is surprising that a more defensible location was not chosen. If the roundhouse(s) were for community settlement then the community would have had to gain the co-operation of others to build the enclosure in any short space of time. Given the unusual cereal profile indicated by the pit contents (oats in large quantities), the unusual quantity of new-born puppy bone in those pits and the size of the largest roundhouse on the site, it seems possible that it was built to provide a stock-related aggregation facility for a restricted sector of society intended primarily for use in the more inclement months, as indicated by the protective shelter of the roundhouse.

800 - 600 BC

The number of sites which may have served aggregation functions increased considerably in this period. Ritual deposition associated with water is indicated at La Sagesse F22 but the possibility of a nearby settlement site is not excluded, although it must have been open as no earthworks in the immediate environs have been noted. In the north-west of the county the new enclosure of c 16.2 ha (the 'outer') at Danebury F14 was built at a *ditch labour cost* of c40 person years (Table I.2). The enclosure was sited on the prominent Danebury hilltop which was a pivotal focus for a linear ditch system and the enclosure incorporated one of the ditches which led to the continuing New Buildings F29 site. Internally, the only features were five large 'ritual pits' (some with standing timbers) set in an arc, together with a bronze hoard, and toward the end of this period there may have been an internal stockade built on the line of the 'hillfort' which followed; some above-ground storage structures may have been contemporary. Taking all together, the site does not appear to have been permanently occupied but it was defined by a bank and ditch which would have served to retain stock and its siting would protect herds against raiders. However, the investment level and the nodal position suggest that this stock enclosure was probably an inter-communal facility.

Further west, the conspicuous landmark of Quarley Hill F38 was first encircled in this period, or the next, over the junction of several linear ditches. Although it may not have taken a great deal of effort to build, its first form was as a stockade (the effort for which is not truly represented by the *ditch labour* calculation method). Its location at a 'special place' and the presence of a substantial midden in this otherwise unoccupied spot suggest that it may have been an inter-community aggregation facility. The subsequent bank and ditch certainly did take rather more effort to dig although there is not enough excavated data to allow a *ditch labour* calculation. The site is comparatively small at c3.5 ha and the bank and ditch were certainly large enough to have provided complete privacy for the activity within which almost certainly included consumption on some scale and may have involved stock management activity. Unfortunately, there has been no internal excavation to clarify. The Suddern Farm F43 story is similar in that it is an enclosure built at a node of linear ditches, although only c 2.2 ha. Although the *ditch labour cost* is only c 3 person years (Table I.2), the internal occupation contains pits but no structures in the small area sampled and, on balance, it seems likely that this could have been a site for inter-community aggregation.

600 - 400 BC

Danebury F14 was developed as the densely occupied site on the smaller circuit familiar today and has been interpreted as a community settlement site from this time. The New Buildings F29 complex was extended by a second enclosure and by a pit alignment along the linear ditch connecting to Danebury F14 which contains what are described as 'ritual deposits' but in view of the permanent settlement of Danebury F14 it seems most likely that New Buildings F29 continued to be stock-related. Suddern Farm F43 continued but may have been temporarily abandoned; nevertheless, ritual activity involving excarnation of human bodies and burial in the quarry pit just outside the site suggests its continued use for aggregation events.

Close to Balksbury F02 (which continued in this period) the impressive enclosure of c8.9 ha at Bury Hill F08 was built at a *ditch labour cost* of c33 person years (Table I.2) and it was probably not home to any permanent structures. Given its size, activity was probably stock-related and the labour required to build it suggests that it was an inter-community aggregation point. Furthermore, there is a hint that in this, or at a later, period it was specifically geared toward the management of horses. It was certainly placed at an imposing location and even with comparatively low banks (c2 - 3 metres), activity in the interior would not have been visible from any vantage point.

In the centre of the county, St. Catharine's Hill F42 was occupied as indicated by especially large pits but it was not enclosed and the excavation methods employed were such that the primary function of the site cannot be ascertained.

400 - 100 BC

Balksbury F02 no longer housed any structures but did enclose at least 90 pits and remains interpreted as a site for inter-community co-operative effort. Suddern Farm F43 was substantially refurbished (at a *ditch labour cost* of c 13 person years) (Table I.2) and occupied by pits; quarry burial continued throughout the period and the whole suggests continuing use for inter-community aggregation although it could be interpreted as settlement if any structures had been found. The enclosure at Woolbury F49 was built at this time (*ditch labour cost* not known) but never occupied and maintained. That would suggest stock enclosure function were it not for its association with a local linear ditch system which could suggest that it was intended as a focal point for inter-community aggregation like Suddern Farm F43 and Quarley Hill F38 in the previous period, albeit that it may have been somewhat 'dilute' and possibly failed. St. Catharine's Hill F42 was enclosed in a very substantial manner at a *ditch labour cost* of c 56 person years (Table I.2) but it was probably not permanently occupied. Given its pivotal and defensible position in the landscape, and its fate (below), building by a number of small communities to provide a formal inter-community aggregation facility is indicated and that may have been for refuge as well as for control of movement in the landscape.

It remains to consider the role of the 'banjo' enclosure complexes. The investment in superstructure does not appear great on first inspection, but it must be remembered that all of three of the excavated examples of sites built in 'banjo' form from the outset (Blagden Copse F04, Bramdean F05 and Micheldever Wood F27) were linked in to contemporary linear ditch systems and two at least are associated with further (unexcavated) enclosures. Those findings are paralleled in excavated and surveyed examples in eastern Wiltshire (Corney, 1989, 116-126). Their role may be associated with ritual practice because the nature of pit deposits is unusual but similar at the different sites, and the shape, size, 'working area' of a scoop filled with a flint floor, 'cobbled' entrances, high number of burials of infants and adolescents are common to all three, too. In the case of Blagden Copse F04, at least, the 'banjo' enclosure was connected with sites involved in mortuary-related ritual in the next period. Looking at their distribution (Appendix F, fig. F.4), there is some hint that true 'banjo' enclosures were sited between main conurbations (e.g. Micheldever Wood F27 between central and north-east concentrations; Bramdean F05 between central and eastern; Blagden Copse F04 between north-west Hampshire and north-east Wiltshire). The observed pattern gives rise to a suspicion that 'banjo' enclosures had a role in hosting inter-community meeting and decision-making events which could have been to negotiate relationships and agreements articulated through stock-related practice in some way.

100 BC - AD 43

In the final period of the study, Balksbury F02 continued as a probable aggregation site, as did the 'banjo' enclosures (stock enclosures or aggregation sites) to which Nettlebank Copse F28 was added at this time. However, Bury Hill F08 became a densely settled site and is better categorised as a specialised community settlement site at this time and St. Catharine's Hill F42 went out of use following a fierce burning incident at c 100 BC, as did Danebury F14 by 50 BC at the latest. The 'shrine' site at Hayling Island F19 is designated an aggregation site, albeit that ceremony may not have involved large numbers at any one time. Interestingly, the development of smaller 'ritual' sites can also be seen at Blagden Copse F04 and, possibly, Silkstead F41 (Denford, 1992, 51-52).

Suddern Farm F43 seems to have gone against the trend at this time in that the ritual aspect of the site seen in the quarry burial practice ceased, the enclosure was substantially extended and refurbished at a *ditch labour cost* of c 24 person years (Table I.2) and the internal assemblage became more 'high status' and included imports. Although no structures are evident in the limited excavation area, the whole tends to suggest a more permanent settlement.

GDM analysis

The analysis is organised and presented in the same manner as that of Sussex, detailed in Chapter Six (The GDM of Sussex), in line with the method proposed in Chapter Four (Modelling Social Structure). Some calculations are taken out of the main text and placed in Appendix G (Calculations used in GDM Analysis) and the site details are included as Appendix F (Hampshire Dataset).

The whole study area

Population

The communities of the first millennium BC in Hampshire were located at all points of the County, although with apparently localised preferences in some periods. No single area has been so thoroughly examined as to allow localised calculation of population by estimating the capacity of archaeological sites. Therefore, this line of evidence gives a *null* result in all periods.

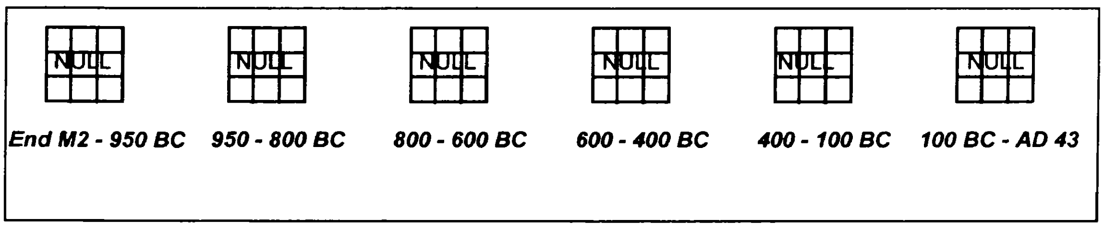


Figure I.1 - GDM - Whole study area - Population

Style

Ceramics

Ann Woodward's (1995) study has been introduced in the Sussex GDM analysis (pp. 165-166) and includes data from Hampshire. She finds a number of factors which group sites into geographically-based sets and, of particular importance to this exercise, middle Bronze Age very large fineware vessels occurred only in central Wessex (Hampshire and Wiltshire) and coincided with a wider range of coarseware vessel sizes than the Dorset 'group' or the Avon/Stour (Woodward, 1995, 199-200). Woodward dates the size repertoire developments to the middle Bronze Age (the 950 - 800 BC period in this study, approximately) in these regions and she argues that those changes signalled the identity of (self-defining) social groups at two levels. Firstly, the division of household tasks is emphasised and facilitated by the development of clear functional classes of vessel and, secondly, this is an emblemic signal at regional level *'symbolised and regulated by the adoption of regional styles of fineware'* (Woodward, 1995, 201). Tentatively, this could be best described as the *'emblemic* [style signal] *at a range greater than community level* [and with] *no local community emblemic'* (p. 100) of *contingent* network density, an up-density move from the local community emblemic of *circumstantial* density up to c950 BC.

Much of north-east Wiltshire and Hampshire show an wholesale change to early All Canning's Cross ware during the C 8th BC, growing out of established technological practices and styles but with new formal and decorative attributes which suggest a clear break with the preceding plain ware tradition (Bradley et al, 1994, 143). In the Salisbury Plain Study, touching on north-west Hampshire, (discussed in detail below), Bradley, Entwistle and Raymond have been able to demonstrate that the earlier tradition of plain ware was best described as an *'idiosyncratic use of widely distributed fabrics and decorative techniques yet ... [with] a broad level of unity'* (Bradley et al, 1994, 143). However, they argue that as the new ware spread, the stylistic contrasts signal differences between larger populations (in terms of geographic area) illustrated by two differentiated within their study area, concluding that there may have been comparatively less emphasis on differences between individual settlements (Bradley et al, 1994, 143). That may indicate an even wider community inclusion in emblemic signalling through pottery, which certainly suggests that a network density in the *contingent* range at least continued into the C 8th BC and it might have been as great as *corporate*.

Cunliffe's (1991a, 69-79) analysis takes up the story for the C 6th BC onwards as has been outlined in the Sussex GDM analysis (p. 166). In the period from c 600 - 400 BC, the All Cannings Cross - Meon Hill style is quite distinct from the earlier range on the evidence of stratigraphic relationship at Longbridge Deverill Cow Down, Wiltshire (Cunliffe, 1991a, 71) yet shows some continuity. The ware is recognised at sites in central, western and north-western Hampshire and extending into Wiltshire in a band which centres on the chalkland (Cunliffe, 1991a, 71-72). Barry Cunliffe (1991a, 72) further argues that other aspects of material culture (specifically metalware) serve to emphasise the cultural unity of the area. The second ceramic style in Hampshire is the Park Brow - Caesar's Camp group found in the comparatively thinly populated, more easterly area of the county (specifically at Chalton 50 F11) and across into Sussex and Surrey. Again, the distribution appears exclusive in the study area part of the whole, although there is some geographical intermixing with other traditions further to the east (Cunliffe, 1991a, fig. 4.4; p. 166). Although this study is not detailed, the geographically-differentiated style distributions do tend to argue for a continuation of *contingent* or possibly *corporate* emblemic signalling into this period.

During the 400 - 100 BC period there is a shift to a wider distribution of fewer styles in the study area (Cunliffe, 1991a, fig. 4.6, reproduced as fig. I.2, below) of which the St. Catharine's Hill - Worthy Down tradition covers all of Hampshire (and occurs into west Sussex and north-east Wiltshire) and comprises a subset of the general forms known as the 'saucepan pot continuum'.

The St. Catharine's Hill - Worthy Down group shows not only a differentiating decorative practice but also a greater predominance of jar forms than other ceramic groups (Cunliffe, 1991a, 81). Those signals both in terms of form and (presumably) function common over a wider area than heretofore may suggest a stronger signal of the habitant identity than previously, tending toward the *corporate* degree of network density.

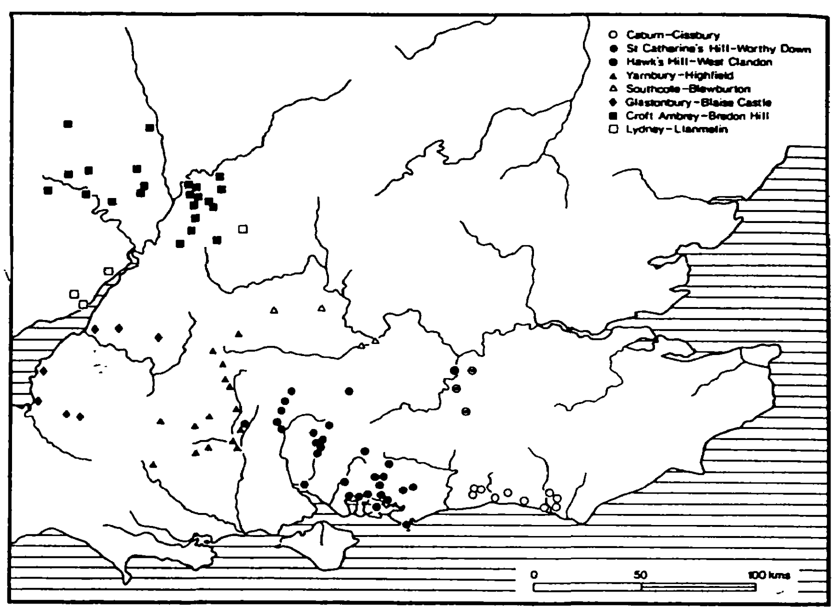


Figure I.2 - Distribution of pottery styles in the period 400 - 100 BC (source: Cunliffe, 1991a, fig. 4.6)

That finding is extended when considering the 100 BC - AD 43 period for which Cunliffe (1991a, 151-152) identifies continuity in the broad pattern of style distribution. The homogenous Southern Atrebatic style is centred upon Hampshire and West Sussex and is symptomised by the basic forms and decorative styles from the preceding 'saucepan pot' phase but with the difference that they are mostly wheel-turned. The neighbouring Northern Atrebatic style of northern Wiltshire and southern Berkshire is similar in many ways but has variation in line with the earlier 'saucepan pot' forms in those areas (Cunliffe, 1991a, 151-152). Cunliffe (1991a, 149-152) draws from the coin distribution evidence to argue support for this finding (not detailed as a separate category in this analysis).

Currency bars (i.e. iron bars or parts of bars of similar sizes, weights and shapes)

In the period 300 - 100 BC (Hingley, 1990, 92), the practice of deposition of currency bars in special contexts, both singly and in multiples, occurred over a wide area of southern Britain. Close analysis of the types of bars and contexts of deposition reveals a significantly different practice in parts of Hampshire compared to elsewhere. Of the three main types of currency bar (sword, spit and plough share shapes), all of the Hampshire finds except one plough share shape at Danebury F14 have been of the sword shape. That bias is not exclusive to the area as it occurs over most of Wessex and along the lower Thames (per Hingley, 1990, fig. 1 and app.). However, all Hampshire deposits (except that at the C 1st BC Hayling Island F19 'shrine') are also buried inside enclosure boundaries or within the boundary ditches and the internal contexts are all pits (Hingley, 1990, tab. 3), a practice which occurred almost exclusively in Hampshire. Within the excavated dataset the main examples are Danebury F14, Old Down Farm F32, Winklebury F48 and Worthy Down F50, all of which have small numbers compared to sites further afield. The specific practice in Hampshire seems to have been marked, suggesting a regional custom wider than the individual settlement and applying to the northern half of the county, suggesting *corporate* or *contingent* density identity signalling of an emblemic practice style presumed to stand for the ritual practice surrounding deposition of currency bars across a wide area.

Taking the evidence of both ceramics and currency bars, the style indicators of density suggest developments as shown in figure I.3:

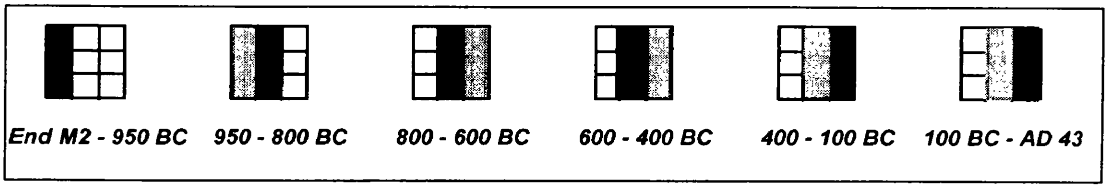


Figure I.3 - GDM - Whole study area - Style

Specialisation

Centrality

In the periods up to c600 BC, there is no indication of any behaviour which could be construed as community specialisation in the archaeological record but there is a general shortfall in evidence at artefact assemblage level as the chalk downlands, particularly, have remained important for agricultural practice from that time to the present day. Thus, the *equal* centrality conclusion is rated as *weak.*

In Iron Age studies *per se* there has been a long-standing assertion that 'hillforts' represent the top of an hierarchy of status and that they may have articulated and maintained a superiority by the annexation of particular goods and services, controlling by being centres of redistribution and that was most strongly argued in the early days of reporting results from excavation of Danebury F14 (Cunliffe, 1984). Those assumptions have been challenged strongly over the past decade, to the degree that Cunliffe's own analyses have been considerably tempered recently (e.g. 1991a) and the argument has been neatly summed up by Hill (1995a). Taking the first thread of the argument, the suggestion that craft production on a scale beyond the needs of the resident population took place has been examined in the area of textiles. By calculating the densities of textile-production-related artefacts per pit, it is clear that the 'hillfort' densities are average in the dataset of communities as a whole dispelling all claims to specialised production (Hill, 1995a, 48). Furthermore, the ratio of 'spindle whorls' to 'loom weights' is average, as well (Hill, 1995a, 48). The same is true of iron metalworking, sheet bronze production and pottery production (Hill, 1995a, 48). Shale objects, quern stones and salt were probably produced on a more intensive scale amounting to part-time or seasonal specialisation but that is likely to have been related to raw material sources (of which only salt occurs in Hampshire) (Morris, 1994a, 384-387; Hill, 1995a, 48-49). The concentration of salt containers underlines the point, as clearly no central redistribution took place (Morris, 1994a, 386-387; Hill, 1995a, 49). Thus, despite differentials in size of communities, Hill's (1995a, 48-50) review of the debate supports the sense in Stopford's (1991, 71) argument that the widespread occurrence of craft-related artefacts suggests the *'need, or desire, for independence between groups'* (Hill, 1995a, 50; Stopford, 1991, 71). That certainly indicates the continuation of a weak assertion of *equal* centrality through the 'hillfort period' (to 100 BC).

From 100 BC there is a hint of specialisation at two sites and both of them have been excavated but not published in full. In the north-west, Bury Hill F08 may have specialised in horse breeding or management, to judge by the disproportionate size of the assemblage of horse- and riding-related accoutrements and in the central area the erstwhile densely settled Oram's Arbour F33 enclosure is said to have been depopulated to a degree but to have become a centre for industry at this time. If correct, these indicate a move toward *differential* or *insulated* centrality.

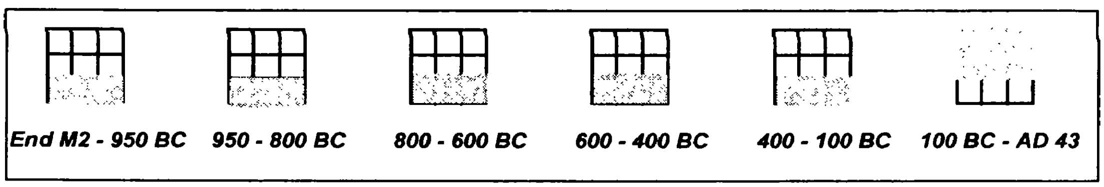


Figure I.4 - Whole study area - Specialisation - Centrality

Density

At all times in the study period it is possible that the stock enclosures, communal aggregation points and larger community settlements could have acted as markets, but strong evidence appears in the careful analysis of stone weights found, recorded and analysed during the modern excavation at Danebury F14. The weights were iron-shanked and carefully cut, suggesting a system of careful measurement. The rate of occurrences of these artefacts in pits at that site suggests that it was in existence at least as early as the C 4th BC (Cunliffe, 1995a, 70; (vol. 2), 408-412). Given the possible excess of storage facilities over roundhouse accommodation at that site, it is quite feasible that people met there to take part in 'market' exchange. Furthermore, the distribution of Celtic coins at Danebury F14 from c100 - 10 BC is concentrated outside the enclosure circuit and is thought to be consistent with that expected from a market (Cunliffe, 1995a, 101), suggesting continuity in that role when permanent occupation and maintenance had ceased. It is impossible to gauge whether other sites in the study region could also have served as markets because few have been the subject of comprehensive and modern excavation exercises. However, there are further examples of iron-shanked stone weights in contemporary contexts at Easton Lane F15 (one - Danebury F14 type) (Fasham et al, 1989, 108, fig. 101.8), one (unusually, decorated) from Winnall Down F15 (Fasham, 1985, 81 note 14, fig. 66.14) and another from Winklebury F48 (Smith, 1977, fig. 40.4 and 40.7). Thus, it seems likely that a system of measured exchange extended over much of the study area from c400 BC onwards but there is only tenuous evidence for market sites *per se* and it has been argued (p. 101) that a market can only be posited on the strength of a public location which is obviously not a community settlement as well, and that care must be taken to be sure that it was intended to serve the habitants rather than to provide a formal facility for trading with other habitant populations. The evidence certainly does not point to either of those conclusions in Hampshire, therefore the network density finding from this line of evidence is *null* at all times.

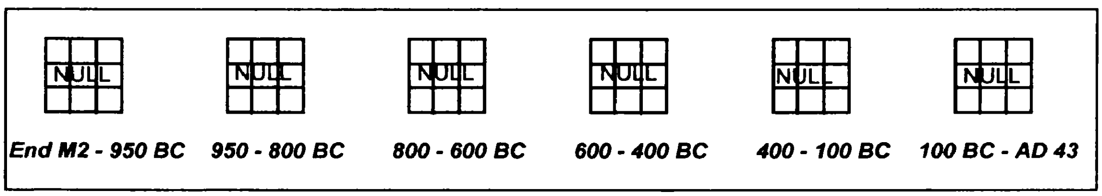


Figure I.5 - GDM - Whole study area - Specialisation - Density

Community site patterning

End second millennium - 950/900 BC

Although the full extent of most of the community settlement sites is not known as they were open in this period, there is nothing to suggest that any of them were of the same order of magnitude of size as Easton Lane/Winnall Down F15 and similarly, although they all show signs of having been integrated with field systems, the planning and effort involved does not compare. The only possible exception is Chalton 78 F12 which is noted for bronze finds but the fact that these were all scattered on the floor of hut one has been taken to suggest rapid abandonment, when even valued items were left behind, rather than as an indicator of particular wealth of that site. Not only is the differential order of magnitude between Easton Lane/Winnall Down F15 and other settlements obvious but the site also includes three buildings which were a great deal more substantial than all others (CS2789, 2341 and MS4010). The one thing which could be used to argue against a clear conclusion of *differential* or *insulated* centrality is the length of time of the occupation; if all buildings were replacements rather than contemporaneous at Easton Lane F15, then it may have been a comparably sized settlement to the others at any one time. However, not only is that considered unlikely by the excavators (and, indeed, the site is thought to extend over a much greater area than excavated) but also the disparity in the residential architecture both in terms of size and in care in construction would suggest *differential* centrality at the community level. The excavators support this view in that they argue, at some length, that the Easton Lane/ Winnall Down F15 site may have been an important element in the distribution networks of Wessex, especially given its commanding position above the River Itchen (Fasham et al, 1989, 147). In summary, there is little to sustain an argument for the hierarchic structure of large, wealthy sites and poorer satellites of *insulated* centrality, but the differentials are great enough to suggest the heterotaxic pattern typifying *differential*.

950/900 - 800 BC

On the evidence of excavated sites, the pattern of settlement would appear to have changed rather dramatically into the late Bronze Age but the excavated dataset is limited and small, open community settlement sites are suspected at Franconia Drive F17 and Grange Road F18 (although their full extent has not been located by excavation). Cowdery's Down F13 appears more significant, with occupation represented by three very large roundhouses (or barrows) (@ 14, 13.5 and 13 metres diameter) which are probably comparable with the larger structures at Easton Lane/Winnall Down F15, when the difference in the criteria for diameter measurement (between postholes at Easton lane/Winnall Down F15 and across a ring ditch at Cowdery's Down F13) is taken into account. The focus of settlement at Easton Lane/Winnall Down F15 shifted eastward to the Winnall Down quarter and the extent of that settlement at this time may have reduced considerably although certainty is not possible given the shorter time period and the possibility that the site <u>could</u> have extended westward into the unexcavated part of the area.

Nevertheless, no especially large structures are uncovered and the structured landscape appears to have been divided into smaller units.

Overall, the impression is that there was some kind of an hiatus in the settlement of the central and eastern parts of the county with a resultant change in settlement pattern both in terms of location and in the reduction of the differentials between Easton Lane/Winnall Down F15 and other sites. Although varied in form, no one community settlement site stands out as being larger, wealthier or the home of a higher status social sector than any other, suggesting *equal* centrality.

800 - 650/600 BC

Occupation of the large roundhouses comprising most of the Cowdery's Down F13 site either continued in this period or they were built at this time. The nearby Brighton Hill area appears to have been first settled at the short-lived and burnt open farmstead of a single roundhouse known as the X/Y F07 site. Overall, there is too little excavated evidence in the north-east region to draw any confident conclusion on this analysis category.

In the centre of the county, the Easton Lane / Winnall Down F15 settlement area was overlain by a small, enclosed settlement site with up to eight roundhouses over the period c700 - 450 BC (i.e. throughout following period, as well). Whilst the sequence or degree of contemporaneity at this site is not certain, the large and elaborate Structure E at the entrance is thought to be early but, other than that, there need not have been more than two roundhouses occupied at any one time. Although the enclosure may have been built to impress (especially when viewed from the outside), the ditch was allowed to silt up (to 85% full over this period and the next) and, therefore, the impression of status was not maintained. Overall, the impression is of an ostentatiously defined farmstead in its early days (perhaps c700 - 600 BC) but no more than that, in that the field systems were simplified and the *ditch labour cost* (1 person year - Table I.2) shows that the whole could quite feasibly have been built by a very small community.

In the north-west there were considerable changes and developments. The earliest community settlement site in the dataset for this area appeared in the form of the small enclosed site at Old

Down Farm F32. At first it shows occupation evidence but no structures (to c700 BC) and then it was developed as a more emphasised enclosure with a large number of pits and one large roundhouse set close to the entrance just as at Easton Lane/Winnall Down F15. This has been interpreted as a small farmstead and would have been readily built by a very small community to judge by the *ditch labour cost* of 4 person years (Table I.2).

In total, then, for this period the evidence for community settlement sites for analysis of inter-community settlement amounts to:

Site	*Longevity*	*Occupation - structures*	*Style*
Brighton Hill X/Y F07	Short-lived	1 roundhouse	Open farmstead
Cowdery's Down F13	Long-lived	3 roundhouses	Open and growing in size
Easton /Winnall F15	Long-lived	c2 roundhouses	Enclosed farmstead
Grange Road F18	Long-lived	n/k	Small; little known; open?
Odiham F31	Short-lived?	1 roundhouse	Enclosed farmstead
Old Down Farm F32	Long-lived	c1 roundhouse (700 +)	Enclosed farmstead

Table I.3 - Community occupation sites in the period 800-600 BC

The trend for heterogeneity of community settlement site morphology appears to have continued on the basis of this small sample, albeit that enclosure appears to have grown in popularity in this period and overall the dataset suggests that *equal* centrality continued.

600 - 400/350 BC

A number of recent discoveries in the environs of modern Basingstoke indicate a continued increase in settlement density with new enclosed settlements known at Rooksdown F39 and Oakridge F30 and open sites at B/C and K at Brighton Hill F06 and Ructstalls Hill F40 (at none of which were any structures identified). The low-lying plateau hilltop at Winklebury F48 was enclosed annexing an area of c7.6 ha in an elaborate manner and the interior housed c5 roundhouses in this 200 year period (including the replacement twice of a particularly large structure). As the interior features were fairly densely packed, there is every reason to suppose that the 70% unexcavated would reveal more. This was probably an agglomerated settlement community and may have been defensible yet the *ditch labour cost* of c 21 person years (Table I.2) shows that it could have been built over a short period by a number of people which need not have been more than a single, small community. Other features include a large number of above-ground storage structures and pits so this would seem to have been a more permanent and larger community than most. There is no certain evidence that the other sites in the neighbourhood were permanently occupied at all.

In the centre of the County, the Easton Lane/Winnall Down F15 community continued to occupy the D-shaped enclosure discussed in the previous period (above). New sites comprising pits and domestic features are known at Twyford Down F45 and St. Catharine's Hill F42 but regrettably little is known of their form, largely because of the age of the excavations.

In the north-west, the Old Down Farm F32 community stayed on and grew to occupy four roundhouses but allowed the enclosure ditch to silt. The Danebury F14 hilltop was developed as a smaller, elaborate enclosure within the perimeter of the 'outer earthwork' of the previous period and was occupied by a large number of roundhouses organised into zones and associated with large numbers of pits and above-ground storage structures. It appears quite feasible that the enclosure was built by the community represented by these living quarters and, thus, that this was genuinely a larger and more aggregated community than any other excavated to date. Meon Hill F26 is very difficult to interpret given the quality of the excavation record but seems to have been home to a smaller community, in that the enclosure, built at a *ditch labour cost* of c10 person years (Table I.2), housed a number of pits and postholes and probably structures for dwellings including a possible 'long house'. Three smaller farmsteads in the vicinity have been excavated; Nettlebank Copse F28 was a palisaded enclosure and a single unit, open farmstead at Little Somborne F24 lay in a network of Celtic fields, as did the D-shaped enclosure at Lain's Farm F23 (to the west) which was also connected into the linear ditch system centred on Quarley F38.

Thus, it appears that Danebury F14 and Quarley F38 appear at pivotal points of the linear division of the landscape in that area as does the impressive aggregation site at Suddern Farm F43 and Danebury F14, at least, housed a considerable community. The first two appear to have been related to other, smaller farmstead-type sites in their environs which may have been enclosed. Winklebury F48 may represent a similar relationship between a larger community and others in the vicinity of modern Basingstoke (the north-east of the county) and a third example might be St. Catharine's Hill F42 in the centre of the county, although too little is known to judge with confidence. At the most north-westerly point (around modern Andover), no particularly large community has been located.

Overall, the evidence of the excavated sites seems to be best described as the pattern of large sites with smaller satellites which indicates either the heterotaxic pattern of *differential* centrality or the hierarchical pattern of *insulated*. However, if it were an hierarchy it would be strange in that the population of the physically higher and better placed communities would be larger than the 'satellites' around yet those would be most likely to be the 'superior' communities. It could be that these were intended to provide defensible bases and that smaller communities chose to co-locate there for protection in the first instance. Furthermore, substantial and convincing argument has been levelled against the equation of 'larger' and 'higher status' or 'specialised' in these circumstances demonstrating, on the contrary, that the profile of the Danebury F14 assemblage is the same as, or rather inferior to, the average of other and smaller sites (summarised by Hill (1995a) and discussed above). Given that position, the question of whether this could possibly represent *equal* centrality must be asked. This is disregarded as a possibility because, whatever the intention, substantial differences in the size of communities inherently result in substantial differences in access to social network resources, at the least, thus tending to result in a degree of centrality whether intended or not. Therefore, the evidence probably represents *differential* centrality when the county is taken as a whole.

400 - 100 BC

Settlement appears to have spread to the lower southern area again at this time, represented by the enclosed settlement at Owslebury F34 and further south at Maddison Street F25, Southampton. Little is known of the latter, as excavation was limited by area, but the small Owslebury F34 enclosure could have housed only a small community of perhaps one or two roundhouses at most. These sites are all too spread to allow any real contribution to this line of analysis.

The north-east area showed continuing new settlement in a small open example at Viables Farm F46. The enclosed Winklebury F48 settlement was at least as densely occupied at this time as previously and communal stock-holding areas within the enclosure were more explicitly annexed off. Attribution of Ructstalls Hill F40 as an enclosed community settlement is more certain in this period, as four or five roundhouses have been identified (although the degree of contemporaneity is unknown). Thus, as in the previous period, the community distribution in the area tends to support *differential* centrality.

In the centre of the county, the Easton Lane / Winnall Down F15 community expanded again and returned to un-demarcated area although showing planning in the internal layout. The community as represented by the area excavated may have housed in the region of 4 - 8 roundhouses at any one time but there is every reason to believe that the unexcavated area abutting the settlement to its west hides further evidence. In the vicinity lie the smaller settlements at Worthy Down F50 and Owslebury F34 but a most significant development took place in the building of the Oram's Arbour F33 enclosure, located on the western bank of the River Itchen, at a *ditch labour cost* of c143 person years. The site is thought to have been densely occupied by roundhouses and other structures, as glimpsed through small windows on that time horizon allowed by development in the modern city of Winchester. On the eastern bank of the River Itchen, the prominent landmark hill was fully and dramatically enclosed (St. Catharine's Hill F42) at a *ditch labour cost* of c 56 person years but it is not likely to have been a community settlement site. On the same principle as the north-west and north-east areas, then, this is likely to indicate *differential* centrality over time, whether intended or not.

In the north-west, the picture remained similar to previously but Old Down Farm F32 appears to have been neglected and allowed to become open; the population of the community there certainly fell and, indeed, it may have ceased being used for permanent occupation. The sites which were not community settlement sites in the area also seem to have suffered a period of neglect at this time (i.e. Balksbury F02 and Bury Hill F08). Thus, the area may have become something of a backwater in terms of settlement *per se* although it appears to have maintained some importance in communal stock management events.

The distribution of sites in the Danebury F14 region remained steady but the enclosed settlement itself seems to have become much more densely occupied and, indeed, substantially refurbished in this period with at least one major re-organisation event. Although the activity range and levels have been demonstrated to be similar to other settlement sites at this time, there can be little doubt that the size of the community at Danebury F14 would have resulted in *differential* access to social resources, amounting to *differential* centrality for those people who lived within its bounds.

The *ditch labour cost* calculations (Table I.2) demonstrate that the main investment in community settlement sites in this period were in the large new settlement at Oram's Arbour F33 in the centre of the county (at c143 person years), in the refurbishment of Danebury F14 in the north-west (at c 155 person years) and that of Winklebury F48 in the north-east (at c18 person years). Thus, the picture is rather similar to the earlier period but distribution appears to have become more locally concentrated in this. This tends to suggest continuation of *differential* centrality. Furthermore, it has been argued that the site distribution for this period hints that 'banjo' enclosures could be sited between main conurbations (e.g. Micheldever Wood F27 between central and north-east, Bramdean F05 between central and east and Blagden Copse F04 between north-west Hampshire and north-east Wiltshire) and this can be taken as support for the posited heterotaxic pattern of a larger site and satellites suggesting *differential* centrality; activity at 'banjo' enclosures may have had a formal role in maintaining inter-community relationships.

100 BC - AD 43

In the north-east, the larger settlement at Winklebury F48 was abandoned by this time and other changes are evident at the smaller community settlement sites. The physical focus of location shifted slightly at Brighton Hill B/C and K F06, Oakridge F30, Ructstalls Hill F40, Viables Farm F46 and the long-abandoned Cowdery's Down F13 site was enclosed and refurbished.

Around the central area, dense settlement of the large Oram's Arbour F33 enclosure ended but settlement at the smaller sites at Worthy Down F50, Twyford Down F45 and Easton Lane /

Winnall Down F15 continued and no new sites are known to have been built. The non-settlement enclosure on top of St. Catharine's Hill (F42) was fiercely burned at c100 BC and it is possible that aggressive action caused the apparent depopulation.

In the north-west, the Danebury F14 settlement site was also abandoned but the nearby Bury Hill F08 site, a stock-related aggregation point for centuries, was refurbished at a *ditch labour cost* of 120 person years (Table I.2) and may have been settled. The Suddern Farm F43 long-standing hilltop enclosure and 'ritual' centre was substantially refurbished at a *ditch labour cost* of c24 person years (Table I.2) and was also likely to have been settled at this time. On a smaller scale, but similarly, the Woolbury F49 hilltop enclosure, long left to fall into ruin, was resettled as a farmstead.

Finally, in the north of the county, the comparatively massive settlement at Calleva F09 (modern Silchester) was laid out *de novo* at a *ditch labour cost* of c 212 person years (Table I.2) and is regarded as the most certain of the pre-Roman *oppida* sites mooted for this time. Rather less certainly, there is a school of thought which posits that the Oram's Arbour F33 site (referred to as 'Winchester') may have been of enclosed *oppida* character (e.g. Cunliffe, 1991a, 154; Millett, 1992, 24) and it was almost certainly the basis for the Roman town of Venta Bulgarum (the 'town of the Belgae').

Much of the previous pattern appears to have been overturned in this period and proto-historical sources offer a tantalising explanation in the story of the 'Belgic Invasion' of the area. The likelihood of an unchanging habitus in the county is slim, given clear indications of cultural liaison between the population and the continent, at least, and very possibly the influx of another habitant population (whether aggressive, or not). It would appear that the previous heterotaxic pattern was undermined and that people regrouped in new ways. In some quarters that seems to have taken the form of dispersal to small community settlements, suggesting a down-centrality development, but the investment in large community settlements in others (also associated with higher status assemblages - see below) redresses that balance. Overall, *differential* centrality is carried forward but an *insulated* degree is not out of the question.

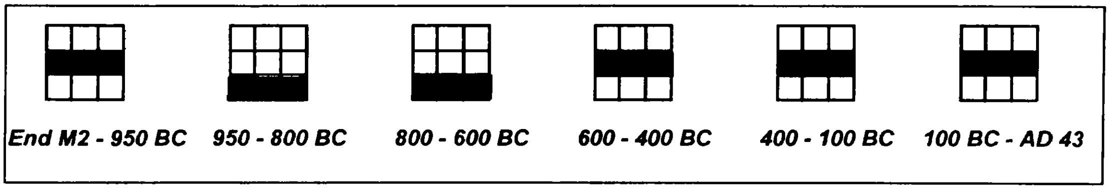


Figure I.6 - GDM - Whole study area - Community site patterns

Access

Whilst it is possible that one or two sites could be interpreted as inter-community aggregation facilities in the earliest periods (to 800 BC), certainty is elusive; the slightly bounded stock enclosures could have been shared and *equal* centrality best describes the whole pattern. The analysis for the remainder is summarised in table I.4:

Table I.4

Period / Site	***Form***	***Centrality analysis***
800 - 600 BC		
Balksbury F02	Substantial enclosing earthworks and entrance to large enclosure. Imposing, impressive and activity within private. Large roundhouse for meeting suggests second level of privacy.	Closed and bounded *Insulated*
Danebury F14	Outer enclosure of c 16.2 ha (dimensions unknown); possibly followed by inner stockade	Closed but not bounded at first (because large and thus fairly unrestricted); then, the stockade would upgrade privacy and space restriction to closed and bounded. *Differential to Insulated*
La Sagesse F22	Maybe ritual deposition in water from walkways built over rivulet	Open and unbounded *Equal (weak)*
Quarley Hill F38	Single enclosure of hilltop site c 3.5 ha by stockade (height and dimensions not known)	Closed and restricted if stockade not especially impressive, otherwise closed and bounded. *Differential to insulated*
Suddern Farm F43	Single enclosure of hilltop site c 2.2 ha and slight bank / ditch	Closed but not bounded *Differential*
Swanwick F44	Maybe ritual deposition in shaft / hoards	Open and unbounded *Equal (weak)*
Summary:	The evidence from the two possible water-related open 'ritual' sites too weak to include. The others show equal split.	***Differential to insulated***
600 - 400 BC		
Balksbury F02	Continued or wholly this period	Closed and bounded *Insulated*
Bury Hill F08	Impressive single enclosure of hilltop site of c 8.9 ha with bank and ditch with c 6 metres total drop	Closed and restricted *Differential*

Table I.4 (continued)		
Period / Site	***Form***	***Centrality analysis***
600 - 400 BC (continued):		
Quarley Hill F38	Earthen enclosure with bank and ditch c 6 metres total drop and impressive 12 metre long entrance passage with gates and 'guardroom'	Closed and restricted *Differential to insulated*
Summary:	Equal split	***Differential to insulated***
400 - 100 BC		
Balksbury F02	Continued but no longer any roundhouses	Closed and restricted *Differential*
'Banjo' enclosures	Very small sites but elaborately enclosed with long funnel, entrances, although no gates; sited in woodland in some (if not all) cases. Small and hidden.	Closed and bounded *Insulated*
Bury Hill F08	Continued	Closed and restricted *Differential*
Balksbury F02	Continued but neglected	Closed and restricted *Differential*
St. Catharine's Hill	Enclosure of c 9ha by bank and ditch c 6 metres total drop and impressive 18.5 metre long entrance passage with gates and 'guardroom'	Closed and restricted *Differential*
Suddern Farm F43	Refurbished after period of neglect; double enclosure ditch probably c 6 metres total drop; 'quarry cemetery' outside	Closed, but not very restricted as some activity may have taken place outside in full public gaze *Differential*
Summary:	Could be equal split but interpretation of 'banjo' enclosures as inter-community aggregation sites is tentative.	***Differential (strong) to insulated (weak)***
100 BC - AD 43		
'Banjo' enclosures	Continued; Blagden Copse F04 elaborated by becoming part of a mortuary-related, high status complex of 'ritual' sites	Closed and bounded *Insulated*
Hayling Island F19	'Shrine' complex; small shrine building within lightly enclosed courtyard	Closed and restricted *Differential*
Summary:	Could be equal split but interpretation of 'banjo' enclosures as inter-community aggregation sites is tentative whereas the differential is firm.	***Differential (strong) to insulated (weak)***

Table I.4 - Access analysis for inter-community aggregation sites of Hampshire

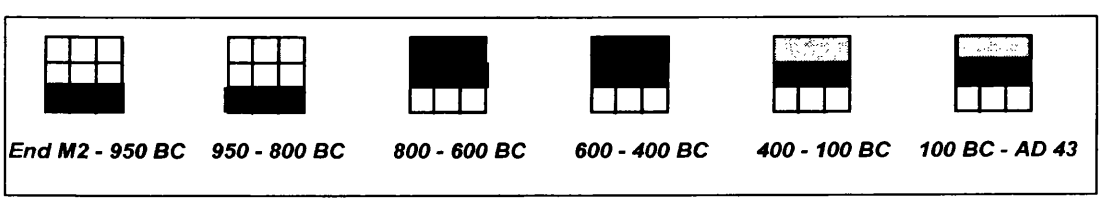


Figure I.7 - GDM - Whole study area - Access

Community architecture

Territory and boundaries

Fortunately for the purposes of this analysis the interpretation of the modified landscape and its implications for establishment and maintenance of territories and boundaries has been the subject of a major and seminal field-based exercise conducted by Richard Bradley, Roy Entwistle and Frances Raymond in the early 1990s over a large area centred along the Bourne Valley as it crosses north-west Hampshire into Wiltshire (Bradley et al, 1994). Whilst the individual sites are not included in the detailed work of analysis of the GDM, the 'Salisbury Plain Study' ('SPS') calls upon data from north-west Hampshire, as well as sites further afield. Thus, where appropriate, the data from the Wiltshire sites cited are directly referenced in this summary, as analysed by Bradley et al (1994) rather than from original sources.

The area analysed is characterised by a landscape punctuated by long linear ditches and field systems in a pattern usually referred to as the 'Wessex Linear Ditches' and in the SPS area they are now known to have appeared first in the late Bronze Age in a landscape characterised by open settlement, a general form continued from the middle Bronze Age (Bradley et al, 1994, 137). The chronology is not fine enough to establish whether they were all set out at the same time or by incremental additions (Bradley et al, 1994, 137). There is nothing to indicate that the establishment of linear ditches involved a major agricultural change and the general pattern is interpreted as suggesting that they served to define areas of settlement which included arable fields and pasture (Bradley et al, 1994, 137).

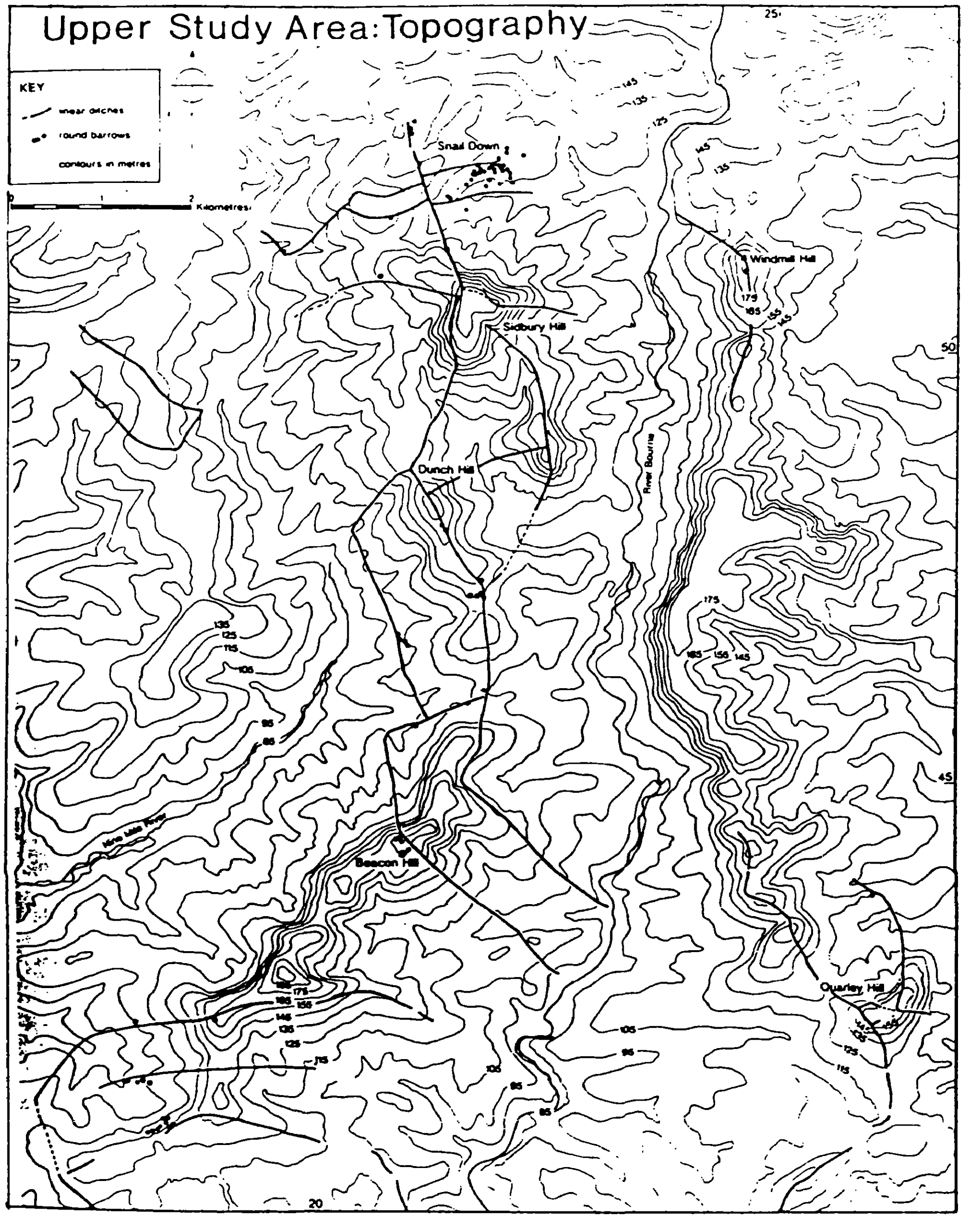


Figure I.8 - The 'Salisbury Plain Study' area (source: Bradley et al, 1994, fig. 23)

Furthermore, there is some reason to believe that those tracts of open country not annexed by ditch systems were not settled on any permanent basis. In the unbounded areas sampled, burnt flint was present in concentrations but there is very little (if any) evidence for domestic activity and, indeed, the flint work differs from the assemblage 'typical' of settlements. Additionally, the open areas contain one of the most accessible sources for good quality flint and there is evidence of bronze working in association with burnt mounds near the river. Bradley et al interpret the pattern as indicating that tracts of unsettled land were open to common use for raw material procurement and bronze working, at a minimum. (Bradley et al, 1994, 142).

Additionally, there may have been a third type of area where there were settlements which did not occupy bounded territory but were nearby and which appear culturally indistinguishable from those living within. (Bradley et al, 1994, 141).

In many instances the layout of the linear ditches acts to emphasise the alignment of the main ridges and watersheds in the SPS area and parallels the distribution of the middle Bronze Age round barrows which often cluster on high ground and along ridges. There are a number of instances where linear ditches appear to be aligned on prominent barrows or on barrow cemeteries and there are ditch junctions that are marked by a barrow mound. In contrast, there are also examples of avoidance of more conspicuous landmarks in favour of approaching barrows which are much less prominent. Thus, expedient use of barrows as sighting points for laying out the pattern of ditches is not sufficient explanation for the result and Bradley et al argue that the barrows marked an already existing territorial system, albeit less formally defined, being one in which the dead and the supernatural played a role. In circumstantial substantiation for the argument, they cite the subsequent practice of incorporating remains of the dead <u>of earlier periods</u> in the ditches. (Bradley et al, 1994, 140-141).

Bradley, Entwistle and Raymond (1994, 141) contend that *'the function of the earthworks remains elusive but we can no longer regard them as a device solely for the management of livestock, made necessary by a greater emphasis on pastoral resources'* and argue that their morphology is such that they would neither have served to provide a physical barrier to the movement of people nor as a barrier to cultural interaction, as a result. However, it is possible that they have missed the potential for effective protection of the agricultural resources contained against the possible threat of large-scale theft, in that herd-driving would be barred as would the passage of cartage on a scale great enough to effect the removal of large quantities of arable produce. Furthermore, livestock may have been contained effectively enough to prevent unintended herd-mixing and breeding. Given that extensive tracts of potentially productive land remained unsettled, there is little reason to suppose that population pressure on resources motivated the demarcation of allotments (Bradley et al, 1994, 142). Thus, there would appear to be no need for the pessimistic view that the function is incapable of interpretation (above), as proposals that do fit the facts can be made. Notwithstanding the original purpose of bounding tracts of land by linear ditches, serving to formalise existing territorial distinctions, the definition of those boundaries by marked features impeding normal progress across the land would almost certainly have had a significant impact on the cultural perception of boundary, ownership and social identity over time.

In the Hampshire areas where linear ditches marked out the landscape, similar findings to the SPS are assumed and considered external boundaries maintained by the group. Each bounded tract appears to have enclosed one settlement yet no single one even approaches the size that would suggest the possibility of *corporate* network density. If physical boundaries could have served some protective function, particularly for livestock managers (because there were unbounded communities which would, presumably, have included their stock with others in bounded areas or not have managed stock at all), then it is feasible to consider that the main layout could either have been agreed co-operatively, or that it was incremental with no need for specific overall entitlement agreement. To some extent, the relationship with the earlier round barrows tends to argue against the latter hypothesis but even the thorough SPS has been unable to refine chronological detail sufficiently for certainty. Thus, there is nothing to distinguish between *circumstantial* or *contingent* degrees of density. It is unfortunate that the report does not detail the nature of any individual 'open settlement' and so no confident decision about whether there is any 'second level' of boundedness between domestic-units can be made, but it is suspected that the use of the term 'open settlement' is more likely to describe unstructured agglomerations of a few domestic-units, with little formal division, as more formal division would be much more likely to be cited in examples in any number of recent analyses of middle Bronze Age and late Bronze Age settlement. Furthermore, Bradley et al (1994, 142) note that *'Although individual settlements seem to have become larger during the Late Bronze Age, there is no sign that the landscape was becoming more widely settled'*. This suggests that any site would typically have constituted more than one domestic-unit, by inference. However, they were probably not very large as Bradley et al (1994, 142) comment that there was no pressure on the resources within a boundary, as seen by the fact that the extent of arable cultivation was limited and the open-country element was largely grassland, possibly for grazing. In sum, this sounds more like the social-unit level boundedness of *contingent* density than the domestic-unit level of *circumstantial* but both are possible.

From the C 8^{th} BC the pattern of settlement in the SPS area underwent a series of changes and there is the first evidence for intensification of land use in that arable farming was practised on an increasing scale. Parts of the ditch system were also being modified at that time. (Bradley et al, 1994, 137). The early changes are associated with the appearance of early All Canning's Cross ware which Cunliffe (1991a, 555) dates to c800 - 600 BC and the earliest examples are in the Northern Core Territory of the SPS and coincided with the dissolution of the local territory boundary. That was followed by the spread of a single pottery tradition over a very large area (wider than the SPS area alone) as a cohesive, single tradition entirely replacing the subtle local distinctions of earlier wares and by that time the late Bronze Age settlements of the Northern Core Territory had been abandoned (Bradley et al, 1994, 143).

The spread of the early All Canning's Cross ware appears to have been associated with abandonment of open settlements and, therefore, with the close 1:1 association between linear ditches and settlements. In the study area, that pattern was replaced by sites of a different character and orientation with major emphasis on two distinct regions namely Lidbury and the Avon Valley in the north-west and Sidbury Hill in the south. (Bradley et al, 1994, 143). Lidbury and the Avon Valley was a newly settled location and the Lidbury enclosure was abutted by two sections of a longer earthwork, possibly indicating that it was integrated into a newly defined territorial system with its emphasis on the Avon Valley and the area around Upavon. Conversely, the north-west of Coombe Down saw a new ditched enclosure linked to an older linear earthwork. (Bradley et al, 1994, 143). By contrast, Sidbury Hill was an important nodal point in the late Bronze Age linear ditch system and that was emphasised in this period by the replacement of an existing boundary ditch by a more substantial double-ditched earthwork, representing the only known case of reconstruction of an existing boundary. The fact that the new one was on a monumental scale does suggest not only restatement of the boundary in a physical sense but also in a symbolic sense, particularly as the fresh upturn of white chalk on the higher bank would have made it clearly visible from some distance. (Bradley et al, 1994, 143).

At the same time, a number of new enclosures were built on focal points in the landscape, including Lidbury (above), Danebury F14, Sidbury (above), Ladle Hill in Hampshire (unfinished), Whitsbury in Hampshire (known from aerial photographs only), Uffington Castle and Liddington Castle in Berkshire and even further afield at Buzbury Rings and Maiden Castle, both in Dorset (Bradley et al, 1994, 143-144, 146-147). These all emerged in the period following the demise of the open settlement and at the same time as the earlier territorial arrangements appear to have broken down. Additionally, the coincidence of change in pottery styles suggests that they were part of a wider sphere of interaction and that cultural exchange was evolving. Finally, there are a number of examples of remodelling of the linear ditch system including instances of slighting (e.g. the ditch which served to 'close off' the upper end of the Northern Core Territory in the SPS), rebuilding on a monumental scale at Sidbury and elaboration of hilltop ditch junctions. On the final point, Bradley et al (1994, 144) interpret this as an increase in concern for regional visibility as opposed to more local preoccupations perceived as dictating the siting of the late Bronze Age boundary ditches. Furthermore, they find a significance attached to the Avon Valley, regarded as implicit in the shift of settlement pattern and suggest that the River may have served as a major communication route (for movement of ideas and influences). Both All Canning's Cross and Potterne are close to the Avon and included imported objects of amber and Kimmeridge shale, as did East Chisenbury. (Bradley et al, 1994, 144).

At this time, however, it is important to note that Bradley et al (1994, 146) find no sharp division in either form or function of hilltop enclosures and others. Re-orientation of settlement suggests that the evidence of the earlier territories in this period cannot be depended upon yet this work may not be a fine enough analysis for GDM assessment as it is evident that there were still open settlements in Hampshire (admittedly not in the north-west) and that use for permanent settlement signals a difference (e.g. Easton Lane / Winnall Down F15 and Old Down Farm F32, the latter bordering the area of the SPS). In particular, none of the hilltop enclosures show clear evidence for permanent occupation at this time. So, in general, they may have been co-operatively built aggregation points but that does not say anything explicitly about boundaries not better covered in the inter-community line of analysis (above).

Just working from the two examples, then, Easton Lane/Winnall Down F15 was a small enclosed settlement at this time but comprised several domestic-units (i.e. at least one social-unit) with no clear internal boundaries; the only boundary is that enclosing the whole community. The enclosure was set within an altered (simplified) version of the ditched fields. The size of the community does not suggest the likelihood of it supporting a *corporate* density network in its own right, thus boundedness at the social-unit level but not the domestic-unit suggests the *contingent* range. Old Down Farm F32 is similar in this respect, as the only apparent boundary was to the outside world and it is likely to have comprised one or more domestic-units, leading to an indication of *contingent* density, again, or perhaps *circumstantial* if it was home to one domestic-unit only. Given the limited redevelopment in the form of exaggeration of some earlier boundaries, *contingent* density seems to fit the case best.

The location of enclosures on nodal points in the ditch system may have continued into the 600 - 400 BC period, with examples at Woolbury F49, Quarley F38 and Suddern Farm F43 in Hampshire (although the dating of the first two is not secure and they could have been earlier, too). However, further developments become apparent in that it is possible that the territorial boundaries defined by earthworks in the landscape defined larger units of area than previously in this period and into the C 4th BC. There are several signs that parts of the late Bronze Age linear ditch systems were recruited in this endeavour. The Devil's Ditch was recut in the C 4th BC and there was renewed activity along the Quarley High Linear on the opposite side of the Bourne Valley, at least as far as Thruxton Hill. At Windmill Hill, which faces the Bourne Valley and is visible from Sidbury Hill, a horse skull was inserted into silts dated c385 BC - AD 5 (OxA-3047). (Bradley et al, 1994, 145-146).

The spacing and topographic siting of those hilltop enclosures which were developed in the exaggerated manner usually described as 'hillforts' can be seen to make a pattern in that, for example, Quarley F38, Sidbury, Lidbury and Chisenbury Trendle within the SPS area and adding Casterley Camp further to the west and the double-ditched enclosure (not hilltop) on Coombe Down all occupy blocks of land separated by the valleys and coombes associated with the main rivers in the study areas, being placed at edges overlooking them. (Bradley et al, 1994, 147). Cunliffe (1991a, fig. 14.26) extends the scope of that finding into the north-west of Hampshire, observing that Figsbury, Bury Hill F08, Danebury F14 and Woolbury F49 continue the pattern to the south and east and Suddern Farm F43 could now be added to that list.

The extension of boundaries to larger units of area is a clear indicator of an up-density development although it may have gathered pace toward the end of the 600 - 400 BC period and continued into the next. The more detailed picture of settlements in Hampshire also reflects that at the community level. Danebury F14 was occupied at this time and despite the zoning of features by function it would appear that there were no real divisions between domestic-units or social-units. On the other hand, there is the possibility that this site could have been a seasonal, community aggregation point (c.f. nearby Balksbury F02) so strong reliance on the evidence for a GDM analysis would be unwise. It could have been used only occasionally, as indicated by the high ratio of storage facility to roundhouses, but otherwise evinces the organised layout and boundedness at the community level only of *corporate* density. Easton Lane/Winnall Down F15 continued in use in this period in similar form (*contingent* density) as did Old Down Farm F32 (*circumstantial or contingent* density). Winklebury F48 was developed at this time and may have been of a size to support a community large enough to be considered *corporate* density (as no internal boundedness) but certainly *contingent* level at a minimum.

Therefore, there is scarcely any indication of a density less than a *contingent* level and there is a real possibility that it could have grown to *corporate* density in some areas. Regrettably, the wider picture in the environs of Danebury F14 has been examined but not formally published yet and the area around Winklebury F48 has not been studied. However, it does suggest an increasing network density phenomenon which stretches further than the high chalk zones of the SPS and north-west Hampshire, into north-east Hampshire at least.

In the middle Iron Age (400 - 100 BC) settlement enclosures in the landscape became more prevalent and farming activity levels can be seen to have intensified as shown by palaeoenvironmental input and by the evidence of major structural changes in the use of boundary ditches at the same time that field systems became more extensive and areas of pasture were specifically reserved, for the control of livestock. (Bradley et al, 1994, 147). Several hilltop enclosures went out of regular use (e.g. Quarley F38) whereas others were embellished by monumental entrances and other earthworks (e.g. Sidbury, Danebury F14, Suddern Farm F43, St. Catharine's Hill F42 and Yarnbury). Others were still occupied yet their ditches were allowed to silt up and banks crumble (e.g. Lidbury). Most occupation sites were enclosed and it is apparent that there was little difference in function between hillforts and enclosed settlements as evidenced by the range of the artefact assemblage, although there is certainly a suggestion that hillforts may have provided storage facilities for the wider community (e.g. the disparate ratio of storage facilities to roundhouses at Danebury F14). (Bradley et al, 1994, 148).

This period saw a renewal of the practice of placing of human and animal bones into the old linear ditches and the development of a rather general tradition of digging ditches in a V-shape. Although the excavation evidence is limited, similar findings have been made over widely separated occurrences of these phenomena, suggesting that they were common. (Bradley et al, 1994, 148).

Whilst Bradley et al (1994, 148) find that '*livestock control may have been an incidental function of earlier boundaries, but almost certainly it was not their primary role*' it has been argued that the earlier concerns may, on the contrary, have been for livestock <u>protection</u> but in this later period it seems likely that ditch boundaries were, indeed, for closer <u>management</u> of both herds and arable. Areas of pasture seem to occur most typically close to hillforts (Bradley et al, 1994, 148), probably because the higher ground is less fertile as well as being more convenient for protection (e.g. by keeping watch and retreating within bounds of hillfort) and it need not be interpreted as indicating an emphasis on livestock at hillforts and arable at other settlements, as seems to be an implicit implication of Bradley et al's (1994, 148) conclusions.

Applying those findings to the dataset of excavated Hampshire sites in the 400 - 100 BC period, there is little published evidence on the division of the landscape *per se* making it difficult to argue for parallel developments. However, all other points do have corollaries in Hampshire. Hilltop enclosures do appear to have gone out of regular use (e.g. Quarley F38) or to have altered use (e.g. Balksbury F02 - pits only and ditches silted) and others were embellished by monumental entrances (e.g. Danebury F14) or by re-cutting the enclosing earthworks (e.g. Winklebury F48, Danebury F14, Suddern Farm F43 and Bury Hill F08). Although most of the smaller occupied sites were enclosed, some allowed the earthworks to deteriorate (e.g. Old Down Farm F32).

Population appears to have concentrated in greater numbers at four sites, namely Danebury F14 and Winklebury F48 (both enclosures on high ground), Oram's Arbour F33 and Easton Lane / Winnall Down F15 (open again at this period but with human burials in the linear ditches of earlier boundaries). In itself, that does suggest at least a continuation of the degree of network density of the earlier period and the poorly understood 'banjo' enclosure complexes may have acted as inter-community meeting points linked into (contemporary) linear ditches which may have physically indicated territorial limits. Furthermore, there is a strong suggestion that key natural divisions of the landscape were viewed as territorial markers in the placement of the big Oram's Arbour F33 settlement and the strongly defended enclosure at St. Catharine's Hill F42 at the easy crossing point of the River Itchen. The marked difference in site distribution between the areas west and east of the River Meon also continued.

Overall, despite the lack of direct evidence for continuation of alterations in boundary practice from Salisbury Plain into Hampshire, the other similar findings are enough to allow confidence that the *contingent* or *corporate* network density indicated by boundary marking did continue in this period and there may have been a comparatively greater emphasis on the possibility of the latter.

Bradley et al (1994, 148) complete the work by reviewing the state of knowledge for the 100 BC+ period, in brief, concluding that the understanding of the late Iron Age period is inadequate for the purpose of interpreting landscape division, especially in the light of the real decline in use of earlier boundaries which may be associated with the emergence of Romano-British settlement.

It is clear that a large part of the linear ditches system was destroyed at this time, but no interpretation of what replaced it can be attempted. Thus, no judgement on network density from this line of evidence can be made for this period.

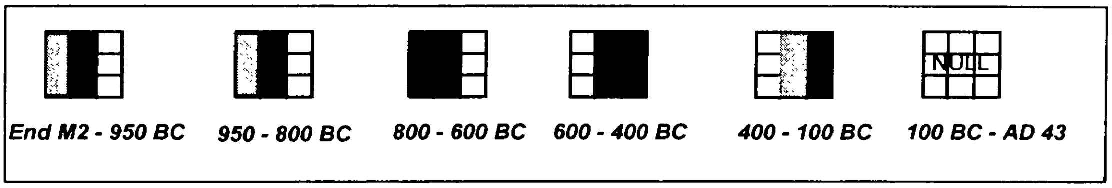


Figure I.9 - GDM - Community architecture - Territory and boundaries

Public spaces

There are few indications of inter-community public spaces which would not be better described as monumental architecture, although the small investment in the Beacon Hill F03 enclosure (c1.2 ha), located in a long-visited 'special place', is one exception dating to the period from the end of the second millennium to 950 BC and public spaces with ritual associations may be inferred at Swanwick F44 in the 950 - 800 BC period, La Sagesse F22 in 800 - 600 BC and Hayling Island F19 and Silkstead F41 in 100 BC - AD 43. The evidence for periods up to 600 BC is so slight (and ambiguous) that it cannot really suggest any investment greater than that predicted for *circumstantial* network density up to that point.

There is clear evidence, for the first time, for the definite planning of the layout of communities in the 600 - 100 BC period and those plans appear to include the provision of intra-community public spaces at Danebury F14, Winklebury F48 and Easton Lane / Winnall Down F15 at a minimum (Oram's Arbour F33 has not been published in enough detail to judge, yet). The investment was unlikely to have been large, yet there are formal constructions identified at Danebury F14 (the 'sanctuary') and Winklebury F48 (the rectangular enclosure and its annexe). Whilst there were no inter-community public spaces explicitly noted at this time, these may amount to the low investment of *contingent* density at these sites.

The internal arrangements at the large community settlement site at Calleva F09, built in the 100 BC - AD 43 period, have not been revealed by excavation owing to subsequent Roman settlement (and, indeed, dense population today). However, the two known 'shrine' sites do suggest that the low level of investment indicating a *contingent* degree of network density continued.

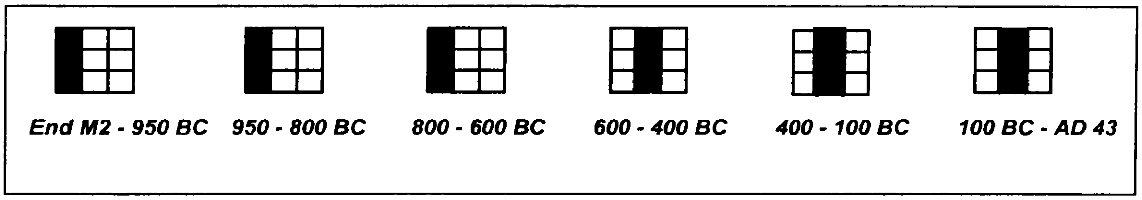


Figure I.10 - GDM - Community architecture - Public spaces

Monumental architecture

There is no example of a community settlement site which has revealed architecture which would be rated as being of monumental proportions within its bounds in the dataset. Up until c800 BC, the evidence for provision of facility for social interaction is sketchy and ambiguous. Balksbury F02 has been interpreted as an inter-community aggregation facility relating to stock management but the tenuous dating of this site makes it equally likely that it was entirely constructed in the following period, albeit at considerable labour cost. The absence of any other sites which meet the criteria for provision of inter-community meeting places of monumental proportions suggests that no provision was made, indicating *circumstantial* density.

From 800 - 600 BC the evidence for facilities, albeit for restricted sectors of society, strengthens somewhat in the light of the greater likelihood that this was the key period of building and occupation at Balksbury F02 and in the light of the Danebury F14 and Suddern Farm F43 enclosures. Taken together, this suggests a wider spread of investment in public spaces at a level greater than the individual community, which is typical of *contingent* density, providing facility for communities to meet and to establish and maintain relationships with other communities.

This practice became more marked in the period from 600 - 400 BC as Balksbury F02 continued in use, but was also complemented by the near neighbour at Bury Hill F08 and the enclosure of Quarley Hill F38. It has been argued that access may have been restricted at these sites but, nevertheless, they do represent facility for some sectors of different communities to meet and relate. At no time to this point has any facility in the north-east been identified as serving this purpose so it appears that the practice typifying *contingent* density started to solidify but was not widespread enough to suggest a *corporate* degree.

Some enclosures identified as probable inter-community monumental architecture in the north-west continued in the 400 - 100 BC period (Balksbury F02 and Bury Hill F08) although they may not have received any great investment in maintenance at this time unlike Suddern Farm F43 and Quarley Hill F38 which were substantially refurbished. In the centre of the county, the substantial St. Catharine's Hill F42 enclosure was built and the Oram's Arbour F33 community settlement site was large enough to indicate a *corporate* degree of density (demonstrated in monumental architecture on the part of the community itself) but overall the level of investment suggests either *contingent* or *corporate* network density.

The 100 BC - AD 43 period saw a considerable alteration in site patterning and those new settlement sites built on monumental scales are not included in this line of analysis. 'Banjo' enclosures continued and new examples were built, but the very tentative analysis allows only a weak conclusion to be drawn from that. Overall, in view of the observation that new investment in extra-community facility was comparatively slight and that most effort was directed at community settlement sites, a weak *contingent* density seen in inter-community sites is the most that can be assumed for this line of evidence, tempered by a weak *corporate* suggested by new investment at the Calleva F09 community settlement site alone.

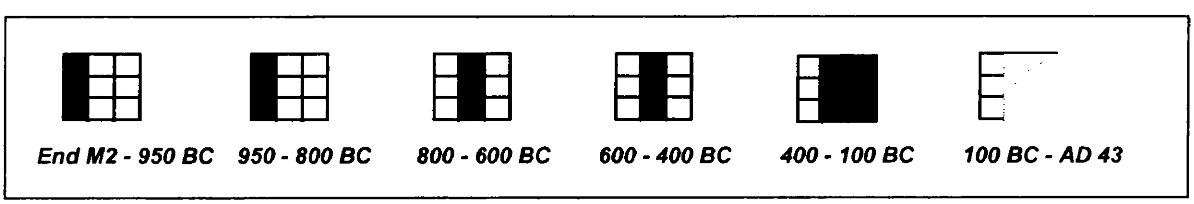


Figure I.11 - GDM - Community architecture - Monumental architecture

Memorials (people and events)

There is no element of the dataset which can be confidently interpreted as investment in memorials to people or events until, perhaps, the 100 BC - AD 43 period when the 'shrine' sites at Hayling Island F19 and Silkstead F41 could have been associated with this type of practice. However, without any corroborative evidence this is too tenuous to support any confident GDM conclusions.

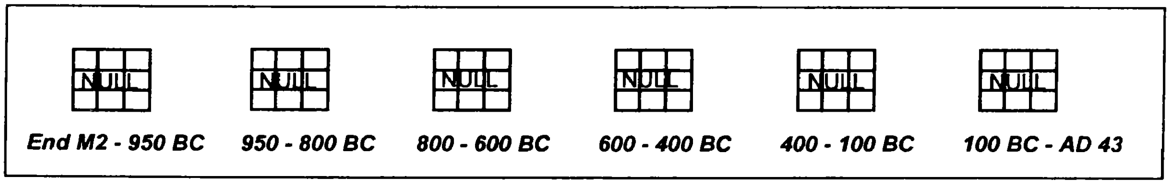


Figure I.12 - GDM - Community architecture - Memorials (people and events)

Intra-community assemblages

This category of analysis is not served well by the dataset due to a number of factors which include limited extent of excavation (especially the 'rescue' excavations of the 1970s and 80s), the favouring of major clustering areas for modern towns and cities and the continuing favourable conditions for agriculture in some areas. This causes a particular problem in dating as artefactual assemblages tend to be slight and there is little stratigraphy. Small sites are not suitable for comparative work, although may be more likely to indicate *circumstantial* if they typify the greater part of the settled population. Furthermore, extrapolation of the SPS area record into the neighbouring north-west of Hampshire suggests that many sites were open and consequently suffered substantial damage, limiting the likelihood of finding the site today. In contrast to Hampshire, Salisbury Plain has been under military control for a number of years, securing it against agricultural damage with the result that more open sites have been found.

Thus, very few sites must stand for the general trend with all of the risks attendant upon that.

The suitability of the excavated community settlement sites for this line of evidence is assessed and summarised in table I.5:

Table I.5

Period	*Site*	*Comments*
End M2 - 950 BC	Ashley F01	Limited extent of excavation
	Chalton 78 F12	Interpreted as probable single domestic-unit farmstead
	Easton /Winnall F15	OK
	Ellingham Farm F16	Limited extent of excavation
	Franconia Drive F17	Limited extent of excavation
	Grange Road F18	Interpreted as probable single domestic-unit farmstead
	Westbury F47	Interpreted as probable single domestic-unit farmstead
950 - 800 BC	Cowdery's Down F13	OK but date not firm and subsequent site use obscures
	Easton /Winnall F15	Continued; OK
	Franconia Drive F17	Continued; limited extent of excavation
	Grange Road F18	Continued; interpreted as single domestic-unit
800 - 600 BC	Brighton Hill X/Y F07	Interpreted as probable single domestic-unit farmstead
	Cowdery's Down F13	This period? (See above)
	Easton/Winnall F15	Interpreted as possible single domestic-unit farmstead
	Grange Road F18	Continued; single domestic-unit
	Odiham F31	Limited extent of excavation
	Old Down Farm F32	Interpreted as probable single domestic-unit farmstead
600 - 400 BC	Bramdean F05	Limited extent of excavation
	Brighton Hill B/C/K F06	Limited extent of excavation
	Chalton 50 F11	Limited extent of excavation
	Cowdery's Down F13	This period? (See above)
	Danebury F14	OK
	Easton / Winnall F15	Continued. OK
	Ellingham Farm F16	Limited extent of excavation
	Lain's Farm F23	No structures located
	Little Somborne F24	OK but limited extent of excavation
	Meon Hill F26	Excavation record inadequate
	Oakridge F30	Limited extent of excavation
	Old Down Farm F32	Continued. OK
	Portsdown II F36	No structures located
	Rooksdown F39	No structures located
	Ructstalls Hill F40	No structures located this phase
	St. Catharine's Hill F42	No structures located
	Winklebury F48	OK
400 - 100 BC	Brighton Hill B/C F06	This period? (see above)
	Chalton 50 F11	Continued; limited extent of excavation
	Danebury F14	Continued. OK.
	Easton / Winnall F15	Continued. OK.
	Lain's farm F23	Continued; no structures located
	Little Somborne F24	Continued; OK but limited extent of excavation
	Maddison St. F25	Limited extent of excavation
	Meon Hill F26	Excavation record inadequate
	Nettlebank Copse F28	No structures located
	Oakridge F30	Continued. Limited extent of excavation.
	Oram's Arbour F33	Limited extent of excavation
	Owslebury F34	Limited extent of excavation
	Portsdown II F36	Continued; no structures located
	Rooksdown F39	Continued; no structures located
	Ructstall's Hill F40	OK
	Twyford Down F45	No structures located
	Viables F46	Limited extent of excavation
	Winklebury F48	Continued. OK
	Worthy Down F50	No structures located
100 BC - AD 43	Brighton Hill B/C/K F06	Limited extent of excavation
	Bury Hill F08	Not published to degree required for analysis
	Calleva F09	Limited extent of excavation (IA features)
	Chalton 15 F10	Limited extent of excavation
	Easton / Winnall F15	Continued; OK
	Horndean F21	Limited extent of excavation
	Lain's Farm F23	Continued; no structures located
	Oakridge F30	Continued; limited extent of excavation
	Oram's Arbour F33	Continued; limited extent of excavation
	Owslebury F34	Continued; limited extent of excavation

Table I.5 (continued)		
Period	***Site***	***Comments***
100 BC - AD 43 (continued)		
	Portsdown III F37	Limited extent of excavation
	Rooksdown F39	Continued; no structures located
	Ructstalls Hill F40	Continued; OK
	Suddern Farm F43	No structures located
	Twyford Down F45	Continued; no structures located
	Viables Farm F46	Continued; limited extent of excavation
	Woolbury F49	Not published to degree required for analysis
	Worthy Down F50	No structures located

Table I.5 - Suitability of settlement sites for intra-community assemblages analysis

Intra-community spatial patterning

Table I.6		
Period / Site	***Form***	***Density analysis***
End M 2nd - 950 BC		
Easton / Winnall F15	Clusters of structures within large field areas demarcated by linear ditches. MS4010 cluster (one oval building and three circular) was demarcated by a lynchet and fence line to the south and a ditch to the west and linked to an earlier cemetery by a 'funnel entrance (and new human remains deposited there). MS4010 cluster within a 40 metre square area and 200 metres from the next of two roundhouses and other structures (the 'CS2341' group). Further clumping evident in the CS2723 cluster and the CS5636. None of these have clear fence lines although there are scatters of postholes.	Not maximal spacing; clumping; neither regularity nor recursiveness *Contingent*
Other sites	Possible single domestic-unit farmsteads but full extent not known as they are open and have not been the subject of modern excavation	*Circumstantial*
Summary:	A few possible single domestic-unit sites could weakly suggest *circumstantial* density but the single example of *contingent* is clear.	***Circumstantial (weak) to contingent (strong)***
950 - 800 BC		
Chalton 78 F12	Two huts; irregular (size and assemblage profile) but only the width of a hut apart. Probably a single domestic-unit but could be a cluster within a larger open settlement (excavation limited) (Fasham et al, 1989, 147)	If single domestic-unit site only then *Circumstantial* else this amounts to clumping *Contingent*
Cowdery's Down F13	Two very large ring ditch roundhouses (RD1 and 2) and a third porched post-built roundhouse (X4). Interpretation of RD1 and 2 as domestic accommodation is not certain; alternatives can be suggested:- a. the earlier history of the site included 'empty' ring ditch barrows b. RD1 contained pit complex which may have been related to preparation of marl. Contemporaneity is possible but not certain (*pace* Millett and James, 1983, 172). The RD structures are very close to each other and X4 only a short distance away. The area between is not subdivided in any way.	Not maximal spacing; clumped; irregularity and no recursiveness. However, interpretation uncertain. *Contingent (weak)*
Easton / Winnall F15	4 same size and form roundhouses set very close to each other but divided into two pairs (A and B : C and D) by a fence i.e. two closely related social-units or two two-house-structure domestic-units. The settlement extent could be much greater as the excavated area abuts a large tract of unexcavated land to its immediate west.	Not maximal spacing; clumping; regularity but no recursiveness *Contingent*

Table I.6 (continued)		
Period / Site	***Form***	***Density analysis***
950 - 800 BC (continued)		
Grange Road F18	Two roundhouses of similar size but one contained hearth and other did not; set c 20 metres apart but space between not examined for structural features. Could be a larger settlement (open and excavation limited)	If single domestic-unit site only then *Circumstantial* else this amounts to clumping *Contingent*
Westbury F47	One small hut only and probable single domestic-unit but could be part of a cluster within a larger open settlement (excavation limited) (Fasham et al, 1989, 147)	If single domestic-unit site only then *Circumstantial* else this amounts to clumping *Contingent*
Summary:	All sites allow some possibility of the clumping expected for *contingent* density but limited excavation allows that three could have been single domestic-unit farmsteads only, making *circumstantial* a possibility. Overlap in ranges of density makes *contingent* a relatively stronger possibility.	***Circumstantial (weak) to contingent (strong)***
800 - 600 BC		
Brighton Hill X/Y F07	Single roundhouse and probably full extent of site but not certain (open)	*Circumstantial (weak)*
Cowdery's Down F13	Discussed as previous period (above) but may have been built in this or continued in use.	Not maximal spacing; clumped; irregularity and no recursiveness. However, interpretation uncertain. *Contingent (weak)*
Easton / Winnall F15 - 700 - 450 BC	Small D-shaped enclosure surrounding 5 complete roundhouse structures, 2 partially complete and one circular gully with internal post settings which could be an eighth hut. Structure E was very large (@ 14 metres diameter compared with 7-8 metres for the rest) and of elaborate construction. It was immediately inside the entrance and thought to be early in the sequence. Of the others, if no single one lasted more than c50 years then it is unlikely that there were more than 2 on this site at a time, if equally spread. However, pottery finds, daub and burnt clay are heavily biased toward the C 5th BC (Fasham, 1985, 67) suggesting that E may have been on its own at first. If any roundhouses were contemporary they could not have been more than 50 metres apart at the most.	If single domestic-unit site only then *Circumstantial* else not maximal spacing and no clumping; some regularity (ex-structure E) but no recursiveness *Circumstantial (strong) to Contingent (weak)*
Easton / Winnall F15 - to 700 BC	Continued as above	Not maximal spacing; clumping; regularity but no recursiveness *Contingent*
Grange Road F18	May have continued in this period (see above)	If single domestic-unit site only then *Circumstantial* else this amounts to clumping *Contingent*
Old Down Farm F32 - from c 700 BC	One, maybe two roundhouses. Probable single domestic-unit farmstead.	*Circumstantial*
Summary:	The number of sites suggesting *circumstantial* density is greater, suggesting a reversal of the position for the previous period	***Circumstantial (strong) to contingent (weak)***

Table I.6		
Period / Site	***Form***	***Density analysis***
600 - 400 BC		
Danebury F14 - from c470 - 310 BC	Seventeen roundhouses have been dated to this 160 year period (from the substantial percentage of the enclosed area excavated) and some are overlain by storage structures also dating to this period which tends to suggest that a considerable number were contemporary and may even represent a single episode of occupation. The site was clearly zoned and the roundhouses tend to be located around the circumference, evenly spaced as well as along and facing on to 'road 2'. Most are simply designed and small apart from CS5 in the south of the site which is very large and faces away from the others (onto the gate). This could be a communal place for meeting. The community thus housed certainly amounts to a social-unit and may have been populous enough to be self-reproducing.	Not maximally spaced; no clumping apparent; organised on a site-wide basis (zoning) and fairly regular. *Contingent to corporate*
Easton / Winnall F15	The developments outlined in the previous period entirely cover this, too, but it is more likely that there were multiple domestic-units in the C 5th BC than at any earlier time (see above)	Not maximal spacing and no clumping; regularity but no recursiveness *Contingent (weak)*
Little Somborne F24 - from c 500 BC	Two roundhouses unlikely to have been contemporary on an open site where there is reason to think that the site may extend further (Neal, 1980, 98). Aerial survey gives some idea that there is a clear 'working area' outlined by above- and below-ground storage facilities.	Not maximal spacing; clumping suspected (aerial survey); regularity n/k but no recursiveness. *Contingent*
Old Down Farm F32	Enclosure densely occupied by four roundhouses of the same size clustered into one zone. Contemporaneity not certain but not maximally spaced. Three surround the 'quarry hollow' (feature 162) thought to have been a working area. The whole is probably one social-unit cluster.	Maximal spacing of social-unit (from other sites) but neither the size nor the recursion to suggest a self-contained network. *Contingent*
Winklebury F48	One roundhouse rebuilt twice (hut A) and comparatively large with elaborate architecture. At least two others (B which is 20 metres from A and D which is a further 75 metres from B) were of similar size and construction but faced away from each other. A + B were close to a smaller round structure C thought to have been a storehouse. Possibly another (K) (Fisher, 1985, 179). Use of D may differ from others on basis of artefact distribution (Fisher, 1985, 179). So, A + B + C may represent one social-unit, and D and K others. A large portion of the site has not been excavated and further occupation evidence is expected to the east and west.	Domestic-units clumped and maximally spaced social-units; no recursive patterning *Contingent*
Summary:	A number of sites have not been excavated widely enough to be able to contribute to analysis for this period but of those which have, all tend to suggest a degree of density at least in the *contingent* range and just one could tend toward *corporate.*	***Contingent (strong) to corporate (weak)***
400 - 100 BC		
Danebury F14 from 310 - 50 BC	Enclosure substantially refurbished and layout of interior reorganised (and 'reversed' orientation). Houses packed in around the perimeter and in the northern half of the interior. Those in the interior appear somewhat clustered suggesting clumping into social-units (as do the above-ground storage structures in the southern half) but there are no marked physical boundaries either within or between.	Not maximally spaced; some clumping; organised on a site-wide basis and fairly regular *Contingent to corporate*

Table I.6		
Period / Site	***Form***	***Density analysis***
400 - 100 BC (continued):		
Easton / Winnall F15 - from 300 - 100 BC	The open settlement in the Winnall Down sector overlay the previous enclosed settlement (above). A continued interest in zoning of pits from roundhouses is evident but no symmetrical arrangement around paths. Roundhouses and other structures were closely situated and although there were fences they do not appear to have divided structures. Thus, this appears to be domestic-units clustered into a social-units with no obvious boundary although the burial of human remains in 'quarry' area on the northern and in the pits at the southern may represent symbolic boundary marking.	Not maximally spaced; no clumping apparent; organised on a site-wide basis (zoning) and fairly regular. *Contingent*
Easton / Winnall F15 - from 400 to 300 BC	Reverted to being open although new deposits (human remains and others) within the old linear ditch suggest boundary was symbolically maintained. Easton Lane sector carefully organised with apparently replicated units along a central path. Roundhouses gully-defined. Each domestic-unit may have been separated from next by short fence lengths but the whole is not maximally spaced.	Not maximal spacing but domestic-units lightly divided within a dense and organised community. *Contingent to corporate*
Orams' Arbour F33	Densely settled but interior neither extensively excavated nor published. The whole could easily house a community large enough to reproduce itself but findings can only be weak at this state of knowledge.	*Contingent to corporate*
Ructstalls Hill F40	Five roundhouses dating to a 100 year period, of which it is unlikely that more than three could have stood at any one time (A or B, C or E and D). None is more than 15 metres from another but there are no boundaries between.	Maximal spacing of social-unit (from other sites) but neither the size nor the recursion to suggest a self-contained network. *Contingent*
Winklebury F48	At least six roundhouses (new construction form - gully-defined), all fairly large but within a narrow range of size. Artefact distribution study found no significant patterning (Fisher, 1985, 172-179). The whole site shows planning - a central enclosure, working hollows between roundhouses and some pits arranged into short lines with a particular concentration away from the roundhouses. They may not have all been contemporary but is is likely that the occupation spreads beyond the area excavated. The community thus housed certainly amounts to a social-unit but was probably not populous enough to be self-reproducing.	Not maximally spaced; no clumping apparent; organised on a site-wide basis (zoning) and fairly regular. *Contingent*
Summary:	All sites indicate at least a *contingent* degree of network density and half of them could be into the *corporate* range; no single-domestic-unit sites are known at this time.	***Contingent (strong) to corporate (weak)***
100 BC - AD 43		
Calleva F09	Densely settled but interior neither extensively excavated (to first millennium layers) nor published. The whole could easily house a community large enough to reproduce itself but findings can only be weak at this state of knowledge.	*Contingent to corporate*
Ructstalls Hill F40	Spans the turn of the century (see above)	Maximal spacing of social-unit (from other sites) but neither the size nor the recursion to suggest a self-contained network. *Contingent*
Summary:	The limited data can only support weak conclusions	***Contingent to corporate (weak)***

Table I.6 - Intra-community spatial patterning analysis for Hampshire settlements

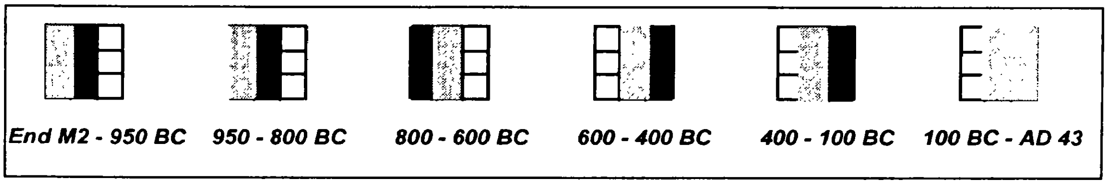


Figure I.13 - GDM - Intra-community assemblages - Intra-community spatial analysis

Domestic wealth

A simple comparative analysis of floor area and doorway arrangements can provide some help in assessing wealth differentials as expressed in domestic architecture and the calculations are included as Appendix G3 - Hut Area Calculations.

End M 2nd - 950 BC

The only site interpreted as having multiple domestic-units is Easton Lane / Winnall Down F15 and there are clear differentials in the size of the individual roundhouses within social clusters:-

MS2789	=	3.95 : 1
CS2341	=	2.38 : 1
MS4010	=	3.92 : 1
CS5636	=	Single roundhouse

Therefore, equality is certainly not emphasised. Most of the buildings are of very similar construction with the exception of the 'double ringed' CS2341; however, that interpretation is far from certain as it is possible that it was a single ring with some internal posthole pairs to serve an unknown function. The total capacity for each social-unit is fairly similar suggesting no great cross-site differentials and if the 'porched' roundhouses only are taken into account (assumed to be more certainly for living and sleeping purposes) then the gap narrows. Overall, then, this suggests a *differential* degree of centrality but the variation is not great enough to suggest an *insulated* degree. Unfortunately, too few domestic artefacts have been recovered to be able to corroborate that finding with a household assemblage comparison.

950 - 800 BC

The remodelled Easton Lane / Winnall Down F15 settlement still revealed too few artefacts to allow detailed analysis and the very similar sizes of the buildings, differentiated only by the elaboration of the porches, suggest a strong possibility of *equal* centrality with a rather lesser chance of *differential*. The multi-domestic-unit sites at Cowdery's Down F13 and Grange Road F18 both show broad similarity in within-site house sizes, indicating *equal* centrality and the differences in architecture are small.

800 - 600 BC

This period has been characterised as one of entirely single roundhouse excavations per site, except Easton Lane / Winnall Down F15 and that was probably home to a single domestic-unit at any one time (above) so no comparative analysis of domestic wealth can be made at any one site. Thus, the network centrality finding on this line of evidence is *null*.

600 - 400 BC

Old Down Farm F32 demonstrates no differentials in domestic architecture and the recovery of the artefactual assemblage is so slight as to prevent assessment of variation, leading to a *null* conclusion or, perhaps *equal* centrality. Fortunately, Danebury F14 offers a little more in that all of the roundhouses are very small with only a slight variation except for CS5 which it has been argued (Table I.6) may have been for a special community meeting purpose. Like the other Hampshire sites little is known of the domestic assemblage *per se* but it can argued that if CS5 were domestic then the whole would indicate a clear *differential* centrality but it was not rebuilt and cannot have lasted for much more than a generation or two, being constructed of wood, and so cannot be interpreted as indicating an *insulated* degree. On the other hand, if it were not domestic then centrality would have been *equal* at this site. Finally, at Winklebury F48 the A + B social-unit's size of accommodation is clearly greater than D's, the sheer longevity of D on the same site suggests a differential, and the A + B unit possessed fineware whereas D did not (Table I.6; Fisher, 1985, 179). Tentatively, then, centrality was almost certainly marked to a degree suggesting the *differential* range and it is possible that it may have been as great as *insulated* as replacement of D could be taken to suggest inheritance of rights, but the building itself would have been fairly short-lived, so that is rather less likely but not impossible.

400 - 100 BC

There are differences in roundhouse sizes at the Easton Lane F15 open settlement but all are large and the size variation does not correlate to storage capacity (see below). The southward shift of the settlement to the Winnall Down area (300 - 100 BC) coincided with a wider range of house sizes but none of them had associated storage facilities with which to correlate. The details of the artefact assemblage at both loci is too small to allow any investigation of disparities in the wealth represented by that, thus the variation in residential architecture is interpreted as marked enough to suggest a *differential* degree of centrality but not *insulated*. Similarly, the Danebury F14 and the Ructstalls Hill F40 roundhouses display some variation within a small range which could be construed as *differential* but is unlikely to be *insulated*. At Winklebury F48, the houses are all the same size and Fisher's (1985) study of artefact distribution finds no significant variation in this phase, thus arguing for *equal* centrality.

100 BC - AD 43

There are no sites which have been both excavated and published to a level of detail great enough to allow confident analysis using this line of evidence.

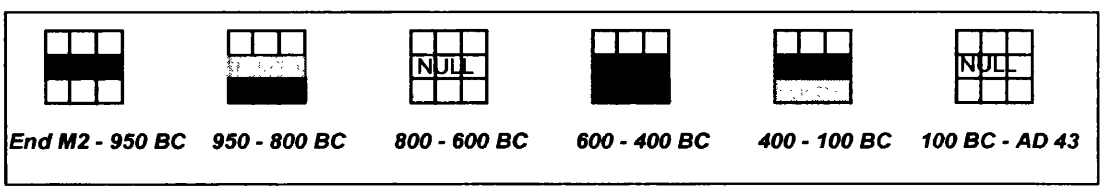


Figure I.14 - GDM - Intra-community assemblages - Domestic wealth

Boundedness

The forms of entrances to roundhouses and their orientation referred to in analysis of this line of evidence are summarised in Appendix G3 - Hut Area Calculations and the social-unit clusters referred to are specifically identified in table I.6, above.

At Easton Lane / Winnall Down F15 in the period to 950 BC, each putative social cluster contained one or more roundhouses which were embellished with porches which would have acted to make internal activity more secret and private than those with simple entrances, even if that were not the purpose for which porches were built. Each social-unit cluster also contained one or more roundhouses which were not porched. In two of the four clusters the porched roundhouses were the largest, in the third it was the oval-ended long house (MS4010) which had in-turned, rather invitational entrances and in the fourth case only one roundhouse has been uncovered. However, the MS4010 structure does appear to be fenced off from others in that cluster and that could be considered to counterbalance the privacy lost due to the style of entrance. Thus, overall, there appears to be some differential in privacy suggesting *differential* centrality at least. However, it is by no means emphasised as there are few fences or overt boundaries around the social-unit clusters themselves and entrances are not oriented in such a way as to retain privacy. Thus, *insulated* centrality is most unlikely.

In the 950 - 800 BC period at Easton Lane / Winnall Down F15, three roundhouses were porched and the last one may have been but they were not clearly bounded from each other as the dividing fence was not particularly sturdy. At Grange Road F18 the two roundhouses uncovered were not porched but faced directly away from each other, also suggesting a desire for privacy and Cowdery's Down F13 had two porched houses from three. Thus, overall, *differential* centrality is indicated.

In the 800 - 600 BC period, the Easton Lane / Winnall Down F15 settlement may have been occupied by only a couple of domestic-units at any one time but two of the eight houses are porched whereas the others have simple entrances, suggesting a weak possibility of *differential* centrality. At Old Down Farm F32 both roundhouses were porched.

Moving forward to the 600 - 400 BC period, the form of the Easton Lane / Winnall Down F15 site (as discussed above) continued. Although Old Down Farm F32 was enclosed, the four roundhouses within all had simple entrances (orientation not known) suggesting *equal* centrality. Danebury F14 was also bounded at the whole site level and appears to have been zoned within; although all roundhouses appear to have simple entrances, the placement of above-ground storage structures between houses in some areas may have had a screening effect, tending to increase privacy. Overall, the impression is one of *equal* centrality or weak *differential*. Finally, at Winklebury F48 it is possible that there could have been fencing between social-units, but even without that there is some patterning in the placement of above-ground storage structures which suggests weakly defined boundaries between social-units although not to a degree that would make activity within secret and private. This would amount to a weak version of the closed and bounded practice indicating either *differential* or weak *insulated* centrality. Altogether, there is an equal likelihood of *equal* or *differential* centrality.

In 400 - 100 BC, the position at Danebury F14 continued in the re-engineered site layout and the Winklebury F48 position continued, also (i.e. *equal* or weak *differential* centrality). At the Easton Lane quarter of the Easton Lane / Winnall Down F15 site there may have been some fencing between domestic-units but there was not at the Winnall Down area where the social-units were identified by the clustering only; all of the roundhouses appear to have had simple gap entrances. Overall, the site appears to demonstrate slight boundedness to the same degree as the others.

Finally, the sites of the 100 BC - AD 43 period have not been excavated and / or published to an extent great enough to allow assessment to be made.

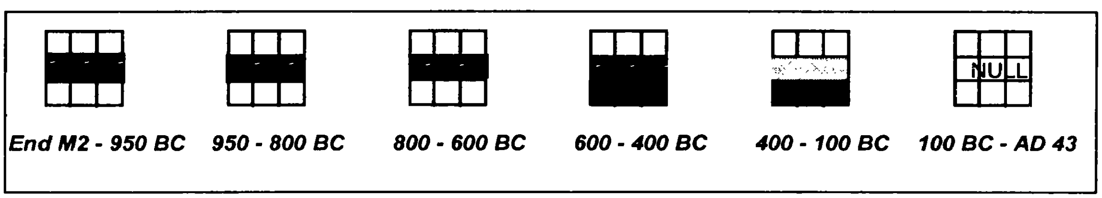


Figure I.15 - GDM - Intra-community assemblages - Boundedness

Storage

Up until c600 BC the storage arrangements at any one site cannot be analysed closely enough to allow any finding on network centrality, at all. In the 600 - 400 BC period Winklebury F48 housed above-ground storage structures which were significantly clustered in the southern and south-eastern area of the excavated tranche and also significantly associated with a lack of artefacts surrounding them which has been taken as further evidence for their role as storage structures (Fisher, 1985, 175). In that cluster, an area (J) was left clear of structures and may well have been a midden judging by artefact distribution (Fisher, 1985, 179). However, structures were distributed around the site and can be seen to 'divide' the social-units. It would appear that there was considerable shared facility and little truly local. However, it is likely that the nearest neighbour to the concentration in the south and south-east (social-unit A + B) is also the longest-lived unit on this site with A having been rebuilt twice. If they were associated with that cluster and replaced from time to time (not on the same spot) then that would explain the comparatively high number in that particular area. The more localised facilities could be considered somewhat private (if it is assumed that they were walled and roofed) but do not suggest the closed and bounded resource of strong *differential* or *insulated* centrality but rather the relatively unbounded resource of *equal* or weaker *differential* (p. 113).

At Old Down Farm F32, storage was in underground pits zoned within the site and presumed to be communal for the whole social-unit, being open and unbounded and suggesting *equal* or weaker *differential* centrality. Similarly, the storage at Danebury F14 (albeit of greater capacity) was zoned (which is to say communally held) and the above-ground storage structures arranged in lines (Cunliffe, 1995a, 27-29) suggesting *equal* centrality if *corporate* density is allowed as a possibility or, perhaps more likely, *differential* (because private vis-à-vis outsiders) if *contingent*.

Moving on to the 400 - 100 BC period, the Easton Lane F15 open settlement (400 - 300 BC) exhibited a range of storage practice, with the CS2288 roundhouse containing two pits, the CS2408 and the MS2160 domestic-units each have one external above-ground storage structure and the MS5622 unit had no facility. In the southern sector of the site, the CS5634 roundhouse has two internal pits and two above-ground storage structures and the CS5602 unit has no facility. The pits are all rather small but there is clear variation in capacity by domestic-unit, as well as differential levels of privacy accorded that storage, although if the northern sector and the southern sector were each social-units then the capacity differential between them was not great. Overall, however, there is no central storage facility evident thus suggesting *differential* centrality in the community as a whole. The Winnall Down F15 open settlement (300 - 100 BC) had a clear zone of pits in the easterly half of the site, suggesting communal storage for the whole group in an open and unbounded facility, suggesting *equal* or weak *differential* degree of centrality. Similarly, the continued zoning of storage at Danebury F14 suggests *equal* or *differential* and the observed clustering of the above-ground storage structures may provide a basis for strengthening the likelihood of *differential* in that case. At Winklebury F48, the pits appear to have been scattered among domestic-units in an open and unbounded manner and with little zoning apparent, suggesting *equal* or weak *differential* centrality.

To summarise the evidence of the community settlement sites, the storage variation overall evenly suggests *equal* or *differential* centrality. However, in this period some of the inter-community aggregation sites show clear evidence of large storage capacity (e.g. Balksbury F02, St. Catharine's Hill F42 and Suddern Farm F43) which strengthens the *differential* inference overall as it tends to argue for some centralisation of storage.

There is no site in the 100 BC - AD 43 dataset with enough data to allow analysis of storage patterns and capacity.

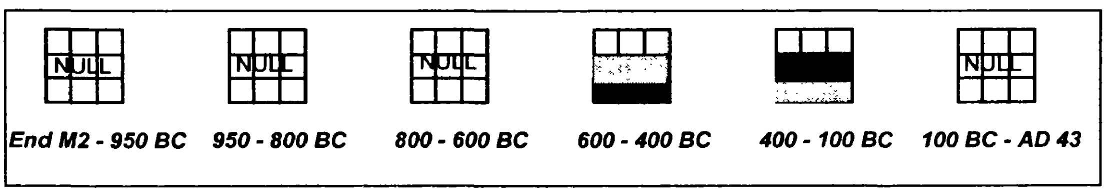


Figure I.16 - GDM - Intra-community assemblages - Storage

Domestic- / Social-unit specialisation

All of those sites in the early period which are larger than single domestic-unit communities have too little artefactual evidence to allow any assessment of specialisation on the basis of household assemblages. Whilst it has been noted that it is just possible that Cowdery's Down F13 may have been home to a specialisation relating to preparing marl, that would have been a community level activity if this were the case. Thus, this finding must be *null* for the period from the end of the second millennium to 800 BC. Similarly, all of the sites in the 800 - 600 BC period can contribute evidence from only one domestic-unit as excavated rendering the result *null* for this period also.

Almost all of the sites dating to 600 - 400 BC return *null* results for this line of analysis for the reasons noted above, with the exception of Winklebury F48 where the detailed artefact distribution analysis by Fisher (1985, 179) has revealed a lack of restricted distributions for the debris of specialised craft activities, suggesting no inter-domestic-unit or inter-social-unit specialisation indicating *equal* centrality. As this is just one case from a much larger dataset, the conclusion must be regarded as weak.

Finally, all 400 - 100 BC sites return *null* results and although it has been said that Oram's Arbour F33 was a focus for industrial activity in the 100 BC - AD 43 period, the interim publications do not allow close analysis of whether there was intra-community variation.

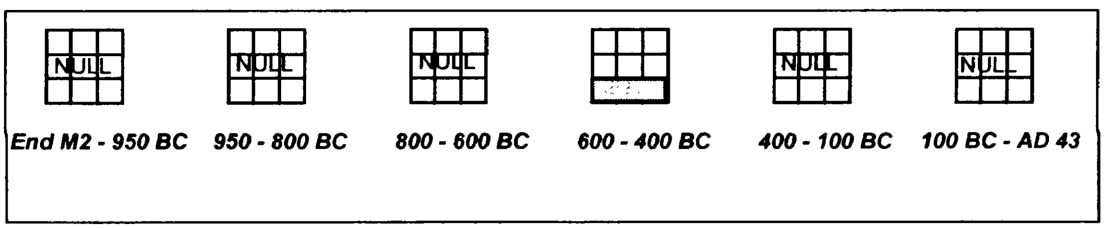


Figure I.17 - GDM - Intra-community assemblages - Domestic-/Social-unit specialisation

Artefactual analysis

Status symbols

No candidates for this line of evidence have been noted.

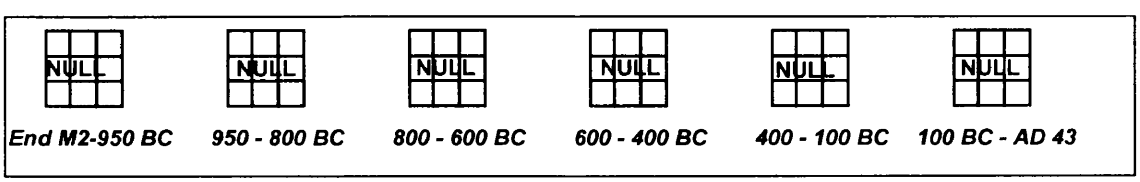


Figure I.18 - GDM - Artefactual analysis - Status symbols

Specialisation

It is fortunate that Morris (1994a) has directly tackled the question of whether patterns of distribution of ceramics from source of materials represent changes in the production and distribution of both finewares and coarsewares over time in the Wessex area of central southern England (Morris, 1994a, 374) with some key findings germane to this work.

In the period from 1100 - 800 BC she finds that the system of production and distribution of both coarsewares and finewares is a local one with a few examples of *'traded'* coarsewares in the restricted areas of the West Midlands, the South West region and central Southern England (Morris, 1994a, 374). She finds no evidence to suggest that pottery production was centralised or specialised at this time and adds that this coincides with the infrequent use of decoration on vessels which leads her to conclude that *'the trade (such as it is) in undecorated coarseware may be more indicative of social relationships behind this trade rather than the vessels themselves'* (Morris, 1994a, 374-375). Thus, there is no indication of specialised production *per se* and it does not appear that there is any differential in the resources of any one site from any other in this respect, suggesting *equal* centrality.

There is a development in the period 800 - 500/400 BC, the *'decorated phase of the Late Bronze Age'* (Morris, 1994a, 375), in the Wessex area of central southern England which shows evidence of a very limited amount of non-local production and intra-regional distribution of red-finished or *'haematite coated'* fineware vessels (Morris, 1994a, 376-377). Interestingly, Morris convincingly argues that the data presents no evidence for any difference in distribution / redistribution patterns on the basis of site type or morphology, despite the limited presence of specialised fineware production in this region (Morris, 1994a, 377). Thus, specialised production is likely although it may have been vested in individuals rather than sites (or the production sites have not been found) and there appears to be no annexation of distribution control by any known site, thus amounting to *differential* centrality overall.

In the 400 - 100/50 BC period Morris finds clear evidence for considerable increase in the amount of distinctive pottery types being produced at specialised production locations and then used at sites a considerable distance away, but the degree does vary geographically. In central southern England the earlier part of the period (to, say, 300 BC) is dominated by plain wares but the distinctive saucepan pot styles develop from this time. The change is dramatic in the South West region and parts of western England where local production is abandoned in favour of limited production locations but in central southern England pottery production is *'multi-tiered'* and appears to be un-centralised. (Morris, 1994a, 379). For example, the Lain's Farm F23 settlement assemblage includes pottery which comes from a source some 35 km distant but that fabric is also represented at Danebury F14 (as a small fraction of the assemblage) (Morris, 1994a, 379-380). Whilst there may be some specialisation in the study area, it does not appear to be centralised, although Morris (1994a, 380-381) views this as a tentative conclusion in a field which could repay more detailed study. Manufacture by standardisation has been inferred for some of the saucepan pottery in Hampshire on the basis of petrological and textural analysis of the fabric by Wandibba (1980) (Morris, 1994a, 379). Given the limitations of the detail of the evidence in Morris' distribution study, there is clearly some element of specialised production but whether it is vested in individuals or whole sites is not known, nor can a view of the consistency of that picture be taken, nor whether distribution is controlled at all, either by individuals or by site-related social sectors. The evidence as a whole indicates either *differential* or *insulated* centrality but that finding cannot be refined from current data.

In the latest pre-Roman Iron Age (100 BC +) major changes in pottery manufacture may be seen in some areas, particularly attributed to the effects of change on the continent and the social and political organisation of Britain (Morris, 1994a, 381-383). In particular, wheel-thrown vessels and amphorae were imported and with them came new technology and craftspeople skilled in using the wheel and building kiln-like structures, together with new fabrics and forms (Morris, 1994b, 383). However, in central southern England (amongst other areas) the traditions of handmade pottery and tooled decoration continued in parallel with these developments.

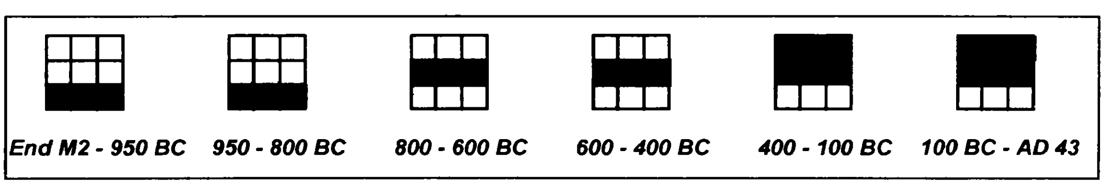


Figure I.19 - GDM - Artefactual assemblages - Specialisation

Weights and measures

There is a clear indication that broadly uniform weights made of stone with iron shanks were distributed fairly commonly across Hampshire from the C 4th BC onwards, suggesting a common weight standard which indicates *differential* or *insulated* centrality from that time (examples detailed above). Just as recorded for Sussex (p. 200) coins were found in some number from the C 1st BC onward and a coin production site was located at Calleva F09, confirming that finding for the latest period.

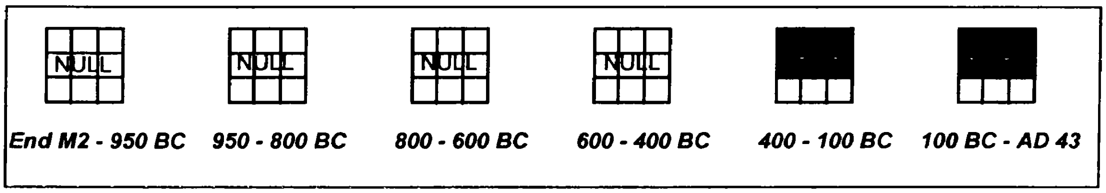


Figure I.20 - GDM - Artefactual analysis - Weights and measures

The Individual

The individual is invisible in the archaeological record for the first millennium BC in any line of evidence other than mortuary practice. To draw any conclusion at all about network centrality from mortuary evidence requires a large body of fairly consistent data indicating practice and the dataset is inadequate for this purpose except in so far as multiple burials of excarnated bodies in a quarry abutting Suddern Farm F43 say something about local practice in the period from c 600 - 100 BC for a particular population. Therefore, no analysis of network centrality from this line of evidence is possible for this dataset.

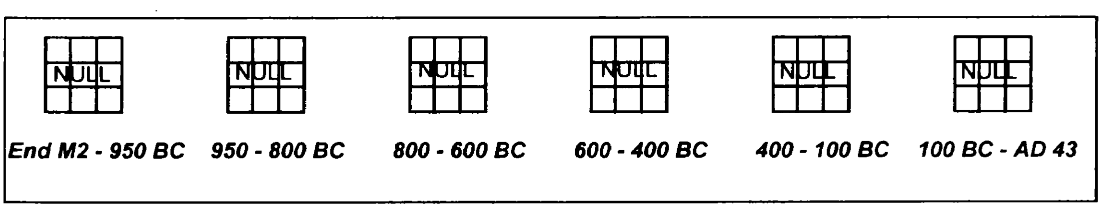


Figure I.21 - GDM - The Individual

The GDM of first millennium Hampshire

The results are accumulated and normalised as detailed in Appendix H, below, with the result:-

Hampshire:

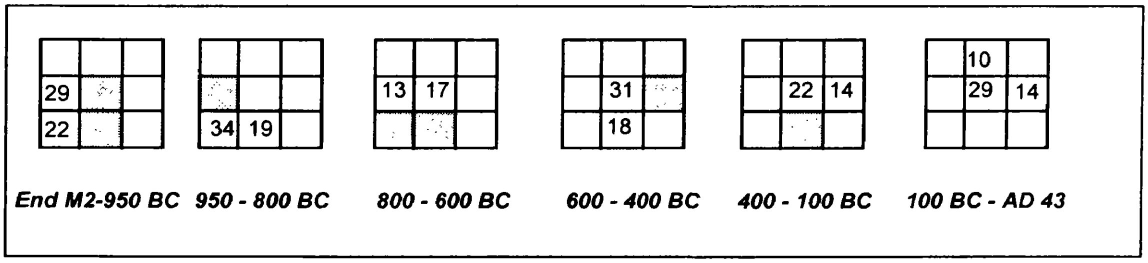


Figure I.22 - The GDM of first millennium BC Hampshire

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