

Characterising material culture to determine settlement patterns in north west Kashmir

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Abstract

This thesis explores the cultural profile of Baramulla District by determining settlement patterns through systematic field survey and artefact analysis. Until this new study, very little archaeological work had been carried out in Kashmir, and what had been done took the form of a few unsystematic explorations and site specific excavations; in Baramulla District the situation was even more extreme. The limited archaeological work carried out in Baramulla District showed that there was great potential for further work, and there also appeared to be no evidence for an Iron Age activity in this region. Baramulla has a distinct place in Kashmir; its location on the network of trade routes connects it to the Indian plains towards the south, and the northern areas of South and Central Asia towards the north.

To understand the archaeology of Baramulla District, a systematic transect based landscape survey was undertaken. The material culture recovered from the newly located and recorded sites was evaluated and carefully analysed to arrive at new interpretations about past settlement and activity, and this information was synthesised with previously available from key sites in Kashmir and South Asia. The new data thus available showed that human presence in the region begins during the Upper Palaeolithic period (c. 18000 BP) and continues up to later historic period (c. 10th century AD).

This thesis therefore examines the material culture and settlement data of four chronological periods: the Upper Palaeolithic period, the Neolithic period, the early historic period and the later historic periods in Baramulla District. This data is analysed to explore different issues: site types; settlement data; issues of continuity or discontinuity in chronology and interactions with South and Central Asia on the basis of similarities and dissimilarities in material culture, and the apparent 'missing' Iron Age.

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Chapter 1

Introduction: the research questions

1. Introduction

This research uses interpretations from the analysis of archaeological material culture recorded during two seasons of fieldwork in Baramulla District (north western area) of Kashmir in India (see figures 1.1 and 1.2) to characterise material culture in order to determine settlement patterns and their relationship to landscape features. To determine settlement patterns in Baramulla District from Prehistoric times up to the later historic period (c. 18000 BP to C. 10th century AD), the study incorporates the following areas of enquiry: determining the chronology of the district, the classification of sites, type of sites, material culture, issues of continuity and discontinuity, size of the sites, physiographic features, altitude, and the recourse to water resources. This research also uses interpretations of similarities in material culture with the neighbouring regions in South Asia and Central Asia in order to provide a context to cultural interactions of Baramulla District through different chronological periods.

Baramulla District is a pivotal area for understanding the historical development of Kashmir and its relations with other parts of South and Central Asia. The district has acted as a node in trade networks since at least the Neolithic times (see details about this in chapters 3 and 5) and has therefore played an important role

in Kashmir's culture-historical development. However, at present little is known about its prehistoric and early historic periods and whatever is known tends to be partial and site specific (Indian Archaeology 2004; Kak 1933; Mani 2000; Yatoo 2005). Understanding the chronological development of Baramulla District would provide an important insight into the rest of Kashmir: indeed one could argue that to understand Baramulla District is to understand Kashmir. This new research in Baramulla District is also the first time that archaeological survey has been used to explore settlement patterns, and move beyond simply identifying sites for excavation. This thesis therefore examines how settlements and their relations to the landscape developed through the early prehistoric to later historic periods by means of a detailed and systematic field study.

Furthermore, special attention is given to one of the more enigmatic periods of Kashmir history – the Iron Age – which, until the present research was undertaken, was thought to be absent in the Baramulla District. In the chronology of Baramulla District the period between c. 1000 BC to C. 100 AD (the Iron Age material culture) is sparsely represented. Arguably, this chronological period is poorly understood in Kashmir itself and has only been studied at a single site, Semthan (Indian Archaeology 1981: 69-70; Mitra 1983b: 21-23), (see details of this in chapter 3). This chronological gap was also noticed during my MPhil survey in 2005 in Sopore and Bandipor tehsils (tehsil is an administrative unit in a district and Bandipor is now a district, recently carved out of Baramulla District in 2006, see map in chapter 3) of Baramulla District. During this village to village survey a number of sites were recorded, reproducing a similar chronological sequence to that which exists in Kashmir, except that no material culture from sites belonging to northern black polished ware (NBPW, an Iron Age

material culture) or Iron Age and Indo-Greek periods covering c. 1000 BC to 100 AD were located in the study area (see chapter 3 for details).

The objective of my research, therefore, was to carry out a systematic field survey in all of the eight tehsils of Baramulla District (see chapter 4 for details), to understand how and where the sites were located, to report new sites, and also to record previously known. By carrying out this new work, and combining the results with existing chronologies, I attempted to provide a new chronological outline for the Baramulla District, based on comparisons with extant studies and their relative dates in the region. By utilising interpretations from archaeological evidence to reconstruct settlement and landscape and cultural correlations, and to see whether gaps in settlements are a real or apparent phenomenon, this study shows how the Baramulla District evolved from prehistoric times to the later historic period. This research is, therefore, highly significant as it takes on board systematic field surveys and analytical methodologies in characterising the material culture that has always been missing from the very limited number of archaeological works overall undertaken in Kashmir (see chapter 3). This research is therefore expected to be a foundation for future archaeological works that anticipates similar or relevant issues while approaching archaeology in Kashmir.

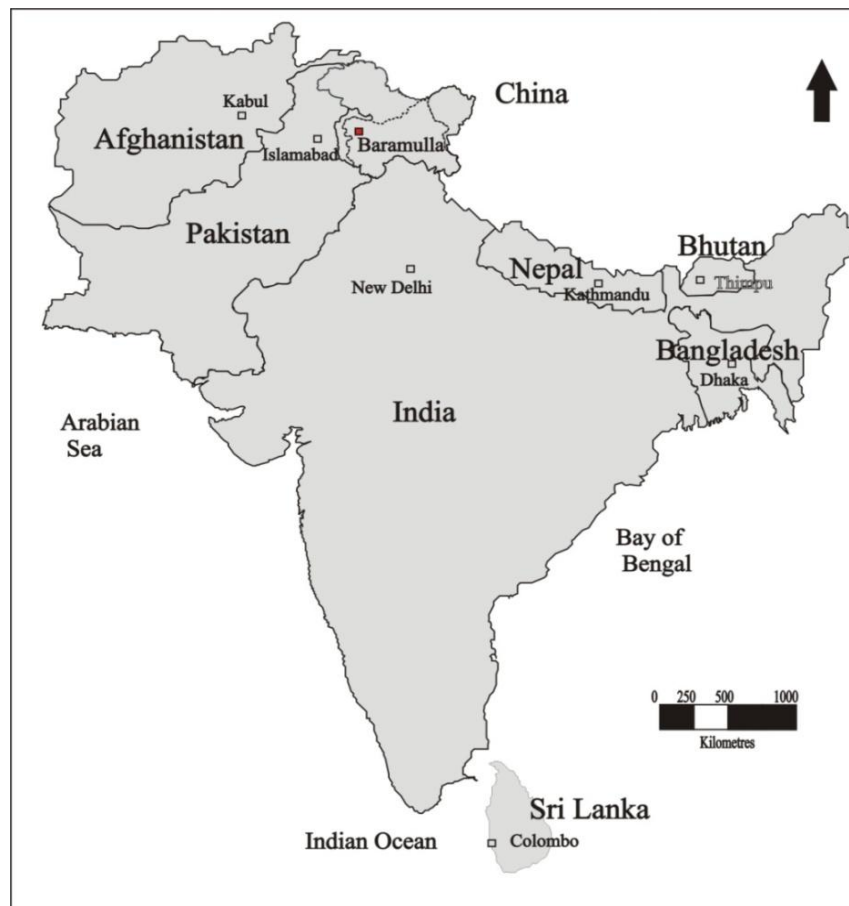


Figure 1.1 Location map of Baramulla District showing it in South Asia (Mumtaz Yatoo, 2011)

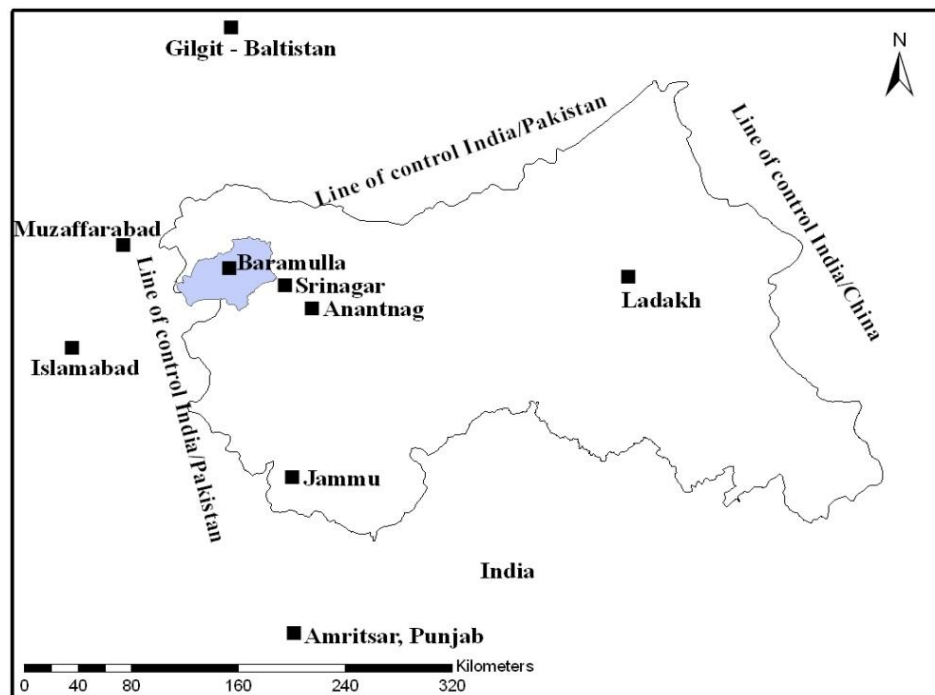


Figure 1.2 Location map of Baramulla District showing it in Jammu and Kashmir (Mumtaz Yatoo, 2011)

1.1 Thesis framework

In this introductory chapter I introduce the study area and discuss the foundation on which the present research builds, and illustrate the purpose and significance of this work in Baramulla District. The chapter highlights the lack of previous systematic settlement and landscape studies not only in Baramulla District, but the whole of Kashmir, which has meant that only a partial understanding of archaeological settlement has been delineated. It is in this chapter that the research aims of the thesis are put forth and explained.

Chapter 2 introduces the geography of the study area and its environments. It discusses the origins of Kashmir from water (a prehistoric lake called *Satisars*) and the role of Baramulla District in the desiccation of these waters. This chapter demonstrates the importance of rivers and other water bodies for settlements and subsistence in Kashmir. This chapter also introduces mountains, lakes, springs and *karewas* (quaternary lacustrine deposits, see chapter 2) and their role in the landscape of Kashmir and their impact on settlements in the past. This chapter concludes with a consideration of cultural geography and the strategic importance of Baramulla District on the two important trade routes which connect Kashmir with northern areas of South Asia and Central Asia.

Chapter 3 discusses archaeological sites in Kashmir and Baramulla District that have been excavated or explored in the past and the diversity of site types, material culture and the landscape features associated with these sites. These works are the only extant source by which to study settlement patterning and more importantly the chronological framework of the region. This chapter introduces and discusses the

chronology which has been developed and is in current use in Kashmir. The chapter goes on to explain the understanding of interactions and cultural correlations maintained and depicted through material culture with the neighbouring areas in South and Central Asia.

Chapter 4 presents the methodology for this work, and I discuss various field survey methodologies with their advantages and disadvantages for the present study. In this chapter I critically analyse the main field methodologies which have been applied in archaeological surveys in South Asia and in projects from other parts of the world with similar research questions or geography. Also in this chapter I provide a rationale for the type of field survey methodology I have chosen in this study, and I conclude with a discussion of analytical methodologies appropriate to my data and research questions.

Chapter 5 and 6 contain the analysis of archaeological material culture, and settlement data, from the two seasons of field survey I have carried out in Baramulla District. Chapter 5 explores the chronologies, types of sites and various categories of material culture noted during the survey. Chapter 6 presents the settlement patterns and landscape features of the sites followed by site sizes, continuity and discontinuity issues, altitude of sites and recourse to water, across the different chronological periods recorded in this research.

Chapter 7 discusses the results of the analysis presented in chapters 5 and 6, looking at trends and interpretations in material culture and settlement patterns during the different chronological periods identified. This chapter discusses material

culture located in Baramulla District in context with Kashmir and South and Central Asia for wider interpretations.

Chapter 8 focuses the discussion on the one particular research question the presence or absence of Iron Age sites in Baramulla District. In this chapter I explore comparisons in the material culture of the Iron Age period of Kashmir and South Asia with that of Baramulla District. I conclude this chapter by discussing Iron Age material culture and the significance its presence or absence has for the Baramulla District in particular and Kashmir in general.

Chapter 9 summarises the conclusions of this research, reiterating the significance of characterising settlement pattern studies and bridging chronological gaps in the archaeology of Baramulla District. This chapter highlights the important avenues identified in this research towards which future work could be directed to improve and extend this work.

1.2 The importance of studying regional settlement patterning

The term 'settlement' can be defined as the location of permanent or semi-permanent places in the landscape where people, individually or in groups or communities, perform their daily activities. Studying these 'settlement patterns' helps to understand people's activities in a landscape, their material culture, the natural environment around them and their social interactions (Fish 1999: 203; Parsons 1972: 128).

The concept and importance of regional settlement pattern studies was highlighted by Willey (1999: 9) at Viru Valley on the north west coast of Peru in South

America. Willey's experiment with settlement study at Viru Valley highlighted its value and he stressed that such a study not only informs about the geographic and chronological position of archaeological sites on a landscape but also helps to reconstruct social, economic and cultural activities of the people (Willey 1974: 159). He cautioned that to study these activities the focus must be on the archaeological material culture of a whole region rather than focussing on a single site.

Wesselingh (2000: 16, 20) considers settlement study as spatial in nature, that informs us about the physical and social activities of inhabitants in and on a regional landscape. He suggests that understanding settlement and past human activity could be achieved by studying both the material culture and the dwelling places in context with landscape. Trigger (2006: 377-80) argues that through settlement studies, we learn about individual sites that can be seen as part of a network of sites in which each individual site performs a different or balancing role. Furthermore, he suggests that systematic study of settlement patterns informs us of the archaeological diversity of a region and also its cultural interactions with various other communities through studying material remains. He believes that settlement study encourages us to learn about human behaviour other than culture and ethnicity.

Kowalewski (2008: 227) defines settlement patterns as 'distribution of multiple places' (which are often but not always denoted as sites), where people live and carry out social and physical activities and where they interact with the landscape and environment. Kowalewski (2008: 226) suggests that analysis of settlement patterns is advantageous as it produces new and sometimes unexpected insights about a whole region and informs us about its landscape features and human interactions with them.

What is understood from the above discussion is that examining individual sites, although very important for many different reasons, provides information that is limited in time and space. For instance a house, a religious edifice, a cave, or a supplementary structure, each provides different information when studied individually. Studied as part of a settlement, however, allows us to look at them collectively as a whole and their role in a region, therefore, allowing us to reconstruct sequential stages of settlement history or chronology. It is 'settlement study' that emphasises the importance of studying sites holistically as a part of a region and in the context of its landscape: in which issues of social, economic, environmental and many other queries can be asked about the past societies. Settlement study therefore, becomes the source of information about many aspects of human behaviour and it is through this that we can generate new fields of inquiry, such as the study of long-term change, continuity, abandonment and gaps in settlements in a region. In Baramulla District, it becomes imperative to move away from the orthodoxy of studying and describing individual sites, which has been the practice prior to this study in Kashmir in general.

1.3 The beginning of a new approach to regional settlement study in Baramulla

District: research questions

Baramulla District lies between 33° 15' to 34° 50' N (latitudes) and 73°45' to 74°20' E (longitudes) and is one of the 10 districts of Kashmir in north west India, situated at an average height of 1580 masl (meters above sea level) (see figure 1.3). Baramulla District was the gateway to Kashmir from the west and the north via two historical

routes (Fussman 1993: 86; Lahiri 1992: 243; Prinsep 1879: 200-239; Stein 1989b: 355-358). People have moved through these routes since the Neolithic period right through to the time of the Mauryans, Indo-Greeks, Kushans and so forth (Agrawal 1998: 2-3; Stein 1989b). Both these routes have played a vital role in maintaining cultural and trade links between Kashmir and the outside world in the past (see chapters 2 and 3 for details of these routes and their discussion in chapter 7).

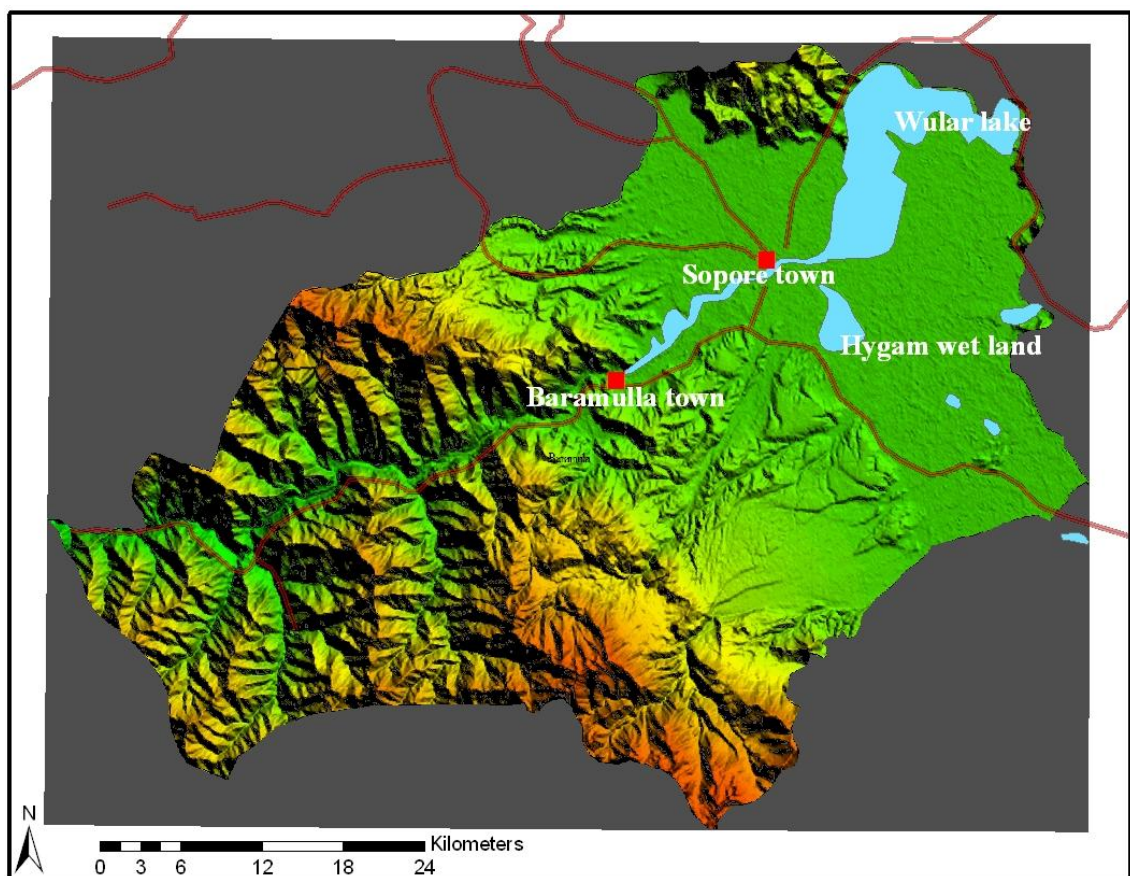


Figure 1.3 Digital elevation model of Baramulla District showing its location in context with major roads and water bodies

Very little is known about the prehistoric and early historic societies that may have lived in the present study area, and whatever is known is mainly in the form of one lone partially excavated Neolithic site (Kanispora), a few Buddhist and Hindu

temples and monasteries and some unexcavated prehistoric sites thought to be Neolithic on the grounds of surface finds (Mitra 1984: 16-17; Shali 1993: 61; Thapar 1980: 19; Yattoo 2005: 190-195). My previous village to village survey work for my MPhil research in the two tehsils of Baramulla District, Sopore and Bandipor in 2005 (see chapter 3 for details), although unsystematic, exposed the archaeological potential of the area, locating Upper Palaeolithic, Neolithic, early and later historic material culture there. It was also during this study that a putative gap was noticed in the settlement history of Baramulla District from c. 1000 BC to 100 AD, as no remains for this period were identified, although it was represented sparsely at the excavated sites of Burzahom, Gufkral and Semthan (all in Kashmir) and reported from surface finds at few more places in Kashmir (Indian Archaeology 1981; Saar 1992; Shali 2001; Sharma 1992).

Furthermore, Baramulla District has largely been neglected in archaeological exploration, except for a study gauging the importance of north Kashmir with respect to its trade or communication routes such as Jhelum Valley route (Agrawal 1992: 2-3; Kak 1933, 146-165; Mitra 1984: 16-17; Shali 1993: 61; Thapar 1980: 19). Southern Kashmir has received a little more attention from archaeologists, though almost entirely in the form of site specific explorations and excavations. Previous explorations and excavations in Kashmir and Baramulla District were concerned with descriptions and documenting archaeological sites and remains mostly found along the main communication routes (e.g. Jhelum Valley route). Reports and lists of such sites and finds typically provide brief information about chronology, diagnostic artefacts and architecture, and site location which are compiled as survey reports. Analysing these survey reports provides information about site location and material culture, but tend

to exclude vital information such as the functioning of these sites within a larger area or region, the distribution pattern of the sites, and their relationship to the landscape or environment.

Building on my past experiences in the region, and equipped with new systematic field survey methodological tools, this thesis will draw upon previous works for chronologies and settlement pattern information to help the present work achieve its aims. This work was, therefore, based on well-built survey and analytical methodologies, structured for the Baramulla District, in which a systematic field survey was carried out addressing the following research questions.

1. To determine where sites are located in the landscape of Baramulla District and which periods are represented, so that the type of sites; function of these sites; their distribution in the region and similarities within Kashmir and beyond Kashmir can be determined and understood. Based on this information a new chronology will be devised from which to learn about human activity during various periods in Baramulla District in the past.
2. To determine whether the gap reflected during my MPhil work in the settlement history of the region from c. 1000 BC to 100 AD (the period of Iron Age in Kashmir) is a real or apparent phenomenon in Baramulla District, and in doing so, consider issues of continuity and discontinuity in settlements.

In order to place my survey in context, I carried out a thorough analysis of the archaeological material culture previously published to understand the settlement history and chronological gaps in Kashmir. As I mentioned earlier in this chapter, there

is, to date, little overview or discussion of either settlement archaeology or the 'Iron Age' either in Baramulla District or Kashmir, however, previous works have proven the potential for a detailed research work on these lines in Baramulla District (Mani 2000: 139; Mitra 1984: 16-17; Yattoo 2005: 35-189). Finally, archaeological sites in this region are under substantial pressure from farming, building and illicit excavations. I observed that all the sites explored during my MPhil work sustained fairly recent damage. One of the contributions of this work is to help in providing a record of the archaeology of this region before it is completely destroyed.

Primarily, the present work is intended to help in understanding the archaeological settlement patterning in the Baramulla District by analysing selected artefact groups such as pottery, stone tools, structural and metalworking remains, and terracotta. By carrying out a detailed comparative analysis of material culture, an effective chronology will be developed based on pottery, architectural styles and other finds drawing on published reports for this region for comparison (see chapter 4 for details of analytical methodologies). These relative, typological chronologies will be linked to the few radiometric dating schemes which are in existence for the wider region. By doing so, the settlement types, the periods they represent and any perceived gaps can both be explored and bracketed, and in this way I will be able to present an overall picture of site types and their distribution in the Baramulla District.

The eight tehsils which form the Baramulla District (see chapter 2, figure 2.4), were studied during the present work; they provide a geographically diverse area for the investigation of human settlement patterns as they contain mountains, lakes, rivers, agricultural and horticultural lands, *karewas*, and *margs* (high altitude pasture

land). Baramulla District is located on two ancient routes, and is mentioned in historical accounts such as *Rajatarangini* (an 11th century account of kings and their kingdoms in Kashmir). Place names of ancient habitations can be identified corresponding to existing settlements, such as Suyyapura for modern Sopore, Varamulla for modern Baramulla, Samkarapura for modern Pattan and Pratapapura for modern Tapar (Stein 1989b, 481-489; Sufi 1996) (see chapter 3, figure 3.2). Also of importance are the adjoining regions of ancient Wular Lake in Sopore tehsil connected with one of the ancient trade routes in Baramulla District, which yielded a sizeable number of archaeological sites during my MPhil work and past study (Mitra 1984; Shali 2001; Yatoo 2005).

Therefore, the question remains, why is it important to study the settlement archaeology of Baramulla District, in Kashmir? Baramulla District, from the earliest periods, has held an important place in Kashmir and is mentioned in ancient literature such as the *Nilmatpurana* (thought to be a 6th century account about the cultural history of Kashmir) and the *Rajatarangini*. Archaeological sites are spread throughout Baramulla District but only few of them have been either partially excavated or studied (and those which have been explored are almost all temples, monuments or monasteries, see chapter 3). There has been no attempt to study these sites in context with each other or the surrounding landscape where they are located, neither is the material culture of such sites analysed in the context of other sites in Kashmir or South Asia or Central Asia. Similarly, no attempt has ever been made to understand why sites are placed on certain physiographic zones, for example why the Neolithic and early historic sites are mostly found on highlands and *karewas* (as found in the present research), and why the later historic sites are on plains and so forth. Issues of

continuity and discontinuity have remained unexplored and the question of whether Iron Age material culture is present or absent in the archaeological record remained unconsidered. This study therefore becomes not only relevant, but is timely and important, as all this new work is based on new systematic surveys and analytical methodologies to characterise regions archaeological material culture to develop new chronology. Moreover this research seeks to determine settlement pattern and landscape features that have previously not been done in either Baramulla or anywhere else in Kashmir.

Studying Iron Age material culture from Kashmir sites and its significance

Similarly, iron artefacts and iron working in India is a much debated research issue. Some argue that the presence of iron is a result of diffusion from the west (Allchin and Allchin 1993a: 207-208; Gordon 1950: 67-69) and some scholars argue instead for the development of a local iron industry (Chakrabarti 1976; 1992; Tewari 2003). The recent radiocarbon dates and stratigraphic position of iron artefacts from northern India, the Ganga Valley and central India suggest that knowledge of iron smelting and the manufacturing of iron artefacts was well known in these three regions by c. 1000 BC and was indeed an indigenous development (Gaur 1983; Sahi 1994; Tewari 2003). The Iron Age material culture in this part of South Asia is characterised by specific pottery wares such as northern black polished ware (NBPW), Black on Red ware, and painted gray ware (PGW) which have been recovered from states adjacent to Kashmir, such as Himachal Pradesh, Punjab and Uttar Pradesh (Agrawal and Kharakwal 2003: 215-218; Tripathi 2002: 293; Shali 2001: 109-110). In the north western regions of

South Asia, the Iron Age is further characterised by cairn and cist burials in the Zhob, Pirak and Loralai areas of Baluchistan, the Gandharan Grave Culture in Khyber Pakhtunkhwa, (former NWFP), Pakistan (Allchin and Allchin 1993b; Dani 1967; Stacul 1969; Antonini 1963) and megaliths in Kashmir (Sharma 1992: 67; Tripathi 2002: 290). Iron has been recovered at Gufkral (in Kashmir) in association with menhirs (the simplest form of megaliths) (Agrawal and Kharakwal 2003: 244; Sharma 1992: 63-67; 1998). The limited assemblage of iron artefacts at Burzahom and Gufkral and similarly limited Iron Age material culture of two NBPW pottery sherds, an arrowhead from Semthan, along with a passing reference to NBPW recovered somewhere along the Jhelum Valley trade route has left this chronological period open to debate in Kashmir (Indian Archaeology 1981; Mitra 1984; Saar 1992; Sharma 1992). However, evidence at Burzahom, Gufkral, Semthan and Baramulla District and coupled with iron slag deposits of unknown date at Dragtiyung (a site reported as Neolithic on the basis of material culture) located on the Srinagar-Leh national highway in Kashmir (Shali 2001: 109), (see chapter 8 for details) suggests possible archaeometallurgical activities long before 1000 BC in Kashmir. Therefore, studying this issue is also a key aspect in presenting a new chronology for the district and a foundation for learning more about this little known chronological period in Kashmir.

1.4 Summary

Kashmir archaeology currently has a limited number of detailed site-specific studies, and only three unsystematic surveys primarily aimed at locating archaeological material culture of interest. In Baramulla District this situation is even more extreme,

with only three site-specific studies and only one previous (unsystematic) survey carried out by me for my MPhil thesis. In both cases we lack the landscape-based chronological overview required to contextualise (and thus gain additional interpretative value) for these site-specific studies. This thesis seeks to provide precisely this basic building block - not only through a detailed description of settlement patterns from earliest prehistory until the later historic period, but also through detailed discussion of the material culture from each period that provides the fundamental tools needed to enable other researchers to build upon this foundation. There are many challenging research problems that need to be resolved (noted in chapter 9). However, they cannot be addressed until the basic framework offered by this thesis is put in place. This thesis therefore seeks to offer not only a detailed summary of the current knowledge, building chronologies and bridging gaps in chronology, but a foundation for the future development and realisation of Kashmiri archaeology.

Chapter 2

The physical environment, geography and communication routes

Kashmir is situated among the great north western complex of the Himalayan ranges, lying in the form of a longitudinal depression (figure 2.1). Kashmir consists of important relief features which evolved due to plate tectonics between the Asian and Eurasian plates millions of years before present (Agrawal 1992: 16). It shares an essential relationship with the Himalayan complex that exercises great influence on its geography. Knowledge of Kashmir and its surrounding mountains will remain incomplete without comprehensively understanding the entire complex of topography of which it is an integral part. De Terra and Paterson's (2003) and Agrawal's (1992) investigations into the structural and geomorphological features of Kashmir brought to light the dominating influence of Himalayan complex on the climate, physiography and the way humans have interacted with these features. The overall aim in this chapter is to provide a backdrop and context within which human settlements and their activities can be understood within Kashmir. Such as studying the geology, physiology and relief features, drainage systems, weather and climate, soil, flora and fauna, and interactions. It is essentially the geographical background of the region which fundamentally provides a sense of place for people, and helps define their way of living and behaviour. This chapter concludes by describing the ancient trade or

communications routes which pass through Baramulla District that are thought to have added to the development of the region since prehistoric times.

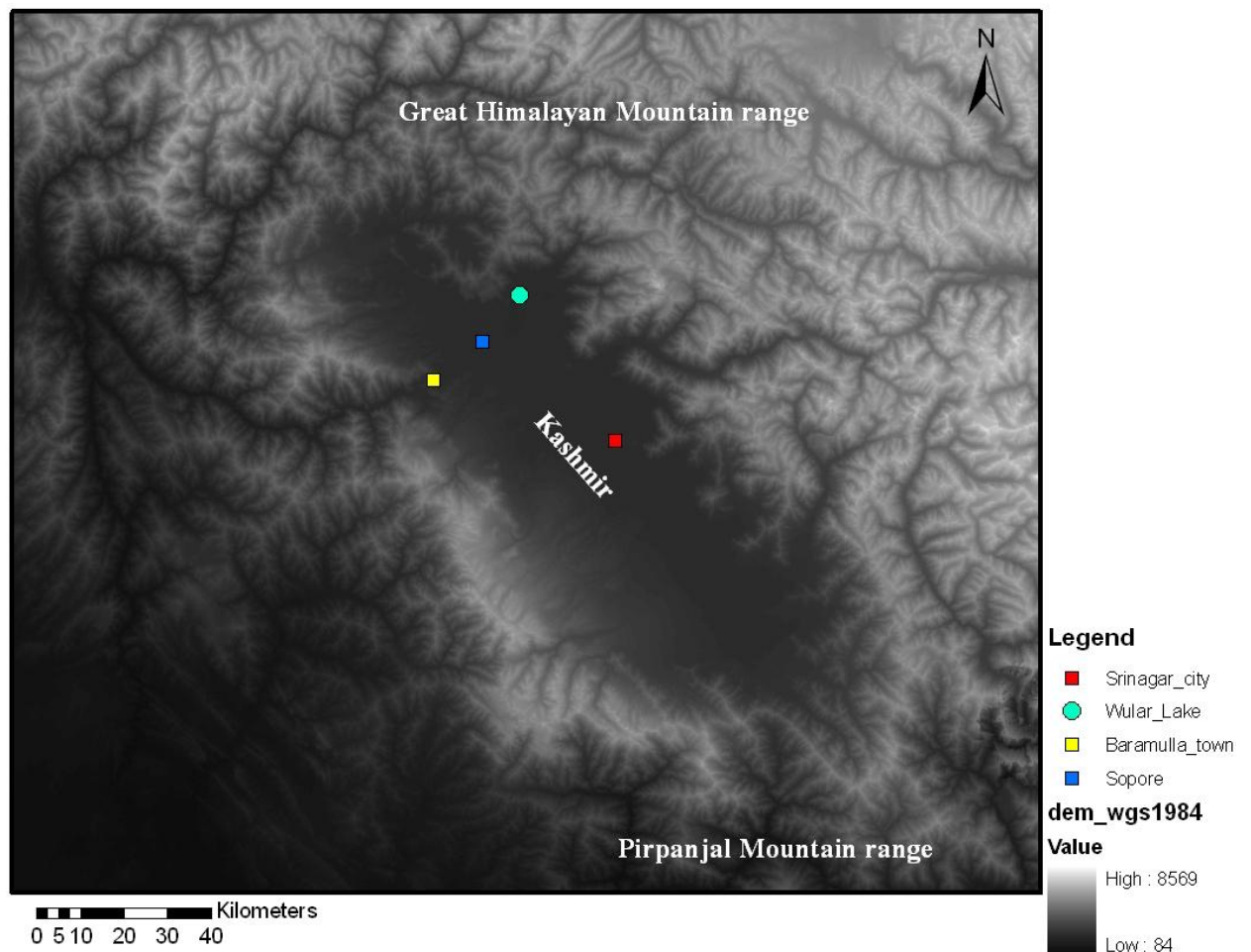


Figure 2.1 The location of Kashmir between the great complex of mountain ranges.

2.1 Geographic position of Kashmir

The Indian state of Jammu and Kashmir occupies the northern most part of South Asia, covers an area of c. 101,387 sq kms and is approximately defined by the coordinates 32° 15' to 37° 05' N (latitude) and between 72° 35' to 80° 20' E (longitude) (Bhasin and Nag 2002: 8-9). Prior to 1947 the state included Jammu, Kashmir, Ladakh, and the northern areas of Gilgit-Baltistan, Hunza, Nagar, Punial and Yasin (Murphy 1990;

Mayfield 1955: 184). In 1947 the state was split into three areas: Indian controlled areas (controlling Jammu, Kashmir and Ladakh) which comprises 55% of the territory; Pakistan controlled area (controlling northern areas of Gilgit-Baltistan, Hunza, Nagar, Punial and Yasin) which comprises 30% of the territory; and China controlled areas which comprises 15% of territory (Hobbs 2008: 314; Murphy 1990: 539-40). Therefore, Jammu and Kashmir is currently divided into three parts, administered independently by India, Pakistan and China (see figure 2.2)

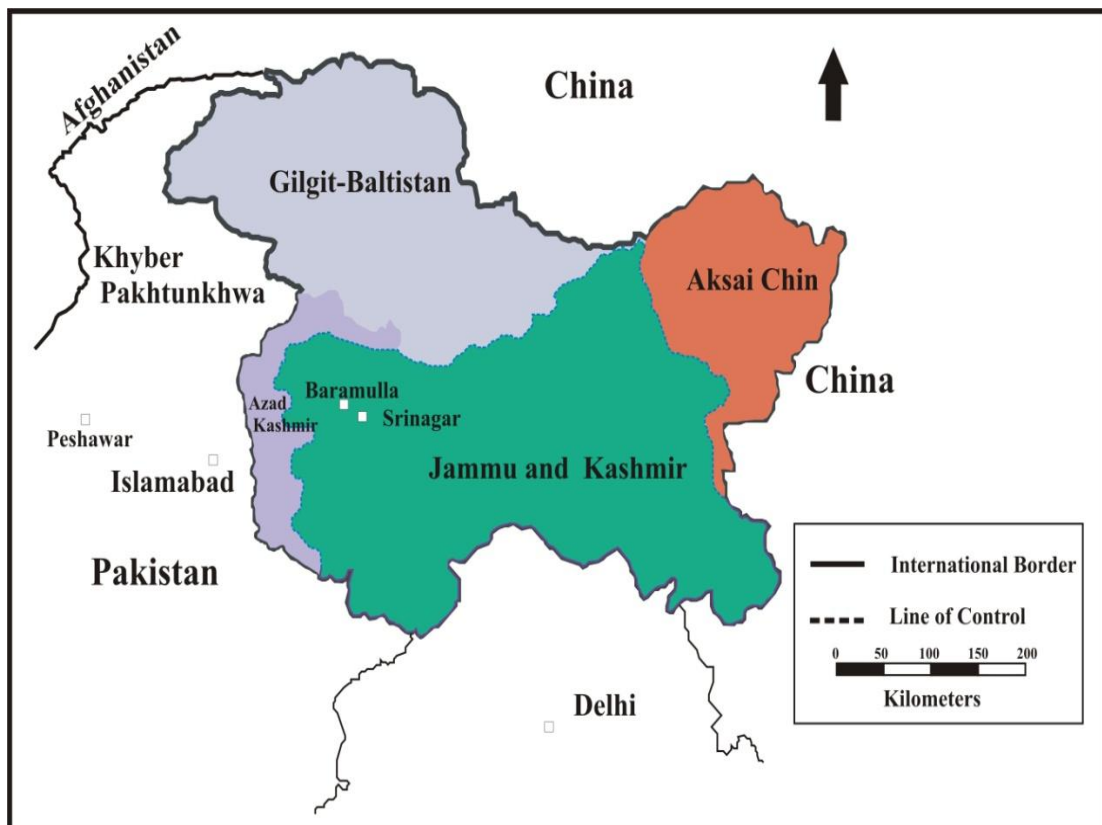


Figure 2.2 The China controlled area (orange), India controlled area (green) and Pakistan controlled area (both shades of gray) (Mumtaz Yatoo 2011).

Kashmir is the central part of Jammu and Kashmir state. It is divided into 10 districts or administrative units, and these are further sub-divided into tehsils and blocks (tehsil is a revenue subdivision within a district and block is a revenue

subdivision within a tehsil) that facilitate the government in the administration of the Kashmir (see table 2.1 and figure 2.3).

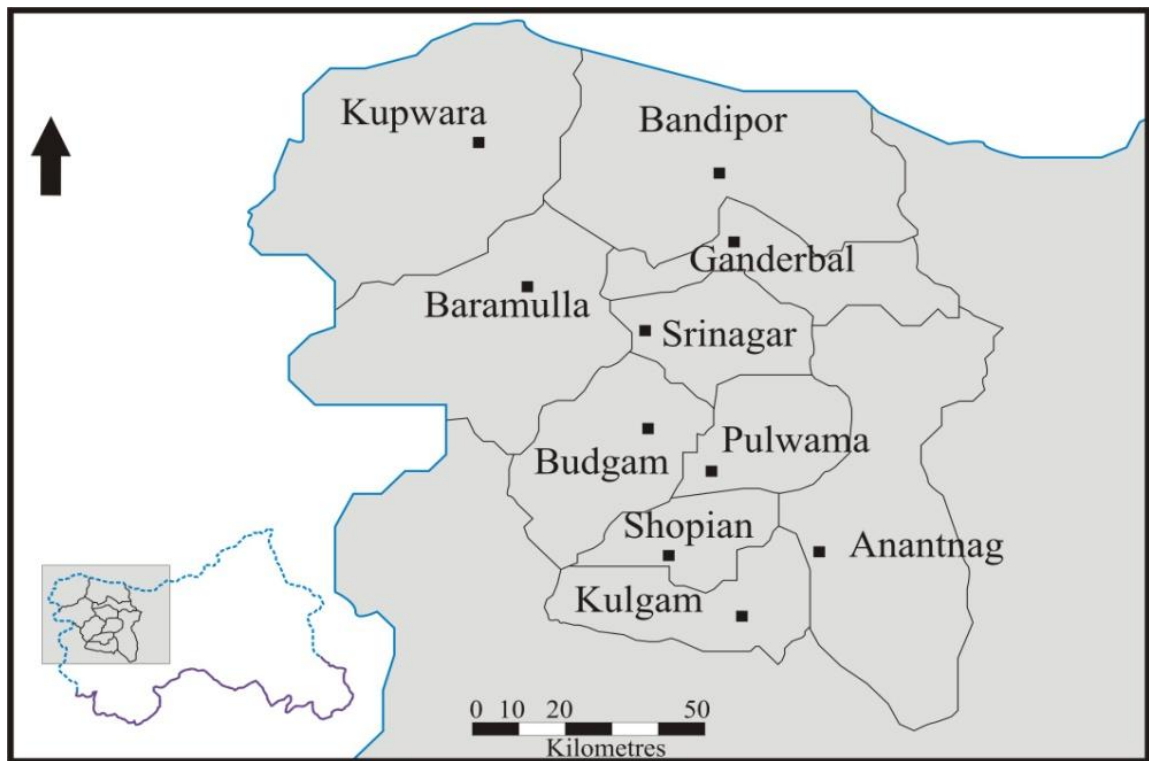


Figure 2.3 Outline of various districts of Kashmir region (Mumtaz Yattoo 2011).

Kashmir is flanked by the Himalayas on the north east, and by the Pir Panjal range on the south west forming an oval shaped valley (see figure 2.1). The Himalayan and the Pir Panjal mountain ranges protect Kashmir from the heat and summer monsoon of the plains, rising to heights of 5547 masl and 4999 masl respectively (Agrawal 1992; De Terra and Paterson 2003). Climatically it is more similar to the Mediterranean system than the Indian Ocean system (Agrawal 1992: 2; Agrawal et al. 1989: Pant 2003: 131), and it is this influence that makes Kashmir distinct from other regions in South Asia (Husain 2008: 32). The Pir Panjal range has a length of c. 240 km and a width of c. 105 km and ranks second only to the Himalayas in its importance in

South Asia (Agrawal 1992: 2; De Terra and Paterson 2003). The average height of Kashmir is 1828 masl. Kashmir itself is distinctly basin shaped, c. 140 km in length and 55 km in width (De Terra and Paterson 2003: 17; Husain 2008: 27). Modern Kashmir is agrarian in character and its basic economy is much influenced by its physical environmental factors.

2.2 Geographic position of Baramulla District in Kashmir

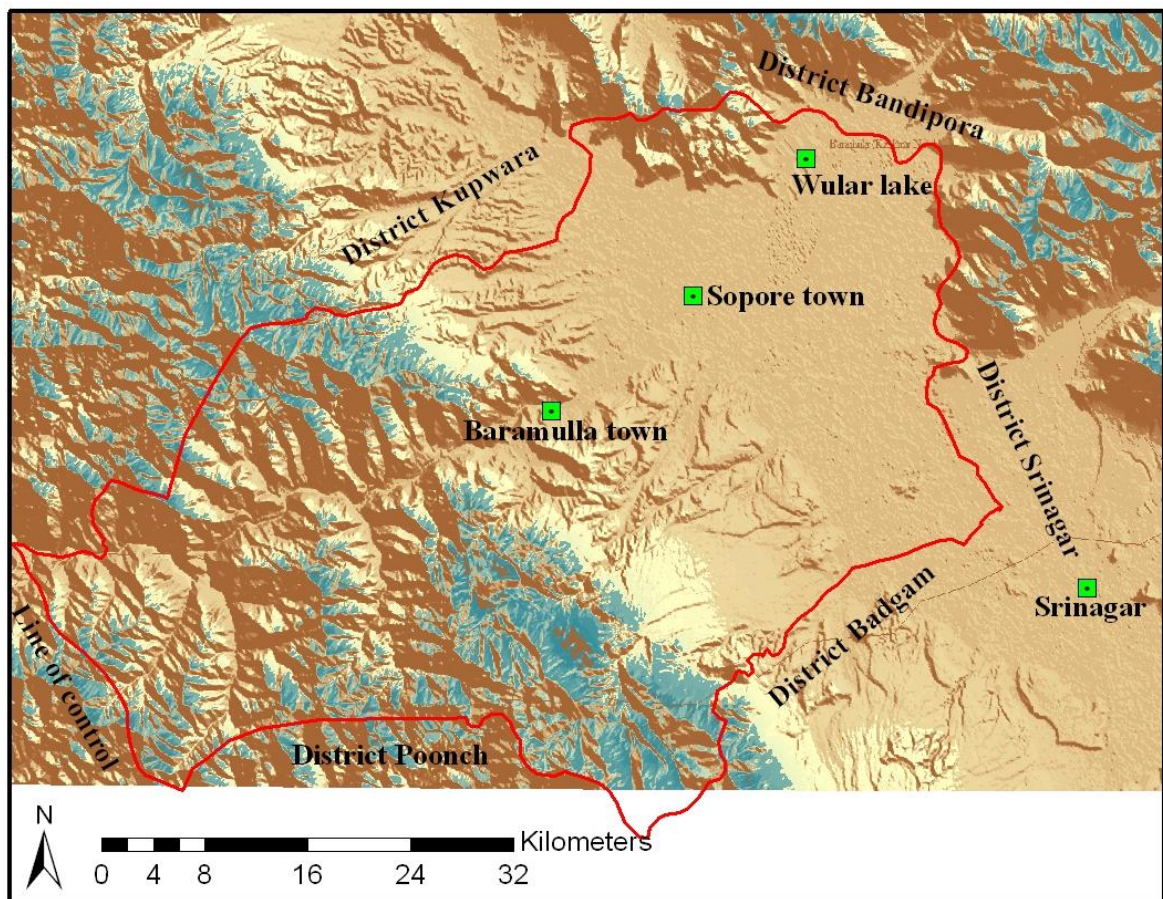


Figure 2.4 Showing topography of Baramulla District and its neighbouring districts

Baramulla District lies between $33^{\circ} 15'$ to 34° N (latitudes) and $73^{\circ} 45'$ to $74^{\circ} 20'$ E (longitudes) and is one of the 10 districts of the oval shaped Kashmir, commanding an

average height of 1580 masl. The district is hilly and abounds in difficult terrain (see figure 2.1 and 2.4). Baramulla District is bounded by Kupwara in the north, Budgam and Poonch in the south, parts of Srinagar, Bandipor and Ganderbal in the east and has the line of control between India and Pakistan in the west (see figures 2.4 and 2.5).

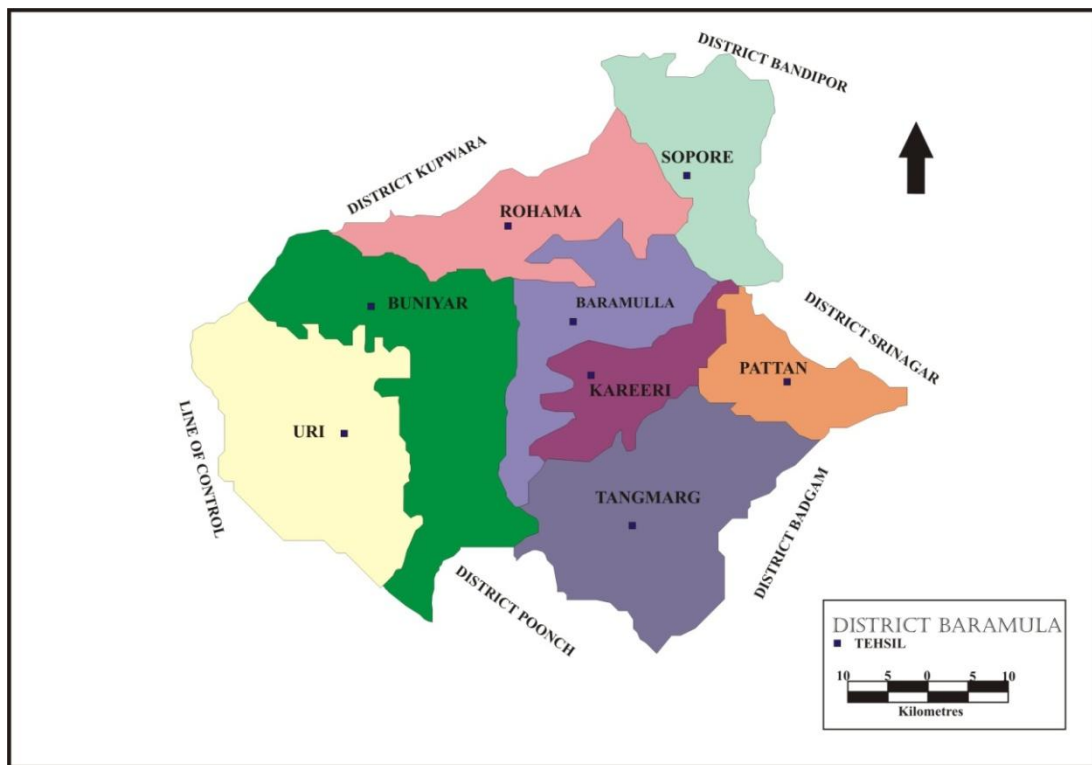


Figure 2.5 District map of Baramulla with its tehsil headquarters (Mumtaz Yattoo 2011).

The district has eight tehsils (namely Baramulla, Buniyar, Kreeri, Pattan, Rohama, Sopore, Tangmarg, and Uri) and has 12 blocks (namely Baramulla, Buniyar, Kunzar, Pattan, Rohama, Rafiabab, Sopore, Singhpura, Tangmarg, Uri, Wagoora and Zaingeer). The district is further divided into 206 *Panchayat Halqas* (village governing bodies) and has a total of 639 villages (village is a group of households smaller in population than a 'town' with no municipality, corporation or cantonment, while as

‘town’ is greater than 5000 but less than 1,00,000 people with all the three features) (Census 2001). The population of the district is 1,169,780 which is 11.59 % of the total population of the state. The density of the population is 254 per sq km and the number of households is 21.03 per sq km. The area of the district is 4588 sq kms (Census 2001).

District	Tehsils	Towns	Blocks
Anantnag	6	6	7
Baramulla	8	7	12
Bandipor	3	3	5
Budgam	6	3	8
Ganderbal	3	2	4
Kulgam	3	2	5
Kupwara	3	2	11
Pulwama	4	2	5
Shopian	1	3	1
Srinagar	2	1	1

Table 2.1 Information of districts, tehsils, towns and blocks of Kashmir. Source: Government of Jammu and Kashmir civil secretariat revenue department SRO 185.

2.3 Origin of Kashmir from an ancient lake

Varamulla or Baramulla; the origin of the place name appears when the entire Kashmir basin was a vast lake known as *Satisars* (Ghai 1994: Vv 203-233; Stein 1989b). According to Kalhana (Sanskrit poet scholar and author of *Rajatarangini*), in the

memory of Varaha Avatara (Vishnu) the first *Teeratha* (pilgrimage centre) of Kashmir was built by Hindus near the place where the mountain was cut and the place was named *Varamulla* meaning a Boar's place, in Sanskrit (Stein 2005: 201-202; Stein 1989b). In addition to this legend, there is a bend in the Jhelum River at this point, hence the name "*Varamulla*" after "*Var*" in Kashmiri which means a bend and "*Hull*" which means a place (Sufi 1996: 9). But the popular view as to how the place came to be known as "*Baramulla*" is that the waters of *Satisars* were drained at twelve places in the vicinity of Baramulla tehsil. The place was thus assigned the name "*Baramulla*" meaning twelve bores (Stein 2005; 1989b; Sufi 1996). The history of Kashmir thus originates with the history of Baramulla or *Varamulla*. From the study of historical accounts (Ghai 1994; Stein 1989a,b) through to scientific observations (Agrawal 1992; Burbank 1982; De Terra and Paterson 2003; Husain 2008) it has been suggested that Baramulla has held an important place in the formation of Kashmir.

In ancient sources such as *Nilmatpurana* (presumed to be a 6th century account written by an anonymous author and considered as a source for the cultural history of Kashmir) and *Rajatarangini* (written by Kalhana in AD 1148-49 mentioning the reign of various kings, who ruled and were ruling in Kashmir when the account was being written, Kalhana is said to have consulted 11 sources of which only *Nilmatpurana* still exists), both give an account of a legend that mention Kashmir originally being a vast lake (Bamzai 1973: 30-31; Stein 1989a: 5). According to this legend the lake called *Satisars*, the lake of Sati (Durga, a Hindu goddess), occupied its central place in Kashmir from the very beginning. In this lake resided a demon *Jaldobava* (water born) who caused distress to all neighbouring countries. A sage by the name of Muni Kashyapa asked the gods for help, and so a whole host of gods under Brahma's (the senior god in

Hindu triumvirate) command descended to help. The demon was invincible in water and refused to come forth from the lake, thereupon Vishnu (the second god in Hindu triumvirate) drained the lake by piercing the mountains at Baramulla and killed the demon as the lake ran dry (Bamzai 1973: 52-53; Stein 2005; 1989b).

Verifying the legend of Satisars

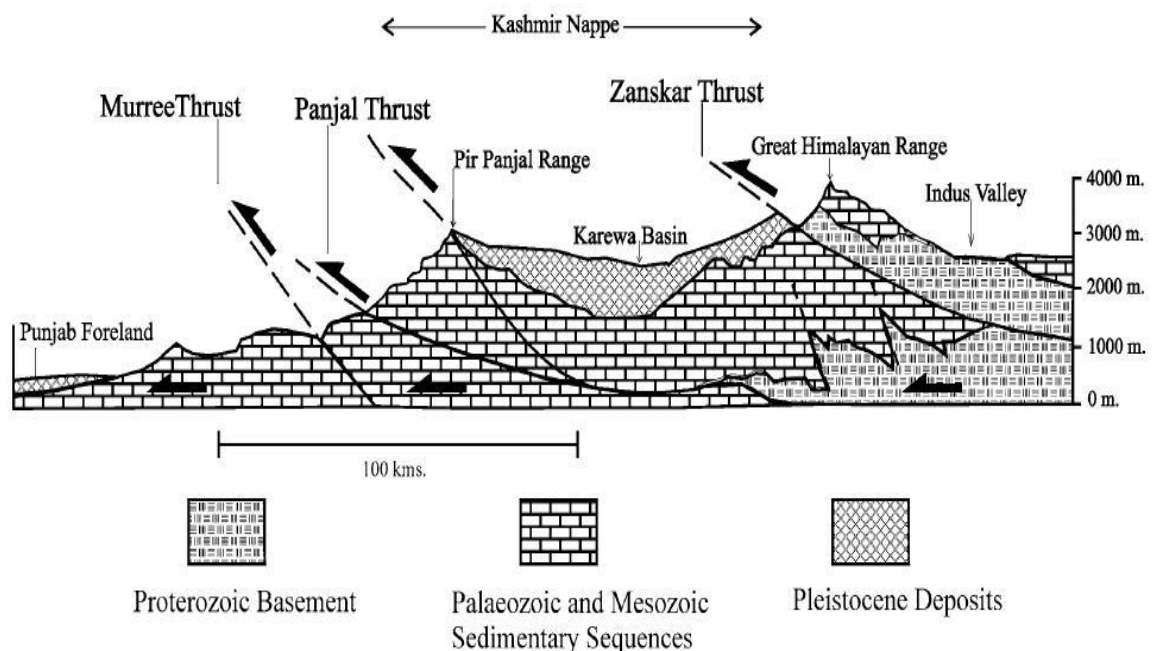


Figure 2.6 The differential uplift of two mountain ranges and the formation of Kashmir depression between them (after Agarwal and Agrawal 2004: 49).

The legend of *Satisars* mentioned in *Nilmatpurana* and *Rajatarangini* aroused the interest of various scholars in scientific community. Many geologists and multidisciplinary researchers carried out detailed scientific studies which have given them useful information of existence of lake and its subsequent drainage (Agrawal 1992: 49; De Terra and Paterson 2003: 19-20; Spate 2008: 29). It has been

demonstrated that geological changes such as differential uplift and the Himalayan orogeny (mountain building) formed depressions between the Pir Panjal and Himalaya mountain chains (Agarwal and Agrawal 2004: 51; Agrawal 1992: 49; De Terra and Paterson 2003; Moonis et al. 1978).

Agrawal (1992) explains the creation and drainage of *Satisars* by demonstrating that Pir Panjal range towards north east was very much lower than its present height, and water drainage was from north-south running almost parallel to the present day Jhelum River. Agrawal's (1992: 45) study further demonstrates that Pir Panjal became level to Himalayan range towards south west which resulted in the creation of a vast lake by blocking the drainage. The Pir Panjal range, continued to rise due to tectonic upheavals towards southern flank and around c. 3 to 2 MY BP reached to the present height of 4999 masl. Because of this up-thrusting and upheaval on the southern flank the lake shifted towards the northern flank and exposed the submerged sediments of the lake on southern side. Around c. 85,000 BP a fault appeared on account of earthquakes in the mountains on the northern side creating a gorge near Baramulla that led to draining of the lake and creation of the present day Jhelum River (Agrawal 1992: 45-49; De Terra and Paterson 2003: 20). The sediments created and exposed after drainage of the lake are called *karewas* (see figure 2.7) and differentiated as lower *karewas* (sediments that were exposed first on the southern side c. 4 to 2 MY BP) and upper *karewas* (sediments that formed towards the northern side after the second upheaval c. 2 MY BP to 85,000 years) (Agrawal 1992: 181). Deposition of loess on these *karewas* started to accumulate since c. 2 MY BP and continued till the appearance of Holocene (Agrawal 1992: 47). The accumulated loess on the *karewas* have also been divided in older and younger loess and it is the older loess which has

yielded evidence of Palaeolithic tools from south Kashmir, such as at Pahalgam and it is in the younger loess that the Neolithic people have dugout their dwelling pits (Agrawal 1998: 8). The chronology of loess is based on several C-14 and thermoluminescence dates (Agrawal 1998: 182; Kusumgar et al. 1985: 13-17).

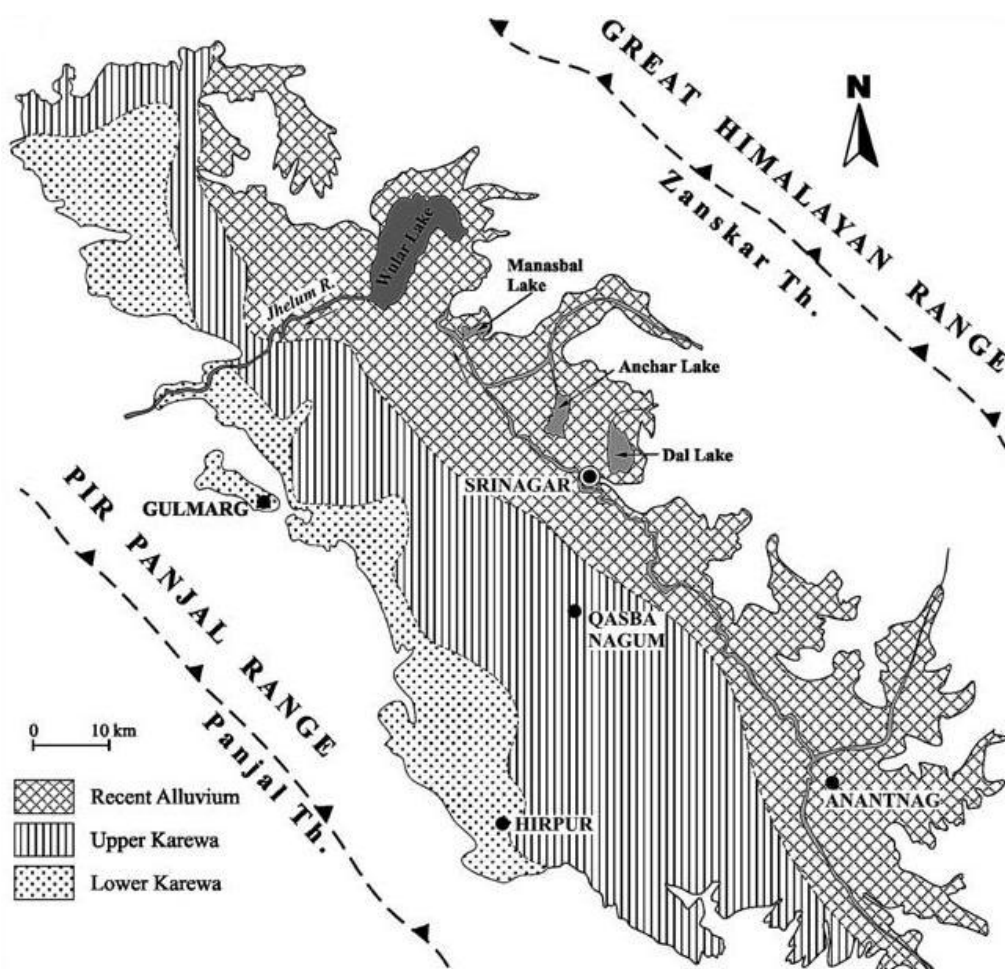


Figure 2.7 The formation of upper and lower *karewas* with the up thrust of Pir Panjal and Himalayan range (Agrawal and Agrawal 2004: 48).

During this period of mountain formation and creation of Kashmir, the land was unstable and this is understood to have lasted into the early Holocene period when the land, especially the *karewa* soils stabilised (Agrawal 1992). With the drainage of the lake waters geophysical entities such as *karewas* and the Jhelum River system

emerged that are still part of the present day physiography of Kashmir (Burbank and Johnson 1982; De Terra and Paterson 2003: 20; Moonis et al. 1978: 25).

Importance of karewas

Karewas or the Pleistocene deposits (locally called *Wudur*) are widespread in Kashmir (see figure 2.6) (Agrawal 1992: 30-31, 44-48; De Terra and Paterson 2003: 19-80). The *karewas* occupy nearly half the area of Kashmir and have a width of 13 to 26 km along its south-west side and extends to some 80 km from Shopian in the south to Baramulla in the north (Agrawal 1992; Agrawal et al. 1989). The highest limit at which the *karewas* have been observed on the north eastern slopes of the Pir Panjal is 3779 masl more than 1981 masl i.e. above the level of the Jhelum River bed (Agrawal 1992; Agrawal et al. 1989).

The *karewas* are horizontally stratified alluvium deposits formed of beds of fine-grained sand, loam and blue sandy-clay with bands of gravel conglomerate. Fossils of birch, beech, willow, oak, walnut, rose, pines, vertebrates, fish and specimens of oldest of Pleistocene elephants (*Elephas hysudricus*) have been collected from *karewas* (De Terra and Paterson 2003: 82; Kotlia 1989). They also provide a continuous record of floral and faunal changes of the last 4 MY BP and have been crucial to understand the processes of change from Pliocene to Pleistocene (Agrawal 1981; 1992; Burbank 1985). The age of *karewas* is determined by Kusumgar et al. (1985: 13-17) by studying the magnetic stratigraphy and Burbank (1985: 19-25) by magnetic stratigraphy and fission-track dating. They both suggest an age of c. 4 to 0.2 MY BP for the lower and upper *karewas* respectively in Kashmir, these dates also

conform with the plate tectonics that *Satisars* drained and sedimentation began c. 4 MY BP.

From the scientific studies it became evident that the Himalayan orogeny led to the formation of floor depression (foredeeps) or creation of intermontane basin in Kashmir and in the course of the last four million years, these filled up intermontane basins of fluvio-lacustrine sediments formed the present day *karewas* on which first evidence of human activities have taken place in Kashmir. The evidence relating to human activities are known from the tools of Lower and Middle Palaeolithic period collected by Sankalia and Bandey (Bandey 1997; Sankalia 1971: 558-562; Sankalia 1974) and the Neolithic material culture brought to light by De Terra (1945)(see chapter 3 for details).

2.4 Geological history

The metamorphosed rocks of the Archaean system (the oldest rocks of the earth's crust) form the bulk of the high ranges and the backbone of the Himalayan mountain system (De Terra and Paterson 2003: 18-19). On the other hand fossil rich Cambrian rocks, as well as Devonian, Ordovician and the Silurian cover extensive tracts both towards north and south of Kashmir. The Carboniferous period (dating to c. 530±40 MY BP) consists of well developed volcanic series called Panjal trap; a rock type from which stone tools of the Palaeolithic and the Neolithic periods are carved from. Fossils like shells, fish and other marine creatures are also a common feature of this stratum in Kashmir (Agrawal 1992: 20).

Limestone (principal component of Mesozoic era), provided an abundant building material to the architects of ancient Kashmir. The large scale use of limestone is visible in the later historic temples such as Martand, Avantipora and Narasthan (Lawrence 1895; Husain 2008: 16). An outcrop of Jurassic period (extending from c. 195 MY BP and having duration of c. 60 MY BP), is visible towards the north side of the Pir Panjal (Gulmarg in Baramulla District) (Agrawal 1992: 24). Mesozoic era ends with Cretaceous period and is followed by the Tertiary period which contains the deposits of coal, iron and aluminium in Kashmir (Agrawal 1992). The iron ores are reported from Baramulla and Budgam Districts from Kashmir (Husain 2008: 84; Qazi 2005: 80-81; Lawrence 1895: 61-63).

2.5 Drainage and relief

A drainage system can be defined as the arrangement of streams and rivers across the land surface of a given area, which carries out excess water. The shape and route of these streams and rivers are determined by physical factors, such as structure, altitude, gradient and climate. They are likely to change over time, bringing possibly drastic changes to the landscape and alter the arrangement of streams consequently affecting the population of the region. Changes to rivers and streams has been occurring in Kashmir since its formation and has had a great impact on both the landscape, and human activity in this region, which we are now exploring in the form of the archaeological record.

2.5.1 Jhelum River

Kashmir is drained by the Jhelum River, which was known as *Hydaspes* to Greeks, and *Vitasta* (Sanskrit) or *Vyath* to locals (Stein 2005: 96). The Jhelum River leaves Kashmir at Uri near Baramulla and after joining the Kishenganga it becomes part of Indus River (Husain 2008: 34; Agrawal 1992: 63). The source of the Jhelum River is the spring of *Verinag* (a lake in the district of Anantnag, which lies towards the south of Kashmir in the Pir Panjal mountain range) (Husain 2008: 34-35; Stein 2005: 97). From its source, it flows 160 kms north westwards, through Srinagar, into the Wular Lake which forms its delta, and further on to Baramulla. The Jhelum River is navigable from its source; *Verinag* up to Uri in Baramulla District and then it finally passes into Pakistan swiftly through the Baramulla-Uri gorge. During the winter months when the water level is low the average breadth of the river is c. 35 m and its average depth c. 3 m. The Jhelum flood plain is c. 1,585 m wide and its banks are fertile due to deposited silt, and the low ground is terraced for the cultivation of rice, barley and wheat.

Many tributaries join the Jhelum River from its point of origin in south Kashmir till it leaves at Uri near Baramulla tehsil (such as Arpal, Bringi, Dudhganga, Liddar, Pohru, Rembiara, Romshi, Sindh, and Veshav,), and add their silt load to the river (see figure 2.7)(Stein 1989b: 414; 2005: 96-100). The population of Kashmir are greatly dependent on this river and its streams for agricultural and horticultural purposes. During the greater part of the year, especially in autumn and winter seasons, the river flows slowly, but in late spring and summer snow melt causes a great increase in flow and results in inundation of the flood plain (De Terra and Paterson 2003; Husain 2008; Stein 2005). *Rajatarangini* and other historical sources such as *Alberuni's* account of

Kashmir, *Ain-i-Akbari* by Abu-l-Fazal and *Tareek Hassan* has many references to the flooding of this river and the challenges it created for rulers such as dredging it, and creating artificial embankments for the protection of their subjects (Stein 1989b: 413). During king Avantivarman's reign (8th century AD), his minister Suyya is known to have dredged the Jhelum River near Sopore town in Baramulla District, easing the recurring floods and reclaiming the land for agriculture (Stein 1989b). King Zian-ul-Abidin (a Muslim ruler in 14th century AD) paid considerable attention to the creation of artificial embankments along the river, reclaiming land for agriculture and saving adjoining areas from floods. Lawrence (1895) mentioned the devastation caused by this river for the inhabitants of Kashmir over many consecutive years when he was the land settlement commissioner here.

The processes such as flooding, dredging, and reclaiming land has therefore, changed the relief of Kashmir by creating embankments which may well have played a key role in the location of sites and settlements. Jhelum River has bestowed sustenance and acted as means of communication for the local residents for millennia. The major towns of present day Kashmir are settled on the banks of this river and might have attracted the attention of people during the early historic period as well. Moreover, it also provides to the geologists, anthropologists and other researchers the exposed sections by cutting down the *karewas*, a picture of millions of years.

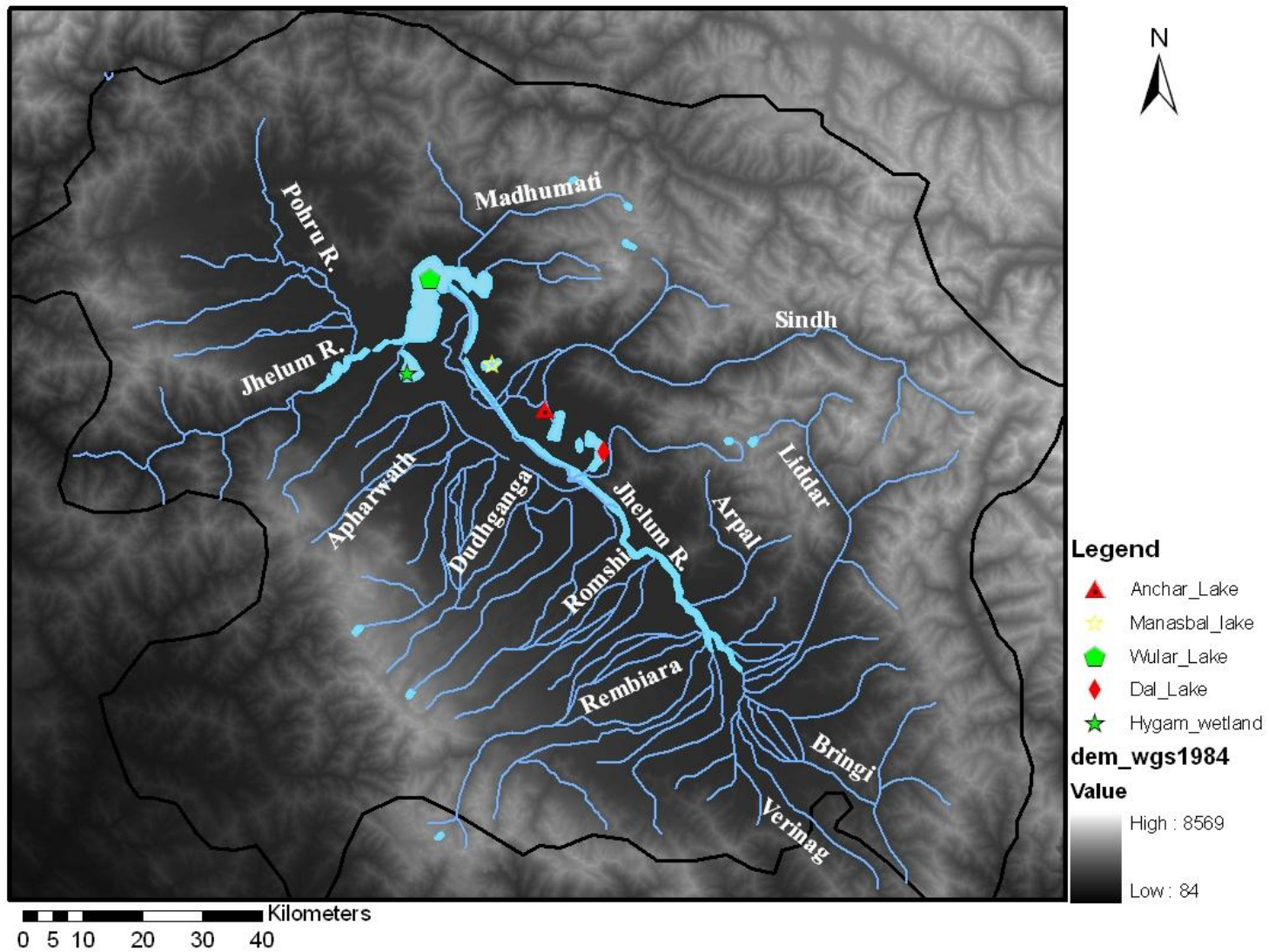


Figure 2.7 Drainage basin of Jhelum River

2.5.2 Pohru River

Pohru River is the last major tributary of Jhelum River draining the north western portion of Kashmir and joins Jhelum River when it emerges out of the Wular Lake. Pohru River has a serpentine course due to hilly terrain it traverses and is joined by two important tributaries such as Kahmil and Lolab, it flows 44 kms before merging with Jhelum River (Rao et al. 1991).

Kalhana in *Rajatarangini* provided very little reference to the north western regions of Kashmir drained by Pohru River and does not mention this river anywhere in *his* chronicle much to the surprise of Stein, who found sources of its lesser known tributary such as *Mavr* in *Nilmatpurana* (Stein 2005: 116).

2.5.3 Hygam wetland

Known locally as Hygam *rakh* (wetland), this is among the largest wetland reserves in Kashmir situated 34° 15' N and 74° 31' E in Baramulla District, 30 kms north west of Srinagar (figure 2.7). It lies at an altitude of 1580 masl and covers 14 sq kms in area (Holmes and Hatchwell 1991: 26). Hygam wetland lies on the flood plain of the Jhelum River, and is fed by perennial and smaller streams, and dominated by extensive reed-beds (the main species include *Typha angustata*, *Phragmites communis*, and *Phalaris arundinacea*) and strips of willow (*Salix* spp.). Reeds have important associations with the Neolithic activities in Kashmir, known from evidence recovered from sites such as Burzahom and Gufkral, and linked to structures and pottery (see chapter 3 for details). Hygam wetland is surrounded by rice paddy fields and natural marsh. The entire

wetland is protected as a waterfowl game sanctuary under the wildlife protection department within the government of Jammu and Kashmir.

2.6 Soils and crops

The soils of an area can provide information about the potential fertility of the region, and thus information about its flora and fauna, and exploitation by humans. Soils therefore form an important part of the landscape of a region. Half of Kashmir's valley floor is covered by *karewa* soils of which a significant portion covers Baramulla District (Stein 1989: 425-426) (see figure 2.6). The soils of the Kashmir vary in origin from alluvial to lacustrine to glacial. These soils evolved through a long geomorphic phase of history, shaped by alternations of fluvial and glacial phases (De Terra and Paterson 2003: 23; Moonis et al. 1978: 54). The soil cover of Kashmir has thickness of c. 25 m particularly on the adjoining terraces towards south and north of Kashmir (Anantnag, Shopian, and Baramulla Districts) where massive deposition has taken place since Pleistocene times (Agrawal 1992: 176-181; Kusumgar et al. 1986: 561). These soils are rich in the low lying areas along the Jhelum River where they are periodically renewed and enriched by the floods which are a recurrent phenomenon in Kashmir. The massive depositional processes could be masking prehistoric sites in Kashmir thus resulting in their low representation in the archaeological record to date (the interpretations of this will be discussed in chapter 7).

The soils in Kashmir have been deposited mainly by rivers and streams and are continuously subjected to transformation both by natural and human agencies (Dar et

al. 2002: 19; Moonis et al. 1978: 116). The soils of Kashmir are classified with reference to broad physiographic divisions, these being:

- a) the Kashmir valley basin;
- b) the highlands, mainly between 1847 and 3349 masl; and
- c) the *karewa* uplands.

The people of Kashmir however, recognise four classes of soils: *Gurut Zamin* (silt soil), *Bahil Zamin* (loam soil), *Sekil Zamin* (sandy soil) and *Dazanlad Zamin* (ash soil) (Husain 2008: 77; Moonis et al. 1978: 118). In these soils, located in different parts of Kashmir, there is sufficient accumulation of organic matter and nitrogen for agrarian people of Kashmir to practice agriculture (Dar et al. 2002). Phosphate and potash contents of the soil are high as are calcium and magnesium. Apple, almonds, rice and saffron are the major cultivated crops. Alongside this, banks of the Jhelum and Pohru Rivers and in the vicinity of the Wular Lake, is found a variety of silt soil (locally called *Nambal*), which yields enormous crops of rape-seed and maize. The *karewas* which is a striking feature of Kashmir's landscape are mostly part of silt soil. These *karewa* type soils and many others are usually preferred for cultivating commercial and cash crops like saffron, almond, apple and so forth.

2.7 Climate and weather

The weather and climate of Kashmir is essentially linked to the weather mechanism of South Asia in general, however, the location of the Kashmir at an altitude of 1828 masl gives it a unique geographical character with distinctive climatic characteristics i.e. its Mediterranean character. The climatic changes since c. 18000 BP recorded at Anchar

and Hokarsar Lakes (Srinagar District), Butpathri (Baramulla District) and Toshmaidan (Budgam District) by studying palynological, stable isotope, and pedologic data have shown climatic ameliorations (such as warm temperate and wet condition followed by cool-warm-cool sequences) (Agrawal et al 1990: 233; Kusumgar et al. 1985). The climatic amelioration further brought in by Himalayan and the Pir Panjal range has an effect on the present climate and vegetation of the region. The economy of people of Kashmir much relies on the mercy of these climatic and weather changes. As mentioned in the ancient and historical sources (such as *Rajatarangini*, *Alberuni's* account of Kashmir, *Ain-i-Akbari* by Abu-l-Fazal), climatic ameliorations have inflicted great damage to people (in the shape of famines and floods) and greatly altered their landscape they lived in. On the basis of temperature and precipitation per year, the present climate of Kashmir can be divided into the following four seasons (Dar et al. 2002; Dewan 2004; Raina 1977):

spring season (March to mid-May);

summer season (mid-May to mid-September);

autumn season (mid-September to October);

winter season (November to February).

However, the Kashmiri people have their own calendar of seasons. They follow this calendar (as did their ancestors) to limit the loss inflicted by weather and climate on their economy (Hassnain 1992). This has further taught them how to exploit multiple crops and as many other crops in short seasons. For instance agricultural operations in Kashmir are carefully timed so as to fall within a certain period before or after the *nauroz* (the spring day observed by the people), and the *mezan*

(commencement of autumn). If the *nauroz* period is exceeded, there will be a certain failure in the crop, it is therefore, calculated in precise manner (Hassnain 1992). On the basis of this local system, the year is divided into six seasons, each with a duration of two months. The calendar of seasons is described as under (Husain 2008: 56; Lawrence 1895: 326):

sonth (spring season) mid-March to mid-May;

grishm (summer season) mid-May to mid-July;

wahrut (rainy season) mid-July to mid-September;

harud (autumn season) mid-September to mid-November;

wand (winter season) mid-November to mid-January;

sheshur (season of severe cold) mid-January to mid-march.

December January and February are the coldest months with mean minimum and maximum temperatures of -1.5 and 8 degree Celsius respectively, and the mean rainfall during these months is 98 mm. June, July and August are the hottest months with mean minimum and maximum temperatures of 28 and 17 degree Celsius respectively, the mean rainfall during these months is 61 mm (Husain 2008: 58).

2.8 Flora and fauna

Bernier in 1665 A.D. while during his visit to Kashmir said "...The whole kingdom wears the appearance of a fertile and highly cultivated garden Villages and hamlets are frequently seen through the luxuriant foliage Meadows and vineyards fields of rice wheat hemp saffron and other vegetables among which are intermingled trenches

filled with water rivulets canals and a few small lakes vary the enchanting scene. The whole ground is enamelled with European flowers and plants and covered with apple, pear, plum, apricot and walnut trees all bearing fruit in great abundance..." (Bernier 1826: 133). During his stay as land settlement commissioner to Kashmir in 1890 Lawrence said "...the trees of the valley form one of its greatest charms. The delightful plane trees, the magnificent walnuts; the endless willows, the poplars and the elms, the countless orchards of apples, pears and apricots give the valley the appearance of a well-wooded park" (Lawrence 1895: 24). The Mughal king Jahangir (1605-1627 AD) called it paradise on earth and made the Kashmir as his summer retreat (Moynihan 1979: 128).

Flora

Due to topography, altitude, soil and the climatic variables, such as temperature, moisture, intensity and duration of sunshine and atmospheric humidity, Kashmir presents a highly varied picture. All these physical factors exercise a definite influence on the vegetation patterns of Kashmir both horizontally and vertically. Just as the physiography of Kashmir has changed, so too has the vegetation of the region. Pollen evidence demonstrated that the vegetation here has changed from tropical and subtropical types to temperate types since the glacial phase of Pleistocene (Agrawal 1992: 217-220; Moonis et al. 1978; 106). This change led to the disappearance of many species (broad-leaved) and their replacement by new ones (coniferous types). Lone et al.'s (2000: 830-833) archaeobotanical data from Burzahom and Semthan suggested that the subsistence strategy of the people living at these sites from c. 2500

BC to 5th century AD has been agricultural cultivating wild and domesticated crops. They identified cereals such as wheat (*Triticum aestivum*, *T. sphaerococcum*) barley (*Hordeum vulgare*), rice (*Oryza sativa*). They also identified pulses such as lentil (*Lens culinaris*), common pea (*Pisum sativum*) green gram (*Phaseolus aureus*, *P. Mungo* and *P. Aconitifolius*) and so forth. Among the fruits they identified peach (*Prunus persica*), apricot (*P. armeniaca*), walnut (*Juglans regia*), as well as a large number of weed seeds and wood types. Their results suggested that the vegetation comprised stable human populations and had large number of plant and animal species present around them to live on. They further suggested three cropping patterns such as single cropping, double cropping and mixed cropping at these sites in Kashmir (Lone et al. 2000; 1993: 203).

The main modern cultivations in Kashmir are rice, apple (*Pyrus malus*), saffron (*Crocus sativus*), Walnut (*Juglans regia*) and grapes (*Vitis vinifera*), and these tend to be grown in Baramulla District except saffron. Furthermore these crops are grown in different parts of the region depending on topography and access to water. For example, rice and apples are grown in the regions adjacent to the Jhelum, Pohru and other streams and water bodies; while grapes and walnuts tend to be found on *Karewas*, mountain slopes and grasslands (Dar et al. 2002: 42). Among these, rice is the largest and most important crop, with earliest evidence from Gufkral and Semthan in Kashmir and its large scale cultivation from c. 7th to 10th century AD is given by Kalhana in *Rajatarangini* (Stein 2005: 120). Similarly Kalhana mentions saffron and grapes “saffron, icy water and grapes: things that even in heaven are difficult to find, are common here” (Stein 1989a: 10). However, apple cultivation lacks any mention in *Rajatarangini* or any other literature but is presently a large scale industry in Kashmir.

A brief list of past and present species is further given in table below; this is not an exhaustive list but focuses on the most common species:

Past species	Botanical name	Kashmiri Name	Present species
Wheat	<i>Triticum spp.</i>	<i>Kanak</i>	Wheat
Barley	<i>Hordeum spp.</i>	<i>Wushka</i>	Barley
Rice	<i>Oryza sativa</i>	<i>Dhan</i>	Rice
Pea	<i>Pisum sativum</i>	<i>Karre</i>	Pea
Lentil	<i>Lens culinaris</i>	<i>Masur</i>	Lentil
pulses	<i>Phaseolus spp.</i>	<i>Mung/Mah/Mothi</i>	pulses
Endocarps			
Peach	<i>Prunus persica</i>	<i>Tchenum</i>	Peach
Apricot	<i>Prunus armeniaca</i>	<i>Tcherai</i>	Apricot
Walnut	<i>Juglans regia</i>	<i>Dun</i>	Walnut
European hackberry	<i>Celtis australis</i>	<i>Brimji</i>	European hackberry
Woods			
Himalayan blue pine	<i>Pinus wallichiana</i>	<i>Kairu or yar</i>	Himalayan blue pine
Birch	<i>Betula utilis</i>	<i>Burza</i>	Birch
Oak spp.	<i>Quercus spp.</i>		Oak spp.
Elm	<i>Ulmus wallichiana</i>	<i>Brenn</i>	Elm
Italian popular/White popular	<i>Populus spp.</i>	<i>Phrast/Dudh phrast</i>	Italian popular/White popular
Indian horse-chestnut	<i>Aesculus indica</i>	<i>Han</i>	Indian horse-chestnut
Hawthorn	<i>Crataegus oxyacantha</i>	<i>Ring</i>	Hawthorn
Plane	<i>Platanus orientalis</i>	<i>Boin</i>	Plane
Himalayan cedar	<i>Cedrus deodara</i>	<i>Deodar or diar</i>	Himalayan cedar
Ash curl	<i>Fraxinus excelsior</i>		Ash curl

Table 2.2 The past species from Burzahom, Gufkral and Semthan of cereals, pulses, fruits and trees and also presented are some common species cultivated presently.
Source Dar et al. 2002; Lone et al. 2000; 1993; Sharma 2000.

Fauna

Like its flora, Kashmir has great diversity in terms of animal species, birds and reptiles. The specimens of mega-vertebrates (appearing c. 2.4 MY BP), finds of extinct Pleistocene elephant (*Elephas hysudricus*), extinct equid of Pleistocene period (*Equus sivalensis*), stag or *barasingha* (*Cervus panjabensis*), Kashmiri stag (*Cervus kashmiriensis*) and *Canis* spp. have been reported by the Kashmir Palaeoclimatic team in Kashmir (Agrawal 1992: 111-120). Ancient sources like *Rajatarangini* (Stein 1989a,b; 2005), *Nilmatpurana* (Ghai 1973) and travelogues (such as Valley of Kashmir (Lawrence 1895)) have mentioned Kashmir being famous and plentiful for big as well as small game. These sources have identified many species which are indigenous to the region. The excavated Neolithic sites of Burzahom and Gufkral have provided remains of many such animals (see chapter 3, section 3.3.3) indicating their association with early human populations.

In the warm temperate climate of Kashmir the present wild and domesticated fauna consists of sheep (*Ovis*), goat (*Capra*), buffalo (*Bos bubalus*), ponies (*Equus caballus*), musk deer (*Moschus moschiferus*), *barasingha* or Himalayan deer (*hangul*) (*Cervus* spp.), fox (*Vulpes bengalensis*), monkey (*Macaca mulatta*), black deer (*Antelope cervicapra*), rat and mice (*Rattus rattus*, *Mus muscalus*), leopard (*Prionailurus bengalensis*) are found today (Hassnain 1992; Roberts 1997). Among other animals noted in Kashmir are the brown and the Himalayan black bear (*Selenarctos thibetanus*) which are found at high altitudes. The small Indian Mongoose (*Herpestes auropunctatus*) and the Toddy cat or the Himalayan palm civet (*Viverra zibetha*) are also common (Lone 2005: 73-80).

Many kinds of game birds are also found in Kashmir. The black *Chikor*, grey and snow species of partridge are found in many parts of Kashmir, and many species of waterfowl are very common during the winter season. Thousands of sea swallows, ducks and geese congregate in the Wular Lake and Anchar and Hoksar wetlands. Numerous herons can also be found at many fishing points in Kashmir (Lone 2005: 77; Hassnain 1992: 9-11).

The numerous water bodies of Kashmir also abound in fish and form an important item of food (Dar et al. 2002: 35). A large population depends for a considerable part of their sustenance on the fish. *Gad* is a local name for fish and the important species are: brown trout (*Salmo truto fario*), rainbow trout (*S. girdnari girdnari*), catfish species (*Gliptothorax* spp. and *Labeo rohita*), carp species (*Cypris carpio communis* and *C. carpio scapularis*), snowtrout species (*Schizothorax esocinus*, locally *chhurru gad*; *S. Curvifrons*, locally *satter gad*), and point snouted snowtrout (*Oreinus* Spp., locally *ait gad*). The fossil fish remains of many of these species have been found in *karewa* sections across Kashmir (Kotlia 1989: 23). All these types of fish are caught in all the seasons throughout the entire course of the Jhelum River between south and north of Kashmir (i.e. Islamabad and Baramulla).

2.9 Trade and transport

Kashmir's location between the Himalaya and Pir-Panjal mountain ranges, and the known changes in Palaeoclimate might well have been responsible for isolating the area from both local and long distance trade and communication networks (Stein 2005: 63-64). However, these mountain barriers and climate fluctuations do not

appear to have restricted the movement of people in and out of, and within Kashmir, with current evidence from the Palaeolithic period onwards to indicate such movements (Joshi et al. 1974; Sankalia 1971; Sharma 2000). The Neolithic material culture indicates possible links with neighbouring northern and Central Asian regions. Moreover historical sources like *Rajatarangini* and *Nilmatpurana* and travelogues mention Kashmir's connections with northern regions of South Asia and Central Asia (Fussman 1993; Lahiri 1992; Thapar 1997).

In view of Kashmir's diverse relief features and varying climatic conditions, Kashmir has as a matter of fact, the trade routes that connect Kashmir with northern areas of South and Central Asia. Two routes have been very important, the Jhelum Valley route and the Gilgit-Baltistan and the Aksai-chin route (Mayfield 1955: 1987; Raina 1977: 219; Stein 2005: 72, 83-86, 92-93). These routes probably helped the people of Kashmir to interact within and outside Kashmir. It enabled the exchange of commodities, persons and ideas from one region to another. The travelogues and historical sources inform that the high passes of Kashmir have never remained a barrier for human population, utilising animals like mules, donkeys, horses, bullocks and yaks, humans have traversed these passes bringing with them goods and merchandise (Forester 1808; Prinsep 1879; Stein 1989b). Furthermore, analogous material culture belonging to the Neolithic period in Kashmir, Baluchistan and Swat in Pakistan, Northern China and Mongolia earned Kashmir an important place in what is called by scholars as 'Inner Asia Complex' or 'Northern Neolithic complex' (Allchin and Allchin 1993b; Fairervis 1975; Pande 1969; Stacul 1987). It is through these trade routes, which gave access to the people within this complex to live and forge connections there (the interpretation of these routes is further discussed in chapter 7).

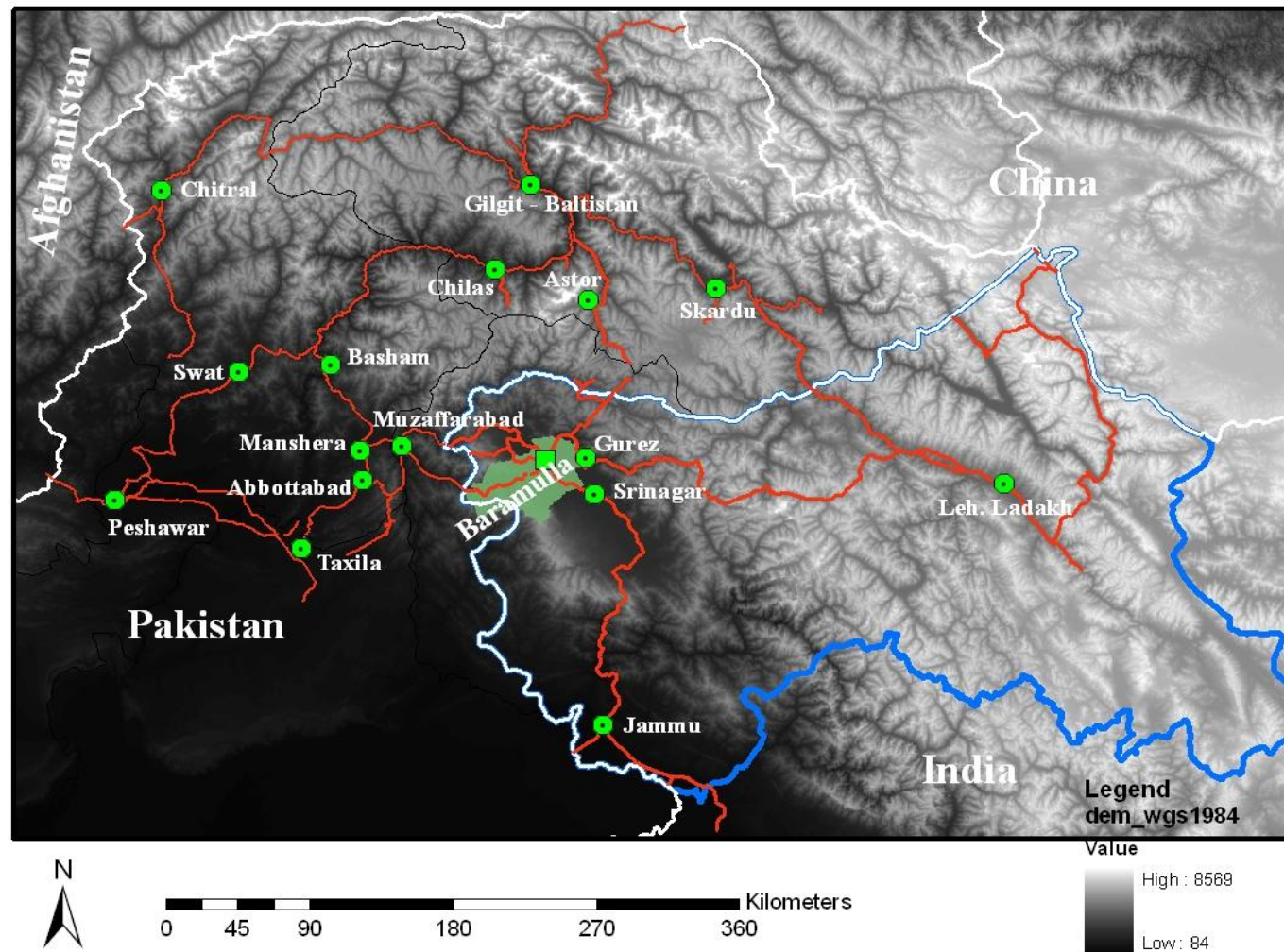


Figure 2.8 The network of trade routes passing through Baramulla District, connecting Kashmir with India, northern areas of South and Central Asia (Mumtaz Yattoo 2011).

2.9.1 The Jhelum Valley route

This route follows the Jhelum River from Srinagar, the capital of the province of Kashmir to Uri near Baramulla tehsil where the river narrows down into a mountain gorge before it leaves Kashmir (Stein 1989b: 401-402). The route on the left bank of Jhelum River leaves Uri gorge at Baramulla to Muzaffarabad and further to Pakistan. Prinsep (1879: 200-239) suggested this was the shortest route to Kashmir via Baramulla from Pakistan. The other branch of this route on the right bank of Jhelum River passes through Abbottabad to Manshera and then branching into two, one going to east of Baramulla to Kashmir and the other leading west and north to upper Indus to Basham, Chilas, Gilgit - Baltistan and Hunza (Stein 2005; 1989b; Lahiri 1992). This route has been suggested to have been in use since Asokan times based on the location of Asoka's rock edict (Fussman 1993: 86-87). Fussman believes that this route might have also been in use during Harappan times connecting Shortugai, nearby Ai Khanoum (Harappan outpost), to the northern Punjab or to Gandhara through the Badakhshan Valley and Chitral (Fussman 1993). The Jhelum Valley route of Kashmir with a network of auxiliary routes to the east, west and south has been of immense geographical importance. Pilgrims like Hiuen Tsiang (a Buddhist pilgrim from China) travelled through this route in 6th century AD from Urasa (modern Hazara) and entered Kashmir through Baramulla spending the night at Hushkapura (modern Ushkar) in Baramulla District (Stein 2005: 14-15, 83). Ou-K'ong (another Chinese pilgrim, spent his time visiting holy Buddhist places and learning Sanskrit in Kashmir), followed the same route in 759 AD (Stein 2005: 18-19, 83). Kanispora a two period site (Neolithic and early historic); Ushkar an early historic site; unknown places believed to have revealed northern black polished ware (NBPW) material culture; as well as later

historic Hindu temples such as Dethamandir and Fathpora are reported on this route (Tripathi 1987: 23; Mitra 1984: 16-17). Travellers such as Prinsep in 1876 (1879), Bernier during 1656-1668 (1826), and Forester (1808) also travelled to Kashmir via this route. The Jhelum Valley route further leads to old Banihal cart route on the southern side of Baramulla District which connected Kashmir with Jammu across the Pir Panjal Range. This is presently the national highway and the only modern communication route with outside world.

2.9.2 Gilgit-Baltistan and Aksai-chin route

From the north shore of the Wular Lake in Baramulla District, leads a communication route at a height of 3657 masl to Gurez in Bandipor District further winding down the lofty Himalayan mountains to Astor and Gilgit (now Pakistan controlled territory). Kalhana mentions this as an important route during later historic times (Stein 2005: 90) and Ou-K'ong refers to an ancient watch station on this route near Baltistan (now Pakistan controlled territory) (Stein 2005: 91). Ladakh (3505 masl) is situated on this route and is surrounded by the lofty Karakorum mountains with the province of Sinkiang to the east of Tibet (Stein 2005: 92). Leh is the centre of commercial activity where formerly caravans from Sinkiang across the Yarkand River from Central Asian side came with their merchandise to be bartered with goods from India (Bamzai 1994: 11-12; Raina 1977).

2.10 Summary

The location of Kashmir among the great chain of Himalayan mountain ranges has endowed it with many principal features some unique to Kashmir. Since its emergence from the relic waters, geological processes have altered its climatic and physical personality in the greater region of Indian subcontinent. The principle physical formations that emerged after the drainage of waters from Kashmir such as Pleistocene sediments in the form of *karewas* gives it a distinct geographic outlook, telling history of millions of years; river systems such as Jhelum and Pohru, wetland reserves, soils and flora and fauna arguably provided new vistas to population in the region (Ghosh 1996; Indian Archaeology 2004; Mitra 1984; Sankalia 1971).

Within the structural trough, and enveloped by mountains, it is Jhelum River which occupies this trough that receives its major tributaries from snow fed glaciers and embeds its load in the length and breadth of Kashmir. The flooding it causes to various regions and deposition of alluvial soils has served as a focus of human settlement around significant zones since time immemorial. Jhelum holds a definite position within the drainage hierarchy of the north western Himalayan complex that defines the specific place of Kashmir to its inhabitants.

As the weather and climate has seen alterations by the rising mountains from tropical to sub-tropical to present temperate, an indigenous calendar of seasons was formed to match with the crops grown by its people. Flora and fauna was further an extension of Kashmir's socio-cultural setting changed by its Himalayan orogeny, weather and climate. The mountains seem not to have isolated the region from any contacts or communications but, rather seem to have facilitated movement and

interactions with the larger region of South and Central Asia (see the interpretations of this in chapter 7) (Fairservis 1975; Stacul 1993; Thapar 1985).

Chapter 3

Archaeology as practised in Kashmir

This chapter discusses the framework of previous archaeological works and, more importantly, the settlement sites excavated or explored in the past, to understand extant archaeological material culture and settlement patterns in Baramulla District and Kashmir. Here I highlight site-specific excavations and explorations which, by targeting only single aspects of archaeology (such as exposing and documenting structures), have failed in their real purpose of unravelling the different human activities associated with these sites/structures. The individual sites explored or excavated in Kashmir were always regarded as representing a culture in itself, with traditional interpretations given in a cultural historic perspective. Through these excavations or explorations, disconnected information about site-types, their associated material culture, landscape features and chronology has been built up and followed in Kashmir. There are only a handful of sites that were excavated or explored with the purpose of studying issues of continuity or discontinuity among different periods, and it is through analysis of these sites that rudimentary information about settlement types becomes available. Furthermore this chapter discusses the chronology of Kashmir and explains the extent of interactions and cultural correlations maintained and depicted through the material culture of the various periods.

3.1 The history of archaeological works in Kashmir

The early records of Kashmir's antiquarian past come from its rich collection of indigenous records, such as the *Nilmatpurana* and *Rajatarangini*. Other such sources such as *Lokaprakasa* (an 11th century Sanskrit account about the old administrative practices, customs and folk lore of Kashmir), numismatics, oral tradition of history, myths and folklore have also been used (Bamzai 1973; 1994; Ghai 1994; Hasan 1974; Kak 1933; Stein 1989a,b; Sufi 1996).

Further historical and archaeological information about Kashmir comes from foreign accounts (such as Ptolemy's accounts on Kashmir in the time of Alexander; Si-yu-ki, Buddhist records of the western world; accounts of Kashmir by Chinese Buddhist pilgrims Hiuen Tsang and Ou-kong during 7th and 8th century AD; Ain-i-Akbari by Abu-l-Fazl minister of Mughal emperor Akbar during c. 1590 AD, and so forth), traveller's accounts (such as François Bernier, traveller and personal physician of Mughal emperor Aurangzeb during 1656-1668; English traveller George Forster's journey to Kashmir in 1783; English geologist Frederic Drew's geographical account on Kashmir in 1875; English explorer William Moorcroft's travels in Kashmir during 1819 to 1825; Walter Lawrence's book on Kashmir during his stay as British settlement commissioner in 1890s, and many others).

More recent are the archaeological reports of excavations and explorations such as the Indian Archaeology reports (1966 onwards), Agrawal (1992), Agrawal (1998), Bandey (2009), De Terra (1942), De Terra and Paterson (2003), Joshi et al. (1974), Kak (1933), Pant et al. (1982), Sankalia (1971), Saar (1992); Shali (1993) and so forth. These varied sources on Kashmir's history and archaeology inform us about the

material culture of various cultures and traditions embedded in the landscape of Kashmir, living patterns of people, subsistence and economies, and the connections and interactions maintained by the people there. They also inform us about the rule of many kings and their kingdoms. It is only from the excavation of a few prominent settlement and non-settlement sites that the veracity of many of the historical accounts or reports has been tested since archaeological works first began in Kashmir.

Antiquarian and early archaeological activity in Kashmir has a long history. Before the emergence of any official agency for undertaking archaeological activities, there were some pioneers. The earliest of these are explorer William Moorcraft and geographer G. Trebeck who provided an account of the Kashmiri people, their culture and monuments under Ranjit Singh's rule in 1819-1825 (*c.f.* William 1841). In the year 1842, during the Sikh rule of 1819-1846, traveller and explorer Godfrey Thomas Vigne visited Kashmir and described it and its historical sites in his travel accounts (Bamzai 1994: 45). In 1875, Indologist George Buhler visited Kashmir to learn about Kashmiri and Sanskrit literature and manuscripts. In 1845, during the Sikh rule, explorer Charles Hugel described the temples of Avantipora and Martand (Hindu temples) in Kashmir.

It was Sir Alexander Cunningham, first Director General of Archaeological Survey of India who during the establishment of Dogra rule in 1848 in Kashmir, first provided a description of the ancient architectural style of Kashmir, which he called the 'Arian order of architecture' (Bamzai 1994: 46-47). He began to identify ancient Hindu temples such as Purnadhisthana (modern Pandrethan, the old capital of Kashmir), Pravarapura (modern Srinagar), Jyestheshvara (Modern Gopadri hill or Shankaracharya hill Srinagar), Martanda (modern Martand), and so forth (Bamzai

1994; Stein 1989b: 439-484). His survey of the temple ruins throws light on the history of buildings mentioned in the chronicles of the *Rajatarangini* and later Sanskrit inscriptions. He discussed the development of the architectural style and its Greek and Roman influences. Similarly, he dealt with the subject at length in the chapter on the 'Kingdom of Kashmir' in his *Ancient Geography of India*. Cunningham's research aroused a good deal of interest in the ancient remains of Kashmir, and in 1865 Bishop W.G. Cowie, Chaplain on duty in Kashmir, studied more temple ruins, especially those not discovered by Cunningham (Shali 1993: 21). However, Cunningham failed to contextualise these monumental structures, and did not connect the faith and beliefs of the population with their dwellings, their activities or landscape settings. For him the emphasis always remained centred on the design and architectural details of these buildings.

From 1865 to 1869 Major Henry Hardy Cole revealed more temples. In 1882 Mr. Garrick undertook excavations at Ushkar in Baramulla town to expose the structural ruins of Buddhist period. Similarly partial excavation by Lawrence, on duty as a land settlement commissioner, at Narasthan (Central Kashmir) also brought to light some interesting specimens of Buddhist temples and *vihara* (Buddhist monasteries) (Lawrence 1895: 162). Both Garrick and Lawrence were interested in structural architecture and no other material culture was recorded.

George Buhler's tour in 1875 resulted in the discovery of valuable material for the systematic study of the history of Kashmir. Although interested in the collection and study of Sanskrit and Persian scripts, he provided graphic and accurate descriptions of some old sites in Kashmir which he visited himself. In his tour report he

mentioned how minutely studying the ancient texts like *Rajatarangini*, *Nilmatpurana*, and many other Sanskrit sources, was indispensable for studying the ancient geography of Kashmir (Stein 1989b). He was the first to call attention to the significant collection of literary materials which are available for a study of the building history and geography of Kashmir.

Archaeologist, explorer, geographer, and above all Sanskrit scholar, Sir Aurel Stein, visited Kashmir from 1888-1905. He was both fascinated by the monumental wealth and the literary work of Kalhana. Referring to Kalhana's work *Rajatarangini*, he said, "this was the earliest and most important of the Sanskrit chronicles of Kashmir and an exact identification of the very numerous old localities mentioned in it was indispensable for a correct understanding of the narrative" (Stein 1989a: 1). In 1900 he first published his monumental work in two volumes, the translation of *Rajatarangini* with detailed notes about the identification of sites and places with historical and geographical background. He also published his Memoir on maps illustrating the ancient geography of Kashmir (Stein 2005). His investigations in the field from 1900 to 1930 and subsequent publication record thus made it possible for other scholars and investigators to trace the unknown historical sites and structures with some accuracy.

The translation of *Rajatarangini* by Stein is the only work in the Indian literature which is considered reliable by many historians due to its character as a historical record (Bamzai 1973, Stein 1989b: 366; Sufi 1996). *Rajatarangini*, as Stein explains, is essentially a historical narrative of kings, but he also stresses that it acts as a guide to geography and topography of Kashmir and adjacent regions. Stein's

translation gives an idea of settlement types in Kashmir from the early historic period. However, the narration of incidents prior to the 7th century AD is thought to be unreliable due to inconsistent commentary and omission of many dates. Consistency in narration of events begins after middle of the 6th century AD with the accession of *Pravarasena* II, an indigenous ruler who is credited with building the modern Srinagar (Kak 1933; Stein 1989b). However, it is only after c. the 7th century AD that the history of Kashmir begins without any break, with the accession of indigenous rulers with dates provided. It is also from this period that the account is authenticated by archaeological material culture from sites mentioned in this chronicle, for instance Parihaspora, Martand, and Tapar. Although *Rajatarangini* is very helpful for introducing the history and archaeology of the region, it is not a flawless, reliable account of earlier historic sources and descriptions. As places or settlements are recorded using their ancient Sanskrit names, they are often very difficult to relate to modern sites and settlements. The new names that have evolved since writing the *Rajatarangini* proved difficult for Stein to locate, despite meticulous study of the account. Stein has largely remained speculative about place names or events mentioned by Kalhana prior to c. 7th century AD.

In 1912, under Sir John Marshall, Director General of Archaeological Survey of India, Daya Ram Sahni deputed to Jammu and Kashmir excavated the important Buddhist site of Parihaspora (see figure 3.2), 28 kms north west of Srinagar. Among the structures exposed, the most important were a stupa, a *chaitya* (halls enclosing the stupa) and a *vihara* (monastery). These monumental ruins provided important information about the Karkota rulers of the 7th century AD. Chief among these was Lalitaditya Muktapida, who is credited with building Parihaspora (Stein 1989b: 300-

303). As well as Parihaspora, Daya Ram Sahni excavated the Buddhist site at Pandrethan near Srinagar, and the Hindu temples of Avantisvamin and Avantisvara at modern Avantipora (8th century AD), 28 kms south east of Srinagar and Ushkar site in Baramulla town. He also undertook conservation work at other temples. R.C. Kak's excavation work at Harwan in 1919 revealed a fully-fledged Buddhist Settlement laid out on the terraced slope of the hill (Kak 1933). He also carried out exploration at the Dhathamandir or Bandi (Hindu) temple at Baramulla. His main contributions to Kashmiri archaeology were the compilation of a list of monuments and places of archaeological interest, maintenance of photographic and drawing records, and publication of reports on his findings (Kak 1923; 1933).

In 1938 M.S. Kaul excavated some Buddhist settlements in Gilgit and Kashmir. His most significant work was the excavation of ancient *Pratapapura* (modern Tapar in Baramulla District). A base, courtyard, enclosure wall, pathway and other architectural members were exposed. The town and the temple are attributed to King Pratapaditya II (7th century AD), son of Durlabhavardhana of Karkota dynasty and father of the famous King Lalitaditya of the later 7th century AD (Stein 1989a: 121-124).

In 1950 the Deputy Director General of the Archaeological Survey of India, M.S. Vats, visited Kashmir to draft a scheme for the re-organisation of the Department of Archaeology, Research and Museums. During his two week long stay he dealt with the main objectives of the archaeological research in Kashmir. He thoroughly surveyed the history of the excavations conducted by the Department and studied the chronological sequence of the architectural masterpieces of the Buddhist, Hindu and Islamic periods. However, he criticised the lack of any attempt to bring to light the habitational sites or

‘town sites’ associated with the monuments. He recommended serious works to uncover such sites, which could reveal the life of the people and their dwellings, their material culture, amenities and the economic conditions, their customs and traditions (Agrawal 1998: 4-6).

3.2 Field surveys

The first field survey in Kashmir was undertaken by the Yale-Cambridge expedition led by Professors H De Terra and T T Paterson in 1935 (De Terra and Paterson 2003). They carried out a detailed study of glacial sequences, lake sediments and associated human cultures in Kashmir, and in the process referred to some prehistoric sites (De Terra and Paterson 2003: 233-234; De Terra 1942). The work was more geological than archaeological in terms of aims and research questions but, by chance, their findings gave a new dimension to Kashmir’s history and archaeology. They found the first evidence of the Neolithic material culture at a site called Burzahom (see figure 3.2), and pushed back the history of Kashmir, far beyond that provided by ancient written records (De Terra and Paterson 2003: 233-234; De Terra 1942: 483-484). Their work showed Kashmir and the adjoining plains contained essential data to indicate the presence of early humans in Kashmir (Neolithic material in Kashmir and Palaeolithic material in adjacent Potwar Region now in Pakistan) (De Terra and Paterson 2003). This initiated a wave of interest among archaeologists to carry forward this work through systematic fieldwork.

3.2.1 Palaeolithic field surveys in Kashmir

Sankalia (1971) surveyed Pahalgam (see figure 3.2), 100 kms south east of Srinagar in the south Kashmir, with the objective of challenging De Terra and Paterson's findings, who said Palaeolithic material culture did not exist in Kashmir. The only aim of the survey was to locate Palaeolithic material so that a chronological gap could be filled. There was no explicit methodology in place or room to accommodate any other material culture encountered. The survey was completely unsystematic, based entirely on the whim of the surveyor. However, despite these issues, Sankalia successfully reported an Abbevillian handaxe and massive flake (considered by him to be the earliest in South Asia) dating to first interglacial and second glacial periods of lower Pleistocene (lower Palaeolithic) from well-stratified deposits, in the vicinity of the Liddar River (a tributary feeding Jhelum River) (Sankalia 1971: 558) (the interpretations of this are further discussed in chapter 7). Sankalia's findings aroused the interest of Joshi et al. (1974) who surveyed Pahalgam again in the 1970s in an attempt to locate more tools of this period and to verify the findings of Sankalia.

Bandey's (1997; 2009) focus was north Kashmir; he surveyed Manasbal lake in the 1990s (see figure 3.2), 35 kms north of Srinagar in Ganderbal District with the aim of determining the presence of Palaeolithic material culture in Kashmir particularly towards north of Kashmir which until then was considered a marginal zone in terms of Palaeolithic findings. Although this survey was again Palaeolithic-centric, it was significant as Bandey took on board issues of Palaeolithic activity areas against a backdrop of landscape features, and came up with some important interpretations (see chapter 7 for discussion).

3.2.2 Palaeoclimate Project of Kashmir under Agrawal

The first intentional attempt to study sites on a regional landscape basis was made during an interdisciplinary project called the Kashmir Palaeoclimatic Project (KPCP), initiated by Professor D.P. Agrawal in 1979-80 (Agrawal 1989; 1992), and sponsored by the Department of Science and Technology, Mumbai (see chapter 4 for the methodological framework of this project). The aim was to study, through multidisciplinary investigations, the sedimentology, geomorphology, micropalaeontology, palynology, invertebrate and vertebrate palaeontology, diatoms, isotopic geochemistry, and archaeology, so as to delineate the broad outlines of the climatic changes Kashmir experienced from the late Cenozoic period onwards (Agrawal 1989; 1992).

The archaeological aim of the project was to discover new archaeological sites from Palaeolithic period onwards and to re-survey those already reported in Kashmir, and to explore the impact of climatic and environmental changes on the population during ancient times (Agrawal 1992: 207). In the course of these investigations, the experts discovered one site (Sombur) thought to be Upper Palaeolithic, and tools resembling Palaeolithic types from the four Neolithic sites (Kuladur, Taparibala, Balapur and Hab Shah Saheb)(see figure 3.2), as well as various Neolithic and early historic sites (Pant et al. 1982: 37-39). Their preliminary data showed that during the Neolithic and Kushan periods, the density and the distribution of sites increased dramatically; they suggested that this was because of warmer conditions being more conducive to settlement in Kashmir during these periods (Agrawal 1992: 217). However, their functional interpretational approach, and the lack of a methodological

framework lead to a fragmented understanding of settlement archaeology. However, this multi-pronged investigation provided useful information as large areas of Kashmir were chosen for study. This study was also useful as it fulfilled its main aim of providing a detailed account of palaeoclimatic and palaeoenvironmental changes as recorded in the *karewa* profile of Kashmir (see chapter 2 for details). The two year survey was disrupted by political insurgency in Kashmir and came to an abrupt end.

3.2.3 Survey of Sopore and Bandipor tehsils in Baramulla District (MPhil project)

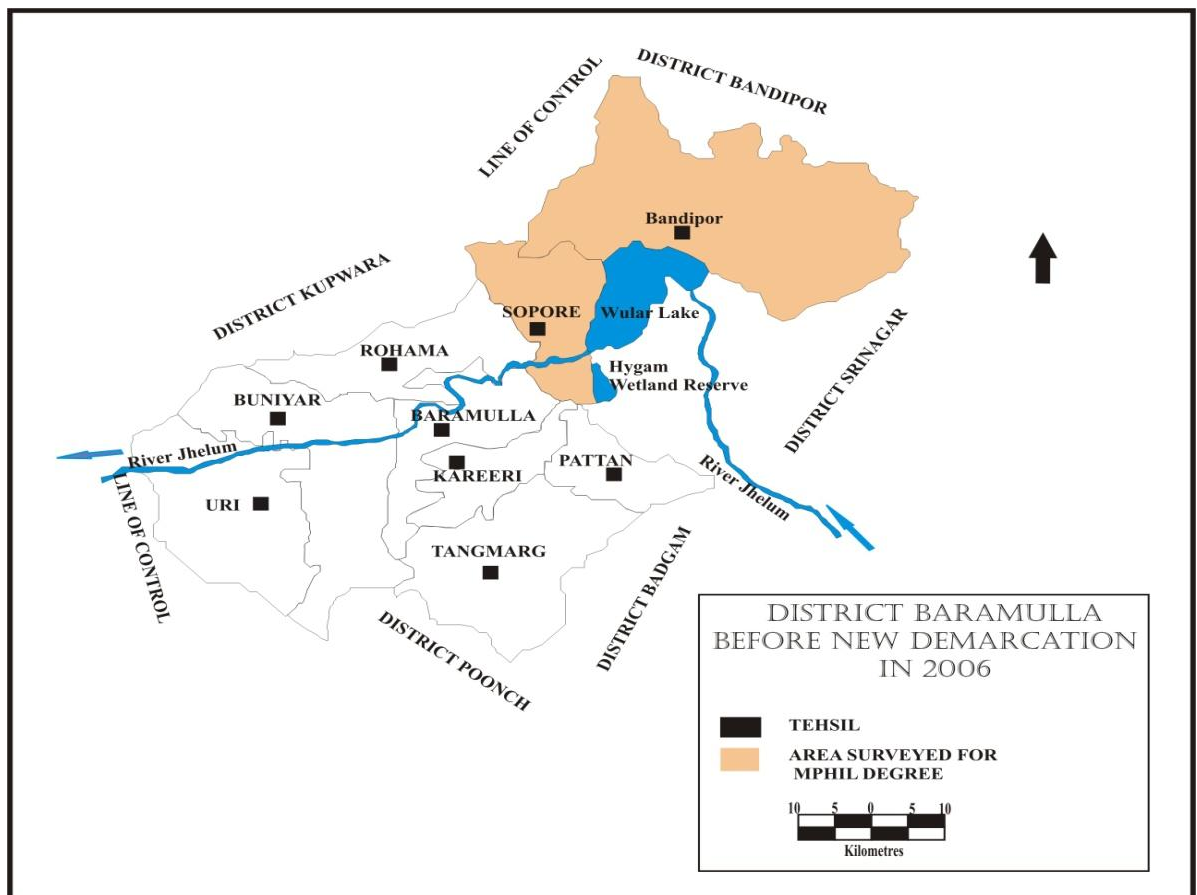


Figure 3.1 Shows the MPhil study area in Baramulla District, the Bandipor tehsil is now an independent district carved from Baramulla District in 2007 (Mumtaz Yatoo, 2011).

Most recently, a different kind of work was carried by the author (Yattoo 2005) in the Baramulla District 45 kms from Srinagar. This was exclusively an archaeological work, which aimed locating archaeological sites, village by village, in the two tehsils Sopore and Bandipor with the aim of gauging the archaeological potential there. Earlier chance discovery of archaeological material culture along the Jhelum Valley communication road by the Archaeological Survey of India and under the multidisciplinary survey by Palaeoclimate Project team reported the Neolithic and the early historic material culture in this area (Joshi 1990: 34; Mitra 1984: 16-17). However, only one site (Kanispore, further discussed below) of all those reported has been partially excavated, exposing archaeology of the Neolithic and early historic periods. The necessity of re-evaluating the archaeological potential in the two tehsils (rather than focussing on Jhelum Valley communication route) led to the conception of this project for my MPhil work which was carried under the title 'Archaeological Explorations of Sopore and Bandipor tehsils in District Baramulla, Kashmir'.

This survey, like the others carried out previously in Kashmir lacked a systematic methodology (see chapter 4 for the methodology of this work). It recorded a total of 36 archaeological sites in the two tehsils of Baramulla District. In spite of its weaknesses, this survey was able to demonstrate the presence of archaeological material from diverse periods which pushed the history of the district back to the Palaeolithic period for the first time (see tables 3.1 and 3.2 for details). It was through this study that archaeological documentation of the two tehsils of district was initiated, however an important chronological gap was also revealed in the archaeological record. Analysis of the material culture showed the absence of Iron Age and Indo-Greek (which covers 1000 BC to 100 AD) material culture from the region

(see chapter 1). This was the first comprehensive study of a full region and went into much finer detail than any other study carried out in Kashmir. Unlike reconnaissance surveys by the Archaeological Survey of India, which were targeted towards communication routes, this work was somewhat similar to Agrawal's (Kashmir Palaeoclimate project) as both surveyed large areas (for their archaeological aims). The author's work was, however, different as it had the specific aim of identifying and recording archaeological site patterns in the study region, a focus which was lacking in Agrawal's work. Furthermore, a methodological survey approach was devised for carrying out a village to village survey in the region. Prior to this work Baramulla District was believed to have been insignificant in terms of prehistoric archaeology, with the exception of Kanispora and other sites that lie on the Jhelum Valley communication route.

Sites types located	Number of sites located from each period
Upper Palaeolithic	1
Neolithic	3
Early Historic	6
Later historic	20
Medieval	2
Modern	4

Table 3.1 List of sites placed in a chronological order which were located from Sopore and Bandipor tehsils of Baramulla District during 2005 MPhil study.

Archaeological phases	Material culture found
Palaeolithic Sites	Hand axe was collected and rock engraving and rock shelters were reported.
Neolithic Sites	Four types of pottery and stone tools were reported and collected besides charred rice (<i>Oryza spp.</i>) and unidentified seeds were found from two burnished ware pots, human and animal skeletal remains were both found in the exposed sections and beneath the sections among the archaeological material culture debris.
Early Historic Sites	Pottery, terracotta, and stone bowls were reported and collected.
Later Historic Sites	Pottery, terracotta, stone structures, dressed stones, querns were reported and some collected.
Medieval Sites	Brickbats, coins and temple ruins were reported.
Modern Sites	Temples, mosques and mausoleums were reported.

Table 3.2 List of major finds from all the sites in a chronological order from Sopore and Bandipor tehsils of Baramulla District during MPhil (2005) study

3.2.4 Impact of site-centric works on the archaeology of Kashmir

The archaeological work started by Cunningham in 1848 continued unabated, despite being sporadic and site-specific, and archaeologists working in Kashmir have not shifted focus from individual sites or site-specific excavations or explorations to considering broader perspectives such as settlement patterning or spatial contexts. The many directionless surveys, with their lack of methodological approaches and analysis has created confusion in terms of understanding categories of material culture and chronologies that are yet to be resolved. However, the works of De Terra and Paterson, Agrawal, Kak, and Yatoo, which have some methodological framework, have indicated the potential for the understanding of sites in the context of landscape features. However, the aims of landscape archaeology, with systematic field and

analytical methodologies are yet to be incorporated into the archaeology of Kashmir. The little work that has been achieved by settlement pattern studies remains the Palaeoclimate project of Kashmir and archaeological survey in Baramulla District (see their discussion above).

3.3 Salvage archaeology and excavations

As briefly discussed in the section above very few endeavours to understand past settlement patterning have been carried out. In both exploration and excavation, Kashmir now has a fragmented archaeological record spanning prehistoric to modern times, and this still requires systematic probing and research. It was only during 1961 that a full-fledged excavation of the Burzahom, (see figure 3.2) in Srinagar District was carried out (Ghosh 1996: 11-12; Ghosh 1964: 17-21; Ghosh 1965: 9-10; Saar 1992). The results of this excavation were fascinating, revealing much about the site occupants' material culture, their habitations and architecture, their subsistence economy, their religious beliefs and burial practices, their interactions, trade and economy. Excavations at the site of Gufkral (see figure 3.2) revealed similar features to those found at Burzahom (Mitra 1984: 19-25; Rao 1986: 75-76; Sharma 1982; 2000: 85-100). Similarly, limited excavations at Kanispora (see figure 3.2) in Baramulla District by the Archaeological Survey of India (Indian Archaeology 2004: 30-48; Mani 2000) revealed another Neolithic site, overlain by early historic material culture. Excavations at Semthan (see figure 3.2), south of Srinagar near Bijbehara (Anantnag District), yielded significant results regarding the early historical period of Kashmir.

From the excavations at Burzahom, Gufkral, Kanispora, Semthan and Harwan, cultural similarities in material culture were traced in a wider context, which extends beyond Kashmir (Agrawal 1998: 68-69; Kaw 1979: 227; Lahiri 1992: 151-153, 243-244, 270, 377; Mani 2008: 230-233; Shali 1993: 86-89; Sharma 2000: 158-159; Stacul 1987: 124-125; Thapar 1985: 31-36; Thapar 1997: 71). These sites are discussed below in the same order that they were excavated, discussing their aims and objectives. Nevertheless, studies at these sites have been extensive, and they are the only source of information about the settlement and landscape of their respective chronological periods.

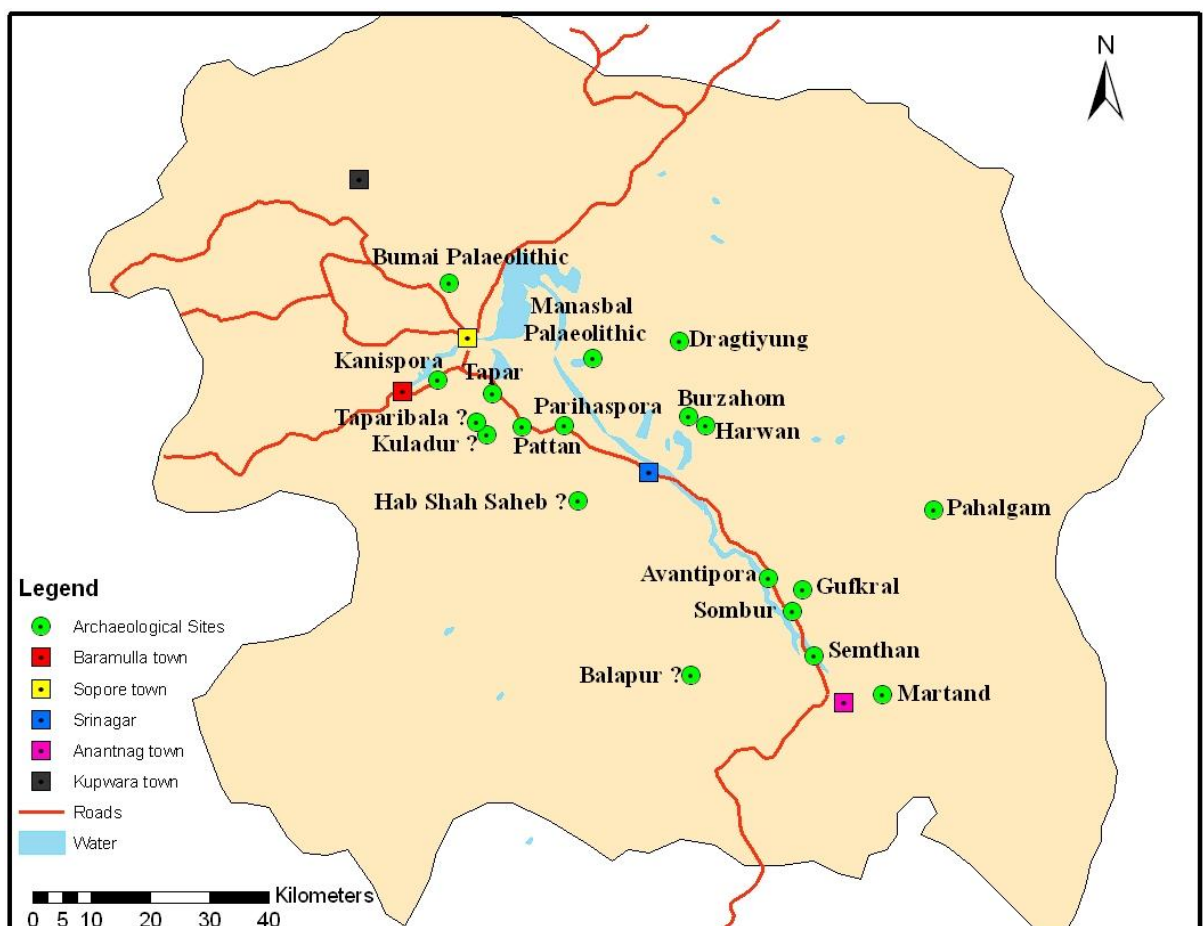


Figure 3.2 Location map of major excavated and unexcavated sites discussed in this chapter (Mumtaz Yatoo, 2011).

3.3.1 Excavations at Harwan (34° 9.260'N 74° 53.898'E)

The first large-scale excavations in Kashmir, aimed at understanding a single site, were at the site of Harwan. Harwan is situated 3 kms from Srinagar city and traces of its archaeological material culture have been found on three different terraces of the Zabbarwan hills. It is referred to in Kalhana's *Rajatarangini*, under the name of Sadarhadvana (grove of six saints). Kalhana says that Nagarjuna, the famous Buddhist philosopher, lived here in the reign of Kaniska (1st century AD) (Stein 1989b: 455). R.C. Kak excavated it in 1920-21 and the early 1930s. Excavation of the terraces revealed the remains of an apsidal stupa built in diaper pebble masonry on the top-most terrace. On the middle terrace, rubble walls and diaper pebble structures were found, and on the lower terrace a square stupa, and a monastic complex with cells were unearthed. During the excavations different varieties of terracotta tiles were exposed, laid around the stupas. The tiles had various decorations over them depicting social and ideological elements from life during the Kushan period, such as real and mythical animals, Kharoshti numerals and other artistic expressions. It was from these tiles that the excavator tried to establish a connection between the people of Harwan and Central Asia, linking the facial features of the people depicted on the tiles to those of Yarkand and Kashgarh (Kak 1933: 110). Unique to Kashmir, these tiles have not been reported from anywhere else in Central Asia. Aside from the tiles, there is close resemblance between the architecture of this site and that of sites in Pakistan and Afghanistan, such as Taxila, Butkara, Charsadda, Nagarahara and Kapisa (Dani 1999; Dar 1993; Faccenna 1964; Marshall 1975), (this is further discussed in chapter 7 within the interpretations of new finds in Baramulla District). Terracotta art, such as figures

and figurines of Buddha and Bodhisattvas and of common people, is said to reflect the Gandharan art impulses (Shali 2001: 172-173). A Hun (5th century AD) and a Tormana (6th century AD) coin were excavated from the site but no relationship could be established with any of the structures.

Although the Harwan excavations were essentially carried out to unearth structures, it was the unusual style of these structures in Kashmir (such as diaper rubble and diaper pebble) and the discovery of moulded tiles marked by Kharoshti syllables (Kak 1933) that aroused the interest of many scholars in the wider archaeology of this site. However, the major drawback of the excavation was that it was carried out in a haphazard manner, no stratigraphy was recorded and pottery of the site was not given the attention and consideration that it deserved.

Decorated tiles and Kushan relics have been found elsewhere in Kashmir, from districts such as Pahalgam, Anantnag, Bandipor, Ganderbal, Baramulla and Kupwara. Amongst these, the sites of Huthmura in Anantnag and Ahan in Bandipor been partially excavated, giving us quite extensive information about the Buddhist Period of Kashmir (Agrawal 1998: 89). Before the Kushan period, the beginning of the early historic period brought Kashmir into contact with Indo-Greeks and Huns. Coins of these cultural periods have been found at many places in Kashmir, such as Semthan, as discussed in section 3.3.4 below (Thapar 1980: 79; Shali 2001).

3.3.2 Excavations at Burzahom (34° 10.185'N 74° 52.000'E)

Excavations at Burzahom, 12 kms north east of Srinagar city, were the first to reveal the Neolithic material culture in Kashmir. The site was first discovered by H De Terra in

1935 when he was carrying out the geological and geomorphological survey in the region. He carried out a trial excavation at the site in September of the same year (De Terra 1942). De Terra deemed the material culture to be of considerable antiquity with no parallels in India at the time. The material culture of this site aroused the interest of the Archaeological Survey of India and, under the leadership of T.N. Khazanchi from 1960 to 1973, it was systematically excavated for a period of nine years. The detailed excavation report by Khazanchi is yet to see the light of the day, but summaries of each excavation season were published in the Indian Archaeology Reports. The excavations revealed a four-fold cultural sequence: phase I (2586-2130 cal. BC) and phase II (2881-1730 cal. BC) were attributed to the Neolithic, phase III the Megalithic (797 cal. BC) and phase IV the Early Historical (c. 300 – 500 AD) (Ghosh 1996 11-12; Ghosh 1964; 17-19; Khazanchi 2004: 14; Possehl 1989: 10-48). R.K. Pant and S.S. Saar who helped Khazanchi with the excavations suggested that the Neolithic phases I and II were differentiated by being aceramic and ceramic respectively, as no pottery was found in period I. No samples for radio carbon dating were collected from settlement deposit from phase I (Saar 1992: 12-13; Bandey 2009). Moreover, there was disagreement with Khazanchi's interpretation of period III at Burzahom: S.S. Saar and S.P. Gupta with R.K. Pant believed that this phase could not be differentiated from phase II (Neolithic) which is Neolithic on the basis of material culture, except that huge stones or menhirs are erected during phase III (hence the label 'Megalithic') (Bandey 2009: 75-77; Saar 1992: 16). However, excavations at Burzahom brought to light some interesting information about the Neolithic occupants, such as their dwelling places, subsistence patterns, disposal of dead and their economy and interactions (Ghosh

1996; 1964; 1965; 1969; Kaw 1979; Lal 1971; Pande 1970; Deshpande 1975a; 1975b; Saar 1992; Thapar 1979).

The excavations revealed oval and square pit structures, narrow at the top and broad at the bottom that were interpreted as the Neolithic dwelling places (or by Saar as grave pits) with timber and birch bark roofing in both phases I and II (Ghosh 1996: 11; 1964: 17; 1965: 9; Khazanchi 2004: 14-15; Saar 1992: 7-12; Thapar 1979: 15). However a different interpretation of these dwelling pits has been given more recently (Coningham and Sutherland 1998, see chapter 5 and 7). The presence of stone hearths, animal bones, bone tools, broken pots and burnt clay inside the pits, indicates domestic activity taking place inside the pits. Mud platforms with partitions and wattle and daub plastered surfaces, covered with a thin coat of red ochre (phase II) and *chunam* (quicklime; mortar or plaster, in phase III), with post-holes set around them were encountered, along with storage pits and hearths in both phases at this site. The animal and plant remains at the site were interpreted as indicating people with pastoral and arable knowhow during phases I to III, with the introduction of rice (*Oryza sativa*) (a staple crop of Kashmir) first reported during phase III (Buth and Kaw 1985: 110-112; Lone et al. 1993: 204-207; Thapar 1985: 28; Sharma 2000: 50-56). Both primary and secondary human burials were found in oval pits, sometimes with animals during phases II and III (Ghosh 1965: 9; Thapar 1985; Saar 1992: 37-39). This ritualistic burial of animals like dogs, ibex, and wolf is an interesting feature of this period, as similar burial practices have been reported in South and Central Asia (Agrawal 1982: 103; Agrawal and Kharakwal 2002: 185; Ghosh 1965: 9-10; Kaw 1979: 227; Khazanchi 2004: 24-25; Stacul 1994: 713; Stacul 1987: 124). Phase IV at Burzahom dates to the early historic period, and the material culture is related to that of Harwan (see section

3.3.1 above). However, a significant change in material culture during this phase was the presence of iron artefacts for the first time (Saar 1992: 43) (see interpretations of this in chapter 8).

The excavators identified four pottery types: coarse ware (c. 2500-2000 BC), fine gray ware, and burnished ware (c. 2000-1700 BC), and gritty red ware (c. 1700-1000 BC) (Bandey 2009; Saar 1992). In the coarse ware assemblage, bowls and vases with rippled rim design were significant. The gray and burnished wares include high necked jars with flaring rims, bowls, dishes, globular pots, jars, and funnel shaped vases with decorations such as incised and combed designs, mat and cord impressed bases, and graffiti and perforations. Stone and bone tools were also collected from this site, including stone axes, chisels, adzes, wedges, points, large and small mace heads, querns and pestles, harvesters, double-edged picks, needles, harpoons, spear points, and scrapers (see discussion of these in chapter 5 and 7 within the context of similar finds in this survey).

Two noteworthy pots were recovered from phase II. One was painted with a horned figure on its shoulders, the other was found filled with carnelian and agate beads (Saar 1992: 13-14). Parallels of these pots and beads have been traced at pre-Harappan site Kot Diji (northern Sindh, Pakistan), also at Sarai Khola (Taxila, Pakistan) and at Gumla (Khyber Pakhtunkhwa), signifying cultural interactions with Burzahom (Thapar 1985: 31,36; Agrawal and Kharakwal 2002: 180). Similarly a copper arrow-head and a coil from phase II and a copper knife from phase III were considered to be evidence of cultural contacts with Harappans (Ghosh 1969; Lahiri 1992). Stacul, working with the Italian Archaeological Mission in Swat Valley (Khyber Pakhtunkhwa,

Pakistan), found remarkable similarities between the material culture of Burzahom and the Swat Valley, including the burnished black wares of the Swat Valley and the mat impressed gray ware pottery of Periods III (1950-1920 cal. BC) and IV (1710-1690 cal. BC) of the Ghalegay (Swat) sequence, (see chapter 7 for discussion) (Stacul 1967: 218; Stacul 1969: 83-84; Stacul 1970: 92-94; Stacul: 1974: 239-240; Stacul 1976: 28; Stacul 1977: 251-252; Stacul 1979: 671-672; Stacul 1980: 74; Stacul 1987: 124-125; Stacul 1992: 111-119; Stacul 1993: 89-90; Stacul 1994a: 712-713). Similarities were also found among stone tools such as perforated sickles or harvesters which were earlier reported at Yang-Shao in China (Fairservis 1975; Stacul 1993).

Material culture from Burzahom Kashmir has been found to have parallels in neighbouring regions such as in Pakistan, China and, Mongolia. Based on these similarities, it was suggested that Burzahom was a part of larger multifaceted culture known as the Inner Asia Complex (Fairservis 1975; Stacul 1997; 1993; 1987) or Northern Neolithic Complex (Allchin and Allchin 1993b: 116; Pande 1969: 134) (see chapter 7 for discussion of these interpretations).

3.3.3 Excavations at Gufkral (33° 53.383'N 75° 2.950'E)

A settlement analogous to Burzahom was excavated in two seasons at Gufkral, 40 kms south east of Srinagar in district Pulwama, by the Archaeological Survey of India under the direction of K.D. Banerjee and A.K. Sharma. During these excavations three cultural phases were indentified: phase I Neolithic, further divided into I-A aceramic Neolithic (1420 cal. BC), I-B early Neolithic (2554-1772 cal. BC) and I-C later Neolithic (1923-926 cal. BC); phase II is Megalithic (2131-1677 cal. BC); and phase III is Early

historical (no date) (Mitra 1984; Possehl 1989; Sharma 1982; 2000: 128-133). However, A.K. Sharma, one of the main excavators of this site, suggested that the aceramic Neolithic could be pushed back to c. 2800 BC based on the presence and relative dates of barley (*Hordeum vulgare*), wheat (*Triticum aestivum* and *T. sphaerococcum*), lentils (*Lens esculenta*), and common pea (*Pisum sativum*) (Sharma 2000: 132). Sharma, therefore suggested the following dates and phases: aceramic Neolithic starting at c. 2800-2350 BC; ceramic Neolithic at c. 2350-2000 BC; and Megalithic at c. 1850-1300 BC (Sharma 1982; Sharma 2000: 132-133). Bandey (2009: 82), analysed these dates and the relative dates of the pottery in relation to the Burzahom dates, and simplified the chronology as follows:

Gufkral	Dates	Burzahom	Dates
Neolithic I-A	3000-2500 BC	Neolithic I	3000-2500 BC
Neolithic I-B Neolithic I-C	2500-2000 BC 2000-1700 BC	Neolithic II	2500-1700 BC
Megalithic	1700-1000 BC	Megalithic	1700-1000 BC

Table 3.3 Chronology of Gufkral and Burzahom as devised by Bandey (2009: 82)

Settlement at Gufkral during phase I-A is again represented by underground oval and circular pit structures surrounded by post holes which have pebble hearths and pit hearths around their peripheries (Mitra 1984: 19; Rao 1986: 75-76; Sharma 1982: 26; 2000: 85-100). These pits were plastered with mud and reeds, and were interpreted as dwelling places. However, no pebble hearths or pit hearths were found inside the pits, unlike Burzahom. During the subsequent occupations phase I-B at Gufkral, it was reported that people built mud platforms and completely ceased living in dwelling pits. Successive floor levels were attributed to long occupation during this phase, suggesting the floors have been repaired periodically; at least fifteen layers of repairs and re-plastering have been noticed (Mitra 1984: 23; Sharma 1982: 32; 2000: 88). Bones of domesticated animals such as sheep (*Ovis aries*) and goat (*Capra hircus*) and the bones of wild animals such as red deer (*Cervus elephus*), ibex (*Capra ibex*), bear (*Ursus*), wolf (*Cardus lupus*) and few other species were found in phase I-A, but dominated phase I-B. Barley, wheat, lentil, common pea were also found in phase I-B. Phase I-C is late Neolithic phase at Gufkral and the settlement is represented by thick habitation deposits, sealed by a thick whitish floor with large number of refuse pits and dumps. The animals of the previous period continue in this phase, along with dog (*Canis familiaris*) and pig (*Sus scrofa*). Among plant species wheat, barley, lentil are the common species of this phase (Buth and Kaw 1985: 110-112; Mitra 1984: 23-25; Sharma 1982: 34; 2000: 93-94).

The material culture found at Gufkral includes pottery of four types similar in shape and design to those from Burzahom. Similarities were also found in stone and bone artefacts from Gufkral and Burzahom. However, bone tools are more numerous at Gufkral than at Burzahom, with 42 tools including points, needles, and harpoons

reported from phase I-C. Spindle whorls and harvesters/sickles are also reported during I-C phase as well as a copper pin with a flattened head. Similar copper pins found at Chanhudaro (late Harappan site in Sindh, Pakistan) suggested interactions and contacts (Mitra 1984: 23).

During phase II at Gufkral huge stones (menhirs) were erected, as they were in the Megalithic period at Burzahom. The pottery types of the previous phase continue to this phase, with gritty red ware appearing and dominating the other pottery types. Saddle querns, pestles, and polishing stones are some of the new additions to the stone tool assemblage during this phase at Gufkral. Stone bowls were reported by Shali (2001: 119) not by actual excavators (the interpretations of this are discussed in chapter 5 and 7 in the context of the new research).

It is during phase II that iron makes its first appearance at Gufkral (Sharma 1992: 64; 2000). Sharma suggested that this was the result of diffusion from Iran-Afghanistan citing examples of Marlik at Iran, Ghalegay at Pakistan, Mundigak at Afghanistan and so forth, and the interpretations and implications of this will be discussed in chapter 8. The animal and plant species of phase I continue into phase II although rice makes its appearance during phase II at Gufkral.

Phase III at Gufkral is early historic, with the appearance of wheel made pottery in red and black wares of different shapes and designs. However, no other significant material culture was reported during this phase and no chronological dates provided by the excavators. Shali (2001: 120) however, suggested that the pottery, a few other artefacts such as carnelian and copper beads, terracotta artefacts, and the presence of iron (which Sharma did not mention in his report) are conspicuous Harappan types.

Sharma (2000: 156) further suggests that the aceramic Neolithic levels at Gufkral coincide with sites in South Asia like Mehrgarh and Kili-Gul-Muhammad (Baluchistan, Pakistan) where they are dated to c. 6th and 4th millennium BC respectively (although this is unsubstantiated without any proof of evidence given by the excavator). At Burzahom Saar (1992) provided some clues to links with pre-Indus people (see section 3.3.2 above).

3.3.4 Excavations at Semthan (33° 48.276'N 75° 5.801'E)

Semthan is a multi period site, located 43 kms south east of Srinagar on a loessic deposit. It has been partially excavated in three seasons by the Archaeological Survey of India from 1977 to 1984 to bridge the sequence of cultures from c. 700 BC to c. 600 AD. The aim of the excavations was to bring to light habitational deposits and material culture of northern black polished ware (NBPW) and onwards at this site. The significance of the Semthan excavation to the archaeology of Kashmir was that it brought to light important evidence about the cultural sequence from the end of Megalithic and early historic period (the concluding phases after the Neolithic period at Burzahom and Gufkral) up to the later historic period in Kashmir. This period between the early and later historic would normally be understood through definition as cultural periods and developments such as the Iron Age and Indo-Greek (Agrawal 1998: 72; Mitra 1983b: 21-23).

Semthan has revealed five cultural phases, beginning with pre-northern black polished ware phase (c. 700-500 BC), consisting of successive cultural deposits of rammed clay and quicklime (*chunam*) plaster with post holes, as well as bone and

stone tools and pottery in five types (Agrawal 1998: 75; Shali 1993: 111). This period seems similar to the Megalithic period of Burzahom and Gufkral in the way that habitational structures are described, but no iron material culture is reported, whereas it is known from Megalithic Gufkral. Moreover, cereals such as rice, wheat and barley, found during the Megalithic period of Burzahom and Gufkral; pulses such as moong (*Phaseolus Mungo*) and lentils were found during the excavation (Lone 1993: 207-212; Mitra 1983b: 107-108).

Phase II at Semthan is NBPW (c. 500-200 BC) (Shali 1993); (310-390 uncal. BC) (Tripathi 1987: 157). This was the first site in Kashmir where NBPW was found (Agrawal 1998; Gaur 1994; Shali 1993). Occupation was mainly represented by rubble walls and mud floors, although evidence for the use of rammed earth (pise) and pebbles in rubble walls was also found during this period, along with a large number of post holes. The most important discovery was the two sherds of NBPW pottery in association with red and gray ware pottery. The other artefacts recovered from this phase are miscellaneous iron objects, bone artefacts and unknown cast copper coins (Mitra 1983b: 21; Shali 1993: 114) (the interpretations of this site will be discussed further in chapter 7 and 8).

Phase III at Semthan is Indo-Greek (c. 200 to 1st century AD), represented by a thick habitational deposit yielding pottery of different types and shapes. The important artefacts which were recovered were silver and punch-marked Indo-Greek coins, two terracotta heads, terracotta balls, beads of semi-precious stones and terracotta, and a clay seal depicting an Indo-Greek deity (Agrawal 1998: 80; Mitra 1983b: 21-23; Shali 1993: 120). Iron artefacts in association with terracotta and

semiprecious stones were also reported during this phase (Mitra 1983b). The contacts with the people of northern regions of South and Central Asia is said to have an influence over the material culture at this site (such as Gandharan art influences on art and architecture, unknown cast copper coins indicating trade, NBPW pottery indicating influences and integration), the interpretations of this will be further discussed in chapters 7 and 8. Furthermore, Lone et al. (1993) suggested that the agricultural economy was the same as that understood from previous phases at Semthan.

Phase IV at Semthan (c. 1st century to 5th century AD) is Kushan period, similar to that known from Harwan and described above (see in this chapter section 3.3.1). Phase V at Semthan is later historic (c. 7th century AD onwards); no information about the material culture is available from the excavation report, which only considers this period in light of the prolific temple building in Kashmir. The temple building activity was largely attributed to Karkota rulers (see section 3.1 above).

The presence of NBPW at Semthan is significant. NBPW is known primarily from the Gangetic region (c. 600-100 BC) (Agrawal 1998: 76; Chakrabarti 1992: 62-63; Gaur 1994). Not only was NBPW found at Semthan, but it was found in association with plain grey ware and red ware also (Agrawal 1998: 76). The presence of this early historical pottery indicates contact between the northern regions of Kashmir and the plains of India. Exploratory surveys by the Archaeological Survey of India along the Baramulla-Muzaffarabad trade route (Jhelum Valley route) reported sighting of NBPW sherds at two sites, alongside quantities of Kushan and medieval material culture (Mitra 1984: 16-17).

Thus it seems that the excavations at Semthan provide the first examples of material culture which falls in the gap between the Megalithic period and the early historic period; a gap evident at Burzahom, and Gufkral and arguably at Harwan in Kashmir (Agrawal 1998: 76). This study showed for the first time the usefulness of studying a site as part of a wider settlement pattern, placing emphasis on understanding it within the context of other sites such as Burzahom, Gufkral and Harwan, rather than describing its individual characteristics. This study also proved important for addressing the gaps in the chronology of Kashmir.

3.3.5 Excavations at Kanispora (34° 13.350'N 74° 24.300'E)

Kanispora is a two-period site (Neolithic 3149 cal. BC and early historic c. 1st to 5th century AD) situated on the left bank of Jhelum River in Baramulla District, 50 kms north west of Srinagar. Kanispora was briefly excavated by the Archaeological Survey of India in a single season under the direction of B.R. Mani (Indian Archaeology 2004: 30-40; Mani 2000). From the five cultural phases found at this site; the phases I and II yielded the Neolithic material culture (with phase I aceramic and phase II ceramic); and the other three phases belonged to Kushan of the early historic period (Indian Archaeology 2004: 30). The Neolithic material culture of Kanispora had similarities with that from Burzahom and Gufkral. For example, the similarities were found in four pottery types and in their shapes and design, in stone tools, and in environmental data (except emmer wheat (*Triticum dicoccum*) which is only reported at this site). The occupation evidence comprised of rectangular houses, post holes, a hearth, and circular pits (Indian Archaeology 2004; Mani 2000). However, the radiocarbon dates

from phase II at this site suggested a date of c. 3361-2937 BC (the author gives an average date of 3149 cal. BC), which then pushes the dates for the Neolithic back to the latter half of the fourth millennium BC, rather than first half of third millennium BC as at Burzahom and Gufkral.

Mani (2000: 139) believes that the Kanispora excavation shows movement of people during the Neolithic times from Central Asia via Baramulla to the rest of Kashmir. He suggests this on the basis of emmer wheat found at this site, as emmer was originally a product of the arid Middle East, and came to South Asia through Iran and Afghanistan to Kashmir via the communication routes that pass through Baramulla District. He suggests further probing of the region to validate his hypothesis. Phases III to V belong to Kushan period of early historic period and similar to as represented at Harwan (see section 3.3.1 above). The excavators of the site further reported a pottery type that have analogues at Sirkap, Taxila in Pakistan (Indian Archaeology 2004: 40), (the interpretations of this are discussed in chapters 5 and 7).

3.4 Chronology

The archaeological sites in Kashmir are dated mostly on the basis of relative dates with radiocarbon date estimates from four sites. Based on these dates a brief introduction to the salient dates in traditional Kashmir chronology is given in table (3.4) below:

Chronological phase	Period	Site	¹⁴ C Date (cal) BC	Relative date	Interpretation
Palaeolithic	Upper Palaeolithic	Pahalgam		c. 2.6 MY BP	
	Middle Palaeolithic	Pahalgam and Manasbal		c. 1.8 MY BP - c. 20,000 BP	
	Upper Palaeolithic	Sombur and Sopore		c. 18000 BP - c. 4000 BC	
Neolithic	Neolithic	Burzahom-I	c. 2586 c. 2465		
		Burzahom-II	c. 2881 c. 1730		
	Neolithic	Gufkral-IA	c. 1420		
		Gufkral-IB	c. 2554		
		Gufkral-IC	c. 926		
	Neolithic	Kanispora	3361-2937; 3149		
	Megalithic	Burzahom	797		
		Gufkral	2131-1677		Iron at Gufkral was dated c. 1550-1300 uncal. BC during this period
Early historic	Pre-NBPW	Semthan		c. 700-500 BC	Iron was found during this period at Semthan
	NBPW	Semthan	c. 310 cal. BC	c. 500-200 BC	
	Indo-Greeks	Semthan		c. 200- c. 100 AD	
	Kushans and Huns	Semthan and Harwan		c. 100- 500 AD	
Later historic	Pre-Karkota			c. 500-600 AD	
	Karkota period			c. 600-855 AD	
	Utpala period			855-1003 AD	
	1 st Lohara dynasty			1003-1101 AD	
	2 nd Lohara dynasty			1101-1171 AD	
	Later Hindu period			1171-1339 AD	
Sultanate Period (Muslim period 1339 to 1586 AD)				1339-1586 AD	
Mughal period				1586-1752 AD	
Afghan period				1752-1819 AD	
modern period	Sikh rule			1819-1846 AD	
	Dogra rule			1846-1947 AD	

Table 3.4 Salient dates in Kashmir Chronology. Source Agrawal 1998; Bamzai 1994; Bandey 2009; Kak 1933; Mani 2000; Stein 1989b; Sankalia 1971; Sharma 2000

3.5 Discussion and framework of archaeological works carried in Kashmir

The first Neolithic site in Kashmir was identified by De Terra and Paterson in 1935, who ruled out any earlier Palaeolithic cultures, on the grounds that Kashmir was an extremely isolated region due to its mountain barriers (De Terra and Paterson 2003) (see chapter 2 for details). However, in 1969-70 Sankalia et al. (1971) recovered a massive flake and a crude (Abbevillian) handaxe from well stratified deposits dating to the second glacial and second interglacial respectively from Pahalgam (Sankalia et al. 1971). Sankalia called it the earliest Palaeolithic tool found in the South Asia (Sankalia 1971: 560). Joshi et al. later recovered nine more tools from deposits attributed to the second and third glacial periods from the same area (Joshi et al. 1974). Though the tools from Pahalgam were dated by Sankalia (1974) to the Late Early Pleistocene, on re-examination of the Pleistocene glacial sequence Joshi assigned them to the Middle Pleistocene (c. 500000 years BP) (Joshi et al. 1974: 375). In 1981 Pant and his team (Pant et al. 1982) further found Palaeolithic tools from the loess deposits from the surface of the *karewa* at Sombur (near Srinagar).

This limited material culture found in south Kashmir by Sankalia and Joshi was supported by evidence from Manasbal by Bandey (2009: 64), and from Bumai Sopore by the author (2005), providing some crucial insight into developments in the north of Kashmir. The author also found further Upper Palaeolithic tools, an *in situ* rock engraving (recently analysed on archaeoastronomical lines (Vahia et al. in press)) and rock shelters in Baramulla District. There is no chronometric dating yet carried out on any Palaeolithic material culture, nor any excavations; all the information has come from surface finds and relative dates alone (Sankalia 1971; Joshi et al. 1974).

Nonetheless, these Palaeolithic finds indicate that Kashmir has been inhabited since Palaeolithic times. Agrawal (1992) and Agrawal et al. (1990: 233-234) believe that during this time the region supported a sub-tropical or temperate flora and fauna, as per records preserved in the *karewa* beds in Kashmir; this is also consistent with pollen data from the Butpathri bogs, Anchar, and the Hokarsar lakes (Agrawal et al. 1990: 233; Dodia et al. 1982: 104-105), as well as the archaeobotanical studies (Lone et al. 1993: 203-215) at Burzahom and Semthan. However, not a single primary site has been properly explored or studied to date. Aside from the recovery of Palaeolithic tools, much is thus left to guesswork in the Palaeolithic of Kashmir. Tools belonging to the Mesolithic or Microlithic period have not been found so far (Jayaswal 2008: 328; Thapar 1985: 36), but Agrawal suggests that Microlithic tools were perhaps part of the Neolithic culture, and Pant et al. suggested transition from Upper Palaeolithic to the Neolithic in Kashmir (Agrawal 1982: 90; Pant et al. 1982).

Relative and radiocarbon dates from Burzahom and Gufkral have given a sequence of cultural developments during prehistoric period in Kashmir. The Neolithic site of Burzahom has the earliest date of c. 2586 cal. BC. However, new radiometric date from Kanispora suggests c. 3149 cal. BC as the earliest date for the Neolithic in Kashmir. The first evidence of handmade pottery (such as coarse ware) during the Neolithic period is dated around 2500-2000 BC and the first evidence of iron artefacts is dated to c. 1550-1300 uncal. BC (Sharma 1992: 64). Semthan provides dates from the 7th century BC to 5th century AD, and then from the middle of the 6th century AD to the end of 7th century AD little is known of the archaeological material culture, except for a few Buddhist sculptures found from Puranadhisthana (Bamzai 1994). This period was named the pre-Karkota period in Kashmir.

With the dawn of the Karkota dynasty in the later historic period (7th century AD), Lalitaditya Muktapida built the largest Buddhist stupa in Kashmir, along with Buddhist monasteries at Parihaspora. He also constructed the Sun temple at Martanda (modern Martand in Anantnag District) which is regarded by many as the best specimen of the art and architecture of the people of Kashmir (Bamzai 1994). Other structural remains attributed to Karkota dynasty are the temples of Puranadhisthana (modern Pandrethan), Naranag and Buniyar (at Baramulla). In addition to the temples themselves, a large number of sculptural materials, terracotta art, and coins have been found at these places which help understand more about the social and political conditions prevalent at that time.

The Karkota dynasty was followed by Utpalas (855-1003 AD) under Avantivarman. He is credited with building two huge temples at Avantipora, c. 20 kms south of Srinagar (Bamzai 1994), and he diverted the course of Jhelum River to relieve Kashmir from recurrent floods and brought vast expanses of land in Baramulla District into cultivation.

For four centuries from the 10th to the 14th century followed by the Lohara dynasty, smaller dynasties ruled Kashmir without any significant contribution (Bamzai 1994). The Sultanate period was established by Sikandar in 1390-1414 AD who was followed by his son Zian-ul-Abidin, commonly known as Badshah, Great king. Badshahs' chief contributions were trade regulations, restoration of canals, fostering industrial growth, and development of culture. His building activities are widespread in Kashmir, including Zaina Lanka (an island in the midst of Wular Lake), Zaina Kadal (a bridge), the Jamia Masjid in Srinagar, the Badshah tomb in Srinagar (built in the

memory of his mother who is buried inside), and the mosque of Madin Sahib in Srinagar.

The sultanate rule ended in Kashmir with the arrival of Mughals in 1586 AD and they ruled till 1752 AD, for 166 years. The Mughals mostly built mosques and resorts. Akbar, Jahangir and Shah Jahan all contributed architecturally in enriching Kashmir during their rule. The remnants of this period include the fort at Hari Parvat (birds mound), the Pathar Masjid (stone mosque), the Safakadal (bridge in Srinagar), the Akhun Mulla Shah Mosque, the Pari Mahal (fairies palace) believed to be a school of astrology, and two gateways known as Kathi Darwaza and Sangin Darwaza (Bamzai 1994: 411). Akbar is supposed to have built a city round the Hari Parvat fort and called it Nagar-Nagar. The Mughals were followed by the Afghans who ruled in Kashmir from 1752 to 1819 AD. There is however, no mention of any major structural activity or founding of any cities or towns or villages by the Afghans and with their end begins the modern period under the Sikh rule in Kashmir.

3.6 Summary

The archaeological record of Kashmir suggests activity in the region since Palaeolithic times. Further human activities in the region are attested by material evidence of the Neolithic period, Megalithic period, Mauryan period, Indo Greeks, Sakas, Parthians, Kushans, Huns, Dards, Turks, Mughals and Afghans (Bamzai 1994, Sufi 1996; Shali 1993). In Kashmir many cultures seem to have risen, flourished and assimilated in a way to create a confluence of different cultures. The discovery and description of this material culture was first initiated by General Cunningham in 1848 and has since been

repeated by many in an unsystematic and site specific way. The works by Agrawal, De Terra and Paterson, Kak, Archaeological Survey of India, Yatoo, and so forth tried to shift attention from the site specific to the incorporation of broader settlement and landscape issues. They excavated or surveyed with the intention of revealing the distribution of sites but lacked important systematic methodologies. The Semthan work was a move forward, and is the sole example of a settlement based study in Kashmir. Therefore, based on previous information and advancement in the methodologies of surveying, a new way of recording and contextualising material culture with landscape features to determine settlement patterning in Kashmir becomes inevitable. This is topic of this thesis.

Chapter 4

Survey methodologies and analysis of finds

Section 1: Survey Methodologies

In this chapter methodologies used to carry out the systematic surveys to collect and analyse data in Baramulla District are set out. I will present various types of surveys and analytical methodologies that are used in many different regions of the world, and will then assess their usefulness for the present project. I will then explain which methods have been used in the Baramulla survey and why. Survey methods used in Britain, the Mediterranean region, South Asia and elsewhere were analysed to understand their potential and feasibility for use in Baramulla District. Issues related to different methodologies were carefully considered in order to help devise the most suitable approaches to collect and analyse data. This chapter, therefore, goes on to explain why a systematic probabilistic field survey of the region was undertaken, employing extensive and intensive transects in order to collect data to begin addressing the research questions. In addition to this, explanation is provided why an indigenous non-probabilistic field survey was designed and carried out. A critical discussion about the meanings of 'site' and how I defined a site for this study is also presented, along with the effects of obtrusiveness, visibility and post-depositional

processes on material culture of sites. In the second part of this chapter, the analytical methodologies utilised in order to explore the material culture recorded and collected during survey are outlined, with a discussion of the most appropriate approaches for this project.

The overall research aim is to carry out a systematic field survey in order to collect data about sites and possible patterns or trends which will allow me to discern more about past human activities in the region. This regional landscape survey is therefore essentially a judgment, aimed at obtaining data that can then be used to address a range of questions based on interaction with the landscape by the people occupying this district in the past.

In order to consider suitable survey strategies in line with the research questions (chapter 1) for a region like Baramulla District, it is important to consider the role of 'landscape' within field survey methodologies. Ashmore and Knapp (1999: 2-8) suggest most landscape surveys are focused on mapping the diachronic development of human landscapes. Kowalewski (2008: 251) described landscape as a place of human habitation and environmental interaction and a place against which archaeological remains can be plotted. Knapp and Given (2004), suggest that landscape archaeology when studied by field survey methods offers multiple perspectives of a region and its human-nature relationship. Matthews (2003: 48) demonstrates the value of multi-period surveys of regional landscapes in allowing archaeologists to build a chronological picture of human settlements, which in turn can help in evaluating the trends in human-landscape interactions during various periods of human history. Muir (1999: 51) argued that surveying within a regional landscape

helps in identifying and recognising monuments and constructions created by people within the context of their social, economic, and spiritual lives. Therefore, we may say that landscape is actually a place human cultures rely upon, and a communal place of interaction for people. Landscape is not a bounded or restricted entity and the cultural information we seek by systematically surveying is not confined at any one place but spatially located on it. It, therefore, becomes essential to study it on the basis of suitable methods and techniques to seek any cultural information.

A systematic field survey of a regional landscape is essentially an investigation to map land-use and record archaeological sites, on the basis of collecting material culture information (Renfrew 1983: 317; Wilkinson 2000: 221). This systematic investigation is, however, governed by a set of procedures that yield appropriate results for a region only if applied within a suitable methodology (Wilkinson 2000: 223-229; Schiffer et al. 1978: 2-3). This methodology is mediated by a host of parameters and the extent of background knowledge of the regional archaeology where the survey is to be carried out (Knap and Mayer 2003: 25-26). The parameters of the survey are characterised by the types of survey such as: intensive or extensive survey; the sampling strategies; the size and boundaries of the survey area to define sites; and the scale of observation. More detailed discussion of each of these parameter follows in order to ascertain their influence on a survey.

4.1 Extensive and intensive surveys

Among different survey techniques practiced around the world, the most widely used have been extensive and intensive techniques (Cherry 1983). Extensive and intensive

surveys are differentiated by the spacing between transects and team members, and it is this interval that determines the size of the sites and density of material culture recorded during the survey (Plog et al. 1978). Survey intensity can have an important effect on the productivity of a survey, and it has been demonstrated that increasing intensity yields a corresponding increase in the number of sites, and because of this, Tartaron (2003: 31) believes both intensive and extensive approaches in the early stages of a survey may provide useful information.

Case study one

The Nikopolis Project carried out in Greece is an example of a survey project that tested both extensive and intensive approaches in three modes (Tartaron 2003: 32). Extensive non-systematic survey was used for scouting, geomorphological evaluation and creating a judgmental sampling design in order to explore remains from the Palaeolithic period, and extensive systematic survey was used to reveal the overall characteristics of the region (e.g. the number of sites, their distribution, chronology, function, and relationship to the environmental context). Simultaneously, a programme of off-site, survey was carried out in order to reveal discreet patterns of human activity through prehistoric or historic periods over different environmental zones (Tartaron 2003).

In both the extensive and intensive survey methods, information about the cultural remains over the diverse landscape of southern Epirus was successfully obtained. Considering this approach, it appears that a similar strategy for the Baramulla region could be utilised for two reasons: firstly there is a similarity in

research aims, as both intend to collect archaeological information of broad chronological periods from prehistoric period onwards, and secondly, both Epirus and Baramulla District lacked any previous systematic surveys. Further similarities in the project aims of Nikopolis survey and the Baramulla District survey include finding out about the distribution and number of sites, and function of sites. The intensive survey at Nikopolis was also relevant to the present project as it was intended to locate discreet patterns of human activity, and in relation to the current research questions, address the chronological gap in current knowledge. Further, the Nikopolis Project was able to incorporate previous field data into its new research design (Tartaron 2003: 30), and I also had older MPhil data (collected unsystematically) which I also intended to incorporate in the new study in order to compare site types and their distribution.

Case study two

In the Colonial Greek Metaponto survey in Italy, extensive and intensive field surveys were carried out from 1981 to 2001, during eleven field seasons with the aim of locating sites and obtaining information about settlement patterns and occupation of the region (Thompson 2004: 65). Up till 1984 the project systematically collected information about all periods of human occupation covering all types of terrain within the designated study areas by taking samples from the region (Thompson 2004). The 2000 and 2001 field seasons were dedicated to resurveying; using systematic, intensive methods to record site densities and off-site details, omitted during the earlier surveys due to factors like visibility and obtrusiveness (Thompson 2004).

Drawing upon this survey project in Italy, it can be seen that extensive survey methods can be helpful in finding new archaeological sites. Whereas intensive survey methods can be of great help in resurveying any areas that might be ambiguous in terms of results, or otherwise require closer attention. One aim of the current Baramulla District survey, which was similar to the Metaponto survey, was to re-visit a previously explored area (covered in my MPhil work) and incorporate this work alongside the results from the new survey.

Case study three

In South Asia, both extensive and intensive survey approaches were used in Sinopoli's Vijayanagara Metropolitan Survey Project, a ten-year regional survey that systematically explored 450 km² of the hinterland of the historic imperial capital of Vijayanagara. The main aim of the project was to thoroughly understand the economic infrastructure and long-term settlement history of the region (Sinopoli 2004: 264). Another aim was to understand the defensive infrastructure and distribution and nature of religious sites across the area. More than 700 archaeological sites were identified in this project, including agricultural features, rural settlements, roads, fortifications and sacred sites, along with very small features such as wells, iron smelting furnaces and isolated structures.

The rugged topography and relatively small size of the Sinopoli's team meant that the entire study area could not be covered with equal intensity. A two-tiered strategy was developed by dividing the region into two survey zones (Sinopoli 2004: 266). The first zone of 130 km² was intensively surveyed while in the remaining region

an extensive survey strategy was adopted, focusing mainly on major site types. The aims of the present project, such as revealing settlement patterns by locating new sites and also recording previously known of various chronological periods, are similar to Vijayanagara. In this example, difficult topography and the small survey team were driving factors for undertaking extensive and intensive surveys, which allowed the aims to be achieved. As for the survey in the Baramulla District, which also covered different topographic features and zones, and with a small team, testing both extensive and intensive survey strategies appeared to be useful as demonstrated at Vijayanagara.

Summary

Comparing the results of both extensive and intensive surveys from the three case studies at Nikopolis, Metaponto and Vijayanagara, showed that systematic, extensive surveys were successful in revealing the overall characteristics of each region such as the number of sites, their size and distribution. On the other hand, intensive surveys proved to be more effective in resurveying a region or a site or surveying an area of particular interest. The Vijayanagara and Nikopolis project surveys demonstrated that dividing a region into topographic zones and then selecting areas for extensive as well as intensive surveys could also be highly effective and helpful. However, there have been examples of intensive surveys, which contradict the findings of the Nikopolis project and the Metaponto Project, such as the Canadian Palaipaphos Survey Project (CPSP) and the Western Cyprus Project (WCP) which found that greater intensity of survey did not produce significantly better or more usable data (Rupp

2004: 68). Intensive survey often works best when resurveying a site or a region to understand the function of that site or region and this sometimes depends on project aims. It therefore, seems clear that good practice for the Baramulla District survey would include both extensive and intensive survey techniques in the first season of field work, and to choose between two in the second season depending upon the results of first season. After all, this was a new approach to archaeological fieldwork to be tested in the district.

4.2 Sampling strategies

Sampling techniques are extremely important to archaeological surveys and this is reflected in much of the research and literature (Ammerman 1981; Caraher et al. 2006; Kowalewski 2008), and it is important here to begin by explaining the role of ‘sampling’ in a regional survey. The role of sampling is to deduce information about a whole area from a part of it when information about the whole region cannot be obtained (Read 1986: 477). There are several key guiding principles which govern sampling strategies: first, the sampling needs to generate a statistically representative sample about sites in a given region; secondly, the procedure needs to be organised in terms of time and resources of the project (Gallant 1986: 405; Read 1986: 478). However, it has been observed that sampling designs produce problems especially as different designs work best in particular regions. The spatial distribution of sites and material culture is likely to be different within diverse regions, making it difficult to determine which sampling strategy will yield better results without knowing the spatial patterning beforehand. Therefore, a sampling strategy must be designed that allows a good degree of

statistical significance from a smaller region but also satisfies other archaeological requirements such as being efficient in use of time and resources (Gallant 1986; Read 1986).

Traditionally, sampling is said to be predicated on a choice between random and non-random procedures (Read 1986: 481; Tartaron 2003: 30). In the former (also called probabilistic sampling), a sample is chosen which allows all sites an equal probability of being selected. The latter allows sampling in a region where sites may be known or where the evidence is available beforehand. This choice is further complicated by the need to choose a sampling procedure for both the regional and the site level. At the regional level, pure random sampling can be counterproductive if not supported by any other strategy. Utilising both random and non-random strategies together, or with an indigenous strategy can be useful, as has been proven by the Tehran Plain survey in Iran (Coningham et al. 2006), the Anuradhapura Hinterland project in Sri Lanka (Coningham et al. 2007), and the Nikopolis project in Greece (Tartaron 2003).

The efficiency of simple random sampling (sampling done completely in a random way), stratified sampling (sampling done by dividing an area into natural zones and choosing samples from each zone proportionately to its area), systematic sampling (where sampling is done evenly throughout the sampling universe), and stratified systematic unaligned design (a combination of simple random and systematic sampling), have been tested by Plog (1976: 136-158) in the valley of Mexico. In a comparative study, Plog tried to assess the efficiency of each design at predicting the total number of sites from a 10% sample. He concluded that systematic and stratified

systematic samplings are slightly more efficient than the simple stratified random sampling design, but there are no significant differences between the complex and simplest designs. However, Redman (1987: 251) proposes that in circumstances such as surveying unknown areas, the simplest sampling design would be the most practical one.

Case study one

At Anuradhapura in Sri Lanka, a five-year survey project was launched with the main aim of learning about settlements in the plains and the relationship between the city of Anuradhapura and its surrounding non-urban communities of which little was known beforehand (Coningham et al. 2007: 703). In line with this aim two parallel methodologies were formulated within a 50 km sample universe; a simple probabilistic survey, and a non-probabilistic survey strategy along the Malwatu Oya (river) (Coningham et al. 2007). The first method was based on random survey in order to generate statistical information about sites within survey zone, while a second strategy involved a non-random survey of banks of the Malwatu Oya. This research successfully showed the importance of applying both random and non-random sampling strategies in order to achieve research aims. As I was also planning to generate statistically valid information about sites in the little-known region of Baramulla, and also to know whether the deposit of loess in *karewa* formations had masked archaeological sites, undertaking a similar two pronged strategy was deemed suitable.

Case study two

In the Chevelon Archaeological Research Project (CARP) carried out in northern Arizona, the sampling goal of the project was to obtain a substantial, representative sample of sites from the Chevelon drainage area as little was known about the location, form and distribution of sites in the area prior to survey (Read 1986). The aims were achieved by selecting a systematic probabilistic strategy in locating sites, and stratifying the region into ecological zones so as to obtain samples from each zone in a systematic way. The reason for stratifying the region was because the population of sites in this project was unknown beforehand, and this approach ensured that little time and resources would be wasted. Given the similarities with the Baramulla District survey, where the total number and type of sites was unknown, this was considered an appropriate starting point.

Summary

In summary, it was observed from studying the sampling strategies used in the above case studies, probabilistic sampling methods are a means to obtain archaeological information about a region by collecting a meaningful sample. The examples discussed above also demonstrated the importance of carrying out probabilistic sampling in association with a non-probabilistic strategy so that an overall understanding of the archaeological material culture becomes known, and in case one strategy fails, another is likely to pick up the information. Non-probabilistic strategy is also a means to collect a sample of sites or material linked to specific sites which can help to ascertain whether there are any gaps (perceived or actual) in the

archaeological record. In the Mediterranean surveys (Rupp 2004; Tartaron 2003; Thompson 2004) the feasibility of a probabilistic strategy and its strength in a regional landscape has been successfully tested with good results. Probabilistic or random sampling appears to be a useful strategy for the Baramulla District survey because it is a very large district and surveying it in two seasons requires a useful strategy. Furthermore, it appears from the above case studies that in a region where there is limited archaeological information, simple or random sampling is a good place to start, and this approach is often supported by a non-random or an indigenous strategy (Coningham et al. 2004; Redman 1987; Read 1979).

4.3 Transect surveying

Field survey is carried out by choosing suitable sampling units, which may be called transects, quadrats, tracts and so forth. These can be of varying dimensions in length and width and have their own advantages or disadvantages (Redman 1987: 251-252). Transects are widely implemented and have been successful in many regional surveys (Coningham et al. 2006; Rupp 2004; Tartaron 2003; Thompson 2004). Wide, long transects have advantages over narrow and shorter ones, as the former tend to reveal clustering as well as patterning of material culture over a large area, whereas, narrow and short transects sometimes increases problems about the site distribution data (Schiffer et al. 1978). The issues can be rectified by adjusting the transect size before undertaking a survey and also noting which size is likely to give better results.

Case study one

The benefits of the systematic transect survey was demonstrated by archaeologists in the Tehran Plains Project between 2003 to 2006, determining the spatial occupation patterns across the Tehran Plain (Coningham et al. 2006). Two transects were walked in 2003 identifying 54 sites, the first being 15 km long and 100 m wide, walked by five archaeologists spaced 15 m apart through a rocky outcrop, cultivated fields and then out to the desert. The second transect 7 km long was walked through rocky ridges with peaks of 1113 masl high and all the way through to the desert. During the 2006 survey, 21 transects were walked, each 5 km long, 100 m wide and 15 m abreast, identifying a total of 90 sites (Coningham et al. 2006: 55). The Tehran Plain transect survey was successful in locating a good number of sites because it allowed the team to walk and survey among all the geographic zones such as mountain foothills, flat agricultural plain, desert margins and rocky outcrops.

Case study two

At Anuradhapura in Sri Lanka within the 50 km² sample universe, a randomly generated series of 24 transects of 20 km length were surveyed to learn about urban and non-urban settlements. Every transect was covered by two groups of archaeologists walking parallel, 50 m abreast and recording topography, vegetation, land use, and cultural features. Transect surveying allowed them to record a total of 694 sites (Coningham et al. 2007). Parallel to this a non-probabilistic survey by walking along the river banks and recording sites was also taken at Anuradhapura.

Summary

The above case studies demonstrate that transect survey is a simple and effective strategy for obtaining a meaningful sample that allows archaeologists to effectively identify sites in a predefined area of various geographic and vegetation zones. It therefore seemed feasible to carry out transect survey at Baramulla; as it is one of the largest districts in Kashmir implementing a strategy based on predefined transects would allow collection of useful data within the limited timeframe of two seasons of fieldwork. Furthermore, Baramulla District has a varied topographic and vegetation cover including forests, mountains, flat lands, agricultural lands, and *karewa* formations. Transect survey was therefore, deemed suitable because it could be walked by any number of people, hence management of time and resources remained in check. Also, the success of transects was noted not only at Tehran or Anuradhapura but also at Dir in Pakistan where 294 sites were recorded from 21 transects of 5 km long (Ali et al. 2009: 35). Besides transect surveying has also proven its worth in the Mediterranean region such as in the Tarragona survey (Carrete et al. 1995) and the Sydney Cyprus survey carried out on the eastern Mediterranean island of Cyprus (Given and Knapp: 2003).

4.4 Site and off-site

4.4.1 Site

In field survey, it is very important to develop a reliable definition of what is, and what is not, a 'site'. A 'site' has been defined in many ways by archaeologists in different regions of the world, for example as a scatter or cluster of artefacts, or Tells (large

mounds) in South Asia or the Near East. Each survey develops its own definition for the recognition and treatment of surface concentrations of material culture. Following Cherry (1983) and Schiffer et al. (1978) the site is often perceived as a surface record of past cultural activities on a landscape, that is dense in some places and less dense at other. Given et al. (1999: 24) in the Sydney Cyprus Project defined 'site' as a place of human activity on a landscape and sometimes redistributed secondarily by natural or human action. Thus, any interpretable material culture is a 'site'. This definition of 'site' is very vague as it would be wrong to call everything a 'site' or conversely an artefact a 'site', and furthermore this definition leaves little space to distinguish 'site' from an 'off-site'. Tartaron (2003: 37) believes that the traditional concept of 'site' such as a dense clustering of artefacts with definable spatial limits is too limited a term for 'site'.

Gallant (1986: 409) defined a site as only a high density scatter in the background of a continuous artefact spread over a landscape. However, this definition raises questions about low-density scatters and the definition of 'off-site'. Doelle (1977: 202) set parameters for a site: that it should have definable limits; should contain evidence of more than a single occurrence of human activity; and if the first two were not apparent then it should have an artefact density of more than five artefacts per m². This definition of site is better for working in the field, but it also leaves little room for defining an *in situ* artefact that is individually present and a product of human activity such as a Palaeolithic engraving or a tool.

In numerous surveys, sites have been defined on the basis of intensity factors, where artefacts occurring in clusters are deemed sites (Schiffer et al. 1978: 14). For

example, in the Tehran Plain survey in Iran, sites were defined as a structure, feature, lithic find spot, or ceramic scatters of five sherds or more per m² (Coningham et al. 2004); and in the Dir region of Pakistan, a similar definition was used (Ali et al. 2009). However, for the Nikopolis Project, in consideration of this issue of intensity, a site is any location of past human activity characterised by high-density scatter or represented by any identifiable evidence of cultural activity (Tartaron 2003). Therefore, an artefact cluster, a building or the entirety of Nikopolis can be described as a 'site'.

4.4.2 Off-site

For archaeological surveys, whether they are random, systematic, haphazard or intuitive, their primary interest is generally a site. In fact, people in the past did not live, eat, work or die within the confines of a site; archaeological artefacts are distributed across the landscape sometimes by human activity or sometimes by nature, showing intensity at the particular locations which are usually designated as 'sites'. This being the case, we need to consider the differentiation between 'site' and 'off-site' and it is often off-site data which is an important element in site definition and site size and site function necessary to fully understand patterning. Bintliff and Snodgrass (1988: 508) suggest that off-site material provides an important insight into agricultural practices of the various periods of human history. Off-site data informs about small activities less intensively practiced around the vicinity of what we call 'sites'. Off-site material allows an understanding of what is happening beyond the known boundaries of a site. In general its intensity provides an index of the intensity

with which various activities such as farming or manuring might have occurred (Fentress 2000). Bintliff (1992: 116) makes an important point by saying that distribution of off-site material (such as artefact distributions that are less dense or too discontinuous or poorly bounded) sometimes helps to determine less known periods on a landscape. For instance the off-site information compiled during the Keos survey in the Cyclades in Greece, showed off-site artefact distribution is a derivative of cultural information and to be considered as just 'background noise' (Cherry et al. 1991: 49-50).

Based on how sites have been defined in different regions such as the Mediterranean and South Asia, I have arrived at my own definition of 'site' for the present study; this will be explained further in the section in this chapter where I have presented my own survey design for Baramulla.

4.5 Obtrusiveness, visibility, and post-depositional processes

There are many factors that affect the discovery of sites and artefacts in the field, some of which are beyond the control of surveyors, including obtrusiveness and visibility. Obtrusiveness is the degree of possibility of detecting archaeological material that sometimes appears differently on a landscape and therefore detecting it requires different techniques (Schiffer et al. 1978: 6). Visibility refers to things such as overlying residue, shrubs, sediments, and so forth which may mask artefacts.

The effect of visibility on site recovery was well documented in the Cecina Valley project (Ammerman 2004). Twenty five survey units each 1 km² were chosen to

observe the effects of the visibility on identification of sites in each unit. The results showed that identification of sites depends on good visibility on the ground (Ammerman 2004: 181). For instance, it was observed that the rate of site recovery per sq km was better when there was favourable geomorphology and without any groundcover (Ammerman 2004). This means that we cannot make assumptions about the visibility in an archaeological survey as much depends upon the season of the survey, light conditions and so forth.

Post-depositional processes and their impact on archaeological sites and artefacts are a critical issue in any field survey. Broadly, post-depositional processes obscure, transform or destroy the information in the archaeological record, and the ways in which this occurs is highly variable. Foley (1981) discussed many aspects of this post-depositional process on artefacts and sites.

In the Tehran Plain survey (Coningham et al. 2006: 55), post-depositional processes resulted in the covering of archaeological sites by many metres of soil and the surveyors addressed this issue by developing *qanat* (irrigation canals with access shafts) survey. The surveyors were able to determine that in many parts of the area up to 20 m of deposit had accumulated during the Holocene period, and in order to find out whether this deposit was obscuring the Neolithic sites, otherwise absent in the archaeological record, they introduced *qanat* survey methods. They had noted previously that the Neolithic artefacts had been found at points where digging through deposits for *qanat* maintenance had occurred (Coningham et al. 2004). This indigenous strategy worked in this particular region and may not be appropriate or useful in others, but the post-depositional issue of obscuring sites was solved.

The key post-depositional process that took place in my study region occurred when Kashmir emerged following extensive water drainage due to certain geological events (see chapter 2). The appearance of *karewas* and the accumulation of loess soils on them over thousands of years has possibly obscured important sites and associated material culture from the upper Palaeolithic, the Mesolithic and sometimes the Neolithic. This phenomenon has had a great masking effect on sites, and walking along the artificial *karewa* sections alone during my MPhil work resulted in the discovery of numerous prehistoric and early historic sites (Yattoo 2005). Therefore, it is important to incorporate a reliable strategy that can overcome this masking effect otherwise they can have profound results on survey results.

4.6 Methods used for surveys in Kashmir in the past

Archaeological works in Kashmir to date lacked key survey and sampling techniques, mainly because surveys were not deemed necessary to locate sites, and if carried out were always sporadic and site centric. In all the works carried out from the time of Cunningham (1848) till the present, attempts were always directed to the location of sites of interest such as structures of faith, or any major ancient site, and cataloguing and describing them and their architectural material culture. Based on these works a biased understanding of past human societies is known in Baramulla District and in Kashmir as a whole. However, there are a few works that are worthy of mention, where the practitioners experimented with landscape surveys in Kashmir even though these were marred by methodological inconsistencies.

4.6.1 Methods used by De Terra and Paterson

H. De Terra and T. T. Paterson (2003) intensively surveyed the lower and upper *karewas* in Kashmir (see chapter 2, section 2.2 for details about this survey). They randomly explored these *karewa* deposits to record glacial and interglacial periods as well as looking for evidence for human activity (De Terra 1942: 483-487). During their random survey, they located the Neolithic material culture at one known site (Burzahom) and also claimed to have located similar material culture at four other places on the *karewas* in the southern side of Kashmir (De Terra 1942: 497). Although their survey was random, it nevertheless highlighted for the first time, the importance of surveying the *karewas*.

4.6.2 Methods by Kashmir Palaeoclimatic Project

The Kashmir Palaeoclimatic Project (KPCP), initiated by Professor D.P. Agrawal in 1979-80 (Agrawal 1992) (see chapter 3 for details) did not have any specific methodology with which to carry out archaeological exploration in Kashmir. The methodology involved randomly visiting different areas such as *karewa* surfaces, the valley floor and other physiographic situations, to identify and collect the material culture of past human societies in Kashmir. Although sites were identified and recorded, no details about habitation or site types, or material culture was mentioned, neither was a working definition of the 'site' given. What little information is provided was about the spread of the Neolithic material culture. This study basically identified the location of presumed 'sites' in various parts of Kashmir and catalogued minimal location and chronological information.

4.6.3 The survey methods in Bandipor and Sopore (MPhil project)

My MPhil archaeological survey carried out in the Sopore and Bandipor tehsils of Baramulla District, was purely a regional archaeological survey carried out in Kashmir (Yattoo 2005)(see chapter 3, section 3.2.3). In this area specific study, all the villages of the two *tehsils* falling along the Wular Lake were explored village by village and by word of mouth to locate sites. The methodology applied was basic, and the survey was conducted from the north of the Wular Lake towards the south of Bandipor *tehsil*, visiting every village in an anticlockwise direction. All the villages were explored, lake shores, canals, dried up wells, springs and *karewas* were intensively studied. Three crew members scanned the landscape sometimes in straight lines, and sometimes in a zig-zag fashion, according to terrain and the awareness of sites. Only diagnostic wares were bagged, and all the artefacts were collected and later analysed. I only reported sites with clear enough and high density material culture and largely omitted many sites as I did not have a definition for site and passed off any off-site or low density scatters as unimportant. Although without a good methodological base, this survey revealed for the first time that the study area was inhabited from the Upper Palaeolithic down to the medieval period. This un-systematic work not only helped in constructing the basic chronological framework for the region but also allowed me to make preliminary interpretations about the nature of the site types and landscape features.

4.7 Designing a regional archaeological survey strategy for Baramulla

In this section, I will explain the various survey methodologies adopted by me for this research and explain the link between what I have done with these methodologies in the field (i.e. gathering data), and how this data was used to begin to answer my research questions. I utilised a range of survey methodologies in my first season of field work as these survey practices were entirely new to Kashmir and I needed to establish which methodologies were effective and which were not, before repeating them in subsequent field seasons. However, based on successful results of the first field season, a similar methodological approach was carried out for a second consecutive field work period with minimal changes.

Before selecting survey techniques and sampling strategies for the present research, certain general and environmental constraints which are specific to the region, were considered. The most salient of these constraints were: the enormity of the study area (4588 sq kms); a lack of previous systematic exploration; characteristics of the local terrain and issues of vegetation cover; limits on time and available resources; and the prevailing political situation in the area. However, my understanding was that decisions in survey design and their execution are very much about compromise among competing priorities, and balancing opportunities against constraints.

Therefore, it was a challenge to devise a scheme by which a meaningful sample could be obtained in the space of two field seasons. Moreover, before carrying out field-work it was decided beforehand when, and in what season, the survey would be conducted so that the best results would be achieved, minimising obtrusiveness or

vegetation cover. The present study area has vast paddy fields and horticultural farms alongside apple orchards. As such it would have been rather difficult to investigate the area from late spring or early summer till autumn, when the agricultural activities are intense. Therefore, I chose to investigate the area during the early winter or early spring months, when the horticulture and paddy fields were not in use. The study area was free to access and no permissions were needed to carry out systematic survey, except that the region is politically volatile as it is a disputed region, and claimed by both India and Pakistan although considered an independent state by its people.

My initial response, therefore, was to develop a multistage survey and sampling strategy in which each phase of field work would inform the direction of subsequent phases; it was in this belief that I hoped the total spectrum of approaches I used would provide a good initial understanding of the region's archaeological past. I tried to consider, among other things, the degree to which extensive surveying can serve the overall aims of the proposed work. However, the climate and topography presented some unusual challenges in some areas of the region. For instance, in *tehsil* Baramulla and Buniyar, in the western region of the district, the terrain was on the whole more rugged and mountainous than other *tehsils* of the district, although such topography was by no means lacking in the north east of Sopore and south west of Tangmarg and Kreeri in this district (see figure 4.1 showing this topography). Furthermore, the land is less developed agriculturally in Baramulla and Buniyar *tehsils* than in the south east of the district, so there was less open terrain. A significant consequence of these conditions was that surveying in large, contiguous blocks was difficult, and at times impossible.

4.7.1 Systematic extensive transect strategy

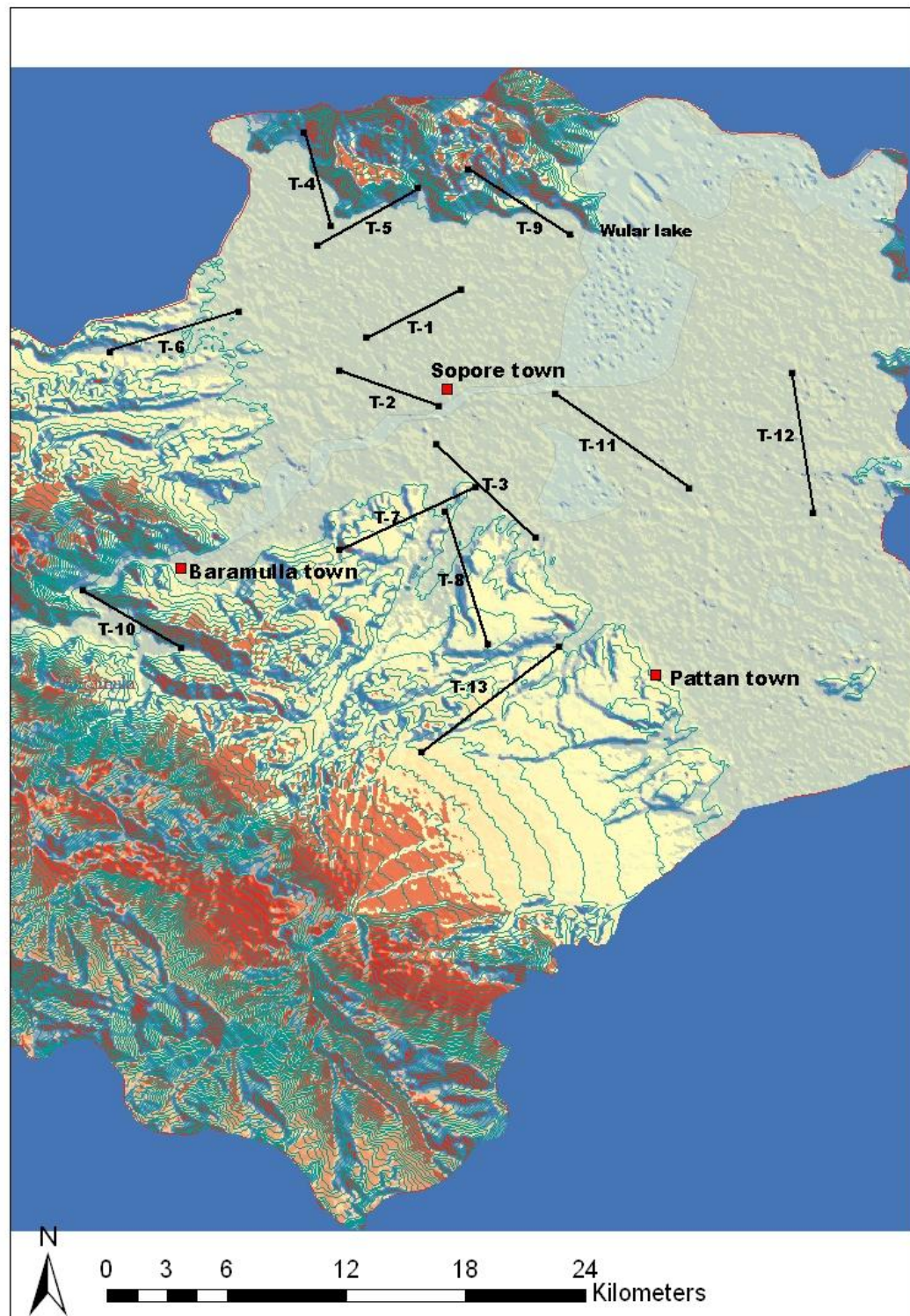


Figure 4.1 Extensive transects placed in two seasons of field-work in Baramulla District.

In the first season of field work, 10 extensive transects were placed (see figure 4.1) across the whole of the study area evenly covering all the topographic and physiographic situations. Extensive transects of 9 km long were walked, covering 6 kms per day. The width of each transect was 150 to 200 m with 5-7 surveyors spaced at 15-20 m intervals, walking abreast. I was not rigid with this methodology and remained flexible in decreasing or increasing the transect length or width - after all this was first time such a methodology was being tested in the area. A total of 12 transects were initially planned to be systematically surveyed in which only 10 were achieved in the first field season (due to political unrest in the region). However, in the second field season three more transects were placed making a total of 13 transects. In this way, a sample from every physiographic zone of the district was collected, and this satisfied my primary aim of collecting a sample from the whole of Baramulla District in order to test questions about human settlement and activity over time.

4.7.2 Systematic intensive transect strategy

The intensive transect survey strategy was intended to allow exploration of areas of specific interest, such as re-visiting areas with an unusually high density of sites discovered in the first season of field work, and the area surveyed during my MPhil fieldwork. Therefore, in my second season I planned a systematic intensive survey of four randomly selected transects (see figure 4.2). The transects were 4 km long and 50-60 m wide with 5-7 people at 10 m intervals walking abreast. The team walked 3 kms per day covering all the topographic features encountered. Three transects were placed at the previously explored region Bumai, where the concentration of sites was

unusually high compared to surrounding regions, and one transect near slag sites recorded in the first season of field work. By doing this, I was aiming to comprehensively collect discreet details of the material culture unknown in the region, so that the chronological gaps could begin to be addressed, particularly Iron Age material culture, which I thought I might have missed during my MPhil survey due to lack of sound methodology and again in my first field season when I placed extensive transects.

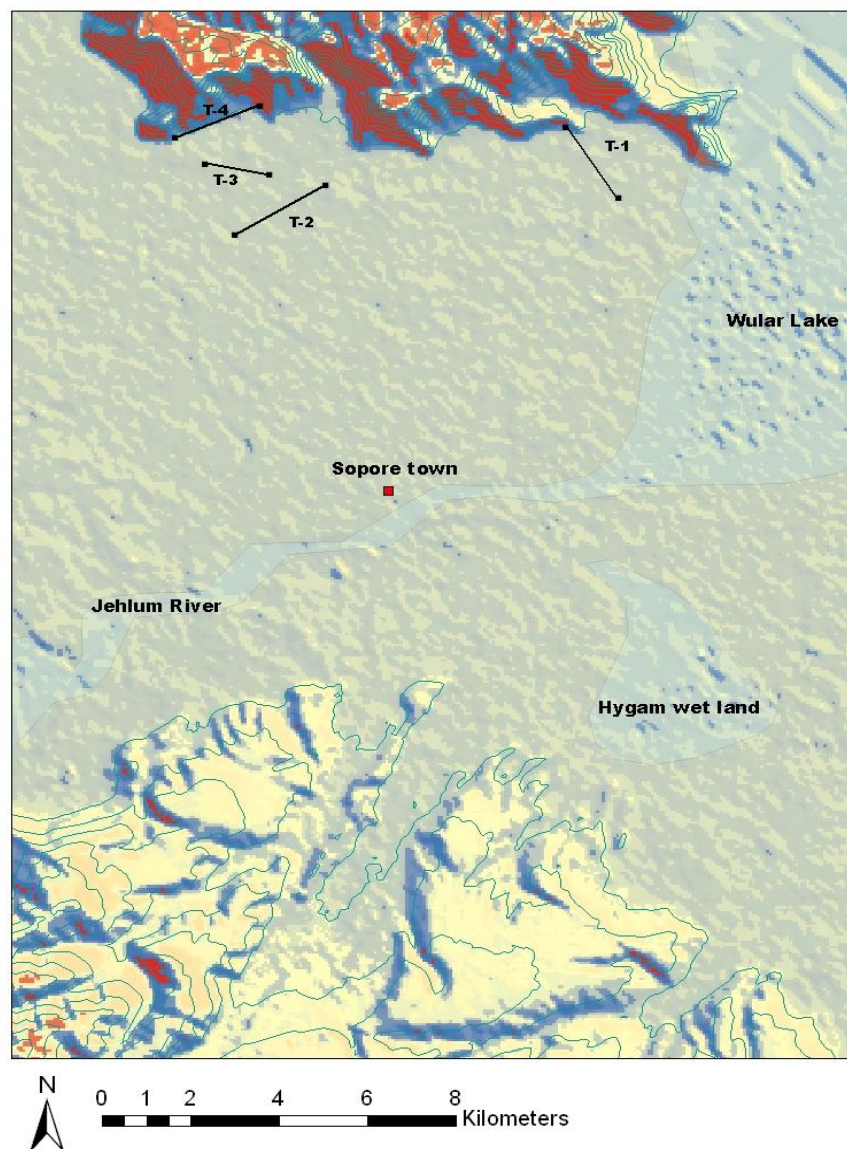


Figure 4.2 Intensive transects placed in Baramulla District.

4.7.3 Karewa surveying



Figure 4.3 *Karewa* with an artificial exposed section, these were walked randomly to record material culture (Photo: Mumtaz Yattoo 2009).

In previous field surveys that have been carried out in Kashmir, such as the survey by De Terra and Paterson, the Kashmir Palaeoclimate project and my own MPhil survey, *karewas* have remained central to these surveys, and most of the time, the Neolithic material culture has been reported embedded in or on them. Therefore, a non-random survey of *karewa* formations was incorporated to try to locate the material culture of not only the Neolithic but the Palaeolithic and other periods as well, on this physiographic feature. For this, I surveyed both natural and artificial *karewa* sections on and off-transect to look for any material culture, especially of prehistoric periods as

they tend to get masked by *karewas*. The *karewas* have vast exposed sections and their soil is preferred for quarrying by modern people for laying roads and agricultural purposes, therefore, at many places good artificial sections are available for probing.

4.7.4 Summary of field work strategy

The problem of deciding on a survey strategy is particularly acute in the case of large, poorly known regions like Baramulla District. The response formulated was to use integrated, extensive and intensive survey methods supported by an indigenous *karewa* survey as described above. This approach was chosen in recognition of the need for basic information raised in the research question (chapter 1), to reveal overall characteristics of the region: the type of sites, their distribution, chronology, function, continuity and change, interactions and also determining the presence or absence of a chronological gap (e.g. Iron Age material culture) by initiating an extensive, intensive and *karewa* survey strategies. Extensive surveys allowed the acquisition of information about the overall distribution of cultural remains in the diverse landscape of the eight *tehsils* of the district, whereas intensive surveys were intentionally chosen to furnish high-resolution data within previously re-visited or surveyed areas. Systematic probabilistic sampling strategy was thus carried out by placing 13 extensive and 4 intensive transects in Baramulla.

Non-probabilistic surveys were carried out to support and strengthen this survey by carrying out an indigenous *karewa* survey in which *karewa* tops and sections were walked and sampled. The benefits of doing such a survey was observed from previous case studies like the *qanat* survey in the Tehran Plain (Coningham et al. 2006)

and the Hakra River bed survey in Bahawalpur in Pakistan (Mughal 1997) and from my own MPhil survey in Sopore and Bandipor *tehsils*.

An important issue

One important issue in settlement surveys is that sites could be virtually aceramic in nature, or with limited access to pottery, or there might be poor survival of pottery that might result in gaps in settlement patterning. This issue was explained and explored by Carreté et al. (1995) in their survey in Tarragona, Spain when analyses of settlement data indicated that there was virtually no pottery identified pre-dating the Iberian period (5th century BC), or post-dating the Roman Period (Carreté et al. 1995: 241). It was concluded that the excavation of a range of sites was the only way to test this apparent gap. Keeping in mind the identification of a number of slag and tuyere sites with no other dating information, and the apparent absence of Iron Age pottery in the present project, there is further work to be done in exploring undated or 'missing' sites and periods. However, it was beyond the scope of this study to undertake any excavation at this time, and to do so would form a separate project in future if the need arises.

4.8 Site definition

There is no universally agreed definition of a site and in various regional surveys, this issue has been addressed by taking local factors into consideration, posing specific research questions, and examining the distribution of material culture in those regions.

Therefore, in this work I will need a workable definition and differentiate site from off-site as well. In the discussion above sites have been defined as those areas with a structure, a feature, or accumulation of artefacts by human activity demonstrating some levels of density and continuity in relation to the overall pattern of artefact distribution in a survey area (Gallant 1986; Given et al. 1999; Tartaron 2003). Last but not least, a single structure or feature, a lithic find spot, five pottery sherds, or a cluster of more than five artefacts per m² have been considered as a site (Ali et al. 2009; Cherry 1983; Coningham et al. 2006).

Based on these definitions and my previous experience of the study area, I arrived at my own definition of 'site' for Baramulla. A scatter showing human activity with some definable limits/borders, more than five sherds per m², and any isolated feature or standing structure would be marked as a site. As for Palaeolithic periods a cluster of artefacts or artefacts in association with a feature (rock engraving or caves) were marked as site. For unknown periods such as the Iron Age period for which material culture is apparently absent in Baramulla District to date, a cluster of ceramics or a cluster of archaeometallurgical evidence (slag or tuyere) were considered to be a site. Multi period sites were defined on the basis of their material culture, ceramic or tool typologies, or the stratigraphy observed.

4.9 Analytical methodologies

In the course of field-work, I anticipated locating large number of pottery scatters throughout the landscape, as this was what happened during my MPhil work in the region. I also expected to encounter lithic scatters and structural remains, as well as

slag deposits. Keeping this under consideration, I planned to collect a sample of all the pottery sherds in a square meter of a site wherever possible or in circles with known measured radii (Mee and Forbes 1997: 35-37). This strategy was repeated more than once at large sites to determine the density of artefacts besides getting a cross section of the different types of pottery and artefactual residue from the site. I also planned to collect diagnostic pot sherds (such as pot bases, rim sherds, lids and decorated or painted sherds, of all the pottery types encountered) to determine relative chronological periods. The material culture thus collected was studied in India. Pottery was analysed and compared with existing published typologies from known and dated sites in Kashmir (discussed below in section two). A preliminary dataset of known potteries of Kashmir was established while working for my MPhil research (Yattoo 2005), by visiting sites such as Burzahom, Semthan, Parihaspora, Kanispora, and Tapar; that was also incorporated in the present analysis. All this information was crucial to the core issues of this research to establish site types, site patterning, chronology and building new chronologies for Baramulla District.

A key issue in determining site/settlement patterning was obtaining information about chronologies, site function and inter-site relationships. I relied solely on field walking in recording and collecting information, and mapped the sites using a handheld GPS and analysed the information on special software packages such as Map source, Google earth and ArcGis to show this information visually. I took detailed photographs of the sites and the material culture, and I also made illustrations of diagnostic finds.

Section 2: Analysis of finds

4.10 Introduction

This section briefly reviews and assesses some of the analytical methods used to explore the material culture obtained in the two field seasons in Baramulla, so that information about the site types, settlement patterning, chronology and so forth, of the region can be established. The main objective here is to present a methodological framework by which the archaeological material collected in the field could be analysed and interpreted. Taking help from various settlement surveys carried out in different parts of the world, and learning about their analytical methods, a suitable analytical methodology was formulated for Baramulla District.

A total of 72 archaeological sites were located by collecting a sample of material culture from each site such as pottery, lithics, terracotta, and slag and tuyere so that sites could be dated through comparative analysis with dated sites either excavated or explored in Kashmir. To follow this procedure, artefacts were cleaned and classified into groups, and their information was recorded. Besides information about the collected artefacts ceramics, lithics, and terracotta, other information about material culture was also recorded at each site, such as slag and structural ruins. The pottery and lithics were collected to examine and scale their distribution at each site, and these categories were also central in building chronologies and drawing similarities across the sites in the survey area. The other material culture proved useful as a means of providing information for overall mapping, and for identification

of potential activities at each site. Therefore, a range of methods were used to study the material culture which is further described below.

4.11 Pottery

Pottery forms the most abundant archaeological evidence for the majority of sites in different archaeological periods and Baramulla District is no exception. Like many other surveys, collecting and analysing pottery has formed the backbone of the regional survey and the goal has been to identify various periods and frame the chronology (Knapp and Meyer 2003: 29). Other goals include understanding possible site functions and interactions by studying them within or between the sites in a region (Meyer 2003: 14; Millett 2000: 54). However, to achieve such goals we need to decide how and in what quantities to collect the sample so that relevant information can be obtained, and this is somewhat governed by the research questions being asked, as well the time and resources available.

Although the research questions for this study were challenging and interesting, time and resources were restricted. Therefore, such restrictions did not allow for the collection of all the pottery from the sites; and the collection of only diagnostic sherds would have provided only limited information about the representativeness of pottery on the ground (Mattingly 2000: 8; Meyer and Gregory 2003: 48). Therefore, a middle path was taken by collecting a reasonable amount of pottery sherds, that differed from each other in terms of fabric (colour, texture, inclusions) surface treatment and ornamentation (slips, incisions, perforations, decorative designs), body part of a vessel (rim, neck, shoulder, handle, body or base)

and so forth. Pottery was a fundamental element in this study, as it was collected from 93 % of the sites i.e., 67 out of 72 sites, and regarding its analysis, I focussed on two main issues: typology and classification, and chronology. Carreté et al. (1995: 63), Knapp and Meyer (2003: 29), Mackensen (2009: 17), and Millett (2000: 53-54) inform that when pottery is analysed in relation to these issues, it permits a better understanding of the function of a site, its period of occupation, and interactions within and between sites. Importantly, the quality of dating the sites in the present research, relied on the relative dating of the pottery with previously excavated or explored sites in Kashmir, plus the extent of knowledge in the form of previous datasets of potteries created while carrying out my MPhil research.

4.11.1 Typology and classification

This is an approach based on the recognition and division of pottery on the basis of perceived patterns of similarities and differences. It involves a process of sorting pottery sherds or vessels into groups, so that members of each group more closely resemble each other than they do members of other groups (Millett 2000: 54-55; Sinopoli 1991: 49). In Kashmir, published typological details about pottery are somewhat limited, but they are however available from a few Neolithic, early and later historic sites such as Burzahom, Gufkral, Kanispora, Semthan, Martand, and Avantipora (Agrawal 1998; Bandey 2009; Ghosh 1996; 1964; 1965; Mani 2000; Mitra 1983b; 1984; Rao 1986; Shali 1993; Sharma; 2000). For the present research, I again visited these sites as well as several other later historic sites such as Tapar, Fathgarh, and Pattan to observe the typologies occurring at these sites and compare them with the published data. Therefore, the published typological details from these sites, my unpublished

MPhil pottery dataset, and the new typological details obtained by visiting sites and their archives within the present research, provided a firm base for creating a new typological sequence of pottery for Baramulla District. This strategy helped to explore and identify various chronological periods and to build a record of pottery by classifying sherds and being able to look for similarities and differences in ceramics across the whole of Baramulla District.

Alongside typology, the classification of pottery provided an elaborate analytical tool for naming and grouping potteries where local typologies were absent. Classification was more explicit, as hierarchical methods in sorting of pottery into broad groups, such as coarse ware, fine ware and burnished ware are already generally understood within the Neolithic group. Classification mainly relied on factors such as raw materials, clays and tempers used in a vessel and decorations (Blakely and Bennett 1989: 6-7). I therefore classified the pottery, or placed it into more or less discrete categories, on the basis of similarities and differences in physical and material appearances.

4.11.2 Chronology

After typology and classification, the next important issue was to construct a chronology or chronologies. Before doing this, I analysed how pottery has already been dated in Kashmir. This was done by studying the published pottery information and chronologies and revisiting my MPhil pottery datasets. Pottery types perceived as diagnostic or potentially diagnostic (i.e., rims, handles, bases, or sherds with incised, impressed, painted, slipped or graffiti decoration (Cherry et al. 1991: 30; Wilkinson and

Tucker 1995: 17)) and with known dates for all periods were studied. On similar lines, the current pottery assemblage and diagnostic sherds were cross-referenced to determine which of the various periods they represented in the Baramulla region. The number of diagnostics at each site was recorded, and some collected to support relative dating of sites. Wilkinson and Tucker (1995: 17), reflecting on the importance of diagnostic pottery for building chronologies, state that diagnostic sherds at a site can tell us about the 'minor occupation' (when 3-5 diagnostic sherds are found) and the 'significant occupation' (when 6 or more diagnostic sherds are found). Therefore, pottery study not only allowed me to build a new chronology for the Baramulla District but also allowed me to begin to explore issues of continuity and discontinuity in the various chronological periods.

Published pottery from sites such as Burzahom, Gufkral, Kanispora and Semthan, which cover a chronological span from c. 3149 BC to 5th century AD are available, and are also supported by a few radiometric dates (Ghosh 1973; Possehl 1989; Saar 1992; Sharma; 2000). However, pottery from sites dating to 6th century to 10th century (the later historic period) are not published. However, pottery from sites of this period, have been defined by various archaeologists, and were defined and drawn by me during my MPhil project, and they have also been defined and drawn in the present study. This means that there is now a considerable knowledge of the pottery of this period which has been used in this work to begin to date sites, and this is also supported by other finds such as characteristic structures or stone artefacts. The pottery of later historic period can be found from the sites of Parihaspora, Tapar, and Martand (6th to 7th century AD), Avantipora and Fathgarh (8th to 10th century AD) (Agrawal 1998; Shali 1993).

The various approaches to pottery analysis presented above are not intended as a catalogue of all possible approaches for the study of pottery nor to represent the only ways that pottery could be studied in the present research. Rather, I aimed to accomplish two things with this. Firstly, my intention was to obtain a general overview of what pottery types were in use at the sites in the study region and what periods of occupation they represented. Secondly, I aimed to build a chronological framework of pottery for Baramulla, after comparing them with existing relative and absolute chronologies of Kashmir to arrive at a new chronology for the Baramulla District.

4.12 Lithic analysis

The dating of the lithic artefact material for Baramulla, particularly Palaeolithic tools was somewhat problematic. The main problems were due to the expensive methods of dating them directly, and also to the lack of attention that the lithics have received in Kashmir in the past. To overcome these shortcomings I analysed lithic material culture by classifying them according to their morphology and I also compared lithics reported from excavated sites in Kashmir with lithics found during survey in Baramulla District on the basis of their typology, possible function, and manufacturing technology to propose a relative date for such finds, and by extension sites or parts of sites.

Once lithic artefacts were analysed on the basis of their morphological features, comparisons were made to understand and perhaps even offer relative dates. Published artefacts that were used in this analysis and comparison process were from the excavated and explored sites with radiometric dates of Burzahom, Gufkral, Kanispora, Manasbal, Sombur and Semthan (Bandey 2009; Ghosh 1996; 1964;

1965; 1969; Mani 2000; Mitra 1984; Nautiyal 1980; Shali 1993; Sharma; 2000). For Palaeolithic tools, the published works of Bandey (2009), Joshi et al. (1974), Pant et al. (1982) and Sankalia (1971) were reviewed. These authors described the Palaeolithic tools from a few sites in Kashmir and provided dates for them. Like pottery classification, construction of a typology of such tools was also carried out to build a relative chronology for lithic finds. Sites for which lithic comparators could not be clearly established with relative dates, primarily depended upon the dates of other associated artefacts such as pottery and structural residue for dating. A similar procedure was followed by the Sydney Cyprus Survey Project (Coleman 2003: 58).

4.13 Analysis of miscellaneous finds

The analysis of slag and tuyere fragments found in the present survey was a problem as lack of scientific analysis such as the chemical composition of the slag prevented either dating or further understanding of the technical processes involved in the slag production. Dragtiyung (see chapter 1 and 8 for details) is the only site from which slag had been reported in Kashmir previously (Agrawal 1998: 74; Shali 2001: 109). Therefore, the presence of slag in association with other cultural material in northern Indian sites were analysed in order to place my findings about slag and tuyeres in context. Therefore, for the present study, the slag has been broadly assigned the same dates as the associated material culture found with them. The Sydney Cyprus Survey Project (Knapp and Meyer 2003: 30) followed the same methodology when they encountered slag and attempted to date smelting activities at various sites in the region.

Similarly, terracotta and structural ruins were classified as far as possible and then connections made with similar published material from various sites in Kashmir or beyond. Artefacts that could not be identified are discussed with photos or drawings provided in this work. The relative dates arrived at for the structural residual finds were supported by the other material culture such as pottery and other diagnostic artefacts found associated with them.

4.14 GIS, Map Source and Google Earth

One very big problem encountered with the present survey area has been the lack of any topographic maps or even basic maps on which material culture or site information can be plotted or displayed. This is due to restrictions on such maps because of the political conflict and state security sensitivities in Kashmir. For survey projects, including the present one, display of information is of course very important for the plotting and identification of individual cultural features, their patterns in landscape, topography and distribution of sites (Urwin 2003: 42-44). Therefore, mapping tools such as Landsat maps (jointly managed by National Aeronautics and Space Administration (NASA) and United States Geological Survey (USGS) which are not under copyright and free to download - <http://glovis.usgs.gov/distribution/>) where taken as base maps were needed. These were then properly geo-referenced, and the GPS readings of sites and transects plotted on them. Furthermore, all the spatial information for the sites and transects were incorporated into Google Earth, GIS, and Map source database. In this way, I was able to display visually the site information in a way which is easy to read and is rich in information. For the present study, one of

the many advantages of using GIS has been to display sites belonging to various periods on the topography on which they were found, and also to show the topography covered by different transects. Due to these mapping tools, and with their functionalities, the sites could be presented in a comprehensible way for Baramulla District.

4.15 Summary

Regional landscape surveys have developed survey methods according to their research aims, local and physical conditions of the survey region, land-use and so on. This outline of different survey methods in different parts of the world shows the most widely used methodologies rely on extensive and intensive surveys. Extensive survey is an effective tool for finding archaeological sites, and allows archaeologists to collect general information about sites; whereas intensive survey is more focussed towards obtaining information about the density of sites, off-site features, resurveying, searching for missing links and so forth.

The majority of surveys are carried out on a probabilistic or non-probabilistic basis (sometimes both) so as to collect a meaningful sample of sites to provide overall information about the region. From the analysis of various sampling strategies and case studies, probabilistic sampling appeared to be more reliable than non-probabilistic in a regional landscape. Transect surveying allows archaeologists to effectively cover an area to collect a credible amount of information, and is considered a good surveying method, yielding encouraging results, and is practised widely. Sites have been defined on the basis of clustering, density, human activity, and definable

limits, with no consensus on a single or universal definition of 'site'. The issues of obtrusiveness, visibility and post-depositional processes have resulted in a tendency to misrepresent material cultural information, and designing a methodology taking into account such issues can minimise their impact on a survey.

Drawing upon such strategies a survey methodology was designed for Baramulla District, which employed both extensive and intensive transect survey, plus a unique, indigenous approach in the form of *karewa* survey. The rationale behind each strategy employed has been discussed and shows that each was used in order to obtain data with which to address the research questions, within constraints of time and other resources. Analytical methodologies considered appropriate to analyse the data in a systematic way, and suitable for the present research were also presented and discussed.

Chapter 5

Analysis of field work: material culture

In Chapter 4, the methodological and analytical approaches carried for the present research within the landscape of Baramulla region were outlined. This chapter, as well as chapter 6, will present the results obtained while implementing these approaches within the project fieldwork. In chapters 5 and 6 I will analyse the data obtained (see appendix 1) in order to begin to formulate interpretations and understandings of material culture, site types, and settlement patterns in Baramulla District. This chapter essentially presents the analysis of the archaeological material culture that relates to the identification of sites as human habitations, their distribution on the landscape of Baramulla District and contextualising this information within Kashmir and neighbouring archaeology. Chapter 6 contains analysis of land use and the patterns of sites in the landscape of Baramulla District debating extent and size, altitude, recourse to water and so forth. This analysis has been carried out according to the period of the site, and is based on the use of the four known chronological periods in this region: (1) the Palaeolithic period (2) the Neolithic period (3) the early historic period and (4) the later historic period.

5.1 Chronology

The chronological periods (as outlined in table 5.1), have been determined by analysing the material culture in the present survey in order to relate the material and sites to corresponding chronological periods in the district. These chronologies were

obtained by linking the material culture of sites of the present survey to known sites in Kashmir. There are only a few sites in Kashmir with radiometric dates, and these are the three Neolithic sites (Burzahom, Gufkral and Kanispora) and one multi-period early historic site (Semthan). For the vast majority of early and later historic period sites, archaeologists have used a combination of pottery, lithics and feature typologies to develop a relative chronology. Therefore, with the help of existing chronologies a new relative chronological table has been developed for Baramulla District and the relative dates from other areas of Kashmir have been applied here (see also Appendix 1, site commentaries noting the Kashmir sites which have been used as a source of relative dating information).

Chronological periods					
	Period	Site	Dates	Reference	Interpretations
Palaeolithic Period	Upper Palaeolithic	Manasbal, Sombur	20,000-5000 BC	Bandey 2009: 45-68; Joshi et al. 1972: 369-379; Sankalia 1974	
Neolithic period	Neolithic period	Burzahom	^{14}C 2380 \pm 120 uncal. BC; 2881-1730 cal. BC	Gosh 1973: 92; Mani 2000: 142; Possehl 1989: 10-48; Saar 1992: 16; Sharma 1982: 40; Sharma 2000: 127-28	
		Gufkral	^{14}C 2150 \pm 125 uncal. BC; 2554-1772 cal. BC		
		Kanispora	^{14}C 2540 \pm 100 uncal. BC; 3149 cal. BC		
Early Historic period	Early Historic period	Semthan	^{14}C 2340 \pm 110 uncal. BC; 310 cal. BC	Lone et al. 1993: 12; Possehl 1989: 10-48; Tripathi 1987: 157; Sharma 1992: 67	Iron was reported at Gufkral 1550-1300 BC (uncal.) and NBPW and iron artefacts were reported at Semthan c. 700 BC.
			^{14}C 115 \pm 135 uncal. AD; 30-420 cal. AD		
		Harwan	Relative 100-500 AD		
Later historic period	Pre-Karkota phase	Martand	Relative 500 to 600 AD	Agrawal 1998: 72-83; Shali 1993: 109-122	
	Karkota phase	Tapar, Parihaspora	Relative 600-855 AD	Agrawal 1998; Shali 1993	
	Utpala phase	Avantipora, Pattan	Relative 855-1003 AD	Agrawal 1998; Shali 1993	

Table 5.1 Presents the extant chronologies as now detected in Baramulla District

In summary, Upper Palaeolithic dates encompass c. 20,000-5000 BC; the Neolithic period c. 3149-1730 cal. BC; the early historic period c. 700 BC-500 AD; and the later historic period c. 600-1000 AD. Iron Age material culture is reported during the early historic period (c. 700 BC) from Kashmir (see chapter 1 and 8).

5.2 Classification of sites

The first task in my analysis process was to classify the sites and establishing how many single and multi-period sites were recorded in each chronological period. To address this, a step by step approach was undertaken beginning with a count of the total number of sites found and then placing them in their respective chronological groups as shown below:

	<i>Palaeolithic</i>	<i>Neolithic</i>	<i>Early historic</i>	<i>Later historic</i>	<i>Unknown</i>
<i>Total sites (n=103)</i>	1	6	39	53	4
<i>Percentage (100)</i>	1	6	38	51	4

Sites recorded n= 72

Total after separation of multi-period sites into four chronological periods plus the unknown sites (slag deposits) n= 103

Table 5.2 Present the number of sites detected in each chronological phase in Baramulla District

Although, the total number of recorded sites is 72, when placed into four chronological periods this adds up to 103 sites including the 4 undated sites. This is on account of 38 being single period sites, representing Palaeolithic, Neolithic, early historic and later historic chronological periods, while 30 sites are multi-period, and 4

are undated. By 'multi-period' sites, I mean sites that have material cultural evidence from more than one chronological period such as the Palaeolithic and the Neolithic, the Neolithic and the early historic, the early historic and the later historic, and includes those sites that have material from one identified chronological period plus material that could not confidently be attributed to a particular chronological period. The undated sites are those that have no chronological markers to associate them with. The breakdown of such sites is given in table 5.3 below:

Number of sites showing single-period material culture	Chronological period	Number of sites showing multi-period material culture
0	Palaeolithic	1
4	Neolithic	2
9	Early Historic	30
25	Later Historic	28
4	Undated	0
42	Total	30

N=72

Table 5.3 Breakdown of archaeological sites reported in this research

In order to establish whether multi-period sites do in fact, form an associated group of more than one cultural period, such sites were thoroughly analysed in terms of their cultural material. These multi-period sites are important as they yield crucial information about discreet contiguous periods at a site and are spatially extensive in the survey area of Baramulla District.

The overall aim of the present analysis is to provide primary evidence about the sites found during survey in order to obtain an overview of site types, and record their chronological periods and physical features. This information will then allow me to develop further understanding of settlement patterns during each chronological period in the district. In the following sections the types of sites that were recorded in the present survey on the regional landscape of Baramulla District will be discussed.

5.3 Types of sites

In chapter 4 I explained the rationale behind defining sites for the present survey. This was done by analysing the most recent works carried out in South Asia and the definition of sites used (for example Ali et al. 2008; Coningham et al. 2006). After in-depth research into the definition of 'site' and considering different arguments by Cherry (1983), Gallant (1986), Given et al. (1999), and Tartaron (2003), I managed to construct a definition of 'site' for the purpose of the present research (see chapter 4). Therefore, on the basis of this definition and the material culture recorded and observed from surveyed areas in Baramulla District, six types of sites were recorded (see table 5.4).

These six types were further analysed to explore the total number of each of these site types falling within each chronological period to arrive at number of site types represented among the four chronological periods. Site types which show more than one category of material culture, and which are grouped in classes 'D' and 'F' are particularly dominated by pottery. Furthermore, site types where structural residue was found associated with pottery or artefacts were also grouped in class 'D' because they were again dominated by pottery. This is shown in table 5.4 below.

Type of site	Class	Palaeolithic	Neolithic	Early historic	Later historic	Undated
Sites with only pottery scatter	A			19	43	
Sites with only lithic scatter	B	1			1	
Sites with only structural residue	C				1	
Sites with pottery, terracotta, stone and miscellaneous artefacts	D		6	15	8	
Sites with slag/tuyere (without pottery and artefacts)	E					4
Sites with slag/tuyere (with pottery and artefacts)	F			5		
	Total	1	6	39	53	4

n = 103

Table 5.4 Present types of sites found in the Baramulla District with the number of sites represented in each chronological period.

As well as these site types, there were also mounded or sites with clearly raised surfaces, which revealed pottery and other material culture. These sites were distinct from the rest of the sites in appearance (although also satisfying the site definition criteria on the basis of the presence of pottery) and were therefore marked as mounded sites.

5.4 Material culture

In the two seasons of field work a range of varied material culture relating to the sites from the four chronological periods was collected, and other artefacts recorded *in situ*. The material culture consisted of pottery, stone artefacts and tools (such as stone bowls, saddle querns, querns, mortar and pestle, mullers, discoidal cores, celts, mace heads, pounders, harvester and sling balls), terracotta artefacts (tiles, terracotta wheels, bobbin, spindle whorl, and miniature human figurines), structural residue, and slag. This material culture was examined on multiple scales. Pottery was studied in

order to arrive at chronological dates, to find comparisons and similarities within sites of same periods but in different regions, size of a site, and so on. Similar procedures were followed in the study of the stone artefacts, terracotta, structural residues and slag. The analysis of the material culture begins with Palaeolithic period as described below.

5.5 Material culture of Palaeolithic period

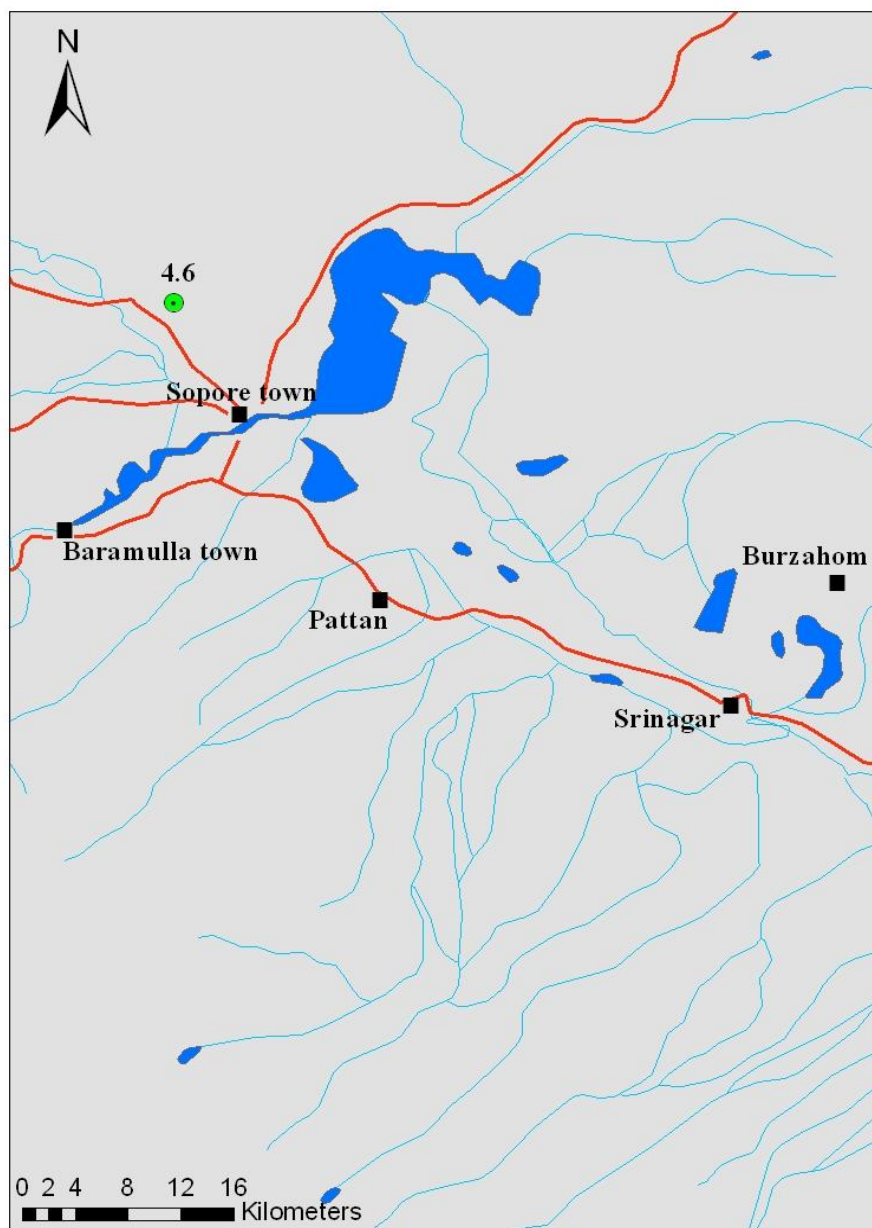


Figure 5.1 The location of the Upper Palaeolithic site recorded in Baramulla District.

A single open air site (4.6) with material culture resembling that is known from the Upper Palaeolithic period yielded several lithic tools. These tools were found towards the north west of the site within 4.5 sq meters (50 sq feet) adjacent to a large Neolithic site on the slope of a mountain (see appendix 1, site commentary for details). The tools collected from this site, when analysed, resembled the Manasbal and Sombur type tools (site reported by Kashmir Palaeoclimate project, see chapter 3) and the tools found earlier along the same mountain range during my MPhil work. The tools collected at site 4.6 comprise a discoidal convex side scraper with a few deep and shallow flaking scars, a uni-facial pebble scraper or core tool and an elongated chopping tool with deep flaking and a broken butt end (figure 5.2). The tools are medium sized, thick and broad, and are of volcanic type of rock called 'trap'. Many other specimens were also collected which were doubtful in terms of being genuine lithic tools.

Towards north east of this Upper Palaeolithic site and 1 km away from it, is an Upper Palaeolithic site recorded during my MPhil project along the same mountain range. A bi-facial scraper was found some 3.5 meters down the mountain from an *in situ* rock engraving. Three rock shelters were also found surrounding the rock engraving although no material culture was found in their vicinity. Based on extant tool typologies of this period in Kashmir, the tools were thought to belong to the Upper Palaeolithic period of Kashmir (Bandey 1997; 2009: 55). The rock engraving was the first of its kind recorded in Kashmir, and thus had no comparators in this region. However, on the basis of subject matter and style, it had some similarities with the Bhimbetka rock art in India (such as masked figures, hunting scenes, and people running in one direction). The earliest date for the Bhimbetka rock art dates to the

Upper Palaeolithic period c. 18000 BCE (Wakankar: 1984; 1985: 176). However, there is great debate over the dating of rock art, and some of these issues, along with the interpretations of the rock art and its relevance to the Upper Palaeolithic site recorded in Baramulla District are discussed in chapter 7.



Figure 5.2 Upper Palaeolithic tools from site 4.6 (Photo: Mumtaz Yattoo 2009)

5.6 Material culture of the Neolithic period

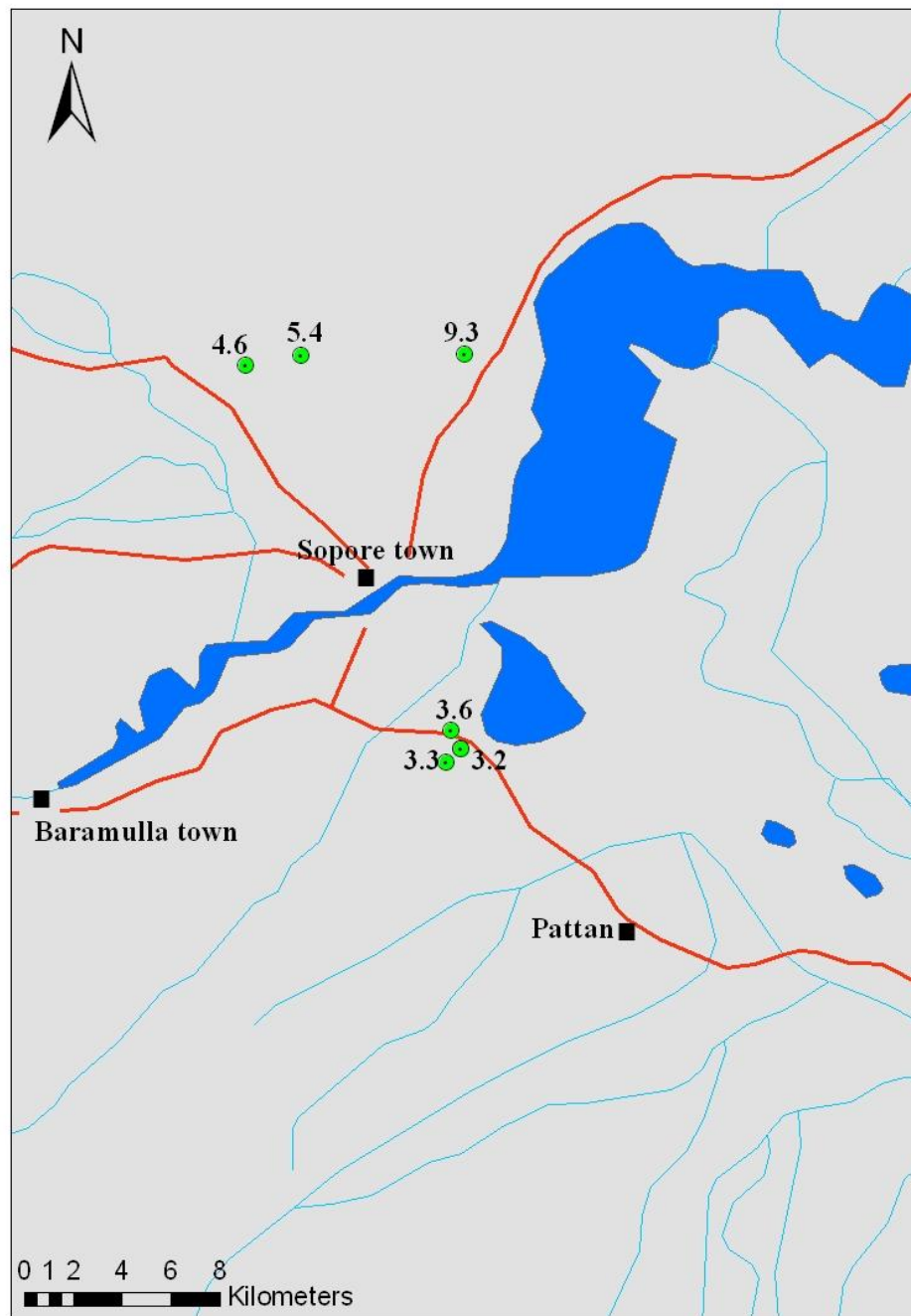


Figure 5.3 Location of the Neolithic sites recorded in Baramulla District.

5.6.1 Pottery

Material culture from the six Neolithic sites consists of pottery grouped in four types that include coarse ware (figure 5.4), fine ware (figure 5.5), burnished ware (figure

5.6), and gritty ware. These four wares are considered to be the diagnostic wares of the Neolithic period in Kashmir (Bandey 2009: 122-131; Ghosh 1964: 19; Mani 2000: 138; 2008: 234; Mitra 1984: 22-23; Sharma 1982). Among the four wares, coarse ware (also known as rippled rim ware) is noted in shades of black and gray with both pedestal and ring bases with decorations of wavy lines or dots running over the surfaces. Fine ware (sometimes called combed gray ware due to striations on its surface), has been found in two shades of gray and buff. Its design hallmark is the mat or basket impression that have been found on the base of the majority of examples (figure 5.7). Burnished ware also comes in two shades of black and steel gray with carved triangular designs on the stem and rim area of the pots and with pedestal and flat bases (see figure 5.6). Gritty ware comes in shades of buff and red and there are many examples with pedestal bases, and without any design.

These four pottery types were first reported from Burzahom and later from Gufkral and more recently at Kanispora by the excavators of these sites (see chapter 3 for details). These four pottery types were also reported from many places in Kashmir during later explorations to gauge the distribution of the Neolithic material culture in Kashmir (Bandey 2003a, b; Joshi 1990: 34; Mitra 1984: 16-17; Pant et al. 1982: 38; Yattoo 2005). The description of these types of pottery by Saar (1992), and Pant (1981; *cf* Bandey 2009), and their subsequent analysis by Bandey (2009: 121-135), provided the relative date range of each type in Kashmir. They suggest that coarse gray and fine gray wares appear around 2500-2000 and 2000-1700 BC respectively, while burnished ware appears around 2000-1700 BC, and gritty red or buff ware from 1700-1000 BC.



Figure 5.4 Coarse ware pottery from sites 3.2 and 3.3 (Photo: Mumtaz Yattoo 2009)



Figure 5.5 Fine ware pottery from sites 4.5 and 5.4 (Photo: Mumtaz Yatoo 2009)



Figure 5.6 Burnished ware pottery with incised decorations from sites 3.2, 3.3, 3.6, 5.4 and 9.3 (Photo: Mumtaz Yatoo 2009).



Figure 5.7 Mat impressions on fine ware pottery from site 9.3 (Photo: Mumtaz Yatoo 2009).

Among the shapes which were analysed (and some selected pieces were drawn) from the four pottery types, coarse gray ware comes in the form of basins (see figure 5.8, pot H), bowls (see figure 5.8 - pots A-D), and spherical cooking pots with rippled rims and pedestal or flat bases (figure 5.8 - pots E-G). Fine gray ware has been noted in the form of bowls (figure 5.9 - pots A-E), jars, and spherical bodied pots with out-turned collars with rippled rims (figure 5.9 - pots F-H). Burnished gray or buff ware took the form of high necked jars with flaring rims, globular bodies and flat bases (figure 5.10 - pots A, B and G) bowls with or without stand (figure 5.10 - pots F), dish-on-stand (figure 5.10 - pots D and I), spherical pots (figure 5.10 - pots A, B and C), and vases and miniature pots (figure 5.10 - pots G and H). Gritty red or buff ware has been recorded in the form of bowls with pedestal bases and small miniature pots (figure 5.9 - pot I). These forms again correspond to the forms reported in the four pottery types from Burzahom, Gufkral and Kanispora (see appendix 4 for the comparative pottery types).

Stacul (1976: 17-24; 1977: 251; 1987: 45-48; 1993: 71-78) has reported similar types of pottery from Kalako-deray (period III, 1505 BC), Loebanr III, and Ghalegay at Swat in Pakistan (see figure 5.24). He connected two of the four pottery types (fine gray ware and burnished ware) to those of the Neolithic Burzahom in Kashmir, with similarities in mat impressed bases and the plastic decoration on the body parts of vessels (Stacul 1976; 1977; 1997b: 48). Stacul also found similarities among the shapes in the type of fine ware which he calls gritty brown ware and burnished ware such as jars, hemispherical bowls and bowls-on-stand with rippled rims and mat impressed bases (Stacul 1993: 78). Further similarities can be traced in the miniature pots found at sites 5.4 and 9.3 with miniature pots found at Aligrama (Stacul and Tusa 1975: 314)

and Kalako-deray (Stacul 1995: 111, 124) in Swat, Pakistan (see appendix 4 for the comparative pottery types). Besides, neatly drawn holes (perforation) were observed on fine ware pot-sherds in the present survey from Baramulla District (figure 5.11), with similar types found at Burzahom. Previously such perforations have only been found on stone or bone tools from Burzahom, such as harvesters (bone and stone) and mace-heads (stone). However, perforated pottery is common feature of Burzahom and Gufkral (the implications of this will be discussed further in chapter 7).

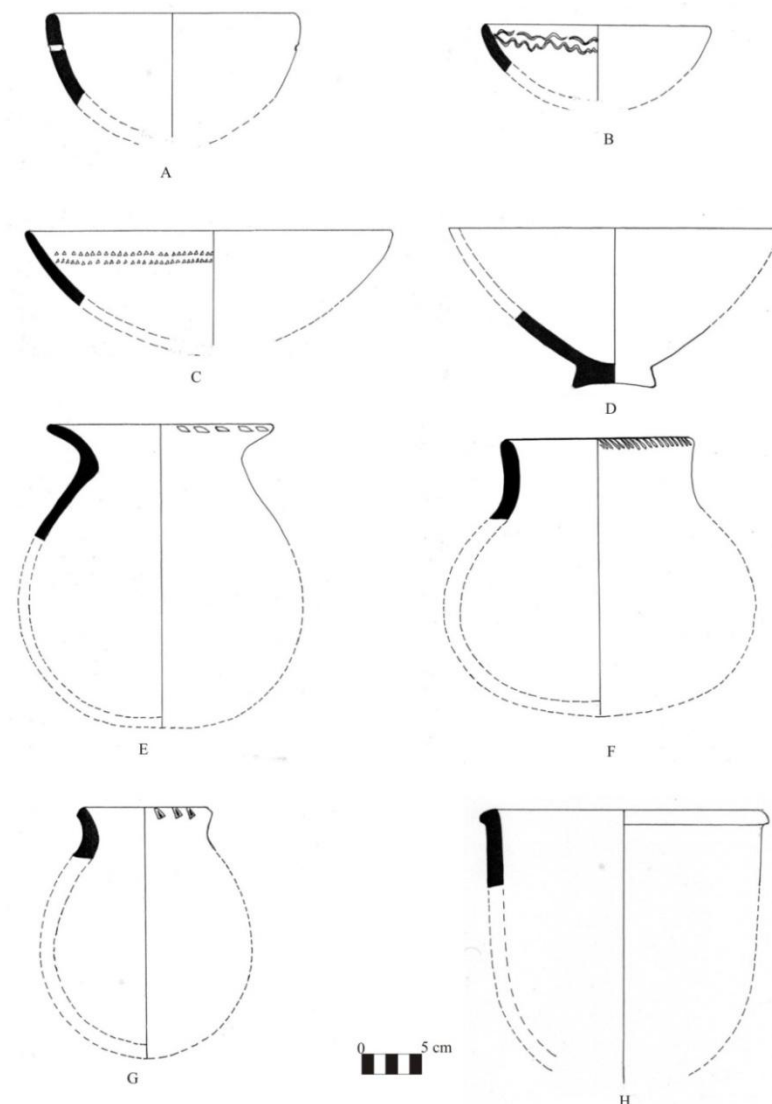


Figure 5.8 Coarse ware pots from sites 3.2, 5.4 and 9.3, perforation on pot A and rippled rim design on E-G. (Mumtaz Yattoo 2009)

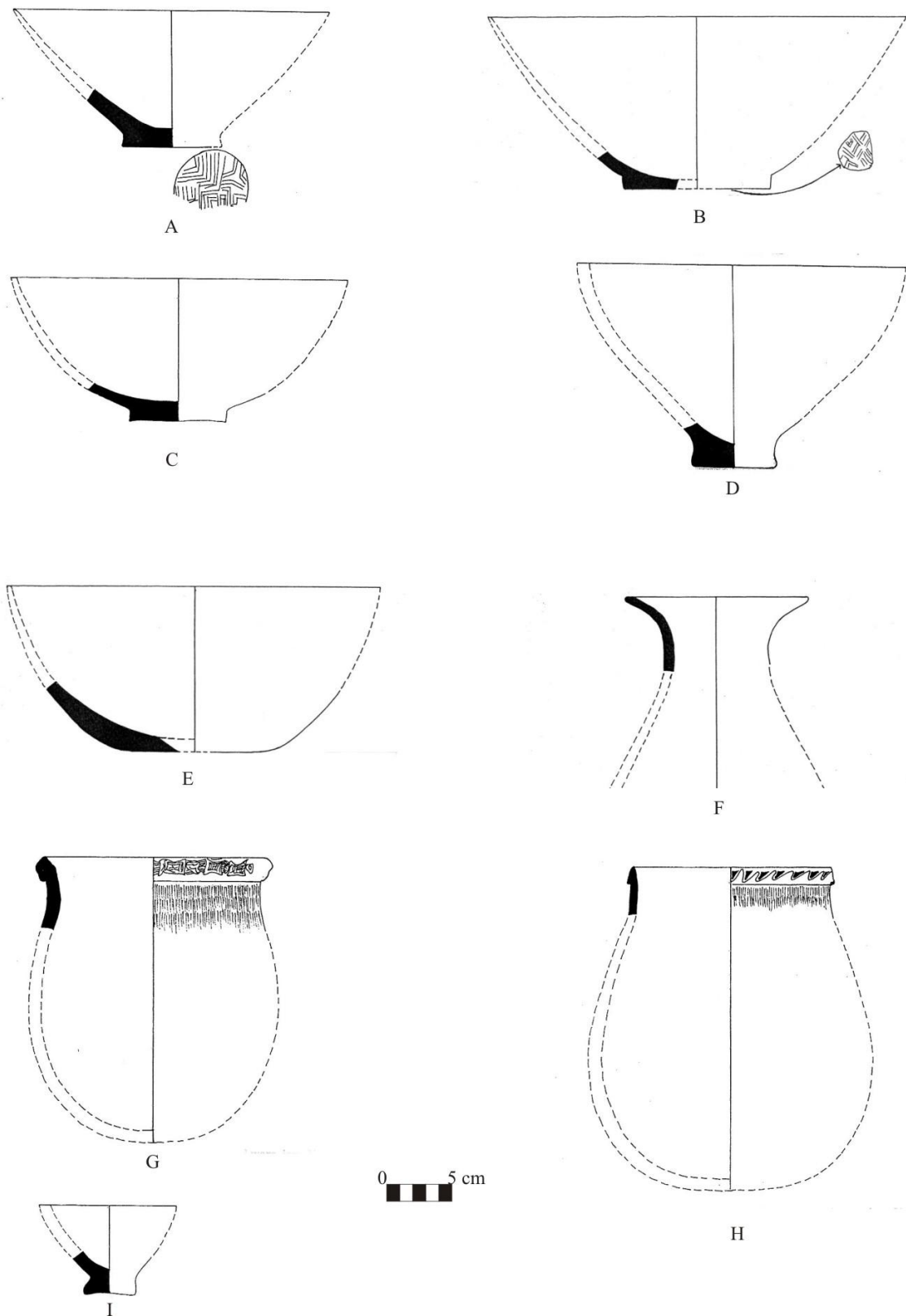


Figure 5.9 Fine ware pots from sites 4.6, 5.4 and 9.3. Combed design or striation on pots G-H, mat impression on A-B (Mumtaz Yattoo 2009)

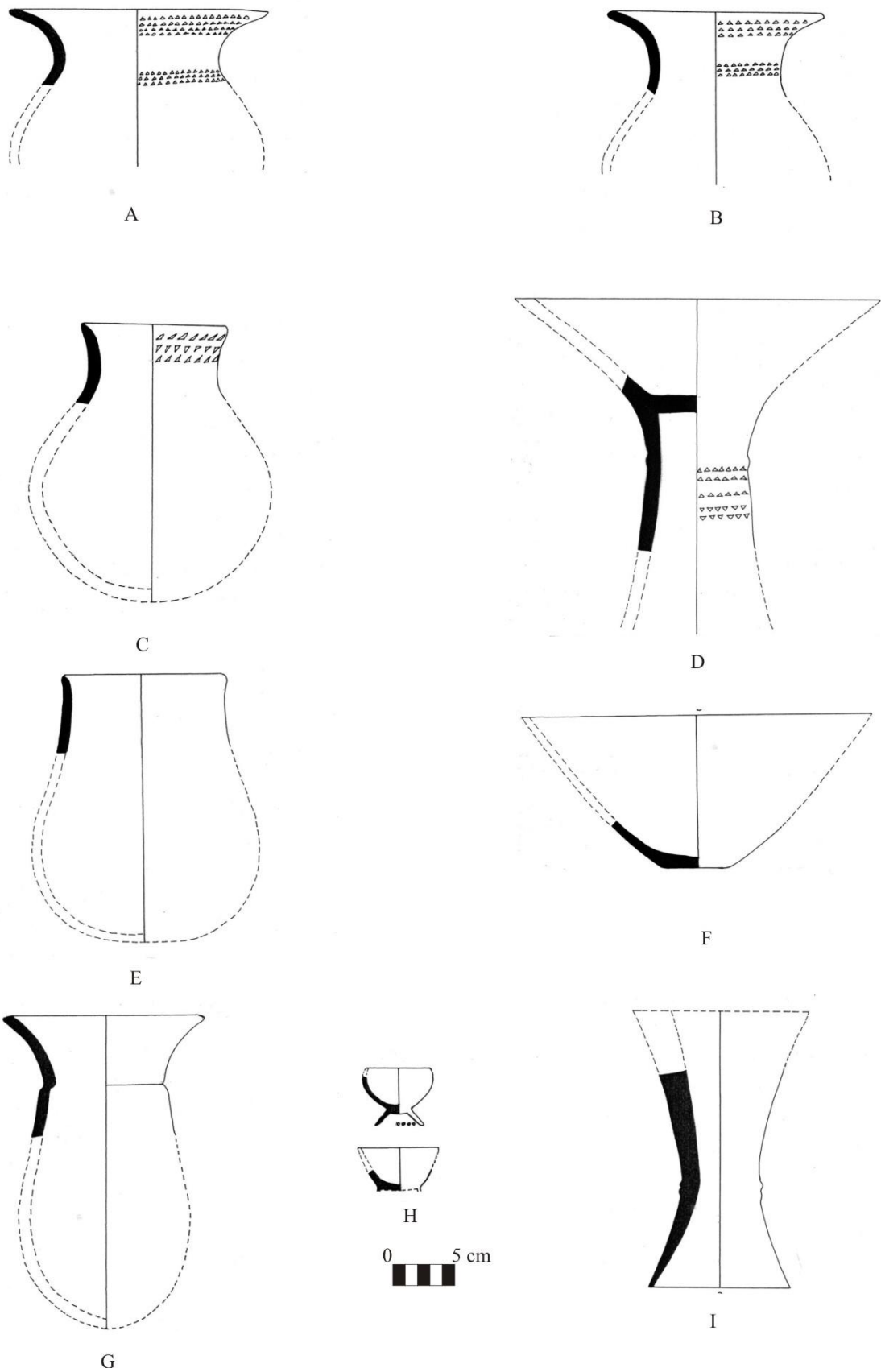


Figure 5.10 Burnished ware from sites 5.4 and 9.3. Pots D and I dish-on-stand, H is miniature burnished ware (Mumtaz Yattoo 2009)



Figure 5.11 Perforated pottery on gray ware from site 9.3 (Photo: Mumtaz Yatoo 2009).

A summary of the pottery types with numbers of each diagnostic type found at the six sites are shown in the table below.

No. of sites with this material culture found in Swat Pakistan	Pottery types	No. of sites with this material culture found in the present survey in Baramulla District
Kalako-deray and Loebanr Period IV c. 1700-1400 BC	Coarse gray ware	6
Ghalegay Period III; Kalako-deray Period III and IV; Aligrama, Bir-kot-ghundai and Loebanr-III of Period IV.	Fine gray or buff ware	4
Ghalegay Period III; Kalako-deray Period III and IV; Aligrama, Bir-kot-ghundai and Loebanr-III of Period IV.	Black burnished ware	6
Kalako-deray Period III and IV; Aligrama, Bir-kot-ghundai and Loebanr-III of Period IV.	Gritty buff ware	4
Ghalegay Period III; Kalako-deray Period III and IV; Bir-kot-ghundai and Loebanr-3 of Period IV.	Mat impression on pot bases	4
	Perforations	1
Loebanr-III of Period IV c. 1700-1400 BC;	Graffiti	1
Kalako-deray Period IV; Loebanr- III; Bir-kot-ghundai of period IV	Miniature pots	1

Table 5.5: The number of each pottery category, mat impressions, perforations and graffiti found on each pottery category in relation to similar material culture found in Swat Pakistan (Stacul 1969; 1978; 1980; 1993; 1995; Stacul and Tusa 1977).

Graffiti

Graffiti was observed on two pieces of burnished ware pot sherds from site 3.2 (figure 5.12). The incised graffiti markings on the exterior of the pot sherds, represented abstract lines drawn in a regular formation, such as an incomplete cube and crescent or circular engraving with diagonal and parallel lines. Saar (1992: 34-36) and Sharma (1982: 34) were the first to report graffiti on the burnished ware pots from Burzahom and Gufkral. Alongside Burzahom and Gufkral, Stacul (1987: 103-109), reported graffiti on potteries at Loebanr-III and Bir-kot-ghundai in Swat, Pakistan. Bandey's (2009) analysis of graffiti marks at Burzahom and Gufkral suggests they resemble branches and birds that are depicted in a non-linear pattern. The evidence of graffiti markings on burnished ware pot sherds at site 3.2 and its further presence at Burzahom and Gufkral in Kashmir may possibly reflect a common practice of the Neolithic people in Kashmir. The interpretations of this will be further discussed in chapter 7.



Figure 5.12 Burnished ware pot fragment with graffiti markings from site 3.2 (Photo: Mumtaz Yatoo 2009).

5.6.2 Stone tools

As well as two important harvesters found at site 5.4 and 9.3, grounded celts (figure 5.13) were found from four sites 3.3, 4.6, 5.4 and 9.3. Pounders (figure 5.14) were collected from five sites 3.2, 3.6, 4.6, 5.4, and 9.3, and mace heads (figure 5.15) were found at site 5.4. A muller (figure 5.16) was found at site 4.6, and sling balls (figure 5.17) were found at site 3.2. These tools are largely made from Panjal trap, a volcanic type of rock commonly found in Kashmir; specimens are reported from both Burzahom and Gufkral (Ghosh 1964: 21; 1969: 13; 1996: 11; Lal 1971: 10; Mitra 1984: 20; Sharma 1982; 2000) (see appendix 4 for the comparative artefact types).



Figure 5.13 Grounded celts from sites 4.6 and 9.3 (Photo: Mumtaz Yattoo 2009).



Figure 5.14 Pounders from sites 4.6 and 9.3 (Photo: Mumtaz Yattoo 2009).



Figure 5.15 A mace head from site 5.4 (Photo: Mumtaz Yattoo 2009).



Figure 5.16 A stone muller from site 4.6 (Photo: Mumtaz Yattoo 2009).



Figure 5.17 A sling ball from site 3.2 (Photo: Mumtaz Yattoo 2009).



Figure 5.18 A single holed rectangular harvester from site 5.4 (Photo: Mumtaz Yatoo 2009).



Figure 5.19 An oval double-notched harvester from site 9.3 (Photo: Mumtaz Yatoo 2009).

While analysing the stone tools of Burzahom, Khazanchi suggested that they are typologically different from those found in the plains and southern Neolithic in

India (Gosh 1964: 21). A few of these tools have parallels in Swat, and Sarai Khola in Pakistan, such as celts, sling balls and harvesters (Stacul 1994: 235-237). Stone harvesters with neatly drawn holes were earlier reported at Burzahom and Gufkral in Kashmir (Ghosh 1964: 21; Mitra 1984: 23). This is only the second time that a rectangular harvester with a hole in the middle of the butt has been reported (from site 5.4; figure 5.18), and an oval double notched harvester was also found at site 9.3 in the present survey (figure 5.19) in Kashmir. Stacul (1993: 89) reported 10 similar tools for the first time at Kalako-deray in Swat, identifying them as rectangular/oval sickles. Stacul analysed these tools by comparing them with earlier works describing and presenting similar artefacts (Anderson 1943; Chang 1963; Thapar 1985; and Watson 1970; *c.f.* Stacul 1980), and then designated them harvesting tools. Stacul (1980: 74) perceives this as an influence from China on Kashmir and Pakistan during 2nd millennium BC. Referring back to the works of Thapar (1965) and Gupta (1979), Stacul regarded the harvesters of Burzahom as a diagnostic artefact of the Northern China Neolithic Culture (Yangshao and Longshan cultures) (Stacul 1980). The recognition of typological similarities and interpretations of the functions of these tools from Baramulla District, with other from Kashmir and northern regions such as Pakistan and China Neolithic sites will be further discussed in chapter 7.

	Site 3.2	Site 3.3	Site 3.6	Site 4.6	Site 5.4	Site 9.3
Pounder	1		1	1	2	1
Celt		2		2	3	2
Macehead					1	
Harvester					1	1
Muller				1		
Sling ball	2					

Table 5.6 Details of the tool types found from six sites in Baramulla District

5.6.3 Wattle and daub

Plaster pieces of wattle and daub with reed impressions were also found at three of the six sites (4.6, 5.4, and 9.3) (figure 5.20). Earlier, these have only been found at Burzahom and Gufkral when they were excavated, suggesting their application on walls and floor surfaces and in pits at Burzahom and Gufkral (Ghosh 1964: 19; Mitra 1984: 20; Thapar 1979: 15). According to the excavators of these Neolithic pits (considered by them to be the dwelling places of inhabitants), both Burzahom and Gufkral provided crucial information of settlement types during the Neolithic times in Kashmir. They were dug into loessic deposits, a few provided with access steps with hearths and storage pits inside, plastered with wattle and daub, which was sometimes painted in red ochre (Bandey 2009; Ghosh 1996; 1964; 1969; Lal 1971; Mitra 1984; Sharma 1982). These pits were classified as either oval or square and the oval pits were narrow at the top and broad at the bottom. The presence of post-holes on the periphery of these pits suggests they were covered overhead (see chapter 3 for details on these pits).



Figure 5.20 Wattle and daub plaster pieces with reed brush impression from site 9.3 (Photo: Mumtaz Yattoo 2009).

Beyond Kashmir, parallels of pit dwelling can be traced at Aligrama, Bir-kot-ghundai, Kalako-deray, and Loebanr III, all in Swat in Pakistan. Stacul says that evidence for pit dwelling at Loebanr III and Kalako-deray has strong similarities with that of Burzahom, in terms of both material and structures. Pieces of wattle and daub with reed impressions were found at both these sites (Stacul 1995: 124; 1997b: 375). Stacul (1987: 125; 1993: 89-90) believed that these similarities (and others) meant that Kashmir and Swat were both part of what he called an 'Inner Asian' or 'Northern Neolithic' complex. However, the dwelling interpretation of these pits both in Kashmir and Swat has been questioned by Coningham and Sutherland (1998: 177-187) when they compared Swat pits to British Iron Age pits at Danebury, thought to have been used for storing seed grains. They suggest these pits (at Kashmir and Swat) may have acted as granaries. They suggested that the wattle and daub may have helped prolong the life of the grain by producing a reduced atmosphere (its interpretations will be discussed in chapter 7).

5.6.4 Terracotta

A sole specimen of a possible terracotta bobbin was found at site 3.2 in the present survey (figure 5.21). Nothing similar has been reported from Burzahom and Gufkral, though spindle whorls were reported there. However, similar type of bobbins were found during excavations at Aligrama (Swat, Pakistan) dating from 2000 BC to the 4th century BC (Stacul 1975: 317). Furthermore, a single specimen of unknown terracotta object resembling an oyster shell (figure 5.22) was found at site 9.3 with no comparators in Kashmir or elsewhere.



Figure 5.21 A terracotta bobbin from site 3.2 (Photo: Mumtaz Yattoo 2009).



Figure 5.22 Unknown terracotta object resembling an oyster shell from site 9.3 (Photo: Mumtaz Yattoo 2009).

5.6.5 Schist

A schist disk with a central perforation was collected from site 9.3 (figure 5.23). Similar schist disks were reported by Stacul from Loebanr III (1976: 26) with a central perforation, and by Law (2009: 138-139) from a Harappan site in Pakistan. Stacul referred to these schist disks as 'ritual' artefacts while as Law described them as flat discs or palettes which he believes are probably part of debris from the manufacture of finished items (see chapter 7). There is again no mention of schist disks from Kashmir Neolithic sites. Therefore, the presence of a schist disc at site 9.3 suggests its exploitation by the Neolithic people at Baramulla District in Kashmir; the interpretations of this will be discussed in chapter 7.



Figure 5.23 Schist disks from site 9.3 (Photo: Mumtaz Yatoo 2009).

5.6.6 Summary

Regarding the various categories of material culture found at the six Neolithic sites in Baramulla District, pottery was observed and collected from all the sites. The pottery was classified into four categories as per the new analysis of Burzahom (Ghosh 1964: 19) and Gufkral material (Mitra 1984: 20-23) by Bandey (2009: 122-133) and Yatoo (2005). Coarse and burnished wares were found at all the six sites whereas fine and gritty red ware were found only at four sites. Miniature burnished ware pots were found at two sites along with ring bases. In addition to this graffiti markings were observed on burnished ware pottery from a single site.

Similarly, stone tools were also found and collected from six sites. A total of six types of tools were observed with more than one type of tool category found at most sites. For instance, more than one category of tools were found at five sites, while only one category (celt) was found at a single site. Pounders were present at five of the six sites, grounded celts were present at four of the six sites, maceheads, harvester, muller and sling balls were also found at three of the six sites.

As well as pottery and stone tools, plaster pieces of wattle and daub were observed and collected at three of the six sites. Terracotta artefacts such as bobbin, oyster shell like object, were also found at two of the six sites and a schist disk was found at one site.

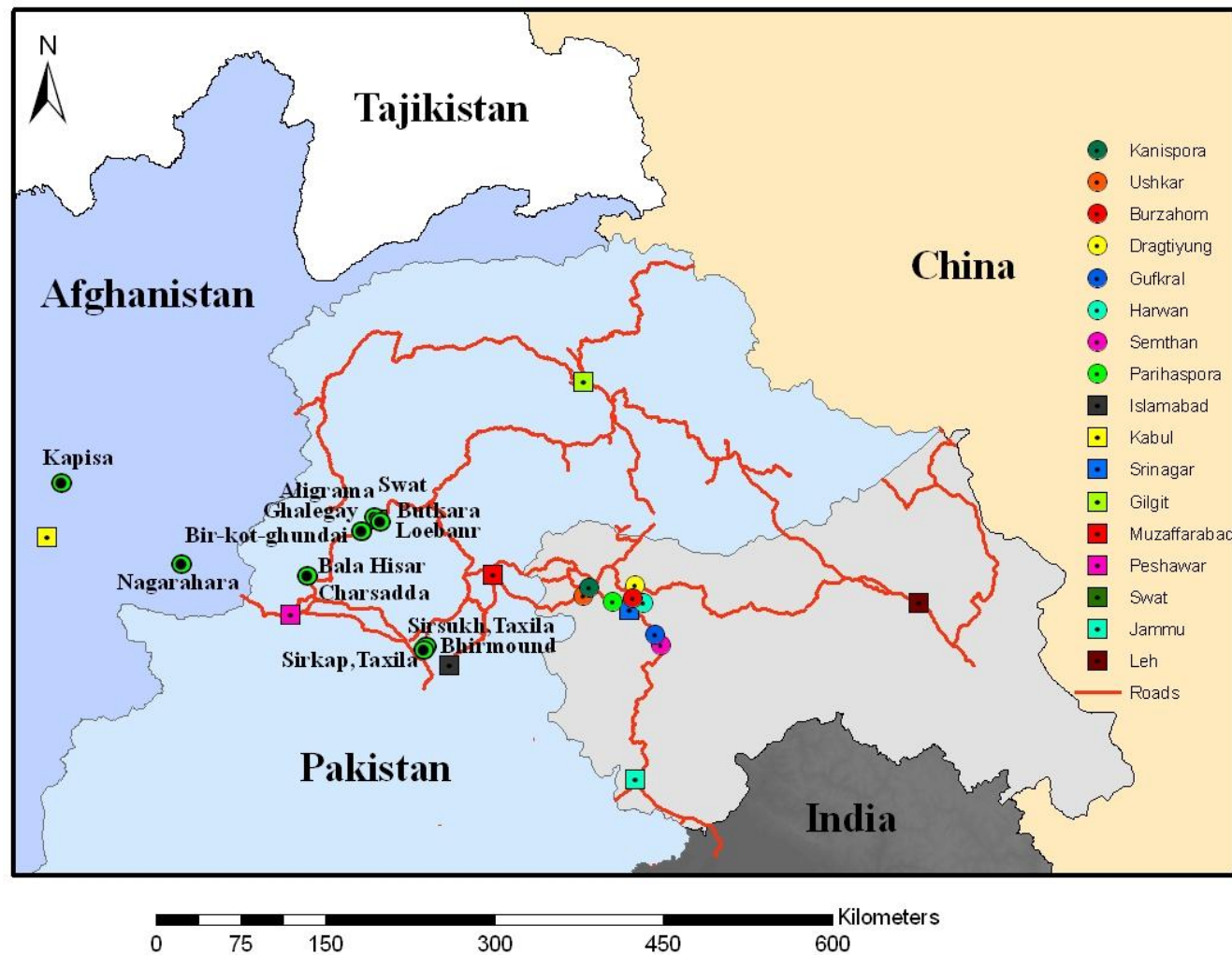


Figure 5.24 Comparative sites excavated and explored in South Asia used for the current research

5.7 Material culture of the early historic period

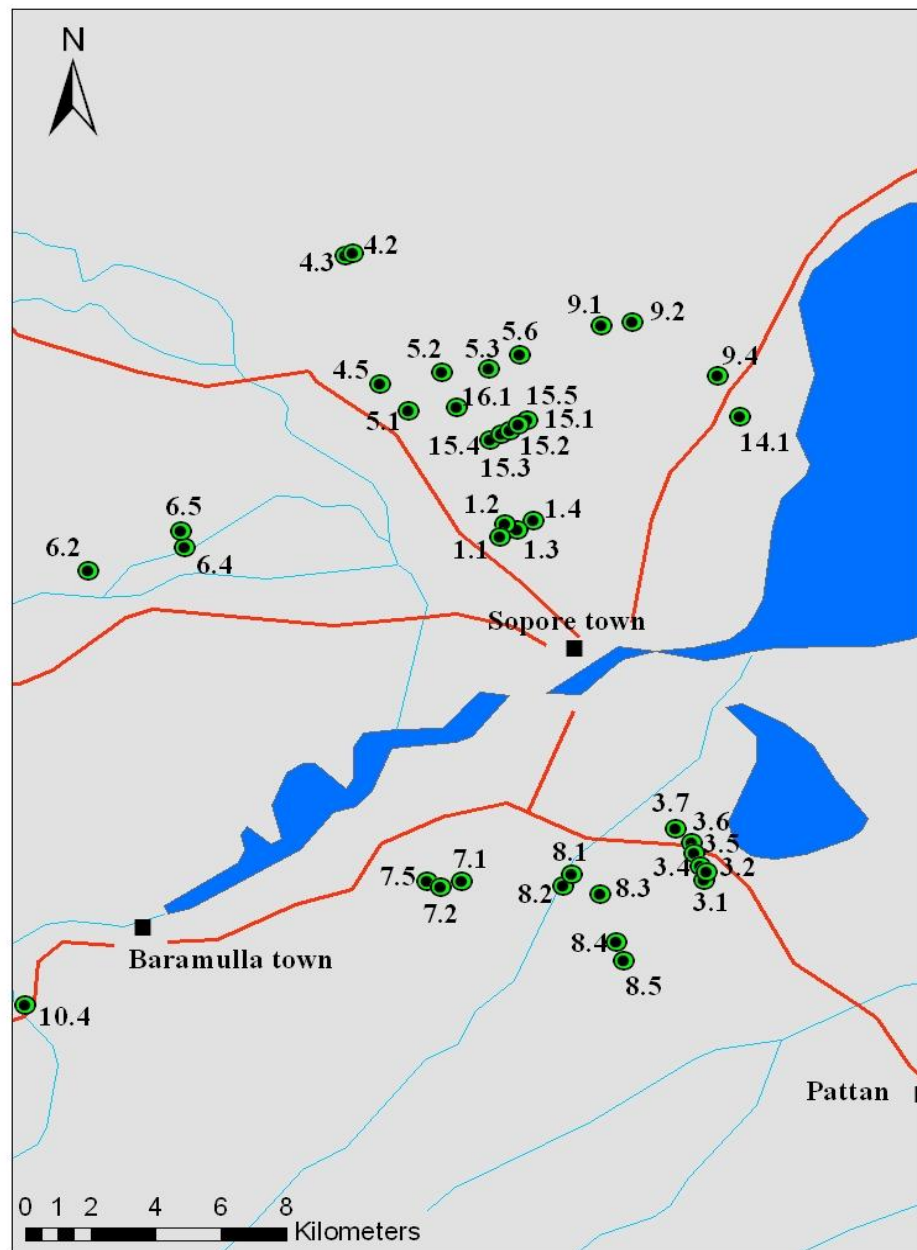


Figure 5.25 Location of the early historic sites recorded in Baramulla District.

5.7.1 Pottery

The pottery recorded for this period in Baramulla District consisted of six different wares. These pottery types can be defined as: 1, plain thick coarse red ware; 2, fine red ware with deep brown or red slip with geometric or fish scale design; 3, thin black

ware with stamped or geometric design; 4, gray ware bearing a jet black slip externally with incised crescent design; 5, plain gritty buff ware; and 6, plain fine ochre ware. The dominant shapes include carinated cooking pots with short necks (locally called *handi* or *chod*) (figure 5.26 - F and I), spherical bodied pots with splayed out rims (figure 5.26 - J and K), different types of bowls (figure 5.26 - A, C, D and N), jars, lid cum dishes (figure 5.26 - L), thick storage jars with collared rims (figure 5.26 - B), basin with ring or pedestal bases (figure 5.26 - G). As well as button knobbed lids, plain lids and miniature ink-pot type pots were also observed and a few of these were from site of the early historic period in Baramulla District.

These pottery types have similarities in type, shape and design with assemblages from the early historic sites of Kashmir such as Semthan and Harwan (see figure 5.24). For instance, the fine red ware pottery with deep brown or red slip with geometric or fish scale design has been reported from both Harwan and Semthan sites and is considered diagnostic for this period in Kashmir (Agrawal 1998: 73-79; Indian Archaeology 1981: 70; Shali 1993: 121-122; 2001: 149-150). Similarly, the thick, coarse red ware, and the gray ware, are the diagnostic types of this period, and reported from both Harwan and Semthan in Kashmir. Ochre ware, sometimes decorated with a stamped design, is also reported from both the sites (Harwan and Semthan) but is considered diagnostic for Semthan period-IV (Agrawal 1998: 75-76; Indian Archaeology 1981: 70). From Kanispora, (Indian Archaeology 2004: 40) red ware pottery types were mainly recovered with incised or stamped decorations on them. The excavators of Kanispora traced similarities in shapes of this red ware at Sirkap, Taxila in Pakistan (Indian Archaeology 2004). Taxila lies on the route connecting the northern areas of

India and Pakistan with Iran and further to Central Asia (the interpretations of this are discussed in chapter 7) (see figure 5.24).

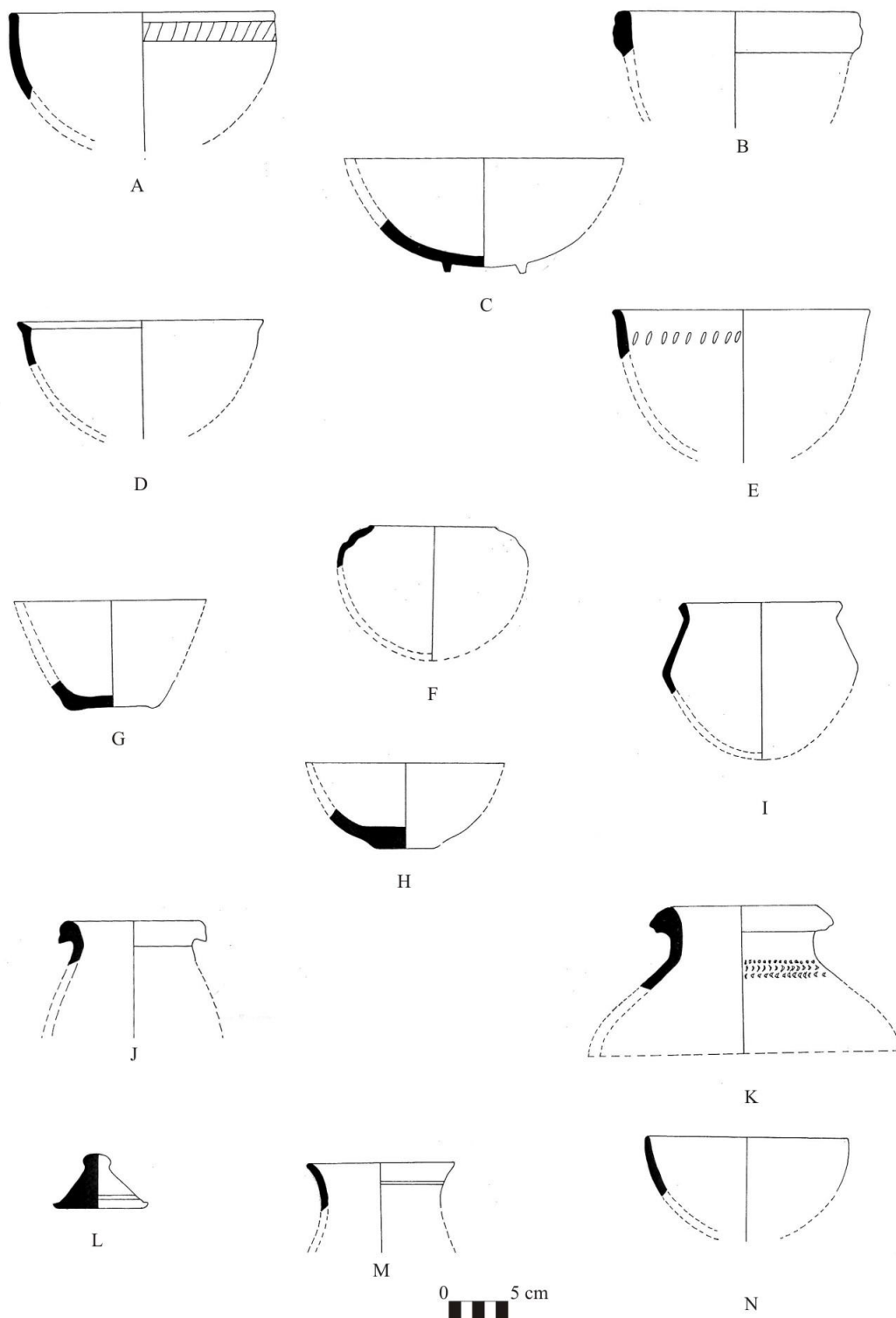


Figure 5.26 Some early historic pottery types from the new sites in Baramulla District (Mumtaz Yattoo 2009)

5.7.2 Structures and tile



Figure 5.27 (a) Stone rubble base in the background and foreground from site 4.3 and figure (b) one of the stone rubble structures at site 9.2 (Photo: Mumtaz Yatoo 2009).

Structural bases were recorded at two sites in this period. At site 4.3 (figure 5.27-a), a rubble structural base was observed with a modern stone wall resting on it, and surrounded by the early historic pottery towards the north west and south west sides

of the structure. At site 9.2 (figure 5.27-b), two stone rubble, square structural bases were observed. They formed raised platforms approximately one and a half meters high with the early historic pottery scattered densely towards the southern end and beyond the structures. Similar rubble structures, as well as diaper pebble and mud brick structures, were exposed in layers belonging to periods III and IV at the multi-period site of Semthan where they were thought to be habitational layers belonging to Indo-Greek and Kushan people according to excavators (Shali 1993: 122).

Furthermore, similar rubble or stone and rubble structures were reported by Kak (1933) while excavating at Harwan, and later at Ushkar and Kanispora in Baramulla (Indian Archaeology 2004: 40) (see figure 5.24). These structures were believed to be associated with Buddhism, shedding important light on both religious buildings and settlement during the Kushan period in Kashmir. The structural bases reported at two sites in this research cannot be confidently assigned as having either a religious function or represent public structures. However, the material culture associated with them seems to suggest that they were habitation structures. Parallels of this kind of structure are further found beyond Kashmir at Sirkap, Sirsukh at Taxila in Pakistan (Dani 1999: 71-72; Dar 1993: 12-113; Marshall 1975: 119-120) (see figure 5.24). Beyond Taxila, there are comparisons with structures found at sites in the north west such as at the ancient city of Pushkalavati near modern Charsadda, and Shah-ji-ki-dheri in Peshawar, Pakistan (Allchin 1993: 78-79; Wheeler 1962: 6). Located westward is Swat, where there is evidence for similar structures in Kandak Valley, south and north east of Bir-kot-ghundai (for example at Saidu Sharif I, Panr I, Loebanr, Nimogram, Barikot or Bir-kot-ghundai and Butkara) (Faccenna 1964: 27-33; Olivieri 2003; Olivieri and Vidale 2006; Spagnesi 2006: 156-157) (see figure 5.24). Further evidence for these

types of structures are found in the mountains of Afghanistan, such as ancient city of Nagarahara near modern Jalalabad, and further westward at ancient city of Kapisa near modern Begram (Allchin 1993) (see figure 5.24). The interpretations of these similarities in building types will be discussed in chapter 7.



Figure 5.28 Plain and reed impressed tiles from sites 1.1 and 8.4 (Photo: Mumtaz Yatoo 2009).

As well as these two structures another noteworthy thing to be observed was the presence of terracotta tiles at the three sites belonging to this period in Baramulla District (1.1, 7.2, and 8.4) (figure 5.28). The tiles were broken and fragmentary, with varying dimensions, some measuring $22(?) \times 20 \times 2.5$ (lxbxw) cm. The tiles at site 1.1 are c. 4 cm thick with reed impressions on them. Terracotta tiles first came to light from Harwan (c. 2nd- 3rd century AD), and these were elaborately decorated depicting elements of the social life of Kushan people, mythical and real representation of

animals, and floral and abstract motifs. Terracotta tiles were further reported from many sites of the early historic period during Kushan rule in Kashmir such as Ushkar, Kanispora and Huthmura in Anantnag (Shali 2001: 168-169). The terracotta tiles of Ushkar however, are plain and simple compared to Harwan tiles. The tiles reported at the three sites in this survey are similarly plain, except for the reed impression marks over one of their surfaces. The manufacture of terracotta tiles and the depiction of art forms on them is considered to be unique to Kashmir and this will be discussed further in chapter 7.

5.7.3 Stone artefacts

Stone Bowls

The early historic period stone bowls were collected from nine sites (3.2, 4.5, 5.1, 6.5, 7.5, 8.4, 8.5, 9.4, and 15.1) in Baramulla District (see figure 5.26 – H and figure 5.29). Two shades of Panjal trap (volcanic rock of which the Palaeolithic and the Neolithic stone tools were mostly made during the prehistoric period in Kashmir) were found in these stone bowls; one of purple and the other of green colour. These stone bowls are rimless, tapering towards the bottom (sometimes grooved at the bottom just above the base) with ring or disk bases. Such stone bowls have attracted very little attention by the archaeologists working in Kashmir; however, Shali (2001: 119) considers them to be a prominent feature of the early historic period (Shali 2001: 119). They were first reported from the Megalithic period (post Neolithic c. 1000 BC to 1st century AD) at Gufkral, and later these have been reported from Kushan period sites (1st to 5th century AD) in south of Kashmir (Shali 1993: 128). Similar stone bowls have also been reported at earliest occupational layers at Martand (no date) (Lal 1973: 13; Shali 2001:

311) in Kashmir (see figure 5.24). Moreover, Converse (1978: 481), while exploring an early historic site on the outskirts of Srinagar in Kashmir, reported similar stone bowls. Alongside these stone bowls she found Kushan pottery and northern black polished ware (NBPW, c.500 BC- 5th century AD) associated with them. However, almost no analysis has been carried out on these stone bowls, and it is, therefore, very difficult to confidently suggest the purpose for which these stone bowls were made (see interpretations of this in chapter 7).



Figure 5.29 Different shades of stone bowls from sites 5.1 and 8.5 (Photo: Mumtaz Yatoo 2009).

Saddle querns/mullers

At four early historic sites, (1.1, 1.3, 4.3, and 9.2) saddle querns or mullers were collected (figure 5.30). These querns or mullers are made from basalt and sandstone rocks; basalt also known as trap rock or volcanic rock, while as sandstone is

sedimentary rock. Similar types of querns or mullers have (earlier) been found from the Megalithic level at Burzahom and Gufkral, and the early historic site of Semthan. Sharma (1982; 2000) and Agrawal (1998) described these as tools used within a subsistence economy. Stacul reported querns or mullers for the first time at Kalakoderay from period IV in Swat c. 1700 – 1300 BC. However, he says that true saddle querns occur at Aligrama in periods VI and VII (6th to 4th century BC) (Stacul 1994b: 235). Typologically the saddle querns collected in Baramulla look similar to those reported by Stacul and Tusa at Aligrama. Parallels of these tools can also be found at Chalcolithic cultures (1500 to 700 BC) at Ahar at Rajasthan, and at Malwa and Kayatha in Madhya Pradesh, in India (Misra 2001: 513-516). The implications of the presence and distribution of these saddle querns and further similarities beyond Kashmir will be discussed in chapter 7.



Figure 5.30 Saddle querns from sites 1.1 and 9.2 (Photo: Mumtaz Yatoo 2009).

Mortars and pestles

At five of these sites (1.1, 1.3, 5.1, 6.5, and 8.5) mortars and pestles were observed belonging to this period in Baramulla District (figure 5.31). These tools are made from trap and their shapes are mostly characterised by their semicircular to rectangular cross sections. They are small and portable with a similar type found in the early historic phase of Burzahom by de Terra (De Terra 1942: 490), who associated them, along with pottery, to the Harwan period (c. 1st to 5th century AD) in Kashmir. These tools have also been reported from Megalithic periods both at Burzahom and Gufkral in Kashmir (De Terra 1942: 489-490; Shali 2001). However, there is no mention of such tools from the early historic sites, such as Semthan or Harwan in Kashmir.



Figure 5.31 Mortar and pestle from site 5.1 (Photo: Mumtaz Yatoo 2009).

5.7.4 Terracotta

During the present survey, six sites (1.1, 1.4, 3.2, 7.5, 8.5, and 14.1) yielded terracotta artefacts belonging to the early historic period in Baramulla District. Among these are terracotta rods, a miniature unidentified human figurine, spouts, and terracotta wheels with intricately designed floral motifs (figure 5.32). A single specimen of a terracotta spindle whorl was also collected from site 4.2. There are similarities between some of these artefacts and those from other early historic sites such as Harwan, Semthan, Kanispora and Ushkar in Kashmir. For instance, similar terracotta wheels have been reported from Harwan, Semthan and Ushkar. Similarly, spindle whorls have been reported from Semthan. Terracotta wheels, similar to those from sites 1.4 and 7.5 have also been reported from the excavations of early historic Kushan period layers at Sanghol, Ludhiana (Joshi 1992: 70). However, the miniature unidentified human figurine found at site 3.2 in a heavily disfigured condition, could not be confidently related to any other terracotta human figurines produced during the early historic period in Kashmir. Terracotta Human figurines have been reported from early historic sites such as Harwan, Semthan and Ushkar in Kashmir and interpreted as reflecting both Greek and Gandharan art style (Mitra 1983b: 21-23; Shali 2001). Brown (1956: 188), Kak (1933), Shali (2001) and many other scholars suggest Gandharan art flourished during Kushan period in Kashmir citing images of Buddha, bodhisattvas, miscellaneous terracotta heads and figurines, and Buddhist masonry. This will be discussed further in chapter 7.



Figure 5.32 Terracotta wheels from sites 1.4 and 7.5 (Photo: Mumtaz Yatoo 2009).

5.7.5 Miscellaneous artefacts

Four miscellaneous stone artefacts were collected from three sites (3.1, 3.6, and 5.1) belonging to the early historic period in Baramulla District (figure 5.33). Artefact A resembles a gabbro (igneous rock that withstands weathering and wear) stone brick (?), highly finished with a lustrous surface, similar to a touch stone. However, its function cannot be established nor any comparators found. Artefact B, (figure 5.33) is a granite stone slab (?) broken at one end, although carefully worked out with a

finished surface. Again nothing resembling this artefact in Kashmir has been found, however, at Kalako-deray period IV in Swat, Pakistan, Stacul found similar looking artefacts, calling them grinding stone slabs. Artefact C, (figure 5.33) is carved from a granite stone; its spherical lustrous surface has random pin head puncture holes with a flat resting base, it resembles a modern paperweight in shape, though is considerably larger. The fourth artefact D, (figure 5.33) is a gray sand stone roller (?) with broken ends. This artefact has been carefully carved out from sedimentary rock with a very smooth texture. However, no comparator could be found nor its function could be established.



Figure 5.33 Miscellaneous artefacts from sites 5.1 (A and D), 3.6 (B) and 3.1 (C)
(Photo: Mumtaz Yatoo 2009).

Site	Saddle querns	Mortar & Pestle	Stone Bowls	Muller	Terracotta artefacts	Structural residue	Tile	Misc. artefact
1.1	Y	Y			Y		Y	
1.3	Y	Y						
1.4					Y			
3.1								Y
3.2			Y		Y			
3.6				Y				Y
4.2					Y			
4.3	Y					Y		
4.5			Y					
5.1		Y	Y					Y
6.5		Y	Y					
7.2							Y	
7.5			Y		Y			
8.4			Y				Y	
8.5		Y	Y		Y			
9.2	Y					Y		
9.4			Y					
14.1					Y			
15.1			Y					

Table 5.7 Showing incidence of the early historic stone and terracotta artefacts

5.7.6 Summary

A diverse material culture belonging to the early historic period has been observed and recorded from various sites of this period in Baramulla District. This material culture consisted of well levigated, wheel turned pottery in a variety of shapes and design. This variety is noticeable when compared to pottery of the preceding periods. Similar pottery types with clear resemblances in terms of shape and design are reported from excavated sites such as Harwan, Semthan, Kanispora, and Ushkar in Kashmir, and beyond Kashmir at Taxila in Pakistan. The presence of structural residue, terracotta and stone artefacts from Baramulla District also demonstrated similarities between sites of this period in Kashmir and its northern neighbouring regions. The presence of stone bowls at nine sites indicates their occurrence in Baramulla District is greater than at other known early historic sites in Kashmir. Besides these artefacts, presence of miscellaneous artefacts which seem purposely made and carefully executed, have no comparisons from the early historic sites in Kashmir or beyond it.

5.8 Material culture of the later historic period

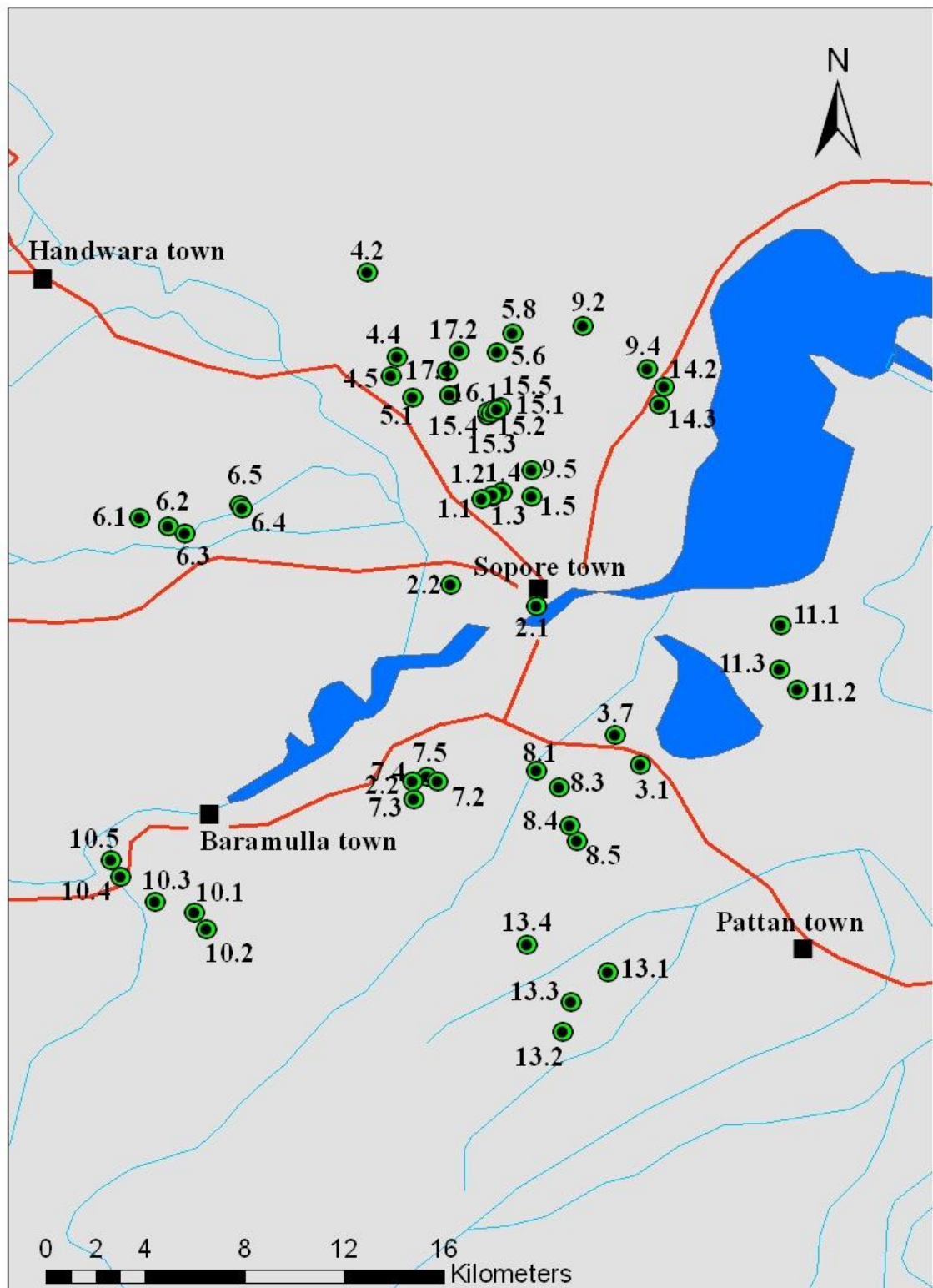


Figure 5.34 Location of the later historic sites recorded in Baramulla District.

5.8.1 Pottery

The pottery belonging to the later historic period was classified into seven different wares. The first category consisted of thick red ware sometimes decorated with incised concentric circles or crescents or wavy lines or with stamped floral motifs. The second category consisted of gray ware with a lustrous black slip externally, and some of the sherds had incised geometric motifs. The third category comprised plain buff or dull red ware occasionally having patches of black on their exteriors. The fourth category consisted of fine red ware with deep black slip sometimes carrying incised decoration marks. The fifth category consisted of fine thin black ware occasionally carrying incised marks. The sixth category comprised plain red ware, sometimes unusually thick. The seventh category consisted of plain ochre ware, coarse and thick, with groove marks on its exterior. One significant find observed on the plain red ware was the stamping of the inner side of the pot bases with human motifs in dancing or erotic scenes. This is a new phenomenon found on the later historic pottery in Baramulla District, although Bandey (1992: 90) reported similar stamping of human scenes first at Parihaspora inside a few pot bases. Interpretations of this will be discussed in chapter 7.

There were many different shapes noticed in all the seven reported categories. Notable were the spherical bodied pots with collared out-turned rims (figure 5.35 – I and J), carinated pots (figure 5.35 – A, K and J), large storage jars with shouldered collars, different types of vases (figure 5.35 – F and H), dishes (figure 5.35 - D), basins with incurved rims, jars and pedestal bowls (figure 5.35 – E and C). Alongside these, many miniature pots and goblets with flaring rims were also noted (figure 5.35 – G and B). However, there was also the continuation of many shapes that were observed

during the early historic period, such as spherical bodied pots with collard rims, jars with splayed out rims, carinated vases with externally thickened rims, lid cum dishes, bowls, lamps, inkpot type pots and miniature pots.

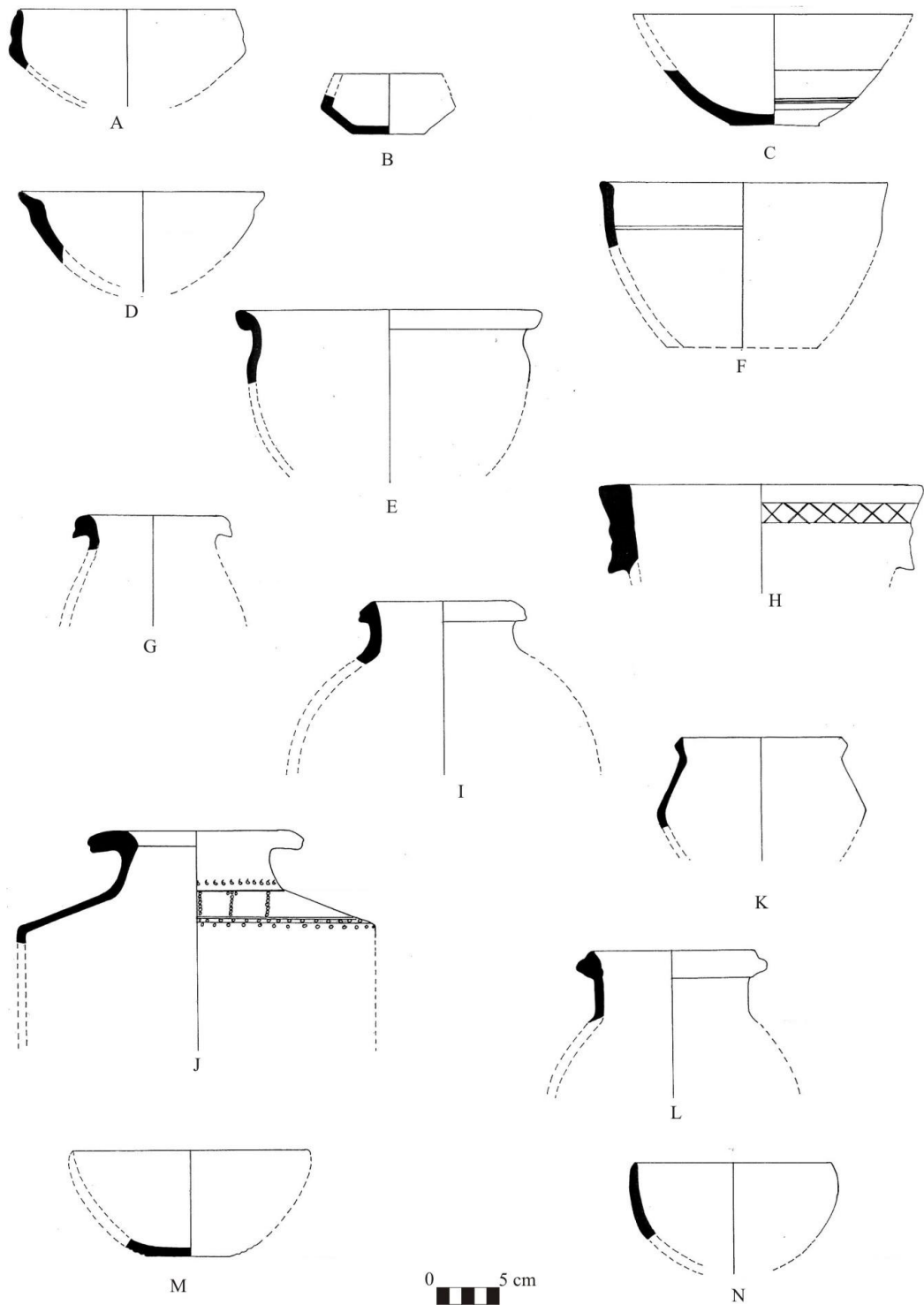


Figure 5.35 Some Later historic pottery types from the new sites in Baramulla District (Mumtaz Yatoo 2009).

These pottery types have similarities in types, shapes and design with material from Martand and Parihaspora (c. 750 AD), Tapar (c. 634 AD), and Avantipora (c. 855-1000 AD), which are all sites in Kashmir (see figure 5.24). The pottery of these sites were recorded by Shali (1993), and Agrawal (1998), who noticed that many types and shapes that were prevalent during the early historic period continue to the later historic period in Kashmir. The large storage jars with collared rims in red ware, a diagnostic ware of this period, have been reported from the later historic sites such as Martand, Tapar, Avantipora and Parihaspora, in Kashmir (Agrawal 1998; Shali 2001: 284). Agrawal's (1998) observation of pottery types of this period claims that potters had fairly advanced knowledge of firing techniques. He also notes that the pots were well levigated and there were more shapes than previous periods. However, there is hardly any mention of parallels of this pottery found elsewhere in neighbouring regions outside Kashmir. It is just possible that there are similarities with certain pottery types found at the Bala Hisar of Charsadda, Pakistan, in Period IV c. 2nd- 3rd century AD (Coningham et al. 2007: 97, 116-149) (see figure 2.4). The similarities are with the red ware, and in decorations such as the stamped rosette designs, geometric and floral motifs. However, the Charsadda pottery is earlier in date than the similar material Baramulla District.

5.8.2 Structures

Structural elements such as dressed stones and carved columns were reported at three sites (5.1, 9.5, and 10.3) belonging to this period in Baramulla District (figure 5.36). These are the fragmentary remains carved from limestone and trap rocks. Similar rock types have been used in constructing Tapar, Martand, Parihaspora,

Fathgarh and several other later historic temples in Kashmir. These dressed stones and carved columns from Baramulla District bear close resemblance with Tapar and Parihaspora structural remains in Kashmir. The ruins at Parihaspora, Tapar, Martand, Fathgarh, Pattan, and Avantipora in Kashmir have been thoroughly studied (see chapter 1). Kashmir architecture from 500 to 1300 AD reflects both Gandharan and Indian art styles and suggest links between Kashmir and its northern and southern borderlands where similar art styles are reflected in temples and buildings (Brown 1956: 186-97). The interpretations of the structural residues from the later historic period from Baramulla District will be discussed in chapter 7.



Figure 5.36 Structural debris from sites 5.1, 9.5 and 10.3 (Photo: Mumtaz Yatoo 2009).

5.8.3 Stone artefacts

Stone Bowls

Like several pottery types, the shapes and designs of stone bowls continue from the early historic to the later historic period, as can be seen in the stone bowls found at two sites (7.4 and 9.5) in Baramulla District (figure 5.35 – M and N and 5.37). Typologically, these stone bowls look similar to those reported in the early historic period (see section 5.7.3 above), but they were differentiated from them on the basis of design, such as etched impressions created by chiselling on their outer surface, with a smooth and fine textured interior. The design seems intended to give a pleasing look to the stone bowls and therefore may indicate an evolving appreciation of design. Although the origins of producing stone bowls dates to early historic period in Kashmir, their continued production during the later historic period indicates that the production of these stone vessels continued with some modifications. However, their absence from key Kashmir sites or neighbouring regions obscures their precise archaeological context.



Figure 5.37 Stones bowls from sites 7.4 and 9.5 (Photo: Mumtaz Yattoo 2009).

Rotary querns and mortar and pestle

Among the stone artefacts, rotary querns were observed at three sites (1.1, 1.3, and 5.8) belonging to this period in Baramulla District (figure 5.38). These querns are in two parts, one sitting over the other with a hole through the middle of the upper part and with a slot hole to the edge to make it rotate and grind. Similar types of querns have been reported from many later historic sites in Kashmir. Shali's observation and interpretation of these rotary querns suggests that they denote a good supply of crop such as wheat or corn among the settlements during this period in Kashmir. Although there is no environmental data that could support Shali's interpretations, the ethnographic data does support his views.

Similarly, mortars and pestles were observed at four sites (1.1, 1.3, 2.2 and 9.5) belonging to this period in Baramulla District (figure 5.39). These tools were carved from sedimentary rocks such as sandstone and limestone. Similar tools are reported from known sites such as Parihaspora, Avantipora and Martand in Kashmir (Bhan 1978: 30-31). Furthermore, it was observed while surveying that people still use these types of mortars or rotary querns or thick storage jars in the villages. I was led to many village houses and shown such tools in everyday use. Villagers not only collect these tools but also salvage them for re-use and in the process vandalise archaeological sites. This led me to suggest that what appears to be a relative absence of these artefacts from the later historic sites in Baramulla District may be due to their collection and re-use by the current occupants of the area. The implications of this will be discussed in chapter 7 (appendix 1 discusses in detail the disturbance/destruction at these sites).



Figure 5.38 Part of a rotary quern from site 1.3 (Photo: Mumtaz Yattoo 2009).



Figure 5.39 Flat mortar from site 1.1 (Photo: Mumtaz Yattoo 2009).

Site	Mortar and Pestle	Stone Bowls	Querns	Structural residue	Storage jars
1.1	Y		Y		
1.3	Y		Y		
2.2	Y				
5.1				Y	
5.8			Y		
7.1					Y
7.4		Y			
7.5					Y
8.5					Y
9.5	Y	Y		Y	
10.3				Y	

Table 5.8 The incidence of diagnostic stone and terracotta artefacts of the later historic period.

5.8.4 Summary

Material culture reported from the later historic sites mostly consists of pottery both new forms, and alongside forms persisting from the early historic period. The manufacture of thick storage jars and stamping inside pot bases, were new innovations observed for the first time on pottery in Baramulla District. As well as pottery, structural debris similar to that recorded at Tapar, Parihaspora and Fathgarh temples was found at two sites. Stone bowls were again found at two sites although with some modifications in design from stone bowls of the early historic period. Rotary querns and mortar and pestles were also found at seven sites belonging to this period, suggesting their use among the sites in Baramulla District. Unlike the Neolithic or the early historic assemblages, there are very few similarities with material culture from sites outside Kashmir.

5.9 Slag

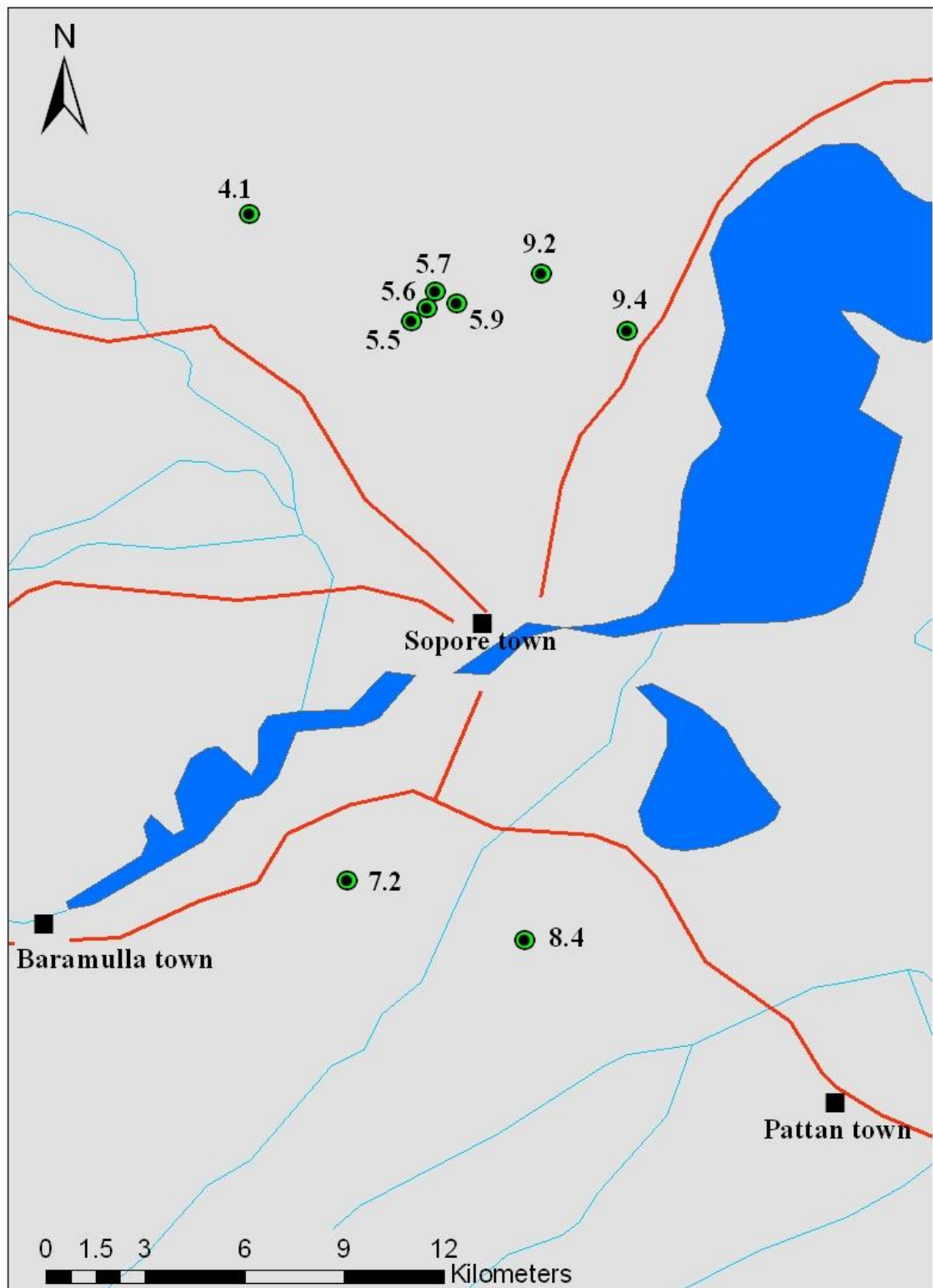


Figure 5.40 Slag sites located during the present survey in Baramulla District

Among the material culture found in the present survey, one of the surprising finds was the discovery of slag deposits associated with tuyere fragments at nine sites (4.1, 5.5, 5.6, 5.7, 5.9, 7.2, 8.4, 9.2 and 9.4) in Baramulla District (figure 5.41, 5.42). Of these nine sites, four (4.1, 5.5, 5.7 and 5.9) are pure slag with tuyeres without any chronological markers. These are either heaps of slag forming a mound or spread over the surface of the site. The remaining five sites have early and later historic material culture associated to them, alongside some unknown pottery types. This is the first time that slag and tuyere has been found in Baramulla District. Overall in Kashmir, there is only one reference to slag at Dragtiyung, Prang, which is 35 kms from Srinagar (Shali 2001: 109) (see figure 5.24). The slag at Dragtiyung is reported from the layers over a site thought to be Neolithic on the basis of material culture (no excavation has been carried out at this site yet). Shali (2001) noted that smelted iron or iron slag had been found scattered all across the site of Dragtiyung.

There has been no study carried out to date on this material or its context, nor any information about its chemical composition or the smelting process. However, from the neighbouring region of Uttar Pradesh, Tewari (2003: 540), while excavating Malhar site, revealed iron slag, iron tools and elongated clay pipes (tuyeres) from period II (c. 1800 to 1000 BC). Evidence of iron working and slag were also found from district Sonbhadra in Uttar Pradesh, with radio carbon dates of 1400 and 800 BC (Tewari 2003). If, the slag deposits found in Baramulla District are also indicative of iron smelting and metal working, then this material culture therefore raises some important questions; could Baramulla District be an independent centre for processing of metal, and could provide an understanding of the 'missing' Iron Age in the region? This will all be discussed at length in chapter 8.



Figure 5.41 Slag and tuyere fragments (Photo: Mumtaz Yatoo 2009).



Figure 5.42 Slag and tuyere at site 5.7 (Photo: Mumtaz Yatoo 2009)

5.10 Summary

The systematic survey carried out in Baramulla District has shown the presence of archaeological material culture from four chronological periods; the Upper Palaeolithic, the Neolithic, the early historic, the later historic, plus a few undated slag sites. The assemblages from these four periods present a diverse material culture which when analysed showed pottery of various types and shapes were present at the majority of the sites. As well as pottery, lithic tools and artefacts, structural residue, tile and terracotta, slag and tuyere and many miscellaneous artefacts characterised the site types. Furthermore, through the course of analysis, it appears that the material culture of Baramulla District has similarities not only with sites in Kashmir but beyond its northern borders, making it a part of an 'Inner Asia' or 'Northern Neolithic' complex (Allchin and Allchin 1993b: 111-116; Fairervis 1975; Pande 1969; Stacul 1987; 1994). The slag and tuyere from undated and the early historic sites was a new discovery, probably indicating smelting in the region and is important for exploring the 'missing' chronological period that appears to exist in Kashmir; this is discussed further in chapter 8.

Chapter 6

Analysis of field work: settlement patterns

This chapter deals with the second section of data analysis undertaken for my thesis, and continues on from chapter 5; here I investigate the distribution of material culture over the landscape of Baramulla District to identify site patterning and any possible influence from physical features. It was noted in chapters 2 and 4 that the landscape of the district is varied with physical features such as *karewas*, mountains, natural and artificial mounds, lakes, rivers and wetland reserves all likely to influence settlement in the past, just as they have influenced aspects of modern settlement. A number of important questions arose during analysis, but the crucial ones that merit attention concern the relationship between the physical features and the location of sites over them. For instance, I will analyse the current data in order to ask if the location of sites across the four chronological periods has been influenced by physiographic features in the district, or were the sites randomly placed without any order or pattern? If there were any patterns in the location of sites over the landscape of Baramulla District, what are the key factors shaping these patterns? Therefore, keeping the landscape features of the district as the primary element for consideration, this chapter will analyse the settings of the sites to observe their distribution and the influence of the physical features over their placement. Such things as site size, altitude and proximity to water will also be considered.

6.1 Settlement and landscape

The information arising from analysis of site location in relation to physical features in the landscape provided a good initial understanding about settlement types with some very interesting trends and patterns emerging across the four chronological periods in the district. The general information about the location of these sites in various physiographic zones is provided in Appendix 2. The sites reported were not always found on a single topographic or vegetation feature or zone; some sites were found stretching over more than one distinct topographic or vegetation zones. In such cases, both zones or features are discussed to arrive at interpretations. This data is therefore presented in such a way, which not only inform about the location of sites, but also present them in context within the larger landscape of the Baramulla District.



Figure 6.1 Taken from the north western end showing the Neolithic site 5.4 on a low lying *karewa* on the foothills of Yemran Mountains. Note the site location in respect to mountains, *karewas* situated on valley floor and its mounded formation (Photo: Mumtaz Yatoo 2009).

From a total of 72 sites, 30 sites from four chronological periods were located on *karewa* surfaces (a local physiographic feature to Kashmir, defined in chapter 2), in Baramulla District. However, these *karewas* sometimes have other physiographic properties associated with them. For instance, a *karewa* can be situated on a valley floor or sometimes on a mound, or on a mountain (a mountain is formally defined as a feature which rises abruptly from surrounding area, it should have local relief and steepness of slope (Price 1986: 1-2), the average height of the district is 1580 meters above sea level (masl) or 5187 feet above sea level (fasl). Out of these 30 sites, four belong to the Neolithic period, five to the early historic period and 10 sites to the later historic period. The 11 remaining sites were found to have material culture from more than one period. This suggests *karewas* have been an attraction for people to construct settlements in Baramulla District. This phenomenon seems to have started in the Neolithic period and continued through the early historic period and then to the later historic period in the district. In Kashmir itself, sites such as Burzahom, Gufkral, Kanispora, and Semthan are examples of this phenomenon as they are all situated on the *karewa* soils (Agrawal 1992; Mitra 1984: 16-17; Thapar 1980: 19; Tripathi 1987: 23; Shali 2001).

This analysis showed that a total of six sites were located on the mountainous surface in Baramulla District i.e. at altitudes over 1646 masl (5400 fasl). Among these six sites, two are of the Neolithic period (4.6, 9.3), three belong to the early historic (4.2, 8.2, 9.1) and one had material culture from more than one period (7.1) (see figure 6.2). This is the first time in Kashmir that the Neolithic sites at altitudes of 1665 masl (5464 fasl) and c. 1646 masl (5400 fasl) have been located on a mountain slope. From the early historic period, three sites were found on mountains i.e. at an altitude of

2089 masl (6855 fasl). From the presence of material culture at these sites on the mountains at high altitudes in the district it can be suggested that sites from the Neolithic period onwards were not restricted to any particular physiographic feature in terms of their location (this will be further discussed in chapter 7).

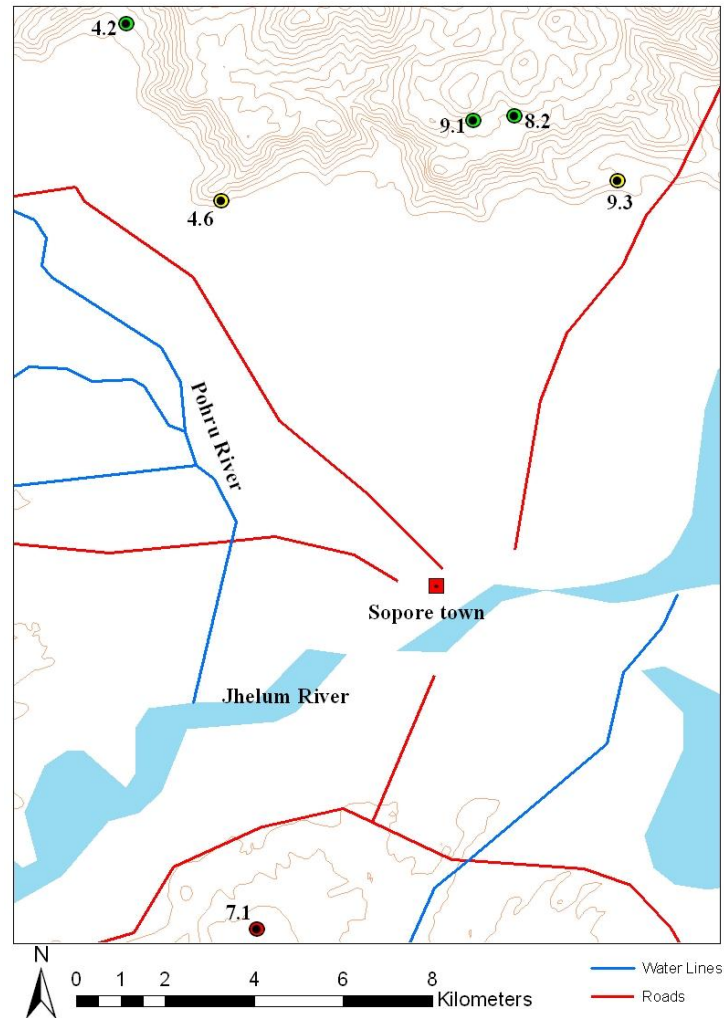


Figure 6.2 Neolithic and early historic site locations on higher altitudes

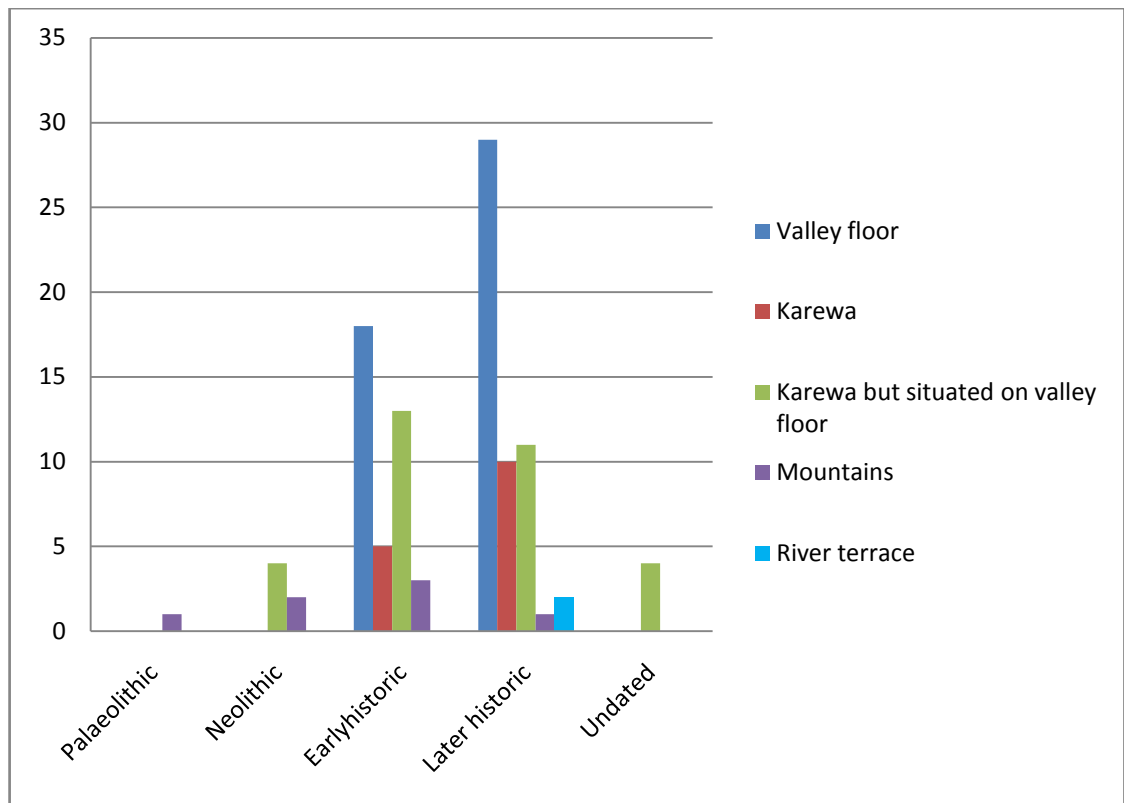
During both the early and later historic periods it was observed that sites in Baramulla District were now being located in the valley floor. A total of 36 sites were located on the valley floor of which one site is of the early historic period; 16 sites are

of the later historic period; 15 sites have early as well as later historic material culture; and four sites are undated slag and tuyere sites.

This analysis shows the location of sites over the various topographic zones of Baramulla District within the four chronological periods, and within this there are some important trends which need to be highlighted. Firstly, the majority of the Neolithic sites are located on *karewa* surfaces and *karewa* surfaces are also the location for five early historic period sites, 10 proportion of later historic sites and 11 sites with both early and later historic material. Secondly, sites located at high altitude areas such as mountain tops or slopes are sites belonging to the Upper Palaeolithic, the Neolithic, the early historic and later historic periods. Finally, there was no Neolithic site found situated on the floor of the valley in the survey area of Baramulla District. The interpretations of these findings will be discussed in chapter 7. A summary of all these details are shown below:

<i>Topographic situation</i>	<i>no. of sites</i>	<i>%age</i>
Valley floor	34	47
<i>Karewa</i>	10	14
<i>Karewa</i> but situated on valley floor	20	28
Mountains	6	8
River terrace but situated on valley floor	2	3
N = 72		

Table 6.1 Showing the new sites in various topographic situations



N=103

Figure 6.3 Concentration of sites on various physiographic zones across four chronological periods in Baramulla District.



Figure 6.4 Taken from southern end of site 3.2 showing an artificial section of *karewa* with visible archaeological material culture (Photo: Mumtaz Yatoo 2009).

It was also observed during the course of analysis that some sites are more closely linked to certain physical features, which is important for learning more about settlement patterning in Baramulla District. For instance, when considering the sites with material culture from more than one period (of which there are 30 in total). I found that 11, or one-third were located on mounds. These mounded sites are called *teng* by local people (see site commentaries appendix 1). These mounded features are either artificially created due to the activity of people over time, or are natural formations on which humans have left archaeological material culture.

A comparison was made between multi-period and single-period mound sites in an attempt to understand if there are any differences or similarities. Eleven multi-period sites were found on mounds as noted above. In terms of single period sites, there were six sites of the later historic period, three sites of the early historic period, one site of the Neolithic period and three sites of undated slag and tuyere that were also found situated on mounds. However, the main difference between mounded sites with multi-period material culture and single period sites, is that the multi-period are large ranging in size between 1858 to 9290 sq meters (20,000 to 100,000 sq feet) while the single period sites are <464 to 3716 sq meters (<5000 to 40, 000) sq feet. Therefore, this suggests that multi-period mound sites seem to have seen activities during two chronological periods and therefore are large in size and most likely artificially created through human activity. These multi-period mound sites also seem to be important source of information about continuity and dis-continuity among settlement sites in Baramulla District compared to single period mound sites, also such information can be attained by excavating few of the multi-period mound sites.

There are some known sites in Kashmir and in neighbouring regions situated on mounds. For instance in Kashmir, Kanispora site is located on a raised surface feature with both the Neolithic and early historic material culture; similarly Semthan which is again a multi-period site and is also located on a raised surface feature although naturally created by *karewa* soils. The interpretations of this will be discussed in chapter 7.

Chronological period	Number of sites situated on mounds or more or less raised surface features	Percentage
Neolithic period	1	1
Early historic period	3	4
Later historic period	6	8
Multi-period i.e. sites with material culture of more than one period	11	15
Undated slag and tuyere sites	3	4
Total	24	33

N=72

Table 6.2 Number of sites across four chronological periods situated on mounds or more or less raised surface features



Figure 6.5 Taken from the southern end showing mounded site 5.1 situated on the valley floor (Photo: Mumtaz Yatoo 2009).



Figure 6.6 Taken from the southern end showing site 9.3 situated on a slope of a mountain in more or less a raised formation (Photo: Mumtaz Yatoo 2009).

6.2 Settlements in relation to altitude

In the preceding sections the location of sites within various physiographic features of Baramulla District was discussed. While analysing the data it appeared that all sites are situated either on the valley floor, *karewa* surfaces, mounds or mountains in the

region. Within this broad overview a few patterns began to emerge, such as the location of the two Neolithic and one Palaeolithic site on mountainous areas; as were a few early historic sites, whereas later historic sites were found largely on the valley floors in the district. This data raised some important questions such as: did the people of these four chronological periods choose the sites locations at these different altitudes deliberately in order to satisfy particular needs and demands? Or were the site locations chosen at random at different altitudes in Baramulla District? Although the altitude analysis was carried out initially in imperial measurements it has been converted into metric measurements to standardise the measurement system used throughout this thesis (see imperial conversion key in appendix 2).

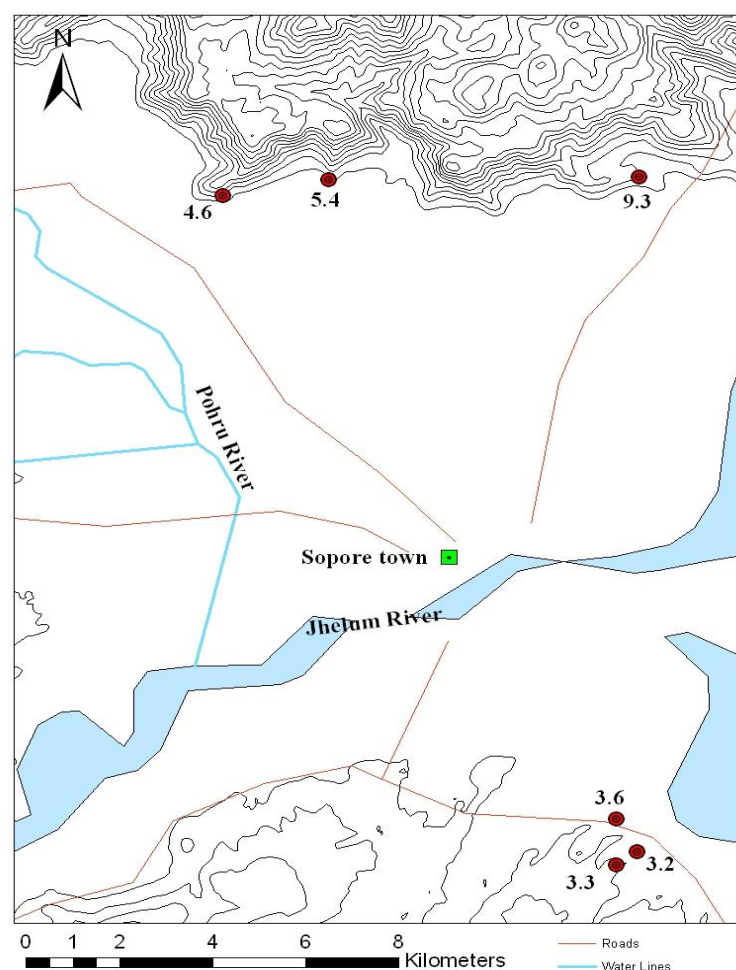


Figure 6.7 Contour map of Palaeolithic and Neolithic sites located in Baramulla District

It was learnt from the present analysis that the majority of the sites in all the four chronological periods were located within the altitude range of 1585-1646 masl (5200-5400 fasl); this is above the average altitude of the district, which is 1580 masl (5187 fasl). The single Upper Palaeolithic site (4.6) was located at an altitude of 1646 masl (5403 fasl) (see figure 6.7). The two Neolithic sites were found at altitudes between 1646-1707 masl (5400-5600 fasl) (see figure 6.7). Among 39 early historic sites, 25 sites were found between altitudes of 1585-1646 masl (5200-5400 fasl) and four each between 1646-1707 (5400-5600 fasl) and 1707-1768 masl (5600-5800 fasl) respectively (Figure 6.8). Two of the early historic period sites were found at an altitude greater than 1829 masl (6000 fasl). Similarly, during the later historic period 38 sites out of 53 were found at an altitude range of 1585-1646 masl (5200-5400 fasl), three at 1646-1707 masl (5400-5600 fasl), seven sites at 1707-1768 (5600-5800 fasl) and one at above 1829 masl (6000 fasl) (see figure 6.9).

This data shows that all these sites are located at altitude levels above the average height of 1580 masl (5187 fasl) in the Baramulla District. This analysis suggest that settlement pattern shows early settlement in the Upper Palaeolithic and the Neolithic occurred in high altitude areas. During the early historic period people started to move to lower altitudes, but sites are still some distance away from the valley floor where the present day modern settlements are located. Only four sites of this period were found situated at altitudes between 1524-1585 masl (5000-5200 fasl), i.e. below the average altitude of the whole region. The situation does not seem to have changed during later historic period in the district; as again only four sites of this period were located between 1524-1585 masl, or below average altitude. It seems

people did not move below 1585 masl (5200 fasl), before the end of 10th century AD. This data might be interpreted as indicating that the looming threat from floods prevented people from living at low altitudes as has been suggested by Mitra (1983) and Shali (2001). It might also be possible that the present modern settlements between altitudes 1524-1580 masl are masking archaeological sites in Baramulla District (interpretations of this will be discussed in chapter 7). A pattern of sites largely situated at higher regions and overlooking present day population was evident during the survey carried out in the region.

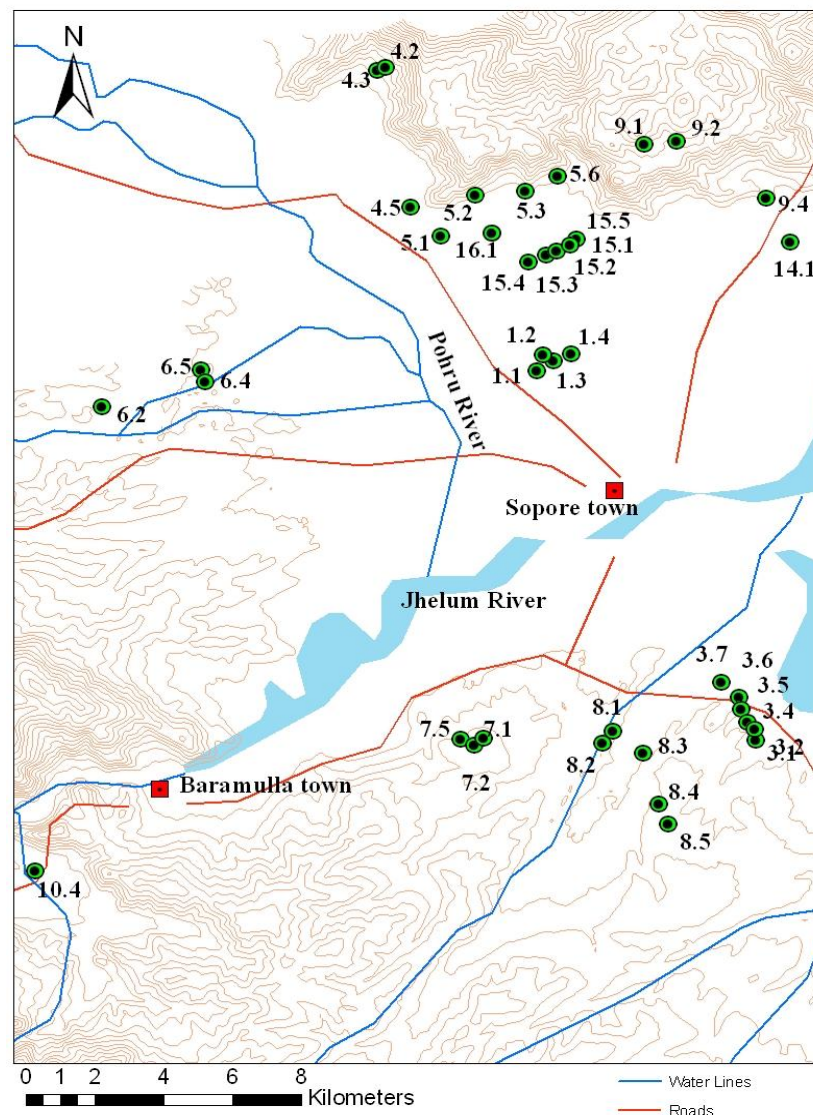


Figure 6.8 Contour map of early historic sites located in Baramulla District

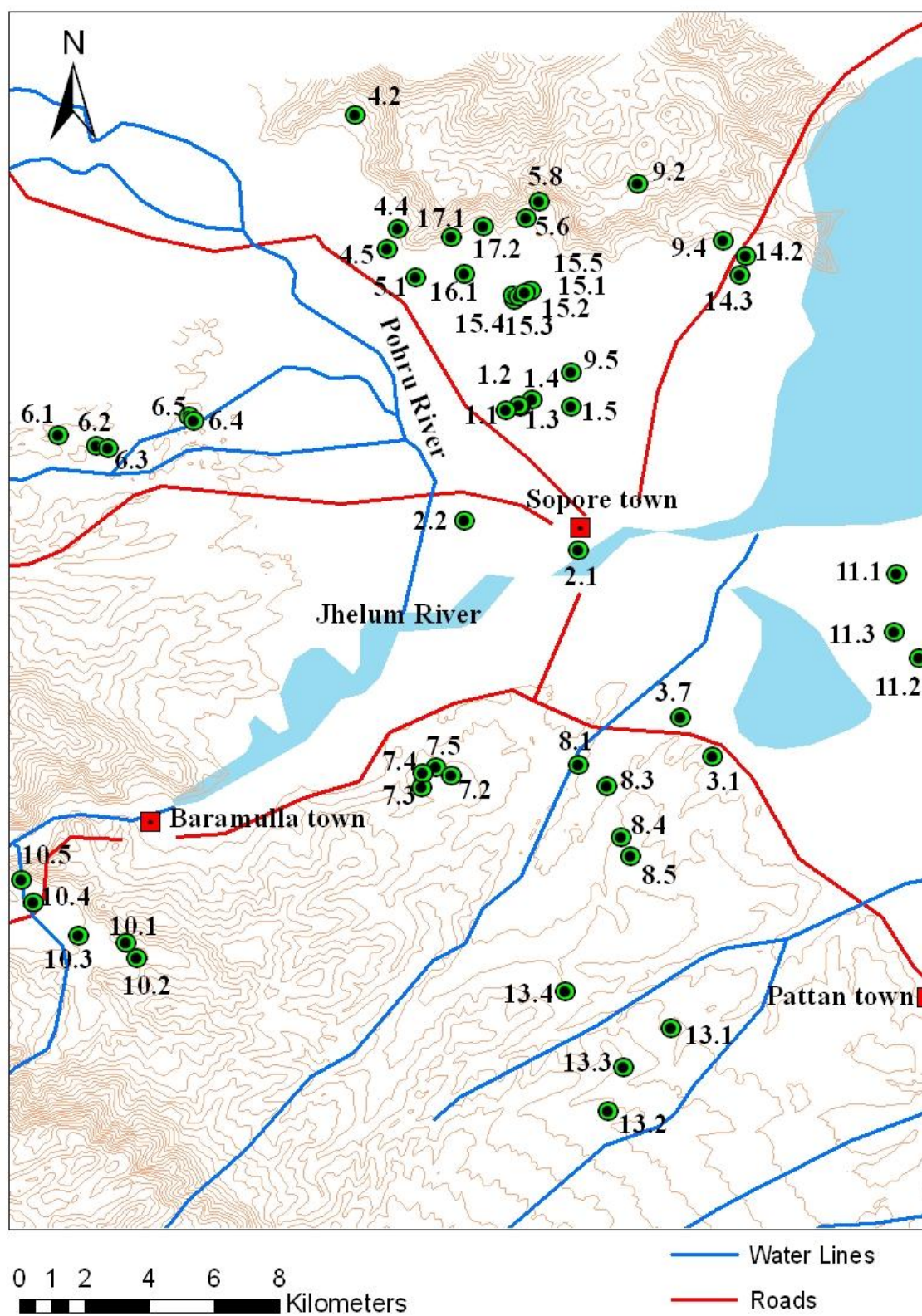


Figure 6.9 Contour map of later historic sites located in Baramulla District

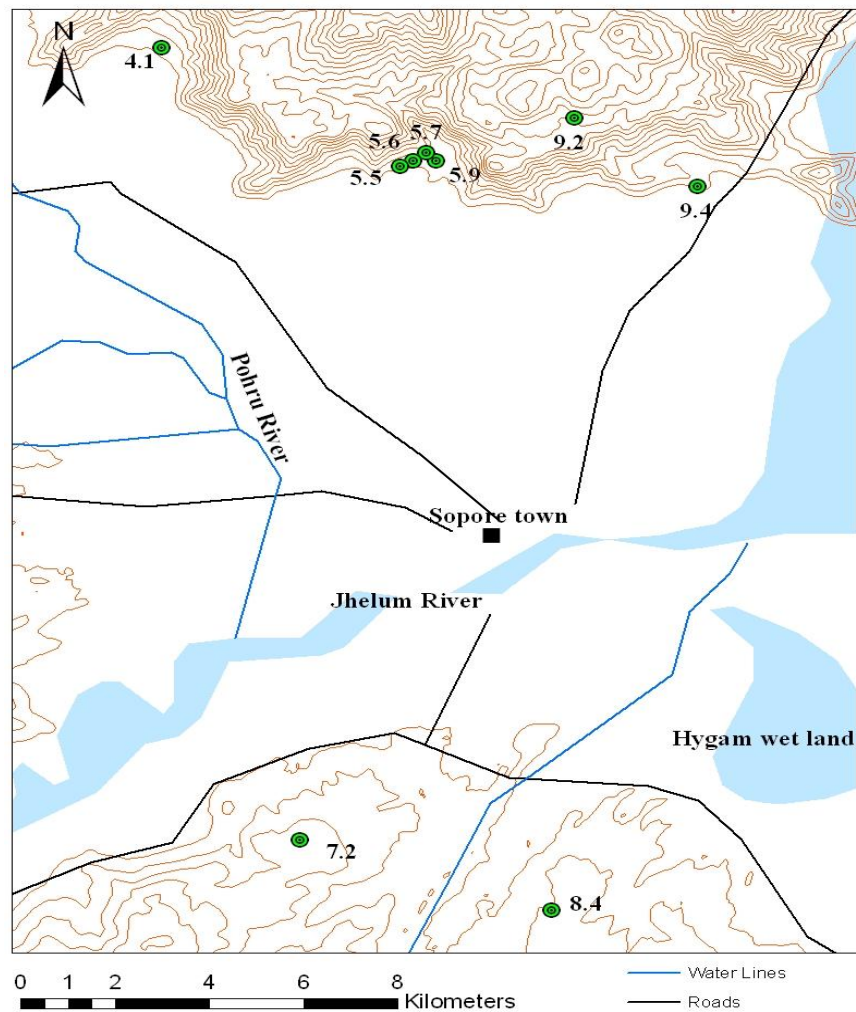


Figure 6.10 Contour map of slag sites located in Baramulla District

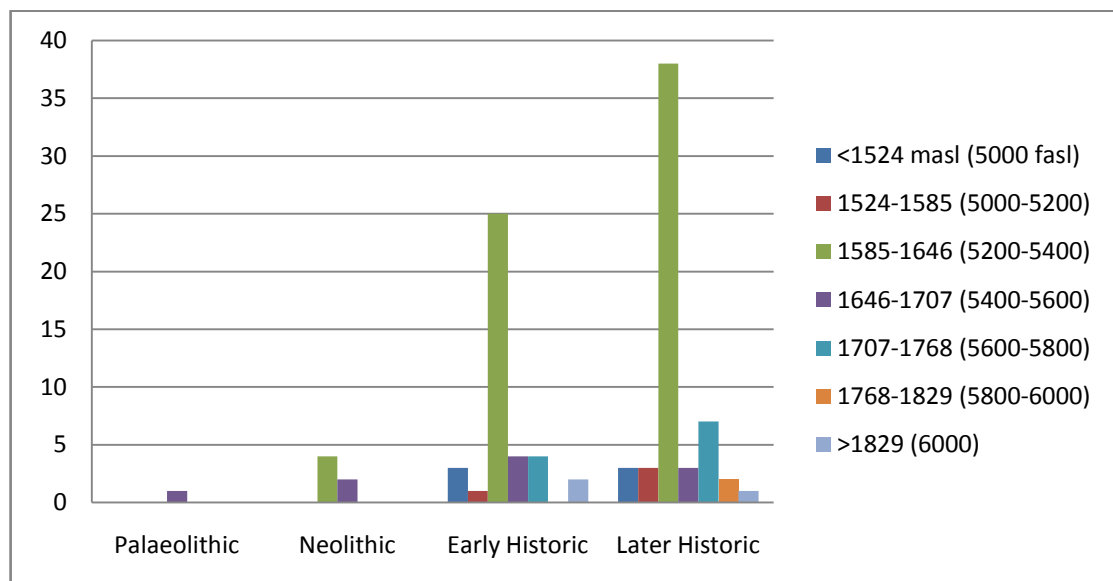


Figure 6.11 Altitude of sites across the four chronological periods found in the Baramulla District.

6.3 Settlements in relation to water bodies in Baramulla District

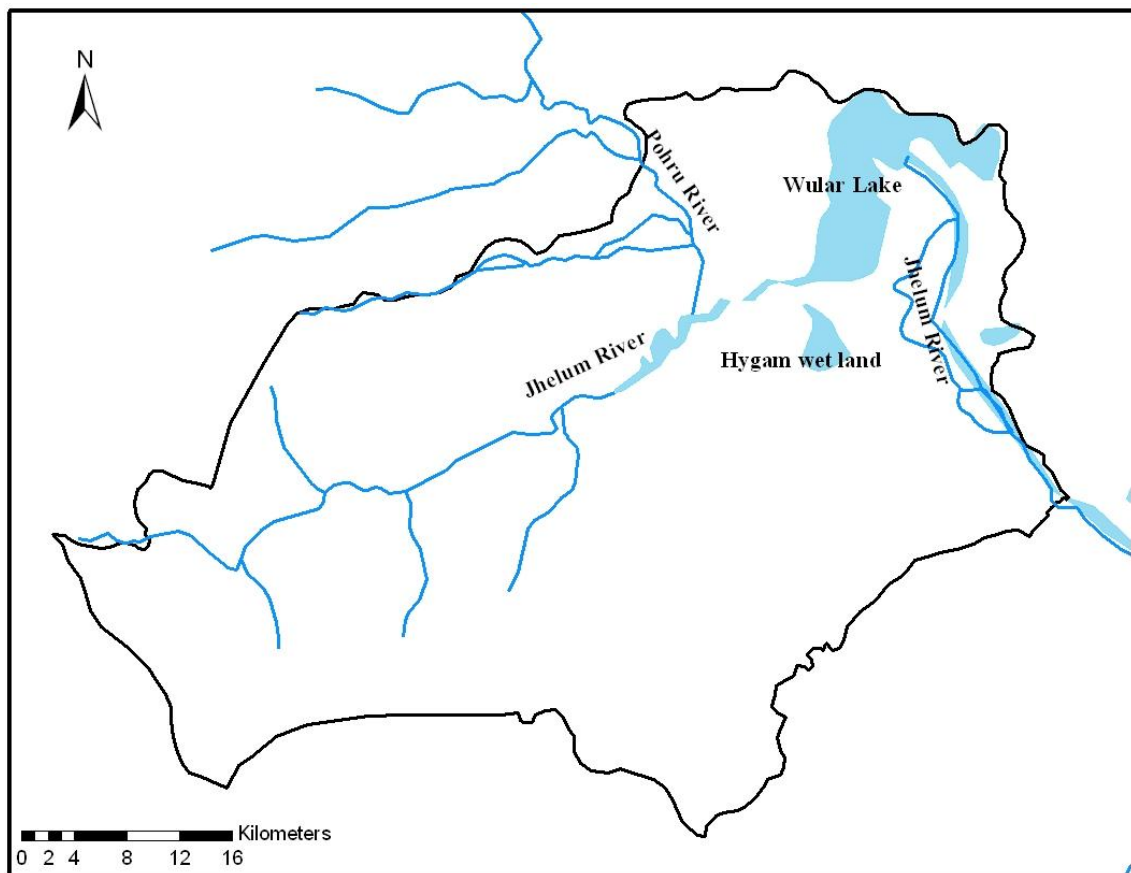


Figure 6.12 Main water bodies in Baramulla District

Further analysis was carried out in order to understand the location of sites across the four chronological periods in relation to water resources in the Baramulla District. Water resources are an important factor for settlement and activity in the past. Water is critical for drinking, cooking, and washing and it also plays an important role in trade, transport and the subsistence economy of societies (Jackson et al. 2001).

During the present survey in the district, I recorded the proximity of sites from all four chronological periods in relation to different water bodies such as lakes, springs, rivers, canals and wetland reserves. The region has two important rivers (the Jhelum and the Pohru), one large fresh water lake (Wular), and a very important

wetland reserve (Hygam) (see figure 6.12). All these four major water bodies are within a 21 km radius of all the sites in the region. Closer analysis showed that the Upper Palaeolithic site was 2.7 kms from River Pohru (see figure 6.7). Two of the six Neolithic sites were between 2 to 7 kms from Pohru River, while a further three were within 2 kms distance from Hygam wet land reserve and one 3.5 kms from Wular Lake (see figure 6.7). Among the early historic period sites, 19 were located within 1 to 9 kms distance from the Pohru River and a further 11 were situated within 6 kms distance from the Hygam wet land reserve, while five sites were found within 9 kms from the Jhelum River and four sites within 6 kms from the Wular Lake (see figure 6.7). 21 sites of the later historic period were between distances 1 to 6 km from the Pohru River, 12 sites were within 10 kms distance from the Jhelum River, 15 sites were within 11 kms distance from the Hygam wet land reserve, and 5 sites were within 6 kms distance from Wular Lake (see figure 6.7). Furthermore, four of the undated slag and tuyere sites were within 6 kms from the Pohru River (see figure 6.10).

This analysis suggests all the four major water bodies seem to have remained a source of water for people across all the four chronological periods. Moreover, it might be possible to suggest that people probably had recourse to more than one source of water; for instance site 1.1 is 1.5 kms away from the Pohru River and is only 4 kms from the Jhelum River and 4.5 kms from Wular Lake. However, on the basis of distance, most sites from all chronological periods are closer to the Pohru River.

Rivers and lakes have played an important role in settlement during different cultural periods in Kashmir (Shali 2001). Lakes are thought to be the source of pre and early historic sites while rivers are thought to be of vital importance for early and later historic period sites (Bandey 2009; Shali 2001). Whether the sites located in Baramulla

District follow the same pattern or deviate in any manner, will be discussed in chapter 7.

Period	River Pohru	River Jhelum	Wular Lake	Hygam wetland reserve
Palaeolithic	1	x	x	x
Neolithic	2	x	1	3
Early historic	19	5	4	11
Later historic	21	12	5	15
Undated slag	4	x	x	x
Total	47	17	10	29

N=103

Table 6.3 Number of sites as per their distances to four major water bodies of Baramulla District

6.4 Analysis of site size in Baramulla District

In this section of analysis site size distribution across the four chronological periods is presented and discussed. The estimation of site size is based on the extent of pottery/material culture recorded at each site. Some sites had a visible border within which the material culture was found restricted, allowing relatively clear calculation of the extent of the site. The aim was to ensure that area of material culture scatter at each site could provide a reasonable estimate of size of that site. Size estimates were carried out to allow comparisons between chronological periods, and furthermore, it was thought important to determine if any site types have increased or decreased in size. For instance, did size vary over time for sites with only pottery, or sites where more than one type of material culture was recorded? This approach that was

followed in Baramulla District had been earlier tested by Carrete et al. (1995: 62) in Tarragona in Spain, and by Halkon (2008: 49) in the Foulness Valley in East Yorkshire in England.

It is important to mention that calculating site size either from pottery or other cultural material residue has several implications and drawbacks. It could lead to overestimating (or underestimating) the site size if a portion of a site is inaccessible or the material culture is strewn by agricultural activity or erosion, as was noticed at a few sites in Baramulla District. However, there was no systematic way to adjust site size other than to determine the size on the basis of extent of visible material culture which means that the estimation of site size is very imprecise. With these problems in mind a classification table was created in which sites were placed in categories of size between the minimum of <464 sq meters to the maximum of >9290 sq meters (i.e. <5000 sq feet to >100000 sq feet). This procedure was followed to allow a minimum of size groups but also indicate the range of sites sizes and note any potential clustering or other trends.

Sq feet	<5000	5000-10,000	10,000-20,000	20,000-40,000	40,000-80,000	80,000-100,000	>100,000
Sq meters	464	464-929	929-1858	1858-3761	3761-7432	7432-9290	>9290
Upper Palaeolithic	1						
Neolithic						5	1
Early historic	3	3	4	4	14	2	9
Later historic	3	5	4	9	15	2	15
Undated slag		2	2				
Total	7	10	10	13	29	9	25

N=103

Table 6.4 Number of sites from four chronological periods as per their site size

In the course of this analysis some trends were indeed evident. It was observed that material culture thought to belong to the Upper Palaeolithic site was recovered within 4.5 sq meters (50 sq feet) alongside an adjacent large Neolithic site 8361 sq meters. The six Neolithic sites have their distribution of material culture occurring in sites of varying sizes, but all greater than 7432 sq meters, with five sites (3.2, 3.3, 3.6 4.6, and 5.4) between 7432-9290 sq meters (80,000-100,000 sq feet), and one (9.3) greater than 9290 sq meters (100,000 sq feet). Three sites (4.6, 5.4 and 9.3) in the above size categories had diagnostic pottery types, plaster pieces of wattle and daub, and stone tools all scattered there. Therefore, it suggest the greater the size of the site, the more likely it is to demonstrate more diverse material culture and which is further related to different human activities at these sites (see chapter 5 for details about this material culture). Burzahom, Gufkral and Kanispora sites are examples from Kashmir, where greater diversity of material culture also appears to be linked to greater site size, when compared to those sites where a limited range of material culture was reported from much smaller sites, such as those reported by the Kashmir Palaeoclimate team or the Archaeological Survey of India (Ghosh 1996; 1964; 1965; Mitra 1984; Sharma 1982; 2000). The interpretations of this are further discussed in chapter 7.

The early historic period is represented almost entirely by large sites in the Baramulla District. Only three sites are less than 464 sq meters (5000 sq feet) in size, while 14 sites fall within the site size group of 3716-7432 sq meters (40,000-80,000 sq feet) and 9 within the site size group of greater than 9290 sq meters (100,000 sq feet). This is depicted in figure 9 below. From the analysis of associated material culture, it was clear that pottery was the main artefact scattered over these sites. At the same

time there was evidence of structural activity, slag, stone, terracotta and other artefact finds in addition to pottery at number of sites. This pattern again indicates a trend whereby sites with a more than one type of material culture are far larger than those with only one type of material culture. In Kashmir, Harwan, Semthan and Kanispora are examples of large sites (no site size available) where material culture of more than one type is reported and Ushkar and Huthmura are smaller (no site size available) with only terracotta tiles reported there (Shali 1993; 2001). See chapter 7 for further discussion.

The analysis of the size of later historic period sites in the Baramulla District has shown that 15 sites fall in the size group of 3716-7432 sq meters (40,000-80,000 sq feet) and another 15 have a site size greater than 9290 sq meters (100,000 sq feet) while there are 9 sites in the 1858-2716 sq meters (20, 000 - 40,000 sq feet) category. There are only three sites which are less than 464 sq meters (5000 sq feet) in size. The number of sites that are greater than 9290 sq meters (100, 000 sq feet) in size have almost doubled from the early historic period suggesting activity and/or population at sites increased considerably during the later historic period. The site size analysis has again shown that range of material culture differentiates the large sites from the smaller ones in the region during this period.

This analysis brought to light some interesting trends about the distribution of site size in the four chronological periods in Baramulla District. There were two types of sites; sites with material culture from a single period only, and those sites where material culture of more than one period was found. It was observed that the multi-period sites were also the larger sites where indications of continuation and discontinuation were also observed, and this will be discussed in the next section. For

instance, the two Neolithic sites 3.2 and 3.6 of site size 7432-9290 sq meters (80,000-100,000 sq feet) also have early historic material culture across an equally large area. Similarly, eight early historic sites in the size group above 9290 sq meters (100,000 sq feet) had later historic material culture across a large area, and probably indicate expansion during the later historic period.

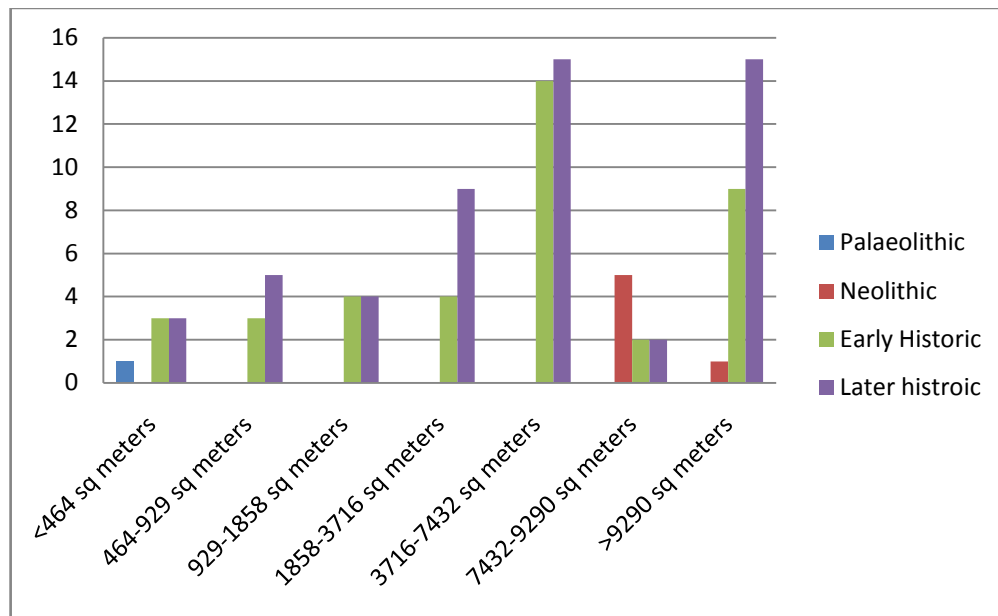


Figure 6.13 Size of the sites within the four chronological periods.

6.5 Classification to determine continuity or discontinuity

It was noted in both chapter 5 and above that several sites in the four chronological periods had examples of material culture from more than one period, and these sites were further analysed to consider issues of continuity and discontinuity. The results firstly indicated that sites with material culture of more than one period may have either remained continuously occupied, or they may have been subject to discrete phases of occupation perhaps even in contiguous periods without necessarily demonstrating any continuity in the region. The evidence for multi-period occupation was recorded at 30 sites: one site revealing the Upper Palaeolithic and the Neolithic

material culture; two sites revealing the Neolithic and the early historic material culture; and 27 sites revealing the early and later historic material culture.

It was important to understand and analyse the nuances of continuity or discontinuity within different site types as demonstrated by their material culture. However, such questions are highly ambitious and cannot be answered solely through survey; but it is important to ask why the material culture of two different periods might be evident at some sites but not others, and what this means in terms of overall settlement patterning in the region. With the newly acquired data for this current research, and through the analysis and interpretation of these data, continuity and discontinuity can be explored further through consideration of the various multi-period sites located on different landscape features in Baramulla District.

From the analysis of material culture it now seems clear that the first site appeared during the Upper Palaeolithic period c. 18000 BC in the region. This Upper Palaeolithic site was located adjacent to a Neolithic site (4.6) which suggests that in fact the same site might have been occupied during two different periods. The first evidence of occupation seems to have taken place around c. 18000 BC and this was followed by a considerable gap, until the site was occupied again c. 2500 BC (Bandey 2009: 132-133) when the characteristically Neolithic coarse wares and fine wares appear at this site, thus indicating settlement discontinuity. A similar pattern was observed at Sombur in south Kashmir (see chapter 3, section 3.2.1) to which Pant et al. (1982), suggested a transitional phase from upper Palaeolithic to Neolithic (for detailed description see chapter 7).

A total of six Neolithic period sites were recorded of which two sites (3.2 and 3.6) also had early historic material culture associated with them. Of these two, site

3.2 had the four Neolithic diagnostic pottery types (coarse ware c. 2500-2000 BC; fine gray ware and burnished ware c. 2000-1700 BC; and gritty red or buff ware (c. 1700-1000 BC) indicating an initial occupation of the site at around c. 2500 BC (Bandey 2009), but whether the site was continuously occupied, or whether there was a break in the occupation sequence can only be determined through excavation. As well as pottery, stone tools and other characteristically Neolithic artefacts were also found at this site. Among the early historic material culture apart from pottery, dating from c. 1st century AD to the 5th century AD, stone bowls were also collected which at Gufkral in Kashmir were assigned the chronological date ranges of c. 1000 BC to 1st century AD (Converse 1978; Lal 1973; Shali 1993). This discrete presence of material culture perhaps even in contiguous periods without necessarily demonstrates any continuity at this site. At site 3.6 there is evidence for the Neolithic activity c. 2500-2000 BC when coarse ware appears, and further activity is indicated c. 2000 – 1700 BC with the appearance of burnished ware pottery. Early historic occupation seems to start from 1st century AD on the basis of pottery comparable to pottery from the Harwan site in Kashmir which has been assigned this date. Therefore, it can be argued that there is a discontinuity of activity at this site, although again, excavation would be needed to confirm this suggested sequence. However, an unidentified stone artefact (see chapter 5, section 5.7.5 above) resembling a grinding slab was reported at this site. Similar grinding stone slabs were reported from Kalako-deray period IV c. 1700 – 1300 BC from Swat, Pakistan (Stacul 1993: 90). If the artefact is proved to be similar to Swat then this raises interesting questions about activity at the site between the Neolithic and the early historic period.

From 30 early historic sites 28 also had material culture of the later historic period. Among these 28 sites the shapes and the design on the pots prevalent during early historic period (1st to 5th century AD), such as spherical bodied pots with collard rims, jars and vases (see chapter 5, pottery sections of early and later historic periods above) were also produced during later historic periods (5th to 10th century AD) (Agrawal 1998; Shali 1993; 2001). Similarly, the stone bowls reported at two sites (7.4 and 9.5) during later historic period with a modified design suggests stone bowls remained in production beyond c. 5th century AD. This continuation of material culture at these sites is interesting. Thick storage jars, a diagnostic ware of the later historic period at sites 7.1, 7.5 and 8.5, have been reported at early historic sites such as Semthan and Kanispora, though in very small numbers. This suggests some continuity of material culture.

This analysis shows some interesting results regarding the issue of continuity and discontinuity in relation to material culture and site occupation in four chronological periods in the region. It seems that some sites may have remained in use for a long time during various periods in the region with cultural contacts widely established in Kashmir and beyond its borders; the interpretations of this will be further discussed in chapter 7.

6.6 Summary

The landscape of Baramulla District is varied with many geophysical features. The sites of the four chronological periods were found occupying such features as mountains, *karewas*, mounds, and valley floors. There were some interesting trends which suggest these features may have been deliberately chosen for settlement during

different chronological periods. For instance, the single Upper Palaeolithic site plus the two Neolithic sites were located on the slopes of mountains; several Neolithic sites were found located on *karewas*, and most of the early historic sites were also found on the *karewa* surfaces, with a few located on mountains as well. During the later historic period, the majority of sites (35) were located on the valley floor.

Given that the average height is 1580 masl in Baramulla District, the Palaeolithic, Neolithic, early historic and later historic sites, with few exceptions, were found above this average height. The region has rich water sources in the form of Wular Lake, rivers Jhelum and Pohru and Hygam wetland reserve as well as streams and springs. The sites of the four chronological periods were found within 21 km radius of these water bodies. However, most sites were located near to the Jhelum and Pohru Rivers.

The size distribution of sites of the four chronological periods suggests the majority of the sites are large in all the three chronological periods except the single Upper Palaeolithic which is 4.5 sq meters in size. The sites with material culture from than one period were generally larger than those with single period material culture. Similarly, issues of continuity and discontinuity particularly among the multi-period sites were observed during the present analysis.

Chapter 7

Discussion: material culture and settlement patterns

In chapters 1 and 2 I explained how little is known about the archaeological past of the Baramulla District. Prior to my MPhil and the current research it has attracted very little attention, particularly with regard to the prehistoric period (Palaeolithic, Mesolithic and Neolithic) and there has been a dearth of settlement information from early and later historic periods as well. Whatever modest information is available comes from the partially excavated site of Kanispora, a few excavated temples of the later historic period and passing references to the Neolithic and the early historic material culture from a few rudimentary surveys along the Jhelum Valley communication route (Indian Archaeology 2004; Joshi 1990; Mani 2000; Mitra 1984). However, the results from the current systematic field surveys successfully picked up crucial evidence of diverse archaeological material culture of four chronological periods in the District, which after analysis (chapters 5 and 6), provided information about various site types, site patterns, landscape features and intra and extra regional affinities and artefactual continuities and discontinuities across the four chronological periods. In this chapter this analysis is taken further, with a discussion of the implications of the new information in the wider contexts of Kashmir and South Asia and even beyond to Central Asia, in order to understand more about differences and similarities in material culture, interactions and settlement patterns.

Through this discussion, I aim to address the questions set out at the beginning of this research, and then go on to propose new interpretations about material culture and settlement patterns of sites for the regional landscape of Baramulla District. This is achieved by considering interpretations of material culture from different archaeological sites and periods, and also the choices and selections people made within the landscape for things such as settlement, and in order to maintain cultural interactions with South and Central Asian regions. Furthermore, issues and interpretations linked to the archaeometallurgical material evidence (the undated iron slag and tuyeres) help to explore chronological gaps such as the 'Iron Age,' which has been elusive in Baramulla District and this is covered in a separate discussion chapter (see chapter 8).

7.1 The Upper Palaeolithic material culture in context

With varied nomenclature in use, and different interpretations given to the Upper Palaeolithic in India (Agrawal and Kharakwal 2002: 99; James and Petraglia 2005: 12; Murty 1979: 303; Paddayya 2008: 783) it becomes necessary to provide context for the Upper Palaeolithic material culture analysed in chapters 5 and 6. Therefore, in the present study the Palaeolithic phase of Kashmir is discussed, as comparisons will be made specifically with the Upper Palaeolithic sites of Kashmir to discern how Baramulla District fits within the Palaeolithic sequence of Kashmir.

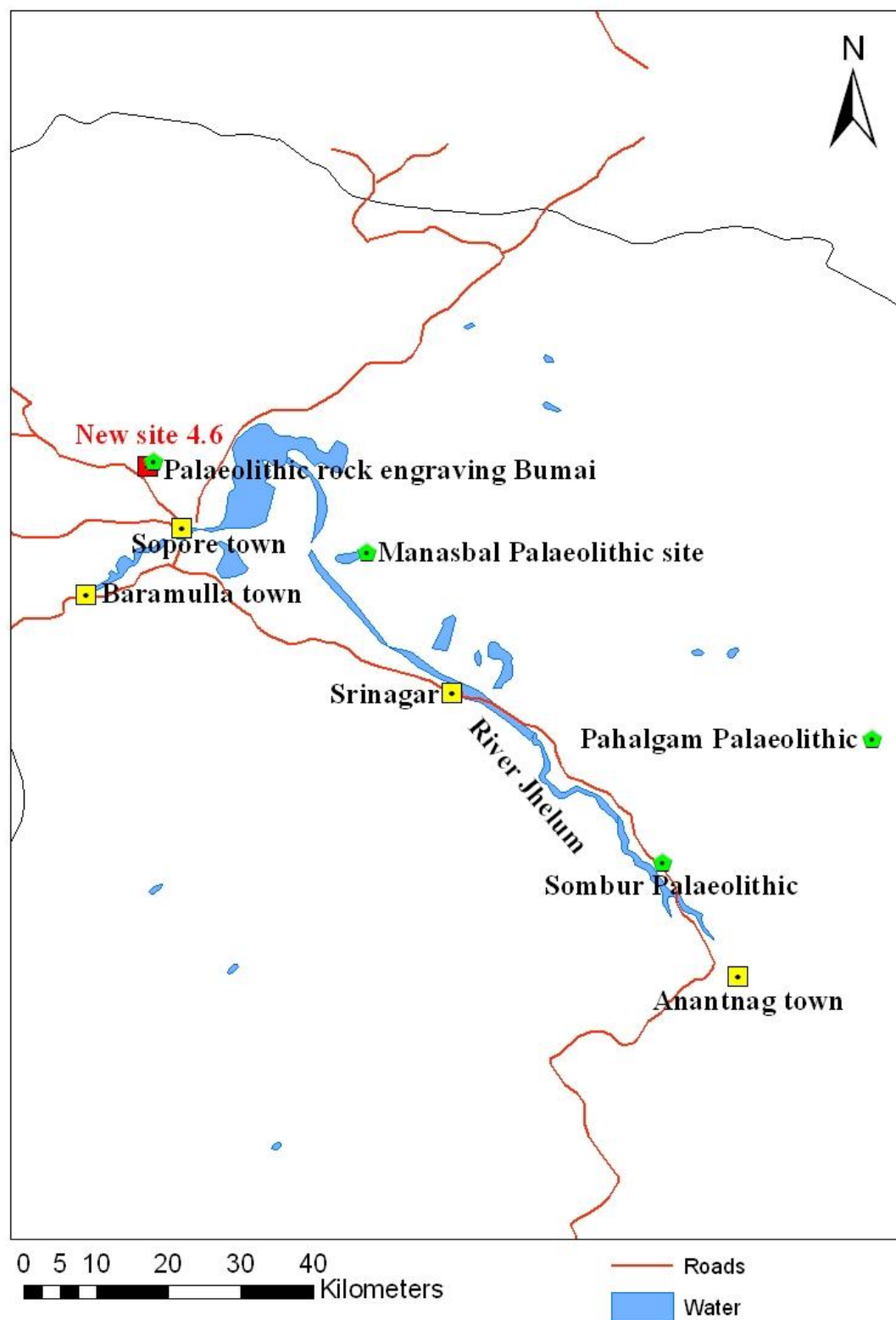


Figure 7.1 New Upper Palaeolithic site 4.6 in context with known sites in Kashmir

7.2 Previous models of Palaeolithic settlements in Kashmir

From the extensive work of De Terra and Paterson in the Kashmir aimed at building Pleistocene history and associated human cultures in the region, the only substantial archaeological remains located by them was the Neolithic material culture at Burzahom. They failed to locate any Palaeolithic sites in Kashmir, although a large number of Palaeolithic sites were reported by them in the neighbouring Potwar Region of Pakistan. They suggested that towards the south of Kashmir, the Pir Panjal mountain range was treacherous and inhospitable to cross, thus forming a natural barrier. As the Potwar Region lies to the south and west of Kashmir, and as Palaeolithic tools had already been found there and dated to c.18,000 BP (De Terra and Paterson 2003: 224-234), it was thought that the barrier of the Pir Panjal had prevented the spread of people and tools further east and north during the Palaeolithic period.

Sankalia (1971) challenged De Terra and Paterson's theory by surveying the Pahalgam region in southern Kashmir. He reported an Abbevillian handaxe and a massive flake from well-stratified deposits, besides several other tools found along the Liddar River at an altitude of c. 2134 masl, dating to the first interglacial and second glacial periods of the Lower Pleistocene (Lower Palaeolithic, c. 2.5 - 1.9 MY BP) (Sankalia 1971: 558; 1974). The Liddar River at its origin point is c. 3575 masl: a major tributary passing through Pahalgam at c. 2164 masl and feeding the Jhelum River below at c. 1584 masl at its confluence in Kashmir. More tools were reported by Joshi et al. (1974) around Pahalgam, who suggested that the tools collected by his team and by Sankalia belonged to the Middle Pleistocene (c. 1.9 MY BP). Joshi et al. suggested this date because they believed that there was only one glacial phase and they called it

the Pahalgam phase occurring at c. 2134 masl in the Kashmir region where the Palaeolithic tools were found by him (Joshi et al. 1974: 374-375).

Bandey's (1997; 2009) focus was northern Kashmir where he surveyed Manasbal Lake in district Ganderbal. Manasbal Lake is at an altitude of c. 1584 masl and is situated north east of Srinagar surrounded by mountains and *karewas*. Bandey found a few caves at c. 1981 masl (called by him 'habitable caves') on the mountains surrounding this lake and found tools of the Middle Palaeolithic period in the vicinity of the caves. Bandey suggests that only high altitude areas were initially habitable as the valley floor towards north was covered by raised water levels (Bandey 2009: 53-54). He believes people started exploiting new places and moving to lower grounds as the conditions improved and waters receded from Kashmir between c. 45000 to c. 18000 BP.

Upper Palaeolithic (c. 18000-17000 BP) tools were recorded for the first time by Pant et al. (1982) in the Kashmir Palaeoclimate Project. These tools were excavated from beneath the loessic deposits of *karewa* surfaces at Sombur in Srinagar, and Pant et al. also made reference to the presence of similar tools at three other places (Pant et al. 1982: 38). These tools were relatively dated to c. 18,000 BP which is the date of the second palaeosol where they were found buried (Agrawal 1992: 215-216; Pant et al. 1982). Sombur is located 5km south east of Srinagar on the alluvial terraces on the right bank of the Jhelum River, at an altitude of c. 1584 masl. The results of this study indicate an important aspect relevant to the discussion here: Upper Palaeolithic material culture was found on the *karewa* tops on the valley floor c. 1584 masl, which is in contrast to the Lower and Middle Palaeolithic material found in high river valleys such as Pahalgam c. 2134 masl and Manasbal c. 1981 masl.

7.3 Previous evidence of the Palaeolithic settlement in Baramulla District



Figure 7.2 Taken from western end shows the rock engraving on the face of the rock along the Yemran mountains in Sopore area of Baramulla District (Photo: Mumtaz Yattoo 2009).

The only previous Palaeolithic material culture in Baramulla District was reported during my MPhil work there (Yattoo 2005; Vahia et al. in press), when an Upper Palaeolithic site was recorded along the Yemran Mountains, 1 km north east of site (4.6) (thus also located within the new survey area), at an altitude of 1664 masl (see chapter 5 for details).

The chronological date for this site was based on typological similarities drawn with tools from Manasbal and Sombur, and some consideration of the style and

subject matter of the rock engraving. Although tool typology is relatively straightforward, it is nevertheless difficult to support dating with analysis of rock art and its iconography. Dating rock art remains controversial and it is very difficult to build a chronology using it. Bednarik's (2002: 1213-1214) critique of rock art suggests iconography and style can produce useful supplementary information, but this area remains subject to many criticisms. Illustrating this with a case study of the Coa Valley petroglyphs in Portugal, Bednarik (1995: 877-878) discusses how radio carbon estimates and micro-erosion analysis suggested most of the rock art dated to 3000 BC rather than the Pleistocene, as earlier thought. However, Bednarik (1995; 2002) along with Pettitt and Pike (2007) suggests these scientific dating methods are themselves sometimes subject to criticism when dating rock art, for example accretion of organic matter, or contamination of rock surface that can falsify the results. In view of the Bednarik's (1995; 2002) and Pettitt and Pike's (2007) strong comments and suggestions of dating rock art, it is interesting to note how despite these reservations, Jacobson (1979: 480), Murty (1979: 317) and Pandey (1984: 223) stated that the Upper Palaeolithic art in India, at Belan Valley, Patne, and the rock paintings and carvings at Bhimbetka, date to c. 20,000 to 18,000 years BP. The evidence of engraved ostrich egg shells at Patne and alternative dates for the rock art of c. 8,000 to c. 5,000 BP (Tewari 1986) offer a very different interpretation.

Given the difficulties of dating rock art and the controversy date estimates for rock art have generated, in this current work I will follow the stone tool typologies and estimated date ranges, which place the Upper Palaeolithic in Kashmir between c. 18000 BP and c. 17000 BP.

7.4 New evidence of activity during the Upper Palaeolithic period in Baramulla District

The new evidence of the Upper Palaeolithic material culture adds a great deal to the existing knowledge of Palaeolithic activity in the Kashmir. The tools recovered during my new PhD survey were typologically similar to those of Sombur, and those found during my MPhil work.

One new Upper Palaeolithic site was found (4.6), and was located at an altitude of c. 1646 masl, making it 18 meters lower than the Upper Palaeolithic site located in MPhil survey but higher by 64 meters than Sombur as reported by Pant et al. (1982). Sombur (c. 1584 masl) is considerably lower in altitude than Manasbal Middle Palaeolithic site (c. 1981 masl) and Pahalgam Palaeolithic sites (c. 2134 masl). This shows that the Upper Palaeolithic site located on the slopes of the Yemran Mountains in northern Kashmir in the preset survey is higher than Sombur Upper Palaeolithic site located in southern Kashmir and this difference in altitudes of sites might be due to unsuitable land or higher water levels in the north of Kashmir. Agrawal (1992) suggested that it was the south Kashmir which drained first, around c. 85000 BP, leading to the first formation of *karewas* where the Sombur material culture was found (these were therefore called lower *karewas*, see chapter 2 for details). Agrawal further suggested that during the terminal phase of the Upper Pleistocene period c. 20000 BP the Kashmir valley floor stabilised and became habitable.

Another important issue is the period between the known Upper Palaeolithic sites and materials, and the much later Neolithic. Pant et al. (1982) suggested that there was a transition from Upper Palaeolithic to Neolithic, but this was based entirely on surface finds from their survey and does not stand up to critical analysis. The new

site (4.6) is located towards the north west corner of a large Neolithic site, that has pottery and ground stone tools scattered further down the slopes of the Yemran Mountains. In Kashmir, there is an absence of the Mesolithic phase - not a single Mesolithic (or Microlithic) site has been reported to date (Jayaswal 2006: 328; Shali 2001: 58-59; Thapar 1985: 36). The juxtaposition of the Upper Palaeolithic and the Neolithic material and/or sites in both my survey and in Pant et al.'s work raises further interesting questions about settlement history and chronology in this region. Excavation at selected sites would be useful to find out more about the period in between the two chronological periods, and also the form of the Mesolithic, or intervening period here.

Therefore the present information indicates that the Upper Palaeolithic sites tend to be located along the mountain ridges (at an altitude of c. 1646 masl in Baramulla District) and *karewas* (at an altitude of c. 1584 masl in Sombur), both considerably lower in altitude than Lower or Middle Palaeolithic period sites in Kashmir. The results and findings of this study for the first time shed important light on the Palaeolithic activities over the landscape of Baramulla District in particular and Kashmir in general, that go beyond describing tool typologies and art forms.

7.5 The Neolithic material culture revealed in systematic study of Baramulla District

In chapters 5 and 6 the analysis of the Neolithic material culture was carried out and the results presented. These results showed that material culture at the six new reported Neolithic sites is as varied and distinctive as had earlier been found at Burzahom, Gufkral and Kanispora in Kashmir. It is also clear that this distinctive material culture had affinities and parallels beyond these sites in Kashmir, with relative

comparators in South and Central Asia. Besides the interpretations of the material, the location of these six new sites on certain physiographic landscape features, suggests that there may have been some common factors at work in the Neolithic period, leading to a similar set of tools and other material culture as well as selecting site locations in similar or contrasting settings. In order to explore this further I will now discuss the different types of material culture of this period reported at six new sites located in the present research in the Baramulla District.

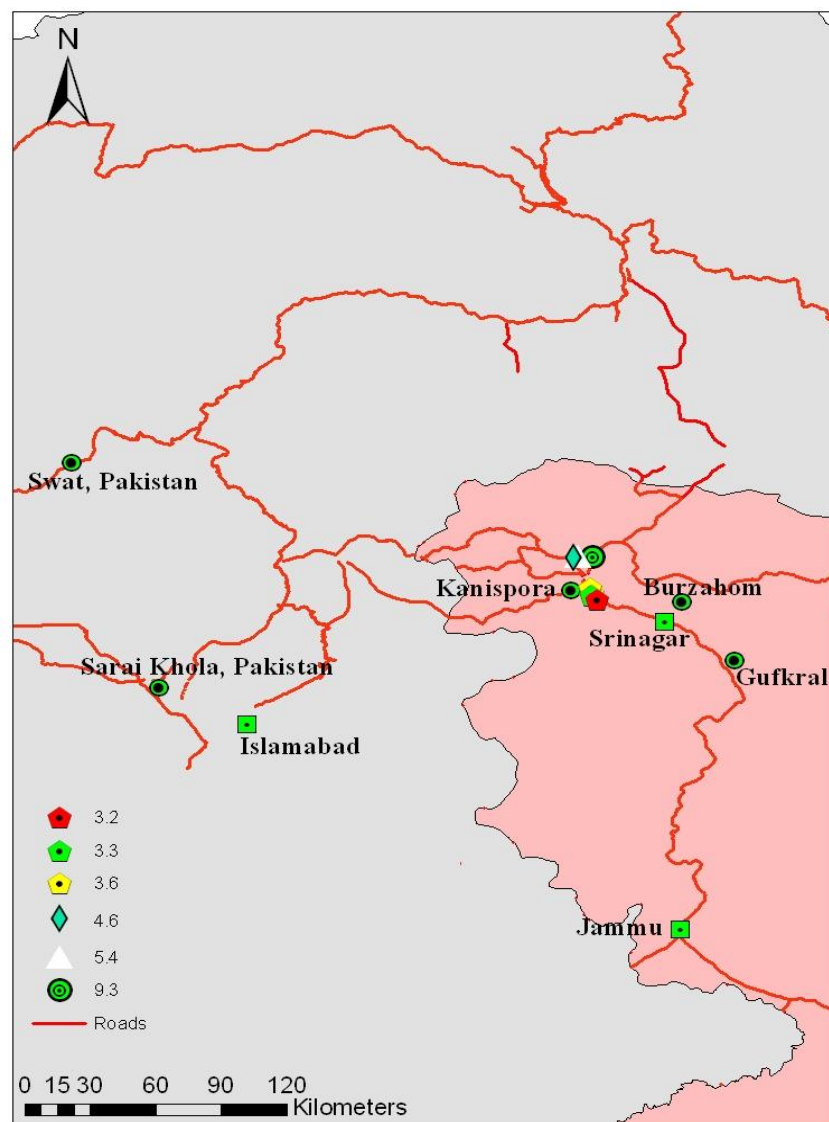


Figure 7.3 New Neolithic sites located in Baramulla District shown in context with key sites of Kashmir and Pakistan

7.5.1 The Neolithic ceramics

Four of the principal pottery types of this period were reported and observed at the six new sites in Baramulla District. These pottery types were recorded in the assemblages from the excavated sites of Burzahom, Gufkral, Kanispora and also other sites and areas in Kashmir, and they cover a time span of c. 2500 to 1000 BC (Bandey 2009: 121-135). The coarse gray ware (c. 2500-2000) and the burnished ware (c. 2000-1700 BC) were reported at all the six sites, whereas the fine ware (c. 2000-1700 BC) was reported at four sites, suggesting that all these sites were in use from c. 2500-1700 BC in Baramulla District. At four of these six sites gritty red ware (c. 1700-1000 BC) was recovered, which may indicate that these sites remained in use a little longer. Among the four principal pottery types, there was variety among shapes and designs found at all six new sites in the district which are common to the pottery from Burzahom, Gufkral, and Kanispora. The similarities and resemblances were noted in such attributes as pinched and incised designs on potsherds, burnishing, circular holes (perforations), mat impressions on the base of pots, and graffiti markings on burnished ware sherds, as well as some representative shapes.

These shared physical attributes of pottery within Kashmir's Neolithic sites suggests that ideas and cultural practices did not remain confined to individual sites such as Burzahom or Gufkral or Kanispora but were widespread in Kashmir and seemingly shared by the people of the district during this time. For instance, Burzahom and Gufkral are 100 kms distant from the six sites located in this research but their pottery is similar to the pottery of Baramulla District with very similar details, designs and decorations. Mat impressions are overwhelmingly present on fine ware pot bases (approximately 90 percent); geometric incised designs are always

represented among the burnished ware pottery and are prominent on dish on stand pots; perforations are common among fine ware pottery and graffiti is found on burnished ware pottery.

This apparent synchrony and homogeneity among the material culture probably translates in itself towards the connectivity and transmission of common knowledge between the Neolithic people of Kashmir even though they were living miles from each other. A further example of this common knowledge is mat impressions on fine ware pot bases at Burzahom (Bandey 2009: 140; Ghosh 1964: 19; Saar 1992: 34), Gufkral (Mitra 1984: 23; Sharma 1982: 34) and now at Baramulla District, which reflects uniformity of practices exhibited by the Neolithic people of Kashmir. These similarities therefore suggest that Baramulla District was an integral part of an analogous Neolithic complex in Kashmir of which Burzahom, Gufkral and Kanispora are examples; and within this complex people seem to have been interacting with each other.

7.5.2 Tool making

The analysis of stone tools shows that there are also visible similarities in material, techniques of production (and probably similar practical uses) with tools found at Burzahom, Gufkral and Kanispora in Kashmir. The tools such as ground celts, harvesters, pounders, mace heads and sling balls collected from the new Neolithic sites in Baramulla District were made from trap and sedimentary types of rock; Burzahom, Gufkral and Kanispora tools in Kashmir were made of similar rock types. Interestingly, the Neolithic tools of Kashmir are considered typologically different from the Neolithic tools of the Indian plains (Ghosh 1964); Kashmiri Neolithic tools are

ground to an extent that they have developed a glossy appearance and hence also called polished or ground stone tools (Bandey 2009: 151-152; Sharma 1982: 26). Among the variety of tools collected from the new Neolithic sites in Baramulla District, the important finds at sites 5.4 and 9.3 were the harvesters that have only been reported previously from the two excavated sites in Kashmir (Burzahom and Gufkral) (Ghosh 1964: 21; Ghosh 1969: 13; Mitra 1984: 23; Sharma 1982: 34).

It is difficult to claim that the tool types recorded from the new Neolithic sites in Baramulla District had the same utilitarian function as similar tools reported from Burzahom or Gufkral or Kanispora, though this may be likely. The tools recovered from these sites were interpreted as being related to subsistence farming and foraging (Bandey 2009: 159-164; Lone et al. 1993: 205-206; Thapar 1997: 71). Bandey (2009: 155-164), while explaining the functions of the Neolithic tools attributed them to various purposes such as celts for cutting trees, adzes for digging and foraging, mace heads as harvesting tools, and pounders as grinding tools. Pant (1979: 12-13), while carrying out micro-wear investigation of the Neolithic tools of Kashmir concluded that the names for the tools do not necessarily correspond to their functions. Pant believed that discarded tools could have been regularly remodelled for different purposes and functions, and stressed that a tool found on the surface or underneath the surface might have a different function at the point of use when it was first made. Pant (1979) gives an example of this, suggesting that a tool used as a celt, when discarded could have been later remodelled and used as a wedge. Whatever the name of these tools, Pant's study revealed that their function always remained connected with subsistence, and that they were used either to process plants and seeds or for processing of meat.

The similarities in tool types observed among the new Baramulla sites with the tools of Burzahom, Gufkral, and Kanispora again points towards an analogous Neolithic complex of which Baramulla District seemed to be an important part. The key homogeneous characteristics are visible in the utilisation of similar raw materials such as trap and basalt rocks to make tools; similar types of tools and similar grinding techniques. This therefore indicates that similarities between the Neolithic sites located in different areas in Kashmir are not simply coincidental. It further strengthens the idea that there were links of some kind between Baramulla District and the people of Burzahom, Gufkral and Kanispora.

7.5.3 Housing and shelter

Pieces of wattle and daub plaster with reed impressions belonging to this period were found at three of the six sites (4.6, 5.4, and 9.3) in Baramulla District. Early examples of this material culture was reported from pits at Burzahom and Gufkral when they were excavated (Ghosh 1964: 17-19; 1969: 13; Mitra 1984: 20). These Neolithic pits provided crucial information about settlement during the Neolithic period in Kashmir; they were interpreted as habitational dwelling pits. These dwelling pits were dug into loessic deposits, and a few were thought to have access steps, and some were thought to have hearths and storage pits inside (as found at Burzahom), as well as outside on the peripheries (as found at Gufkral), and plastered with wattle and daub internally. The presence of post-holes around these pits suggested they were covered overhead with a covering supported by posts (see chapter 3 for details on these pits at Burzahom and Gufkral). These pits, along with the presence of domesticated varieties of animals such as sheep, goat and cattle, and plant remains of wheat, barley and

lentil, were thought to indicate sedentary occupation at both Burzahom and Gufkral. Beyond Kashmir, parallels of pit dwelling can be traced at Aligrama, Bir-kot-ghundai, Kalako-deray, and Loebanr III, all in Swat in Pakistan (Stacul 1977; 1993; 1996; 1997b). Stacul, however, highlights similarities between pit dwellings at Loebanr III (Stacul 1977) and Kalako-deray (Stacul 1993), with the pits of Burzahom in type and execution. Pieces of wattle and daub with reed impressions were found at both these sites (Stacul 1977: 233, 250; 1995: 124; 1997b: 375).

However, this dwelling interpretation was questioned by Coningham and Sutherland (1998: 177-187) when they analysed pits at Loebanr III and Kalako-deray in Swat and compared them with British Iron Age pits at Danebury. They suggested that these pits (at Kashmir and Swat) may have acted as granaries, and a hide from animals that could be utilised at appropriate times. It is suggested by them that the wattle and daub may have been used to prolong the life of grains in a reduced atmosphere. They believed that the population during the Neolithic times in Kashmir and Swat was transhumant or semi-sedentary, migrating from upland areas during harsh winters, and therefore sealing the grain underground for later use. Young (2003) provided new perspectives in understanding agriculture and pastoralism during late Bronze and Iron Age periods in northern regions of Pakistan, explaining various forms of transhumance. Her ethnographic data coupled with environmental and archaeological data suggested multi-pronged transhumant practices in Swat in Pakistan indicating contacts between Ghalegay, Kalako-deray, Aligrama, Loebanr III and Bir-kot-ghundai during period III and IV (c. 1950-1225 cal. BC) and at Bala-Hisar of Charsadda of Pakistan during early levels of occupation there (c. 1400 BC) allowing contact and exploitation of different ecological zones (Young 2003: 80; Young 2008: 208). The model of transhumance

developed by Young (2003: 79-83) provided an alternative interpretation to the 'dwelling pits' at Swat in Pakistan, suggesting they might be linked to storage and economic organisation, or even seasonal dwellings. Despite the different interpretations of these 'pits' they were probably linked to subsistence or economic activities, and it seems that many of them were routinely plastered. The evidence of wattle and daub plaster pieces from the three of the six new Neolithic sites in Baramulla District therefore, suggests the presence of similar pits; although excavations could be useful in learning more about their function whether associated with subsistence or with a pit dwelling phenomenon.

This evidence of wattle and daub pieces with reed impressions from Baramulla District, and the same material found in the pits of Burzahom and Gufkral in Kashmir, and at Loebanr III and Kalako-deray at Swat, brings Baramulla District into the ambit of a unique cultural complex in the region called the 'Inner Asia Complex' or 'Northern Neolithic Complex' (Allchin and Allchin 1993a: 160; 1993b: 116; Fairervis 1975: 318 ; Pande 1969: 134; Stacul 1984: 209-210; 1996: 437; Thapar 1985; 34-36). Most scholars accepted that the Neolithic sites in Kashmir, Pakistan, and China shared common traits with each other such as dwelling pits, mat or basket impressed pottery, and stone harvesters, and believed these similarities were due to long distance trade or interactions. Therefore, on the basis of present evidence from the six new sites of the Neolithic period from Baramulla District, similarities in more than one type of material culture with the Kashmir and Swat sites, possibly suggests that long distance trade or interactions is not the only factor behind apparent uniformity across these sites. The older hypothesis presenting similarities as the result of trade and interactions needs to be critically explored further, and alternatives such as the role of

transhumance as suggested by Coningham and Sutherland (1998) might be a useful starting point.

Moreover, the presence of the six Neolithic sites, three within 1.3 to 1.9 km and three within 14.5 to 16.5 km distance from the Hygam wetland reserve (see chapter 6, figure 6.7), probably suggest that the Hygam wetland reserve in Baramulla District could have been a source of reed for these new sites located in Baramulla District (see chapter 2 for Hygam wetland reserve and its reed species). No study has yet been carried out on the source of reeds to the Neolithic settlers of Burzahom, Gufkral or Kanispora. Therefore, one may hypothesise that Baramulla District could have been the source of reed for the Neolithic people in Kashmir who might have stayed there and harvested it. In light of this evidence it therefore should not be a surprise to find wattle and daub plaster pieces with reed impressions at the three sites closest to the Hygam wetland reserve in the district.

7.5.4 Open borders: interactions or infiltration

A number of ingrained beliefs have existed for some time about the Neolithic people and their material culture in Kashmir. For example, Sankalia (1974: 303) believed the Neolithic people were not native to Kashmir but 'colonised' it. Khazanchi (2004: 40) suggested a Central Asian movement from Kashmir, particularly towards the north and central China without elaborating much on it. Ghosh (1989: 49) considered Kashmir Neolithic different from Indian plains Neolithic and so did Kaw (1979: 227) and Allchin and Allchin (1993a: 160; 1993b: 116). Bandey (2009) believed Neolithic people were native to Kashmir but had cultural correlations not only with people of Central Asia but also with those in West Asia and beyond to Europe. On the other hand Fairervis

(1975: 317-318) and Khazanchi's (2004: 40-41) observation suggested analogies can be drawn between the material culture of Kashmir Neolithic and Northern China Neolithic (Yangshao and Longshan cultures), Siberia, Mongolia, and Manchuria. Stacul (1987: 125; 1989: 249) described this homogeneous material culture as exotic and a confluence of different styles and traditions. Therefore, based on the homogeneity in material culture these sites have been described sometimes as part of 'Inner Asian Complex' (Stacul 1987; 1993; 1994a) and sometimes 'Northern Neolithic Complex' (Allchin and Allchin 1993a:160; 1993b: 116; Pande 1969: 134).

Similarities observed in material culture across South and Central Asia

While it is important to discuss the material culture of the new Neolithic sites of Baramulla District in relation to known sites in Kashmir, it is also worthwhile reflecting on the wider perspective beyond Kashmir. In chapters 3 and 5, I mentioned that there were parallels in material culture beyond Kashmir at many sites in northern Pakistan and Central Asia, and also discussed this in the section above. The results from the six new Neolithic sites from Baramulla District have shown similarities (and analogies) with sites located in northern areas of Pakistan, as well as with the sites of Burzahom, Gufkral and Kanispora in Kashmir itself. These similarities were mainly in pottery, stone tools, and wattle and daub with reed impressions associated with dwelling pits. The similarities in daub pieces with reed impressions have already been discussed above. Stacul (1987: 45-48; 1993: 71-78; 1997b: 369) and Lahiri (1992: 150) mention that the black burnished ware, fine gray ware and gritty red or buff ware from the Swat region of Pakistan from period III (1950-1920 cal. BC) and period IV (1730-1690 to 1500 cal. BC) are similar to types found at Burzahom (Stacul 1987: 45,58,167). Similar

types of pottery were found at the new sites in Baramulla District, and these are similar in many ways to Burzahom in Kashmir (c. 2500 to 1700 BC). The mat impressions or basket impressions on pot bases of burnished and fine ware pottery and plastic decoration on gray ware from Swat are also worth noting (Stacul 1987: 47-48; 1992: 118-119; 1997b). These similarities are conspicuous among comparable pottery types at Burzahom in Kashmir (Ghosh 1964; Mitra 1984) and now observed among the pottery assemblages from the new sites in Baramulla District. Moreover, the evidence of mat impressed pottery is also reported from Taxila (Sarai-Khola, mid-fourth millennium BC) and Baluchistan (Kili Gul Mohammed) both in Pakistan (Allchin and Allchin 1997: 139; Sharif and Thapar 1999: 134), the central plain (Yangshao and Longshan cultures) in China and Mongolia (Gobi culture) in Inner Asia (Fairervis 1975: 317). There is also uniformity among the shapes such as oval jars, bowls and dishes on stand that were commonly found at Swat in Pakistan, Burzahom and Gufkral in Kashmir and the new sites located in Baramulla District (Stacul 1987: 45; 1993: 78).

Among the stone tools the most important artefacts reported were the rectangular/oval harvesters at Burzahom and Gufkral in Kashmir (Ghosh 1964; Kaw 1979; Mitra 1984). These harvesters are also reported from Swat in Pakistan and Northern China, and are distinguished by holes in the middle. Stacul (1992: 115) mentions that Kashmir and Chinese harvesters are double holed while Swat harvesters are single holed. At two new sites (5.4 and 9.3) in Baramulla District two types of harvesters were collected making it only the third time such tools have been reported in Kashmir. Although the rectangular specimen at site 5.4 in Baramulla District is a single holed harvester, a double-notched oval harvester was reported at site 9.3. Stacul (1987; 1992) mentions that these rectangular/oval harvesters are strong

evidence of a homogeneous cultural complex, which he said was probably linked together by contacts and infiltration of people through Transhimalayan paths (Stacul 1987: 124; 1992: 118-119).

Besides these, there are other similarities with the Swat material, such as the presence of schist disks with a central perforation found at the new site 9.3 in Baramulla District. This is a unique specimen and there is no mention of schist from the Burzahom, Gufkral or Kanispora sites in Kashmir. Stacul reported similar schist disks with central holes from Loebanr III (c. 1650 cal. BC) (Stacul 1976: 26; 1987: 167), and schist slabs from Aligrama (c. 1710-1690 cal. BC) (Stacul 1977: 174; 1993: 78). Stacul described them as “ritual” artefacts although he admits he does not understand their function (Stacul 1977). Law (2008: 138-139) interpreted similar schist disks from a Harappan site in Pakistan, which he called flat disks or palettes, as probably a by-product of some finished items.

Extant similarities in material culture

In order to consider the Baramulla District in context within South and Central Asia, some key characteristics of material culture are highlighted here.

1. The Swat Valley in Pakistan and Burzahom, Gufkral and Kanispora in Kashmir share similar pottery types with similarities in plastic decoration.
2. Mat impressions, or basket impressions, which are a common feature of Burzahom and Gufkral burnished and fine ware pottery, are also found among Swat, Taxila and Baluchistan pottery assemblages in Pakistan, and Yangshao and Longshan in Chinese central plain and Gobi in Mongolia (Fairervis 1975: 317).

3. The presence of art forms such as graffiti on the burnished ware pottery have been noted on material from both Kashmir and Swat Neolithic period sites.
4. Evidence of perforated pottery from Kashmir Neolithic sites is documented.
5. There is evidence of miniature burnished or gray ware pots both from Kashmir and Swat Neolithic sites.
6. Stone tools retrieved from Kashmir Neolithic sites such as Burzahom, Gufkral and Kanispora are made from trap and basalt rock types, they have many types and most of them are ground or polished.
7. The presence of rectangular harvesters at Burzahom are similar to artefacts that have been found in Swat and Northern China.
8. The oval double notched harvesters have only been found from the Swat sites in Pakistan.
9. The presence of pits, possibly used for dwellings, have been recorded at Burzahom and Gufkral with similar types found in Swat, Pakistan and Northern China.
10. Schist disks are reported from the Neolithic and Harappan sites in Pakistan.
11. There is evidence of terracotta bobbins retrieved from Swat Neolithic sites in Pakistan and also evidence of spindle whorls from Kashmir Neolithic sites.

How do the similarities observed in material culture discussed above in this new study fit within the extant similarities? Most of the similarities suggest that the Neolithic sites in Baramulla District represent a material culture which is similar not only to Kashmir Neolithic but beyond Kashmir in Pakistan, China and Central Asia. It is likely that similarities between the Baramulla District sites and other Neolithic sites in the wider region are due to a range of factors including trade, exchange, and possibly

even contact through seasonal movement. This is indicated by observing similarities in the archaeological evidence from the six new sites in Baramulla District in the present research:

1. The six new sites at Baramulla District have similar pottery types (design and decoration) as found at Swat in Pakistan and Burzahom, Gufkral and Kanispora in Kashmir.
2. Mat impressions, or basket impressions was observed on burnished and fine ware pot bases at new Baramulla sites whereas graffiti was also observed on the burnished ware pottery at new Baramulla sites.
3. Perforated pottery was observed at new sites in Baramulla District.
4. Miniature burnished or gray ware pots were observed at new sites in Baramulla District.
5. At the new sites in Baramulla District, stone tools of various types (mostly ground or polished), retrieved were mostly made from trap and basalt rock types.
6. Two types of harvesters (oval and rectangular) were recorded from the new sites in Baramulla District.
7. Schist disks are first time reported from the new sites in Baramulla District.
8. Terracotta bobbin is reported from a new site in Baramulla District.

Most of these new similarities in the material culture at the six new sites in Baramulla District do match with the extant similarities, some new but only one extant similarity having limited evidence found at Baramulla District:

1. No dwelling 'pits' were found at any of the six new sites but plaster pieces of wattle and daub (considered to be part of these 'pits') was found at three sites.

Implications of this new data from Baramulla District

From the above evidence, it is plausible to consider that Baramulla District during the Neolithic period seems to be a part of the 'Inner Asian' or 'Northern Neolithic Complex' along with Burzahom (c. 2881-1730 cal. BC) or Gufkral (c. 2554-1772 cal. BC) in Kashmir. The homologous materials found at Pakistan and China in the north and Burzahom and Gufkral in south could be connected by Baramulla placed geographically in the centre of this wider region (Lahiri 1992: 243-244). Baramulla District's strategic location on the Jhelum Valley trade route (see section 7.6.3 below and also chapters 1 and 3) is probably an indication of movement of people through the Himalayas, which might have played an important role in the development of a distinctive cultural complex within Kashmir, Pakistan, China and Central Asia. Therefore, the new data based on similarities in material culture presented above does not seem to contest those similarities previously developed about Burzahom and Swat, but rather Baramulla District fits into such extent similarities with some new understandings. Fairervis (1975: 318), observing some of these homogenous cultural correlations, stated "In any case Burzahom represents the southernmost expression of a widespread North Asian complex [...]. It is so clearly inner Asian that one finds difficulty in including it as a part of subcontinental archaeology..."

7.6 The early historic period: new material culture

Following the Neolithic period (c. 3149 cal. BC to c. 1000 uncal. BC), we have the evidence for early historic occupation in Baramulla District. This period in Kashmir dates from c. 7th BC century to c. 5th century AD. From some of the key sites in

Kashmir belonging to this chronological period, we have information about iron and its associated material culture (see discussion in chapter 8), construction of permanent dwelling places, trade and commerce, social, cultural and religious organisations. Kanispora, Harwan and Semthan (see chapter 3 for details) are the three early historic sites in Kashmir that inform us about this period. Shali (2001: 126) and Agrawal (1998: 217) note that from the Neolithic period onwards in Kashmir there is a gradual expansion of site sizes during the early and later historic periods. They relate this partly to a congenial climate during which there was increased temperature and rainfall, abundant natural resources, and further developments in terms of interactions and contacts with South and Central Asian regions.

The results in chapter 5 and 6 showed that a total of 39 sites of this period were recorded in Baramulla District. Sites of this period shared similarities in terms of their material culture with known early historic sites in Kashmir such as Harwan, Kanispora and Semthan (see chapter 5, figure 5.24). This material culture included pottery, structural debris, terracotta, stone artefacts and many other miscellaneous finds. The implications of the presence of this material culture and their interpretations in context of South and Central Asia are discussed here.

7.6.1 Material culture

Ceramics

Compared to the Neolithic pottery types, a noticeable change was observed among the ceramics of this period from the new early historic sites in Baramulla District, with six pottery types recovered, resembling those found at Harwan, Kanispora and Semthan in types, shapes and design. All the pottery was wheel made, well levigated

and had applied exterior slips. The decorations of fish scales, floral and geometric designs and abstract wavy lines, a common feature of Harwan and Semthan pottery types, were also seen on pottery from the new sites reported in the Baramulla District. There is a mention of red ware pottery (reported at Kanispora) with incised or stamped decorations that is said to have parallels at Sirkap, Taxila in Pakistan (c. 1st century AD, Indian Archaeology 2004: 40).

Stoneware

Another change was noticed in the large-scale use of stone bowls at nine new sites of this period located in Baramulla District. Similar bowls were reported from the post Neolithic phase (Megalithic period) c. 1000 BC to 1st century AD at Gufkral, and at three other early historic sites. At Srinagar (one of these three early historic sites), it is associated with NBPW and Kushan period pottery (c. 7th century BC to 1st century AD) (Converse 1978); at Martand temple stone bowls have been found from its earliest habitation layer (no date is given; however the temple itself is dated to c. 750 AD, see also section 7.7.2) (Lal 1973; Shali 2001); and at the third site (somewhere in south Kashmir), these are found with Kushan material culture (1st to 5th century AD) (Shali 1993). Except at Gufkral, there is no evidence yet that can suggest these stone bowls are associated with Megaliths or the Megalithic period. Similarly, except the Srinagar site (Converse 1978), Martand temple (Lal 1973; Shali 2001) and the south Kashmir site (Shali 1993), there is also no evidence of these stone bowls from key sites such as Harwan, Kanispora or Semthan, and no comparable types have been reported elsewhere in South Asia. Moreover, no NBPW pottery (which Converse (1978: 481) found along with stone bowls from a Srinagar site) was recovered during the present

survey at any of the early historic sites where these bowls were found in Baramulla District.

The wide distribution of these stone bowls during the early historic period in Baramulla District seems to indicate that this stoneware might have remained in production from c. 1000 BC to c. 5th century AD at the new sites in Baramulla District. The period between c. 1000 BC to 200 BC is the 'missing' chronological period in Baramulla District, noted during my MPhil research, which is the period corresponding to the Iron Age elsewhere in South Asia (see chapter 8 for interpretations and discussion). The chronological dates assigned to this stone ware at sites such as Gufkral (c. 1000 BC) or at Srinagar site (c. 7th century BC to 1st century AD) or at south Kashmir (1st to 5th century AD), indicate they probably belong to period between c. 1000 BC to c. 5th century AD; hence roughly corresponding to the chronological period thought to be missing in Baramulla District (see chapter 1).

Structural residues

A further important change in this period can be found among the structural evidence found at five sites located in Baramulla District; two with rubble structural bases (4.2 and 9.2), and three with broken pieces of terracotta tiles (1.1, 7.2, and 8.4). Rubble structural bases of the early historic period were first reported at Semthan during the Indo-Greek period as habitational deposits (c. 200 to 1st century AD) (Mitra 1983b; Thapar 1981) (see chapter 3 for details). Furthermore, rubble structures were also excavated at Harwan (1st – 5th century AD) in three different forms such as diaper rubble, stone rubble and plain rubble structures (Kak 1933; Shali 2001; Thapar 1979: 15-16). These structures at Harwan in Kashmir were interpreted as the earliest

Buddhist structures (*stupas* and *viharas*), providing information for the first time about the settlement structures of the Kushan period in Kashmir. Similar structures were also revealed during partial excavations at Ushkar and Kanispora in Baramulla District (Indian Archaeology 2004). Restricted not only to Kashmir, the parallels of this structural activity extend beyond Kashmir to Pakistan (Taxila, Peshawar, Swat and so forth) and Afghanistan (Nagarahara, Kapisa) (Allchin 1993; Dani 1999; Dar 1993; Marshall 1975).

Dani (1999: 71-78), Dar (1993:114) and Marshall (1975) place the majority of Buddhist monasteries at Taxila between the second and fifth centuries AD, and similarities in masonry style help to place the Kashmir sites chronologically. Fussman (1993: 86) and Lahiri (1992: 243; 277) place Taxila on the route from northern India to Iran and Central Asia, further joined by two routes; one of which goes through Muree, and then Baramulla and on to the rest of the Kashmir. According to Fussman (1993) (citing Karl Jettmar, who discovered material culture dating to 1st century BC), that it is this route that predates the 1st century BC and also branches to China. This was considered by Fredric Drew (1875) the easiest route to Kashmir. The second route links Taxila to Abbottabad, and then on through Manshera to the east of Baramulla and further to Kashmir. He suggests that these Kashmir roads brought to India plains the famous goods “gold of the Dards” (Fussman 1993: 86). Fussman further believes that Taxila was an important city and was located at a place where important routes met, mostly going to Central Asia.

The presence of two structural bases at new sites in Baramulla District, although largely destroyed (see Appendix 1), are similar to structural remains from other early historic sites in Kashmir. There is evidence of similar Buddhist structures at

Ushkar and Kanispora (1st century – 5th century AD), both situated adjacent to the Jhelum Valley communication route in Baramulla District. Determining any religious role from these remains alone in Baramulla is not possible, and would require excavation at the new sites to further understand the nature and function of associated buildings.

Terracotta

The terracotta tiles found at three new sites during this period in Baramulla District are also similar to material found on other sites in Kashmir. Terracotta tiles were first reported from Harwan in Kashmir (c. 2nd- 3rd century AD), and the moulded tiles from this site bear various artistic decorations of the social life of the Kushans, such as mythical and realistic representation of animals, and also floral and abstract motifs. These tiles also had other motifs such as the Barhut railing, the Chinese fret, the Sassanian foliated bird, the Persian vase, the Roman rosette, the Indian elephant and others (Brown 1956: 187), which Brown suggested showed connections or knowledge about these far off places and practices in Kashmir. The terracotta tiles were also reported from several other sites during the early historic period in Kashmir such as Ushkar, Kanispora and Huthmura, indicating their distribution during the Kushan period. The terracotta tiles of Ushkar however, are not decorated to the same extent as the Harwan tiles (Shali 2001: 164).

The terracotta tiles reported at three new sites in Baramulla District were not decorated, although they do have reed impressions on one side. What is now obvious from the current evidence is that tile production most likely was a practice known to the early historic people of Baramulla District as not only were the tiles reported at

three new sites in the current research but their presence at Kanispora and Ushkar along the Jhelum Valley route in the same district supports this. Like Harwan, the tiles of Kanispora and Ushkar were interpreted as used for flooring (Kak 1933: 108-109; Indian Archaeology 2004: 40), although it is not necessarily the case that these tiles were used for the same purpose at the three new sites in Baramulla District. However, these are the fragmentary records collected from surface collection; systematic excavation work at these three places may yield further important information about their purpose and association.

Terracotta artefacts in the shape of miniature unidentified human figurines, rods, terracotta wheels and spouts were also collected from the new sites in Baramulla District in the present research (see chapter 5). From Semthan (Mitra 1983b: 22-23), Kanispora (Indian Archaeology 2004: 40), and Harwan (Shali 2001: 173), a number of similar artefacts along with figurines of Buddha and Bodhisattvas, terracotta balls and seals and so forth have been found. The Terracotta art of Kashmir is considered to have been influenced by the Gandharan school of art, representing religious as well as secular beliefs (Kak 1923: 4; Pal 1975: 36). Besides terracotta artefacts, a large number of miscellaneous artefacts were also collected (see chapter 5) which appear to be works of art, albeit without any parallels or known functions.

Tools

A range of stone tools such as saddle querns and mullers were found at four new sites, and mortar and pestles at five new sites, during this period in Baramulla District (see chapter 5). Although similar stone tools have been reported at Semthan, Harwan and Kanispora, they are rarely described or studied, with the exception of one specimen of

mortar and pestle from the early historical level at Burzahom, studied by De Terra (1942). However, descriptions of 'true' saddle querns are given by Stacul (Stacul 1994b: 235) at Aligrama, periods VI and VII (6th to 4th century BC) in Swat, Pakistan. Stacul and Tusa's (1975: 309) observation of these tools suggest they are associated with plant food processing activities at Aligrama. Young's (2003: 27) analysis of Stacul's work suggests that it is difficult to connect these tools to a specific agricultural activity (i.e. agriculture production or any kind of preparation of plant remains or non food items) unless macro-remains analysis of a plant sample from the site of these tools. Whatever the use of these saddle querns, typologically they are similar to those reported by Stacul and Tusa at Aligrama. The mortars and pestles are also typologically similar to one reported by De Terra at Burzahom. Overall, it is likely that these stone tools were used for agricultural purposes.

The above evidence of the early historic period suggests that Baramulla District shared a similar form of habitation material culture with other early historic sites in Kashmir. The information from Semthan, Harwan, Kanispora and Ushkar, is believed to come from structures linked to Buddhism, and is thus important in terms of understanding social and religious organisation. Furthermore, the art and architecture of this period is considered by some to be the confluence of 'ancient Brahminical, Iranian and Greek cultures aided by the local artistic expressions' (Kak 1923: 4; Pal 1975: 37-41). Due to the position of Baramulla District at a cross-roads of communication routes, it seems to have benefited from such cross-cultural currents which are now visible in the material culture collected from early historic sites in this new research. The district appears to have both absorbed new influences, and also

introduced material culture with its own ethnic manifestations, as seen in the example of the terracotta tiles similar to those found at Harwan.

7.6.2 Baramulla District: a place of integration and interactions

Lattimore (1962: 470-71) said “mountain chains have often been the means for integration rather than isolation among the people from their facing slopes”. We know from chapter 2 that Baramulla District is surrounded by Himalayan mountains towards the north west and the Pir Panjal mountain range towards the south. The Neolithic period material remains indicate that there are similarities and interactions between Baramulla District and northern Pakistan in South Asia, and also with northern regions of Central Asia. Furthermore, during the early historic period evidence for further interaction were observed in the already known and the new sites reported in Baramulla District.

In Kashmir evidence for cross cultural integration during the early historic period is known from Semthan, where NBPW and Indo-Greek pottery was found (c. 7th century - c. 2nd century BC) (Mitra 1983b: 21); in south Kashmir where NBPW pottery was found (Mitra 1984: 25); and from an unknown place in Baramulla District where again NBPW pottery was found during a brief survey by the Archaeological Survey of India (Mitra 1984: 16). Kalhana's *Rajatarangini* verses 101-107, translated by Stein (1989a: 19-20), mentions four places founded by Asoka, and this brings Kashmir into the ambit of the Mauryan empire (c. 324 - c. 185 BC). Lahiri (1992: 270-273) suggests that the Mauryans were based at Taxila and would have found it comparatively easy to interact with Kashmir most likely through the Jhelum Valley route that passed through Baramulla District. The Kushan period (c. 1st – 5th century AD) is represented at

Semthan, Kanispora, Harwan, Ushkar and many other places in Kashmir (Agrawal 1998; Kak 1923; 1933; Shali 1993; 2001) which also suggests integration and interaction. Kak's (1933: 50) analysis of the cultural interactions suggests that "considerable commercial intercourse" existed between Kashmir and the principalities of Peshawar and Kabul during the Kushan period.

The similarities found among ceramics, stone and architecture, at the new early historic sites in the Baramulla District and sites in Taxila, Peshawar and Swat (in Pakistan) is probably due to the Jhelum Valley communication route that connected Baramulla to these regions (Fussman 1993; Lahiri 1992). The juxtaposition of Baramulla District between Kashmir and north western and north eastern regions of South and Central Asia seems to have lead to interactions and later spreading to other areas of the Kashmir such as Burzahom, Harwan, Kanispora, Semthan and Ushkar.

7.7 The later historic period

From the later historic period in Baramulla District a total of 53 sites were reported dating to c. 6th to c. 10th century AD. During the analysis of material culture it was observed that there were changes between the pottery assemblages of the preceding early historic period and this period. Overall, there were more pottery types and shapes in the later historic, although a few of the pottery types and shapes continued with different designs and slips on them. Changes were also observed in other material culture such as the structural remains, stone tools, art and architecture.

In Kashmir the most studied aspect of the later historic period in archaeology is the architecture, and because of this the later historic is interpreted as a glorious period with superiority in architecture and without any parallels (Agrawal, 1998; Kak

1939; Stein 1989b). This alleged grandeur of art and architecture, boasting both Gandharan and Brahminical art forms, is thought to elevate this period over all others in Kashmir history (Kak 1933; Lawrence 1895; Shali 1993; Stein 1989b). It is also during this period that Kashmir was separated into two divisions (*Kramarajya* and *Madhvarajaya*, north and south Kashmir respectively) with a number of villages in both divisions. Shali (2001: 309) and Stein (1989b: 438) mention c. 66,063 villages in both the divisions, though Stein refutes this figure as exaggerated and unsubstantiated but agrees that there were dense settlements in Kashmir.

In Baramulla District several Buddhist and Hindu temple ruins have been excavated but it is Parihaspora and Ushkar (Buddhist), Buniyar, Fathgarh, Tapar (Hindu) temples whose architectural details are well known. Other than this, no other direct evidence of public buildings or domestic settlements are known from this period in the district. There is also little archaeological evidence indicating cultural interactions with wider South Asia, although literary sources are replete with connections and communications with South Asia, Central Asian, and with the Indian plains (Stein 1989a,b). The presence of 10 coins of Kashmir rulers (Marshall 1975: 794) chiefly of Jayapida (c. 750-780 AD), Queen Dida (980-1003 AD), Sangrama (1003-1008), and Harsha (1089-1101 AD) at Taxila agree with the literary sources that some form of communications existed during this period as well. We know from the above discussion that similarities in material culture with Taxila were known during the Neolithic period (e.g. mat impressed pottery), which were more apparent during the early historic period (ceramics and masonry) and now the evidence of coins suggests that influences and interactions continued to the later historic period.

7.7.1 Material culture

Ceramics

The pottery of this period was classified into seven different wares, and these types were wheel made and well levigated, and there were many more shapes than in previous periods. The later historic pottery types were decorated with incised concentric circles or crescents or wavy lines or with geometric motifs or sometimes decorated with stamped floral motifs or grooved designs. These pottery types also have lustrous black or cream slips, or patches of black on their exteriors.

An interesting find was the stamping of human motifs in dancing or erotic scenes on the interior of two pot bases found at two sites in this survey, and similar stamping designs on certain dishes have earlier been salvaged from Parihaspora and a 10th century site at Srinagar (Bandey 1993: 89-90). Bandey acknowledges the lack of study of such art forms and interprets these dishes with motifs as intended for ritualistic purposes with religious connotations. He draws similarities between the Kashmir pottery and the soft stone (steatite) trays called “Gandharan toilet trays” from Taxila which are also stamped with animal and ‘aphrodisiac’ scenes (Bandey 1993: 90). The most outstanding pottery type of this period observed at new sites in Baramulla District was an extremely thick red ware with shapes including jars five feet high and almost the same in circumference. Shali’s (1993; 2001) interpretation of these thick and huge jars was they acted as grain storage, although he did not provide any archaeobotanical evidence to support his argument. Therefore, with no contextual evidence, it is difficult to suggest the relation of these storage jars located in Baramulla District specifically with agriculture, but they seem likely to be purpose-built for some kind of storage. Personal ethnographic observation in the areas where this survey was

carried out, showed that similar type of jars are still being used for storage of rice and other crops and sometimes water, and people also salvage such jars from the archaeological sites for storage purpose.

Stoneware

Stone bowls seem to have first entered the archaeological record in Baramulla District around c. 1000 BC and then continued up to c. 5th century AD (see also section 7.6.1 above). These stone bowls seem to have been used during the later historic period as well, as they were found at two later historic sites in the current survey, albeit with some innovations in their design. Typologically they look similar to early historic stone bowls but in this period their outer surfaces are chiselled with smooth interiors. While their precise function remains elusive they seem to have remained a significant ware for people not only during the early historic, but for people during the later historic as well. A similar type of stone bowl probably belonging to later historic period is reported from earliest occupational layer (no date) at Martand temple; the temple itself is dated to c. 7th century AD and the occupational layers are arguably earlier (Lal 1973: 13; Shali 2001: 311).

Rotary querns and mortar and pestles were reported from seven sites belonging to this period in Baramulla District. These tools have been associated with the processing of crops and other food items during the later historic period in Kashmir. Agrawal (1998) and Shali (2001) mention their use particularly for the processing of corn although there is no evidence to prove this. There are only passing references to the presence of these tools within the known sites of this period in Kashmir, and these tool types seem to have largely escaped the attention of

archaeologists in Kashmir. This lack of comparable material from excavated and published sites in Kashmir means it is difficult to suggest the purpose of such tools. During the actual survey process, it was observed that people in Baramulla District have dismantled many sites of the later historic period in order to salvage these stone objects and other artefacts. It was noticed that thick storage jars acting as water storage (as noted above), and also mortars were lying in the courtyards of modern houses, some of them acting as fulcrums for gates and also used for other ingenious purposes (see figure 7.3). It might then be suggested that the relative absence of stone tools from the sites recorded in the survey (especially when compared with published numbers from excavated sites) may be the result of salvage activities by local people.



Figure 7.4 Showing (a) a quern salvaged from a nearby site acting as fulcrum to a gate and (b) a large storage jar salvaged and lying in a courtyard of a villager (Photo: Mumtaz Yatoo 2009).

Architectural material

Architectural debris (columns, fragments of carved stone blocks) were found at three sites belonging to this period in Baramulla District. All the debris was dressed, and resembled material from the Tapar and Parihaspora temple ruins (c. 6th - 8th century AD). It was noted at these three newly recorded sites with stone structural remains, that stories and legends have become associated with them. I was told that whoever vandalises or moves the stones from their original places would either die or become paralysed. This legend suggests that these sites might have been the subject of vandalism at some point of time or that people attempting to carry away very heavy pieces of masonry hurt themselves and in the process such stories were circulated to protect them. Along with the presence of structural residue recorded in the current survey, the known sites of Parihaspora, Tapar, Fathgarh and several other surviving monuments are a testimony that Baramulla District was an important centre during the later historic period in Kashmir.

7.8 Settlement and landscape of Baramulla District

Baramulla District is a mountainous place with a landscape of varied topography and physiographic features (see chapter 2). The district is a fertile land embedded with *karewa* features and mountains, and juxtaposed between important communication routes, forming an area that witnessed the moment of people since prehistoric times. With the Himalayas towards the north and Pir Panjal towards the south, Baramulla District has an average height of 1580 masl.

In chapter 6 it was shown that the sites from the four chronological periods were located in different parts of Baramulla District, suggesting that there may have

been some trends in site location in these different periods. This section explores these results in order to see how the results of this new survey project have added information to the understanding of settlement patterns in Baramulla District. This is first time in Kashmir that a systematic survey has been used as a tool to analyse the settlement trends and patterns in a landscape. No comparable work has ever been undertaken in Kashmir in order to consider sites in relation to their wider landscape context.

7.8.1 Physiographic location of sites

Mountains and karewas

It was demonstrated in chapter 6 that sites were located on mountains, then *karewas*, mounds and subsequently on valley floor across the four chronological periods in Baramulla District. But how do the new results stand when compared with the known sites of the same chronological periods in Kashmir? Discussed above (see section 7.2), the presence of Lower and Middle Palaeolithic material on mountains is likely to have been in large part due to the submerged valley floor. Sombur, in southern Kashmir, is the earliest known site located on *karewa* on the valley floor; this site is dated to the Upper Palaeolithic period, around c. 18000 BP. This is the time when the waters had drained from Kashmir and the *karewas* had formed and stabilised (see chapter 2 for details of *karewa* formation in Kashmir). These stabilised *karewas* later witnessed a spurt in the Neolithic activities (demonstrated by sites such as Burzahom, Gufkral, Kanispora), early historic activities (demonstrated by sites such as Kanispora, Semthan and Ushkar) and later historic activities (demonstrated by sites such as Avantipora, Martand, Parihaspora, Pattan and Tapar) in Kashmir (Agrawal 1992, Bandey 2009,

Khazanchi 2004; Mani 2000; Mitra 1984; Pant et al. 1982; Thapar 1980; Tripathi 1987: 23). However, Khazanchi (2004: 13) and Pant et al. (1982: 40) mention that during the later part of the early historic period, and throughout the later historic period, sites spread to the whole of the Kashmir. Among the Neolithic or the early historic period sites very few have been found on the mountain slopes, one among them is the early historic site of Harwan. This is all the information we have of the location of known archaeological sites on mountains and *karewas* in Kashmir.

The results in the current research have shown that in Baramulla District, Upper Palaeolithic activity was identified on mountain slopes rather than the valley floor (such as Sombur, see sections 7.3 and 7.4 above for details). New evidence for the Neolithic activity was again observed on the mountain surfaces rather than *karewas*, as two of the six sites were found on mountain slopes and the other four on the *karewa*. This is the first evidence to indicate the Neolithic activity on anything than *karewas* in Kashmir. Interestingly, three early historic sites and two later historic sites were also located on mountainous surfaces. Furthermore, 26 sites in both early and later historic periods were located on *karewa* surfaces in Baramulla District. The new results suggest that there is no conformity in the location of sites, particularly during the Upper Palaeolithic and the Neolithic periods in Baramulla District, though this does continue into the early and later historic periods as well. There could be various reasons for this trend but one important reason seems to be the higher water levels or the unsuitable *karewas* or land surface in Baramulla District. As we know from chapter 2, water from north Kashmir drained last through Baramulla, therefore exposing *karewas* and land surface later than south Kashmir (Agrawal (1992).

Mounds

Apart from the location of a large number of early and later historic sites on *karewas*, the location of sites seem to have shifted to other physical features such as mounds or raised surfaces on the valley floor in Baramulla District. A similar phenomenon of sites located on raised surface features can be traced at a number of sites in Kashmir. Firstly at Semthan, a multi-period site (c. 7th century BC to c. 5th century AD) partially excavated on a raised plateau of *karewa* soils with a material culture profile of over 10 meters (Indian Archaeology 1981: 69-70; Shali 1993: 109-112). Secondly at Kanispora, a two period site (Neolithic and Kushan), which is located on a mounded surface (Mani 2000), although there is no information why these sites were situated on mounded features. There were also single period sites that were built on low mounds, which revealed structures, such as Harwan, Ushkar and Parihaspora.

In Baramulla the mounded features on which the sites were located are locally called *Teng*. The sites located on these *Tengs* are mostly multi-period sites representing the material culture of the Neolithic and the early historic or the early historic and the later historic periods but sometimes also occur singly (either early historic or later historic, see chapter 5). It is difficult to suggest any particular reason but it could be possible that low areas in Baramulla District were probably unsuitable; due to higher water levels (see above) or due to the threat of floods by rivers during the early and later historic periods in Baramulla District and therefore sites were located on raised surfaces.

In South and Central Asia, there are also many mounded and multi-period sites. For example, the Bala Hisar (High Fort) of Charsadda in Pakistan (20 meters high) has early historic and some Islamic material culture, with an early radiometric date of

1450-1120 cal. BC (Coningham 2007: 21; Coningham and Batt 2007: 97-98); and Bhir mound at Taxila in Pakistan, (7 meters high mound) which has been assigned a relative date of the 2nd century BC (Marshall 1975: 88). Tepe Yahya (Lamberg-Karlovsky 1970) and Tepe Hissar (Schmidt 1937) are examples of sites on mounds with succession of cultures from prehistoric to later Partho-Sassanian periods in what is now Iran. Moreover the recent excavation of mounded sites such as Tepe Pardis and Cheshmeh-Ali have shown important Chalcolithic period activities on the Tehran Plain of Iran (Coningham et al. 2004: 6-7).

In terms of understanding this trend of settling on natural mounds and through long periods of building and developing these sites into artificial mounds, it is clear that such practices were widespread throughout prehistoric and early historic periods. In Baramulla this type of settlement may have been linked to residual water in valley floors. The results further suggest that some of these features were occupied in more than one contiguous chronological period, first in the Neolithic, then the early historic period and later during the later historic period (see also chapter 5).

7.8.2 Location of sites in relation to altitude in the region

In Baramulla District sites were found located on range of different physical features such as mountains, *karewas*, the valley floor and mounds. It was observed that the Upper Palaeolithic people carried out activities along mountains and this was also found during the Neolithic, the early historic as well as later historic periods. Is there any difference in altitude of sites among the same period sites known in Kashmir compared to the newly located sites in Baramulla District?

Studying key sites in Kashmir, the Upper Palaeolithic site at Sombur is located at an altitude of c. 1584 masl. In the Neolithic period, sites such as Burzahom is located at c. 1592 masl, Gufkral at c. 1594 masl and Kanispora at c. 1608 masl: all three overlooking present day habitations (Agrawal 1998; Bandey 2009; Mitra 1983a; Shali 2001). Similarly, early historic period sites such as Semthan is located at c. 1630 masl, Harwan c. 1706 masl and Kanispora c. 1608 masl. The later historic sites are found among the present day habitations such as Tapar c. 1580 masl, Pattan c. 1560 masl and Avantipora c. 1569 masl. Apart from these sites the key modern settlements such as Sopore town is at an altitude of c. 1582 masl, Baramulla town c. 1583 masl, Pattan town c. 1590 masl, and Bumai village c. 1589 masl in Baramulla District. The average altitude of the district is 1580 masl.

New evidence suggests that the new sites in the four main chronological periods are located at different altitudes to sites in the rest of Kashmir. The results show that the new Upper Palaeolithic site is located at c. 1646 masl which is considerably higher than Sombur. Two of the six Neolithic period sites (situated on the slopes of mountains) were found at c. 1665 masl and c. 1646 masl: again higher in altitude than Burzahom, Gufkral and Kanispora, whereas the altitude of four other sites is same to the key sites. During the early historic period, two sites were found more than c. 1829 masl, four each above c. 1707 masl and c. 1646 masl respectively and 25 sites were found above c. 1584 masl; again showing the altitude of sites is higher than key sites in Kashmir. All the later historic sites were found above c. 1584 masl, and eight of these sites were even found above c. 1707 masl, again showing higher altitudes than key sites of this period in Kashmir. All these new sites recorded

in Baramulla District are above the average altitude of 1580 masl and therefore suggest completely a different trend than the rest of the Kashmir.

Geomorphological, chemical and cultural studies at the Neolithic and the early historic sites (Burzahom, Gufkral and Semthan) by the Archaeological Survey of India under Joshi et al. (Mitra 1983a: 32) concluded that the Jhelum River flowed a couple of meters higher in the early historic times than its present bed, and reached its present level in the 8th century AD. Stein (1989b: 413) mentions that embankments were made in the 7th- 8th century AD to protect Baramulla from recurring floods. Furthermore, Shali (2001: 151) notes that the settlement pattern of the early historic period was generally on higher plateaus due to the threat of floods but he fails to provide any reasons for this.

Raised water levels of the Jhelum River during the early historic period might be one of the many reasons for the sites lying predominantly at higher altitudes in Baramulla District. It could be possible that rivers and other water bodies (e.g. Wular Lake, the largest fresh water lake in Asia) in Baramulla District regularly posed the threat of flooding and therefore sites were found at higher altitudes across the four chronological phases. The fact that sites lie on higher grounds, (particularly during prehistoric and early historic periods) might possibly also indicate a climatically wet period which forbade the settlements on lower grounds such as the valley floor or the Jhelum River flood plains or lake shores. All these remains suggestions at the moment and could be tested in a future work in the district. A further possibility could be that early and later historic sites may be masked by the present modern settlements between altitudes 1524-1580 masl in Baramulla District.

7.8.3 Possible sources of water

In Baramulla District, there are two main rivers, the Jhelum and the Pohru, and these two rivers join near Sopore and then flow out of Baramulla into Pakistan. Baramulla District also has the largest fresh water lake in Asia (Wular Lake) and a large wetland reserve. As discussed in chapter 2, Kashmir was once a vast lake which drained via Baramulla around c. 85,000 years BP through the Jhelum and Pohru Rivers; modern lakes such as Wular, Manasbal and Dal are thought to be the relics of this vast lake, or *Satisars*. Bandey's survey (1997) around Manasbal Lake located Middle Palaeolithic material culture on a mountain overlooking this lake. The Neolithic site of Burzahom is situated on a *karewa* that overlooks the Dal Lake and the three Neolithic sites identified during my MPhil in Baramulla and Bandipor Districts were located overlooking Wular Lake. The Neolithic site of Kanispora is situated overlooking the Jhelum River. Early and later historic sites have been located overlooking or on the Jhelum River banks (Mitre 1983a; Shali 2001). There are numerous examples of such sites in Kashmir, such as Semthan, Kanispora, Ushkar, Parihaspora, Tapar and Avantipora. Agrawal (1998: 74) and Shali (2001: 152) observed that sites in the periods between 800 BC to 500 AD tended to be located near lakes and rivers, or on elevated plains, such as Semthan.

The results from Baramulla District show that the sites from the prehistoric period to the later historic period seem to be located within a certain distance from all or any of the four major water bodies such as Wular Lake, Jhelum and Pohru Rivers and Hygam wet land reserve. It is of course difficult to deduce a specific water source for a particular period site when there is more than one major source in close proximity. However, during the Neolithic period of the six sites, three were located

less than 2km from Hygam wetland reserve; two sites were located within 7 km from Pohru River; and one site was located 3.5 kms from Wular Lake. During the early historic period 30 sites were within 9 kms distance from both Pohru River and the Hygam wetland reserve, and nine sites within 10 kms distance from both Jhelum River and Wular Lake. In the later historic period, 21 sites were found within 6 kms distance from Pohru River and 27 sites within 11 kms distance from both Jhelum River and Hygam wetland reserve and five sites within 6 kms distance from Wular Lake. It therefore suggests that the Neolithic sites were close to the Hygam wetland reserve and Wular Lake, while the early historic sites were close to Pohru River and Hygam wetland reserve and the later historic sites were closer to Pohru River, Hygam wetland reserve and Jhelum River in Baramulla District. This pattern is tentative and is open to debate as there could of course have been other sources of water available to people in the past besides the four major sources discussed in this study. However, this could be a useful area for future study in order to learn more about the relationship between sites of different periods and the water bodies in the region.

7.8.4 How large were the sites?

In chapter 6 I also talked about different site sizes recorded across the four chronological periods. The site size information from the key sites in Kashmir is not available; as discussed in this thesis, past archaeological aims were about cataloguing and describing physical things, and little attention was paid to such things as defining sites. Therefore no attention has ever been paid to how large or small a site might have been, and so due to a lack of information about site size, no comparisons are possible with key sites in Kashmir. Furthermore, all the suggestions about the site size

at new sites in Baramulla District are tentative at the moment as it is very difficult to link the surface material from these new sites to their actual sizes.

Therefore in this section I will discuss the site sizes recorded at new sites in Baramulla District and try to suggest reasons for changing site sizes within each chronological period. The site size of the only Upper Palaeolithic site recorded was less than c. 4.5 sq meters and this has been the smallest of all sites recorded in Baramulla District. The six Neolithic sites had sizes of more than c. 7432 sq meters and at three of these sites (c. 8361, c. 9290, c. 13935 sq meters), four pottery types, stone tools and plaster pieces of wattle and daub were recorded. This diverse material at these sites could be linked to different activities at these sites and such activities may be linked to the site size of these sites. During the early historic period, a similar trend was noted, a number of sites (e.g. 14 sites and nine sites) were more than c. 3716 and c. 9290 sq meters in size respectively. At many of these sites more than one type of material culture was observed indicating different activities at these sites and therefore possibly linked to the site sizes. When sites where only pottery or one type of material culture available were observed they tend to be less in size (i.e. less than c.3716 sq meters some even less than c. 464 sq meters in size (see chapter 6 for site size details)). During the later historic period a similar trend was noted among the sites, for instance 15 sites each are greater than c. 3716 and c. 9290 sq meters in size respectively and at most of these sites, more than one type of material culture is available providing some support to the argument that diversity in material culture may be linked to activities and activities to site size at the sites. Generally, the site size during later historic period is always greater than c. 3716 sq meters and there are only three sites which are less than c. 464 sq meters and at both these site only type of

material culture was found. From the available results it appears that apart from Upper Palaeolithic site, the site sizes across the other three chronological periods are linked to diverse material culture at these sites in Baramulla District. These are tentative suggestions at the moment and this information can be asked in a future research through excavations or trial trenches at these sites in Baramulla District.

Other factors that might have played a role in site size

Pollen data from bogs, lakes and archaeological sites in Kashmir such as Butpathri bogs, Anchar and Hokarsar Lakes (Agrawal et al. 1990: 233; Dodia et al. 1982: 104-105) and archaeobotanical studies (Lone et al. 1993: 203-215) at Burzahom and Semthan have indicated a warm, temperate and wet climate from c. 18000 BP (the time of the Upper Palaeolithic in Kashmir) down to the later historic period in Kashmir (Agrawal et al. 1990). Shali (2001: 126,134), supported by Agrawal (1998), claims that there was an expansion in settlement during the early historic period in Kashmir, largely due to this increase in temperature and rainfall, and Kalhana in *Rajatarangini* mentions that sites were “resplendent with wealth” during the later historic period in Kashmir (Stein 1989b: 438). Agrawal (1992: 217) suggested that climate was a factor in both large site size and wide distribution of sites in both early and later historic periods in Kashmir. He believed that the climate was conducive to increased settlement, and because of this, settlements thrived during these periods in Kashmir. Stein (1989b) mentioned density of population during the later historic period without providing an estimate. Brown’s (1956: 186-189) study of Kashmir in relation to its communication networks suggested that there was a dramatic rise in structural activity during Kushan rule (the early historic period) along the northern trade routes in Kashmir, which lead to north

west Pakistan and beyond. Considering this information, it might be possible that climatic ameliorations played a role in large site size in the three chronological periods (the Neolithic, early historic and later historic periods). However, at present no pollen or other data from any of the new sites located in the Baramulla District is available that could provide required climate information although this can be considered in a future work.

7.9 Summary

This chapter has presented interpretations of the material culture, settlement pattern and interactions across the four chronological periods reported in Baramulla District and contextualised it within Kashmir, and South Asia and Central Asia. Through careful analysis of material culture and landscape features and their comparisons within and outside the ambit of Kashmir, some important interpretations were suggested. It was noted that the Upper Palaeolithic sites in Baramulla District were located along the mountain ridges which is in contrast to sites of the same period in Kashmir.

During the Neolithic period it was noted that the material culture was as varied and distinctive as that found at the key sites of Kashmir and this material culture had affinities beyond Kashmir in South and Central Asia. Both in terms of material culture and the location of sites on the landscape of Baramulla during the Neolithic period suggest there were some common features similar to key sites in Kashmir but also new in both settlement data and artefacts.

In the early historic period it was noted that material culture was diverse and shared similarities with key early historic sites in Kashmir and also showed affinities with material culture recovered at some of key early historic sites in South Asia. It was

also noted that the pattern of sites on the landscape of Baramulla although had some similarities when compared to key sites in Kashmir but were in complete contrast with the site altitudes.

In the later historic period it was noted that the material culture although varied, showed similarities with key later historic sites in Kashmir. Although there are hardly few similarities in the new material culture with sites in South Asia but coins found at Taxila (Marshall 1975: 794) suggest some form of interactions existed. However, it was observed that many sites of this period had been subject to looting and salvage activities in the present. Settlement patterns across Baramulla District are generally very similar to those of the rest of Kashmir; however the altitude of sites in Baramulla District is rather different to the altitude of sites in comparable periods in Kashmir. Overall, it seems that the position of Baramulla District on a cross roads of communication routes meant that the area seems to have acted as a corridor through which people moved in and out, not only during the Neolithic period but through the early historic and the later historic periods as well, leading to interactions which are reflected in the material culture from the district.

Chapter 8

‘Iron Age’: what does the material culture indicate?

In this chapter the presence or absence of Iron Age material culture in Baramulla District will be discussed. The purpose of this discussion is to explore the form the Iron Age (if present) took in Baramulla. It was noted in chapter 1 how a chronological gap (c. 1000 BC – 100 AD), which roughly equates to the Iron Age in Kashmir was observed in my previous MPhil study (see chapter 3). Furthermore, considering that there is very little evidence of Iron Age material culture from the few excavated (or explored) sites in Kashmir, there is a debate about whether the Iron Age occurred at all in Kashmir. The little information we have about Iron Age material culture from key Kashmir sites (such as a few sherds of NBPW, some iron artefacts and slag at one site), has been largely dismissed as imports and lacked serious attention by scholars. It was therefore difficult to build any comparisons in the material culture for the present study. Instead the Iron Age material culture in surrounding South Asia, such as the Indian plains and northern regions of Pakistan, are discussed, as these regions have documented evidence of iron and its associated material culture but very few have archaeometallurgical evidence. Furthermore, Kashmir historically had communication links with these regions in South Asia since the early third millennium BC until the 10th century AD, so we might expect some contact during the period of early iron production and use (discussed in chapter 7).

Therefore, one key issue for archaeology in Baramulla District in this chapter is to understand the link between the newly discovered slag and tuyeres with the key sites in Kashmir and in South Asia; and a further key issue is to determine whether or not there was a distinct Iron Age in Baramulla District (and indeed the rest of Kashmir), or whether the few recovered iron artefacts from key sites of Kashmir are indeed all imports.

8.1 Debate over Iron Age in South Asia

The question of indigenous origins versus foreign introduction of iron artefacts and iron working has generated much debate (Agrawal 1982; Agrawal and Kharkwal 2003; Chakrabarti 1976). Early scholars argued in favour of diffusion, claiming that iron technologies and artefacts were introduced from contemporary cultures outside India (Gordon 1950: 67-69; Wheeler 1959 cited in Allchin and Allchin 1993a). However, more recently other scholars have argued in favour of indigenous production and development of iron and believe it was a local industry (Agrawal and Kharkwal 2003; Chakrabarti 1992; Tewari 2003). These scholars arguing for indigenous development of iron technologies have been able to show that the northern Indian states, including Kashmir, and the Central Himalayan regions, are rich in iron ores (including ores of magnetite, haematite, and limonite) and these regions also have archaeometallurgical evidence as well.

Furthermore, the radiocarbon dates of the Iron Age material culture and the relative stratigraphic position of iron artefacts or slag or crucibles in the archaeological sites of north and central India do support the indigenous evidence of iron smelting and manufacture of iron artefacts from around circa 1000 BC (Tewari 2003). Sites in

north and central India providing this information are Atranjikhhera, Raja Nala-ka-tila Malhar, and so forth in Uttar Pradesh (Gaur 1983: 16; Tewari 2003: 540), Kausambi near Allahabad (Ghosh 1993: 20; Darian 2001: 55), and Jakhera in the Ganga Valley (Sahi 1994: 90). Similarly, the presence of iron and its associated material culture from the two sites in Kashmir takes the form of iron artefacts at Gufkral (1550-1300 uncal. BC) and iron slag at Dragtiyung (no date, considered to be Neolithic on the basis of surface material). This has been argued as indicating the antiquity of iron artefacts in Kashmir, far earlier than 1000 BC, and probably local smelting as well (Chakrabarti 1992: 132; Shali 2001: 109; Sharma 1992: 67).

8.2 Material culture of Iron Age sites in South Asia

The Iron Age in India is associated with three important diagnostic pottery types: painted gray ware or PGW (c. 800 - 350 BC); northern black polished ware or NBPW (c. 600 - 100 BC); and black and red ware (c. 900 BC - 100 AD) (Gaur 1983; Lal 1954: 13, 16; 1992: 425; Singh 1979: 315; Wheeler 1962: 34-35;). However, there is a difference of opinion on dating of black and red ware among scholars: Chakrabarti believes that it pre-dates PGW (1992: 61); whereas Habib (1997:20) argues that it post-dates PGW in peninsular India.

Towards the Upper Gangetic Valley at Hastinapur, Atranjikhhera and Noh, iron artefacts are associated with diagnostic pottery types such as PGW and NBPW (Chakrabarti 1992; Gaur 1983; Lal 1954; Singh 1979: 315). Towards eastern India at Chirand and Mahisdal, iron is associated with black and red ware and NBPW (Allchin and Allchin 1993b: 210-212). In the central Indian sites of Nagda, Eran and Navdatoli, iron artefacts are associated with the diagnostic pottery types of black and red ware

and NBPW (Chakrabarti 1977). Finally, the context of iron towards the north (Gufkral in Kashmir where it is associated with menhirs) and in south India (in Mysore and Kerala where it is associated with Megalithic burials and sometimes with black and red ware pottery) is with the Megalithic period (Agrawal and Kharakwal 2003: 235-237; Sharma 1992). Moreover, towards north and north west in Pakistan, iron artefacts or Iron Age material culture is first mentioned in the context of protohistoric graves (called Gandharan graves), corresponding to period VII of the Ghalegay sequence (c. 500 BC) (Stacul 1970a; 1979a; 1995; 2001).

8.3 Early evidence of iron working in South Asia

Apart from diagnostic pottery types, the actual evidence of archaeometallurgy is very small from sites in north, or central India; and there is very little evidence from north or north western Pakistan where iron artefacts are reported. Sites such as Raja Nalaka-tila (c. 1400 cal. BC), Malhar (c. 1800 cal. BC) and Atranjikhhera (1265-1000 cal. BC) in Uttar Pradesh, and Noh (885-580 cal. BC) in Rajasthan, are some of the few sites with archaeometallurgical evidence (Agrawal and Kharakwal 2003; Chakrabarti 1992; Gaur 1983; Possehl 1989; Tewari 2003). Erdosy's (1988: 90) work in Allahabad district in the Gangetic region tracing urbanisation during c. 1000 BC to 300 AD mentioned slag at a few sites and with a very limited number of iron artefacts. Erdosy (1988) suggested that archaeometallurgical information cannot be extracted from meagre evidence, and it is therefore difficult to prove whether the iron artefacts from Allahabad are a product of local smelting or not.

To trace the origins of iron working in India, Tewari (2003) excavated a series of Iron Age sites such as Malhar, Raja Nalaka-tila, Baba Wali Pahari, and Dadupur in

north and central India. These excavations provided evidence for smelting such as tuyeres, heaps of slag and finished iron artefacts (Tewari 2003: 542). On the basis of this new evidence Tewari suggested three sets of dates during which iron working was being practiced at these northern India sites: c. 1200-900 cal. BC; c. 1400-1200 cal. BC; and c. 1800-1500 cal. BC (Tewari 2003: 543). Prior to this, the earliest date for iron artefacts came from the Megalithic phase at Gufkral site in Kashmir with a date range of 1550-1300 uncal. BC (Sharma 1992: 67). Allchin and Allchin (1993b: 345) and Gaur (1997: 20; 1983: 15) proposed c. 1200-1000 cal. BC date for iron working in the mid Ganga Valley, and Chakrabarti (1977: 183) also suggested a similar date of c. 1270 cal. BC for iron working there.

Evidence along the north western regions of Pakistan

Towards the north western region of Pakistan scholars such as Wheeler (1962), Marshall (1975), Dani (1967), Dani and Durrani (1964), Stacul (1969), Antonini (1963), McDonnell and Coningham (2007), have brought to light evidence of iron from Dir (Timargarha and Balambat), Swat (Aligrama, Butkara II, Loebanr I, Katelai, and Bir-kot-ghundai), Vale of Peshawar (Charsadda), and the Taxila Valley (Bhir mound). Under Dani's periodisation scheme iron was identified in Period III, providing a date range of c. 800 to 500 BC (Dani 1967: 9). Stacul (1969; 1987) however, provided a different chronological sequence (the Ghalegay sequence), and in this system iron was noted in Period IV (c. 1730-1600 BC), (although Stacul cited this as an intrusion), but more consistently from Period VII (c. 500 BC) onwards. Stacul furthermore, noted similarities between gray ware from period VII at Swat in grave sites with material from Hasanlu IIIA (c. 500-400 BC), an Iron Age period site in western Iran, suggesting

that the Swat iron artefacts may have come from Iranian sources (Stacul 1977: 251; 1981: 90; 1987: 97). At the Bala Hisar of Charsadda, Wheeler argued for the diffusion of iron technology from Persia, thus placing the introduction of iron artefacts in the c. 6th century BC. However, recent excavations at Charsadda by the Bradford-Peshawar team (McDonnell and Coningham 2007: 155), brought to light 25 iron artefacts and a few iron slag pieces, and these were assigned to c. 1200-900 BC. Marshall (1975: 533-547) also reported many iron artefacts from the Bhir mound at Taxila and proposed a date of the c. 3rd century BC. Among all these sites only Bala Hisar of Charsadda provided archaeometallurgical evidence (a few pieces of slag), and a similar date to Tewari's (c. 1200-900 cal. BC, see above), for iron working at Uttar Pradesh in India; the authors suggested possible iron working at Bala Hisar (McDonnell and Coningham 2007: 155).

Evidence along Central Himalayas

Along the Central Himalayan regions such as Uttaranchal (now Uttarakhand), a large number of protohistoric graves similar to the Gandharan graves of Swat have been explored (Agrawal et al. 1995). Agrawal et al. believed Central Himalayan graves were typologically similar to Swat graves, and both produced iron artefacts and a distinct gray ware. However, Agrawal et al. suggested that the Central Himalayan graves were older than those in Swat by obtaining new dates from the site of Bageshwar ranging between c. 2666-2562 cal. BC (Agrawal et al. 1995: 251). Apart from these protohistoric graves, sites with PGW pottery have also been reported in the Purola and Thapli areas of the same region (Khanduri et al. 1998). Moreover, recent explorations in the region have brought to light slag and crucible sites in the Kumaun and Almora

districts in the Central Himalayan region (Agrawal and Kharakwal 1998; Singh 2008). The slag from Uleni site at Dawarahat in Almora District has been analysed and dated to the early 1st millennium BC (c. 1022-826 BC) (Agrawal and Kharakwal 1998: 252, 263; Singh 2008: 245). Agrawal and Kharakwal (1998: 252) further located iron ore and pre-industrial smelting at many other places in the same region. The authors suggested that the people of the Ganga Valley most likely procured either iron ore (which is locally available), or processed iron in the shape of artefacts from the Central Himalaya region. They believed the Central Himalayan region played an important part in the diffusion of iron metallurgy in the Ganga Valley, primarily because they argued that the Ganga Valley itself is a fore-deep filled with alluvium and without any mineral outcrops (Agrawal and Kharakwal 2003: 252-253).

Evidence from Kashmir

The only references to iron artefacts in Kashmir itself come from Burzahom, Gufkral and Semthan (Indian Archaeology 1981: 70; Saar 1992: 43; Sharma 1992: 67-68). From Burzahom two artefacts (a nail and an arrowhead) were reported from the early historic phase (c. 1st century - 5th century AD) (Saar 1992). From Gufkral three unidentified iron artefacts, plus two needles and one nail, were reported from the Megalithic phase with a date range of c. 1550-1300 uncal. BC (Sharma 1992: 67). From Semthan an arrowhead and a few slag pieces were found along with NBPW pottery dating to c. 700-500 BC (Indian Archaeology 1981). Furthermore, the chance discovery of a few sherds of NBPW somewhere along the Jhelum Valley route in Baramulla tehsil by the Archaeological Survey of India was also reported (Mitra 1984: 15-17).

Besides iron artefacts and associated pottery, the only evidence of archaeometallurgy (iron slag) comes from Dragtiyung near Prang on the Srinagar-Leh national highway where (explorations revealed) iron slag was found spread over the surface of the site alongside the Neolithic material culture (Shali 2001: 109). Beyond this, nothing is known of Iron Age material culture or archaeometallurgical evidence in Kashmir, which has resulted in a great deal of speculation about diffusion (from both South Asia and the west) or its indigenous developments in metallurgy. While there are a very few references to iron artefacts and associated material culture from Burzahom, Gufkral, and Semthan in Kashmir, the only similarity with Iron Age material culture elsewhere in South Asia appears to be in NBPW, found at Semthan and somewhere in Baramulla. Although similarities in material culture pre-dating c. 1000 BC (Neolithic) and post-dating c. 1st century BC (Kushan) are documented, and also observed in the current research with north and north western regions of Pakistan such as Swat, Peshawar and Taxila (see chapters 5 and 7), there does seem to be a 'gap' between the Neolithic and the early historic.

8.4 Evidence of ore deposits in Kashmir and its surrounding regions

Agrawal and Kharakwal (2003: 215), Chakrabarti (1992; 37; 1976: 117), Possehl and Gullapalli (1999: 154-58), and Singh (2008: 241), mention six early iron-using centres in India and Pakistan: Baluchistan; the Gandhara Grave Complex in north west Pakistan; Upper Gangetic Valley; eastern India; central India; and the Megalithic north and south. Chakrabarti (1976; 1977) studied geological publications (such as Ball (1881); Chowdhury (1955); Dunn (1942); Hunday and Banerjee (1967); Krishnan (1951, 54); and Roy (1959)) to trace the source of ores that would have been used for the

production of iron in India and Pakistan. He identified ore bearing deposits in all the six regions noted above, arguing that this justified local production and not diffusion from west Asia (Chakrabarti 1992; 1976). Among these ore bearing deposits, Kashmir is specifically noted as having magnetite (72.4 % iron), haematite (70 % iron), limonite (hydrated iron oxide) and other sedimentary ores (Agrawal 2003: 246-247; Chakrabarti 1992: 34). Lawrence (1895: 62-63), during his tenure as settlement commissioner of Kashmir, discovered extensive workings of iron ore. Referring to comments by an anonymous Englishman who visited Kashmir in 1892, Lawrence mentioned that Kashmir iron ore is inexhaustible and superior to iron ore of Indian plains, and described it as mild steel. Mallet (1890 *cf.* Chakrabarti 1992: 132) and Qazi (2005: 80-81) mentioned the place names of ore bearing deposits in Kashmir such as Khrewa (outskirts of Srinagar), Uri (Baramulla District), Sopore (Baramulla District), Handwara and Lolab (Kupwara District, 50 kms from Baramulla District). It is the Sopore area in Baramulla District where three slag sites with tuyeres among the total nine sites in the current research were reported.

Chakrabarti (1992), Singh (2008), and Tewari (2003) all argued that it is the availability and knowledge of resources and evidence of smelting which determines local production and distribution of iron artefacts in a region rather than the mere presence of artefacts within sites. Chakrabarti (1992: 173-174; 1976: 121), while describing smelting of iron in India, highlighted the lack of direct archaeometallurgical material from the sites where iron has been found, such as slag, tuyeres, furnaces or crucibles. He suggested unless manufactured articles of iron and iron residue, such as slag are found in the same region, a relationship between production and smelting methods cannot be drawn. Agrawal and Kharakwal (2003), citing the example of Uleni

site (see above), believe pre-industrial smelting had been practiced there with its users probably traced to the same place and pushing back the dates for this period to 1022 - 826 cal. BC in the region (Agrawal and Kharakwal 2003).

The above discussion suggests that although Baramulla in particular, and Kashmir in general, were rich in ore, the current lack of direct archaeometallurgical evidence (such as slag, tuyeres, crucibles or furnaces), justifies an argument for local production means - that it is likely iron was introduced in the form of artefacts among the key sites. To justify an argument for its local production, some form of link needs to be established with ore sources and archaeometallurgical evidence to support its local production in Kashmir and possibly identify the key areas for its consumption there.

8.5 The present evidence and its interpretations

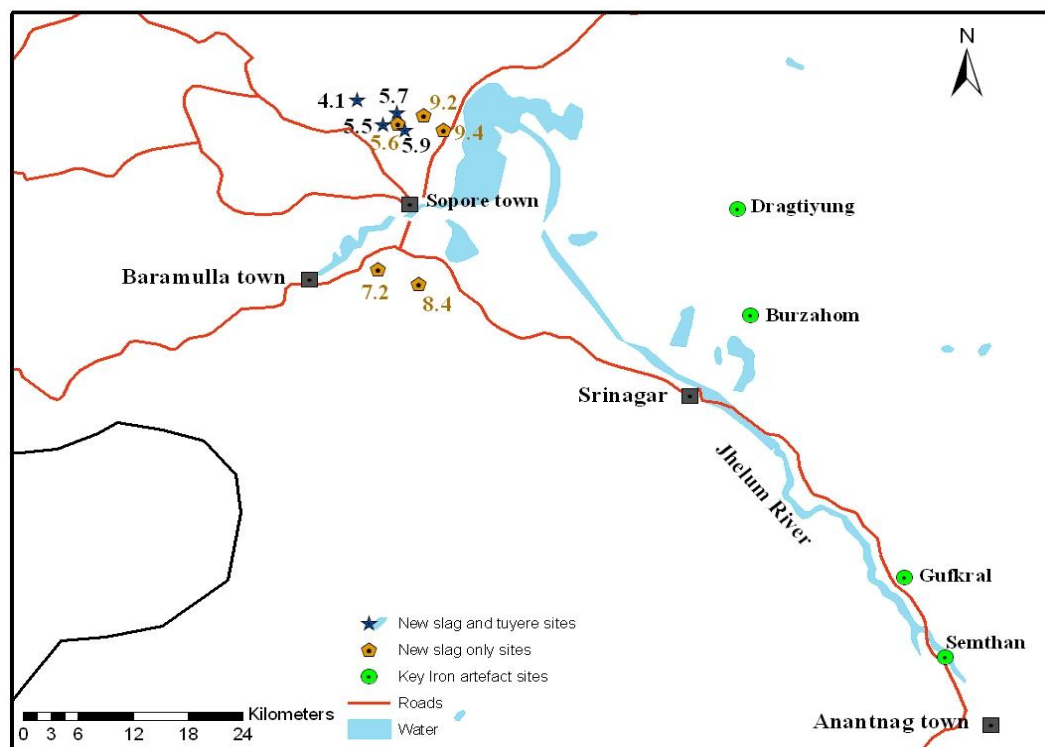


Figure 8.1 New slag only sites and slag and tuyere sites in context with the key iron artefact and slag sites reported in Kashmir.

In the present survey nine sites (4.1, 5.5, 5.6, 5.7, 5.9, 7.2, 8.4, 9.2 and 9.4) provided evidence of slag. Of these nine sites, four sites (4.1, 5.5, 5.7 and 5.9) were slag and tuyere deposits with no other recognisable material culture (see chapter 5 and 7). The main diagnostic pottery types of the Iron Age in South Asia such as PGW, NBPW and Black-and-red ware were not recognised or recovered from any of these sites.



Figure 8.2 Taken from south western end of Site 5.5 with exposed sections bearing slag and tuyere fragments (Photo: Mumtaz Yattoo 2009)



Figure 8.3 Tuyere from site 5.5 and 5.7 (Photo: Mumtaz Yattoo 2009)



Figure 8.4 Showing the slag and tuyere lying on the surface of the site 4.1 (Photo: Mumtaz Yatoo 2009)

In chapters 5 and 7 material culture from the newly recorded sites in Baramulla District were discussed in relation to similar material culture from Kashmir and South Asian sites. From few of these sites iron artefacts have been reported (see above) such as Burzahom, Gufkral and Semthan in Kashmir and from sites in Swat, and Charsadda and Taxila in Pakistan (see chapter 5, figure 5.24; figure 8.1). Building on this information I will now consider whether the new slag sites reported in Baramulla District are somehow linked with those sites where iron have been recovered in Kashmir or South Asia. I will therefore consider the evidence from the sites in Baramulla District in order to think about whether this supports local iron working or not. It was noted above that iron ore was easily available in Kashmir, and this was

argued as a key pre-requisite for local development of metallurgy (Chakrabarti 1992: 132).

From Swat in Pakistan, iron artefacts were found associated with protohistoric graves dating to c. 800 to 500 BC with no archaeometallurgical or other Iron Age material evidence. At the Bala Hissar of Charsadda in Pakistan, iron artefacts were reported and dated to c. 1200-900 BC but with two pieces of slag and no other evidence and at Sarai Khola again in Pakistan iron was found in period III deposits (1st millennium BC) (Allchin 1995: 127). None of these sites provide any conclusive archaeometallurgical evidence for iron working in Pakistan. This raises an important question: we have the evidence of consumption of iron at these sites but where was it being smelted and how was it being distributed?

At Burzahom iron artefacts were reported between c. 1st century – 5th century AD with no archaeometallurgical evidence or other Iron Age material evidence e.g. related pottery types; at Gufkral iron artefacts were reported from the Megalithic phase 1550-1300 uncal. BC (earliest date for iron in the whole region) again with no archaeometallurgical or other Iron Age material evidence; and at Semthan iron artefacts were reported from c. 700-500 BC only with few sherds of NBPW.

The only archaeometallurgical evidence such as slag in Kashmir was reported from Dragtiyung (Neolithic site on the basis of surface material culture), c. 60 kms towards north east of Gufkral and now at nine sites in Baramulla District, c. 100 kms towards north of Gufkral. Furthermore at these nine new sites four have tuyeres associated with slag in Baramulla District. Does this suggest that iron was being smelted at Dragtiyung and the nine new places in Baramulla District and later possibly distributed and consumed by sites like Gufkral, Semthan and other sites through trade

or interactions, similar to those in practice since the Neolithic times in the region (see chapter 5, figure 5.24)

Law's (2008) work in the greater Indus region of Pakistan and India (c. > 3300 BC to c. 1300 BC) examining inter-regional interaction and identification of resources, suggested that Kashmir was an important resource centre during the early Harappan or Kot-Dijian phase (c. 2800 to 2600 BC), as well as the later Harappan periods (2450 to 2200 BC and 2200 to 1900 BC). He identified sources of galena lead in Baramulla District (Buniyar village) used by the Harappans (Law 2008: 637-638, 777). In support of this model of resource procurement from Kashmir, Law also noted the presence of alabaster (Law 2008: 528-529), steatite and agate (371-372, 441-442) and chalk (141) in the Kashmir region. Building on Possehl (1999, *cf.* law 2008) and Stacul (1992, 1994, 1987), Law discussed Kashmir as part of a 'Northern Neolithic' with trade links with the Indus Valley people in South Asia, such as the presence of Kot Dijian pottery (pot with horned figure painted on its shoulders (c. 2800 to 2600 BC) from phase II at Burzahom, see chapter 3, section 3.3.2), and agate and steatite beads at Burzahom (Law 2008: 86).

The new interpretations of the material culture discussed in chapter 7 supports the idea that Baramulla District was in a strategic position on the ancient communication routes and had contacts through various chronological periods in all directions, are now also reflected in Law's (2008) work. The evidence of galena lead at Harappan sites in Indus Valley traced to Baramulla District suggest that knowledge of iron ores at Baramulla was also a likely possibility; harvested or exchanged either in raw or smelted form. Moreover, iron artefacts from the known sites in Kashmir or surrounding regions of South Asia might be linked to Baramulla District as well. The

archaeometallurgical evidence which is missing in this whole region has now been found at the four slag and tuyere sites and the five slag sites in Baramulla District. Furthermore, the presence of tuyeres at four slag sites does support smelting of metal as tuyeres are directly linked to smelting (Chakrabarti 1992: 135-140). It is important to remember that it is the surface material from the new sites in Baramulla District that is being analysed which means that dating is an area of great concern, and means that these suggestions remain conjectural until clear dating evidence associated with the slag and tuyeres can be obtained; probably through targeted excavation for scientific dating samples.

A similar case study

A similar research question in a neighbouring region was addressed by Matthews and Fazeli (2004) when they questioned the mechanisms behind the acquisition of Iranian copper, its metallurgical process, and consumption by the Late Chalcolithic communities of Mesopotamia. They explored this question by addressing the sequential stages of processing and manufacturing involved in copper metallurgy. Their interpretations were based on identifying certain stages of metallurgy such as: the source of copper ores; the smelting process; casting of metal; the transport of either ingots or artefacts from the Iranian highlands to Mesopotamia; and finally the consumption of copper artefacts at sites (Matthews and Fazeli 2004: 67-70).

In Baramulla District it is possible to distinguish some, though not all, of these stages in relation to iron production and distribution. We have information that suggests the presence of iron ore sources in the Baramulla District, and we now have archaeometallurgical evidence here for smelting or casting technology at nine new

sites located in the current research in the form of slag and tuyeres. However, we do not have information about the consumption of metal at the new sites in Baramulla District yet, but the presence of iron artefacts at other sites in Kashmir and South Asia could indicate distribution and consumption. Excavation in order to provide dating samples alongside slag and related material culture, followed by scientific analysis of this material may go some way to addressing these issues. Further, there are some reservations about the chemical composition of the slag belonging to iron; unless we have confirmation that the slag residue is actually iron based, we can only suggest that it may be iron working debris.

Further discussion in light of new material culture in Baramulla District

If we analyse the material culture in Baramulla District, we have evidence of Upper Palaeolithic people along the mountains (see chapter 7). Then we have evidence of the Neolithic people living on the *karewas* (see chapter 7). Further we have slag and crucible sites four of which lie in the vicinity of the new Neolithic sites and are devoid of any other material culture except a few undiagnostic pottery sherds. We also have evidence from the early historic to the later historic periods (Kushan, pre-Karkota, Karkota and Utpala phases), in Baramulla District. Therefore, one key issue is to understand the link between these apparent Neolithic sites and slag; and whether or not there was a distinct Iron Age in Baramulla District.

There is also the absence of a Chalcolithic phase along the central Himalayan and northern Himalayan regions as well as in Kashmir (Agrawal and Kharakwal 2003: 235). The extensive works of Agrawal and Kharakwal (2003: 237) in these regions has led to the conclusion that the Neolithic culture is directly succeeded by a 'Megalithic'

phase that represents the Iron Age. At both Burzahom and Gufkral, the Neolithic is succeeded by Megalithic material culture with iron found only from the Gufkral Megalithic phase, and Baramulla District is analogous to both Gufkral and Burzahom in terms of its material culture (see chapter 7). Moreover at the site Dragtiyung which lies c. 50 kms north east of Baramulla District, iron slag is found in association with the Neolithic material over the surface of the site (Shali 2001).

Moreover, the presence of two distinct types of material cultures: stone bowls and saddle querns reported at the early historic sites in Baramulla District, suggest that they might be part of the Iron Age material culture in Baramulla District. While Stacul (1979; 2001) unambiguously related saddle querns to iron metallurgy, there is no study on stone bowls yet. Stone bowls were found at nine new early historic sites, of which two also contain slag, and saddle querns were recorded at four new sites and interestingly one contained both a saddle quern and slag in Baramulla District. Stone bowls have been reported at Gufkral around c. 1000 BC when the iron artefacts were reported there. The saddle querns are reported at Aligrama, Swat during periods VI and VII (6th to 4th century BC). Stacul (1979: 341; 2001: 244) stated that period VII of Swat is represented by iron metallurgy with the introduction of saddle querns and new pottery types. The absence of saddle querns from key early historic sites in Kashmir is perplexing though, and it is therefore not yet clear whether these saddle querns reported in Baramulla District have anything to do with Iron Age material culture or they might be material from two distinct cultures at Baramulla District.

Implications of new evidence

From the evidence of iron slag along with tuyeres alone, it is difficult to determine whether this signifies an 'Iron Age' in Baramulla District. But, when analysed in relation to other material culture (such as stone bowls and saddle querns), it could be suggested that these new slag sites could possibly belong to long span of time (c. >1000 BC-100 AD (based on the earliest date of stone bowls at Gufkral). This date range is also consistent with the Iron Age dates in Kashmir (Gufkral and Semthan) and South Asia as well.

8.6 Summary and conclusion

The present evidence of slag at nine new sites (four among them containing tuyeres) in Baramulla District have provided for the first time archaeometallurgical evidence from the district, possibly indicating smelting of metal, probably iron. In Kashmir, as noted above there is an absence of an identified Chalcolithic period as yet. Furthermore, the sources of iron ore from Baramulla District suggest that there were mineral resources available and therefore the potential for people to exploit them.

On the present evidence, it can be suggested that Baramulla District may have the potential to allow us to explore the missing 'Iron Age' and learn much more about iron working in this region if we could at least determine the chemical composition of slag, obtain some dates and clear stratigraphic associations of other material culture with the slag. We know that something was being smelted, but we do not know what and we do not know when. At Uleni in Almora district, Kumaun a similar problem was addressed by dating slag through radiocarbon dating (Agrawal and Kharakwal 2003), and Tewari (2003) excavated the four Iron Age sites in Uttar Pradesh from 1996-2002

(dating c. 1800 to c. 1000 BC), which revealed slag and crucibles in stratified sections, and enabled sampling for radiometric dating. A similar procedure could be followed at selected sites in Baramulla District.

Therefore, in future it will be a priority to date one of the sites with evidence for slag, and to determine its chemical composition. I may have not been able to conclusively determine whether or not there was an 'Iron Age' in Baramulla District (and thus Kashmir), but my survey and analysis of the sites and their material culture has permitted the framing of key research questions and provided some fundamental ground work in order to build on this question in future.

Chapter 9

Conclusions and future work

This thesis presents the results of a systematic survey in the Baramulla District of Kashmir from c. 18000 BP to the 10th century AD. This is the first time such a survey has been carried out in Kashmir, and the results have been both interesting and informative. The analysis of the settlement data and the artefacts recorded has allowed me to make a new and original contribution to understandings of settlement patterns and activities in this region in the past. Apart from analysing settlement data and material culture, a key issue within this research has been the issue of apparent gaps in the chronology, most notably the presence or absence of an Iron Age in Baramulla District, which in turn raises questions about continuity of activity and understanding the cultural profile in this region. In order to learn more about the new material culture and sites in Baramulla District I have considered much of it in the context of similar material culture from previously known sites in Kashmir and South and Central Asia (chapter 3). This has allowed me to consider extant interpretations about chronology, material culture and site types, similarities and interactions and overall settlement history in this region, which I then used to explore my new data.

In chapters 1 and 3, archaeological works previously undertaken in both Baramulla District and Kashmir were discussed, and these demonstrated a lack of both analytical and methodological rigour while exploring and presenting the material culture and the sites themselves. Un-systematic and site specific works carried out in

Kashmir and even Baramulla District therefore, have left voids in the chronology of the region and in interpretations of archaeological data. One of the ways to deal these issues was by undertaking a systematic and methodological settlement study so that not only new interpretations about archaeological sites and their material could be sought, but this information could then be synthesised within its regional landscape context and also within the broader regions of Kashmir and South and Central Asia.

Chapters 7 and 8 covered discussions of the new issues and interpretations raised during the analysis of the new survey data (covered in chapters 5 and 6), demonstrating that archaeological material evidence begins with the Upper Palaeolithic period c. 18000 BP in Baramulla District. This is followed by the Neolithic period beginning at the end of the fourth millennium BC and lasting till middle of the second millennium BC. This period is followed by the early historic period that begins around the first part of the first millennium BC and ends at the end of fifth century AD. The early historic period is followed by the later historic period beginning around the sixth century AD and ending by the end of tenth century AD. Also discussed are the types of sites, the material culture, landscape features, and similarities in material culture within and outside Kashmir across the four chronological periods. Moreover, the extant interpretations of similar site types and material culture were tested to understand if Baramulla District provides any new information or new interpretations that can be linked to understanding of past human activity in relation to Kashmir, South Asia or even Central Asia.

This research was driven by two main research aims: firstly, to carry out a systematic survey in this region (where very little archaeologically had been carried out previously) in order to learn about settlement patterns from all periods in the past;

and secondly, to learn more about the apparent absence of an Iron Age in Baramulla District. Based on the similarities observed in certain elements of material cultural across Kashmir, South and Central Asian sites, this research also considered the role of trade and communications routes, and offered them as explanations in understanding the level of interactions in each chronological period, providing new alternative interpretations along with the traditionally held such as 'trade'. This research therefore presented archaeological information in the context of its landscape and wider regions that led to new understandings about each chronological period in Baramulla District for the first time.

9.1 The Upper Palaeolithic period

One site belonging to the Upper Palaeolithic period was located in Baramulla District in the current research, making it the second site located along the Yemran Mountains in the district to date. Apart from Sombur site (Pant et al. 1982), there is hardly any information about the Upper Palaeolithic period of Kashmir. The small amount of information we have about the broad Palaeolithic periods of Kashmir (the Lower and Middle Palaeolithic phases) have been obtained from Pahalgam (south Kashmir) and Manasbal (north Kashmir), both located along high mountain valleys. The information that could be deduced from these Palaeolithic sites in Kashmir is their chronological timescale, altitude and material culture. Analysing this available information about the Lower, the Middle Palaeolithic and the Upper Palaeolithic sites (apart from differences in chronology and tool typology), the Lower and the Middle Palaeolithic sites were observed to be situated at higher altitudes (c. 2134 masl) than the known Upper Palaeolithic site at Sombur (c. 1584 masl), which is on a *karewa* on the valley floor.

Furthermore, studying the Pleistocene history of Kashmir (chapter 2), it became known that Kashmir was submerged under water and its valley floor was inaccessible for habitation at least up to c. 85000 years BP, when due to physical changes water drained and the *karewas* on valley floor in the southern part of Kashmir first appeared (Agrawal 1992). These *karewas* thereafter witnessed the first activities of the Upper Palaeolithic people at Sombur around c. 18000 BP in Kashmir.

The new Upper Palaeolithic information from Baramulla District is in contrast to the information we have from Sombur in Kashmir. The new site located in the present research (at 1647 masl, 63 meters higher than Sombur) along with the Upper Palaeolithic site reported in my MPhil survey along the Yemran Mountain range (at 1664 masl, 17 meters lower than the new site), suggests that the Upper Palaeolithic activities took place towards north Kashmir on the slopes of mountains rather than *karewas* on valley floor as found towards south Kashmir. If we sum up the whole information about the Palaeolithic period of Kashmir, it can be said that in the Lower Palaeolithic people were exploiting high altitude zones (e.g. Pahalgam or Manasbal), and then tending to make more use of the valley floors during the Upper Palaeolithic following extreme landscape changes (e.g. Sombur). However, in Baramulla District (the northern side of Kashmir), people seem to have remained on higher altitudes till at least fourth millennium BC probably on account of raised water levels or threat of flooding or swampy land which has since stabilised after the draining of the water.

9.2 The Neolithic Period

Beginning in late fourth millennium BC and continuing to the end of second millennium BC the material culture of the Neolithic was located at six sites in Baramulla District.

Systematically studying these sites permitted some attempts to characterise settlement patterns during this period in the district, through understanding types of sites, landscape features, material culture and any evidence for interactions inside and outside Kashmir. Burzahom, Gufkral and Kanispora, (the key excavated sites of Kashmir), and several others thought to be Neolithic on the grounds of surface finds, have provided some information about material culture, types of habitations and interactions during the Neolithic period in Kashmir that has been used for comparison.

The current interpretations of newly located Neolithic sites and their material culture at Baramulla District adds further information to our understanding about the Neolithic period of Kashmir. The Neolithic material culture at the six new sites in Baramulla District is similar to that already found at Burzahom, Gufkral and Kanispora in Kashmir (Indian Archaeology 2004; Bandey 2009; Ghosh 1964; 1965; 1996; Khazanchi 2004; Mani 2000; Saar 1992; Sharma 1982; 1998; 2000). The similarities were noted across the four diagnostic pottery types in terms of their design and decoration. This apparent uniformity in the pottery types, along with stone tools, habitational material (pieces of wattle and daub plaster with reed impressions), expression of art forms (graffiti), and several other miscellaneous artefacts (see chapter 5), suggest links between the Neolithic sites right across Kashmir.

Alongside the similarities found in Kashmir sites, the material culture from the six new sites of Baramulla District were analysed alongside material from similar period sites in South and Central Asia. The results showed surprising similarities with the Neolithic material culture from the Swat sites and Taxila in Pakistan, Yangshao and Longshan in China, and Gobi in Mongolia. Earlier scholars, on the basis of identified common traits in the Neolithic material culture termed this a unique cultural complex

calling it the 'Inner Asian Complex' or 'Northern Neolithic Complex' and it was explained as the interaction between sites in this region with each other due to trade (Allchin and Allchin 1993a, b; Fairservis 1975; Sharif and Thapar 1999; Thapar 1985; Stacul 1989; 1997).

In the present research it was learnt that similarities in material culture between the new sites in Baramulla District and the sites in Kashmir, South and Central Asia Neolithic sites are considerable, and this suggests possible interactions due to trade and other reasons. The geographic position of Baramulla District at a cross roads of communications routes is important, perhaps allowing it to act as a hub between the northern regions of Pakistan and Central Asia on the north western side, and rest of Kashmir on south eastern side (Burzahom, Gufkral and Kanispora). This centrality of Baramulla District is supported by the presence of the key Jhelum Valley route that passes through Baramulla and connects Kashmir with the northern areas of Pakistan and Central Asia.

The details of landscape information for the Neolithic sites in wider Kashmir are not known, but what can be deduced is that Burzahom, Gufkral and Kanispora sites were situated on the *karewa* features on the valley floor in Kashmir. In the current research in Baramulla District, two of the six new sites were located on the slopes of mountains and the other four on *karewas*. This is the first time that the Neolithic sites have been observed as located on topographical features other than *karewas*. Furthermore multiple water resources seem to have been available to the Neolithic people such as Jhelum and Pohru Rivers, Hygam wetland reserve and Wular Lake. The vast swathes of reed species (see chapter 2) found growing in Hygam wet land reserve may well have been the source for the wattle and daub plastering with reed

impressions recovered from three of the six new sites in the district. The six new sites in Baramulla District indicated that they had large activity areas, with five sites more than 7432 sq meters in size.

The Neolithic period in Kashmir has been generally agreed as ending around the close of the 2nd millennium BC with the introduction of menhirs or Megaliths at Burzahom and Gufkral and the subsequent period is therefore known as the Megalithic period in Kashmir. At Baramulla District no Megalithic stones (or menhirs) were found but there are hardly any differences between the Neolithic and Megalithic material culture other than menhirs as found at Burzahom (Saar 1992: 16). The Megalithic period ends in the early first millennium BC, during which iron is introduced (at e.g. Gufkral in Kashmir) and a new chronological period, the early historic period, begins.

9.3 The early historic period

This period begins in the early first millennium BC in Baramulla District with the evidence of material culture observed at 39 sites. These 39 new early historic sites inform us about different aspects of settlement in the early historic period in the district. This study of the early historic period for the first time has sought to move away from descriptions about art, architecture or iconography or belief systems, to consider a range of settlement and landscape issues. Semthan in Kashmir is the only site that sheds some detailed light on the chronology, material culture and habitational layers (the Iron Age and the Kushan phases) of the early historic period. On the other hand Gufkral, Harwan, Kanispora and Ushkar provide information about architecture and belief systems of the Kushan phase of the early historic period (see chapter 3).

From the 39 new sites located in the district, the material culture seems to correspond to the period c. 1000 BC to 1st century AD (considered to be Iron Age in Kashmir or other parts of South Asia) and material culture of the Kushan phase (c. 1st century – 5th century AD) of the early historic period was found. It is important to note that there was no direct evidence of iron artefacts from any of the new sites except undated slag and tuyere and associated material culture corresponding to what might be the Iron Age in Baramulla District. For example, at some sites what is understood to be archaeometallurgical evidence (which is first of its kind in Baramulla District) is found alongside stone bowls at two sites in the district. The stone bowls are very similar to those found at Gufkral (c. 1000 BC – AD 100) and at Srinagar (c.500 BC – AD 500) (Sharma 1992; Converse 1978). Furthermore, the presence of saddle querns reported from the new early historic sites in Baramulla District are also thought to be associated with an Iron Age although in a different region (c. 500 BC) (see chapter 7 and 8). Similar saddle querns from Swat sites in Pakistan have been ascribed to the Iron Age by Stacul (2001: 244). Therefore, based on this evidence and tentative chronological interpretations of associations of material culture, Baramulla District seems to have seen activities from c. 1000 BC during which metal (iron) was smelted and processed. Furthermore, we know from chapter 2 and 8 that iron ore is locally available in the district and pre-industrial smelting of this metal was carried out in the Sopore area of Baramulla District (Mallet 1890 *cf.* Chakrabarti 1992: 132).

The material culture of the Kushan phase (c. 100 AD to c. 500 AD) of the early historic period was most abundant at the majority of the sites in Baramulla District. The material culture consisted of pottery, plain and decorated terracotta artefacts (for example terracotta wheels, miniature human figurines, terracotta tiles with reed

impressions, terracotta rods as well as several other miscellaneous artefacts which have no comparators, structural residues and stone artefacts). The structural remains along with tiles possibly suggest their association to some kind of habitation during this phase at Baramulla District. The rubble and rock masonry evident at site 9.2 seems to have some similarities with material from Harwan in Kashmir, and beyond at Taxila, Swat, and Peshawar (all in Pakistan). The presence of stone artefacts reported at new sites in Baramulla District such as mortar and pestles, stone mullers and saddle querns are most likely linked to agricultural subsistence practices of the early historic people in Baramulla District. A range of unidentified stone artefacts indicate various other activities of people at new sites in Baramulla District.

The analysis of settlement within the landscape of Baramulla District during the early historic period provided some interesting insights. The current study in Baramulla District indicates that people seem to have occupied high altitude zones (such as mountains), *karewas*, mounds or raised surface features and also the valley floor during this period. Most of the new sites were found located on *karewas* or raised surface features (mounds). Moreover, the altitude of the sites shows that only four out of 39 early historic sites were located below the average altitude of the whole region (i.e. 1580 masl). The results indicate that people probably preferred higher altitudes or the *karewas* or raised features or mountains for habitation, probably due to two reasons; firstly the Jhelum or Pohru Rivers may have flowed higher than the present river banks, or floods might have deterred people from settling below 1580 masl (Mitra 1983a). Secondly, present day settlements might have obliterated the sites of the early historic period sites. Furthermore, four types of water resources were identified, but 76% of sites located were within 1.3 – 9.5 km of Pohru River and

Hygam wetland reserve. Moreover, it was observed that sites during this period were large; 23 sites were between 3716 and 9290 sq meters and at all these sites more than one type of material culture was recorded.

9.4 The later historic period

The later historic period begins c. 6th century AD and extends to c. 11th century AD in Baramulla District. In Kashmir, the architecture and masonry from Hindu temple ruins of this period is particularly well known, and studies have resulted in plentiful information about different structural designs, religious beliefs and the reign of the rulers who commissioned them (see chapter 3).

53 sites belonging to this period were located in Baramulla District. A range of pottery types such as thick red ware, gray ware, plain buff or dull red ware, fine red ware, fine thin black ware, plain red ware, plain ochre ware (with decorations and design) were recovered from these sites. An interesting feature observed on two red ware pottery bases was the stamping of human motifs in different scenes. This has only been observed previously at Parihaspora site, plus a few specimens were also salvaged depicting similar stamping of motifs from a 10th century site in Srinagar in Kashmir (Bandey 1992). As Bandey (1992, see chapter 5 and 7) suggested a similar branding of scenes on toilet trays at Taxila in Pakistan, this may indicate the continuation of contact between Baramulla District and other parts of north western South Asia during the later historic period, as well as in earlier periods as discussed above.

Furthermore, the presence of two-piece rotary querns, large mortars and thick storage jars from many new later historic sites, suggested that agricultural tools and

household storage were increasingly important in this period. Although such tools and utensils from known sites in Kashmir have seldom been analysed, they are however mentioned as agricultural and utilitarian in nature. However, considering the large number of the later historic sites located in Baramulla District, it was observed that the occurrence of these tools on sites was low; this may have been because these tools are/were salvaged from the sites by the local inhabitants (see chapter 5 and 7), or it may be that they were only a small element of the assemblages. The structural activity at three sites suggested that masonry was mostly similar to that found in the temples or structures excavated in Kashmir such as Tapar, Parihaspora and Martand.

Analysis of settlement during this period indicated sites were located on *karewas*, mounds and the valley floor. Although a large number of sites were found on the valley floor, they were nevertheless higher in altitude than present habitations. A study of this at Semthan site by the Indian Archaeological Survey suggested the Jhelum River flowed higher than it does today by a few meters until the 10th century AD (Mitra 1983b). This might suggest why these new later historic sites in Baramulla District were also located higher in altitude than the present habitations. Furthermore, it is highly likely that some present day habitations are masking some later historic sites as many of these sites have modern constructions in their vicinities (see Appendix 1). It was also observed that a large number of the later historic sites were found close to the Jhelum and Pohru Rivers perhaps indicating that they were key sources of water, although other water sources cannot be ruled out (such as Wular Lake, Hygam wetland reserve and many springs and wells). The sites are large in size and at most of these sites more than one type of material culture was found.

9.5 Future work

Through this research I have made important progress in understanding the settlement patterns of archaeological sites and interactions in Baramulla District across the four chronological periods. It needs to be stressed that this is very much a beginning and a foundation, and that work has taken place within constraints of time and resources. Clearly this work has already identified several areas within the current study which could usefully be expanded further. Some of these key areas are outlined below.

1. Upper Palaeolithic / Neolithic relationship and the Mesolithic in Kashmir. Given the apparent lack of a Mesolithic in Kashmir and Baramulla District, further work at site 4.6 (the Upper Palaeolithic site right next to a Neolithic site) could provide new insight into the chronological relationships in prehistory.
2. The nature of the Neolithic in Baramulla District. Trial trenches at any of the three sites where pieces of wattle and daub plaster with reed impressions were recovered would help in finding out whether the dwelling pit phenomenon existed at any of these sites, as well as providing an opportunity to obtain samples for scientific dating.
3. Understanding stone bowls. Future research could be directed at understanding more about these intriguing objects that have been recovered from several sites within Baramulla District and in Kashmir. Excavation at one of the new sites where these bowls have been found would allow exploration of their exact stratigraphic location, context and also allow sampling for scientific dating which would perhaps enable the development of a chronological time frame for this stone ware, and so address the issue of why

this stone ware has been found at more than one chronological phase in Baramulla District.

4. Slag and tuyere. Given the importance of both understanding the nature of an 'Iron Age' in Kashmir, and the debate surrounding the origins of iron technology in the wider region, the four undated slag and tuyere sites provide an excellent opportunity for future investigation, along with analysis of the chemical composition of slag to confidently determine what type of metal was being smelted. The chronological boundary of this slag needs to be determined and the technology of smelting understood, so that a composite picture of these undated slag sites can be verified.
5. Early historic structures. The investigation of the early historic sites where the structural residue or tiles were located, could provide important information about the type of structures in use during the early historic period in Baramulla District. Given the link between early historic structures and religious activity in northern South Asia, this could provide very interesting information about localised developments.

These are of course only a selected few possible research issues; there are many others that could be discussed. However, one of the most pressing concerns identified in the present study is that the sites are being vandalised rapidly. It will not be very long before these sites are completely lost, and we will have no opportunity to study them. Any further research at these sites requires immediate attention before it is too late.

This research was undertaken with the aim of contributing to our understanding of the archaeology of Baramulla District, which in turn will help learn more about Kashmiri archaeology. Systematic survey has been undertaken using appropriate and up-to-date methodological techniques in order to investigate landscape and settlements; and this is the first time such aims and methodologies have been applied to archaeology anywhere in Kashmir, and thus making this research an original contribution.

This study has provided very informative and exciting results and also demonstrated the benefits of settlement pattern study on the basis of systematic surveys. This research has also provided the necessary building blocks for future work studying settlement data and material culture in the landscape of Kashmir. I have successfully addressed my first research question through survey and analysis, which has allowed me to characterise the material culture of different chronological periods and thus explore settlement patterns and change over time and develop a chronological profile of Baramulla District. While, I may not have found evidence to conclusively support or refute the presence of an 'Iron Age' in Baramulla District, I have laid the necessary ground work and foundations for exploring this second research question further, demonstrating the validity of the question itself and identifying the areas where future research could be directed.

Appendix 1

Transect and site details from the two seasons of field work in Baramulla District. This document is in two sections, section 1 deals with the extensive transects while as section 2 deals with the intensive transects:

Section 1

Extensive Transects

Transect 1

This transect was started on the outskirts of village Shankargund in tehsil and Block Sopore. The Pohru River is close by and lies to the south west approximately 100 meters away from the starting point of transect. The transect was walked through apple orchards, paddy fields, low lying *karewas*, ploughed fields and habitation areas. The transect was 8 km with an average height of 1585 masl. The agricultural and horticultural activities within transect seem to be high, but being the winter season, the fields were in dis-use and the visibility was very good. The material culture was clearly visible on the surface which made the identification of sites easy. The following sites were identified within this transect:

Site 1.1 [N 34°19.21' E 74°26.436']

Name: Hellpuran, or sometimes called *Teng* (locally mound)

Period: Early historic (c. 1st century - 5th century AD) and later historic (c. 6th century AD-10th century AD)

Height: 1585 masl; **Size:** 4997 sq meters (53760 sq feet)

Finds: Pottery, stone artefacts, mortar and pestles, saddle querns, terracotta artefacts such as tubular rod fragments, terracotta tiles with reed impressions, measuring 22(?) × 20 × 2.5 (lxbxw) cm and miscellaneous artefacts

Details: The site lies among the apple orchards near villages Brath Kalan which is 400 meters away towards north east, and Shankargund which is 200 meters towards south west. The material culture found at this site is varied and scattered all over the site. The pottery collected from the site resembled material from the early historic site of Harwan (100-500 AD) and later historic sites of Tapar (634 AD) and Parihaspora (750 AD). The site is slowly being encroached by agriculture however the remaining mounds show some structural evidence such as a rubble structural base.

Site 1.2 [N 34°19.286' E 74°26.648']

Name: *Teng*

Period: Early historic (c. 1st century - 5th century AD) and later historic (c. 6th century-10th century AD)

Height: 1594 masl; **Size:** 4162 sq meters (44800 sq feet)

Finds: Pottery

Details: The site lies between villages Brath Kalan towards north east and village Shankargund towards south of the site. A modern graveyard lies adjacent to north western side of this site. The material culture was scattered over the surface of the site and was denser towards its northwestern sections of the site. The pottery collected showed resemblance with early historic site of Harwan (100-500 AD) and later historic sites of Tapar (634 AD) and Parihaspora (750 AD).

Site 1.3 [N 34°19.259' E 74°26.659']

Name: Teng-2

Period: Early historic (c. 1st century - 5th century AD) and later historic (c. 6th century- 10th century AD)

Height: 1591 masl; **Size:** 7316 sq meters (78750 sq feet)

Finds: Pottery, stone artefacts such as querns, mortar and pestle, mullers, miniature stone artefacts besides terracotta artefacts

Details: Some 200 meters from village Brath in tehsil and block Sopore, three meters at its highest point, this site is partly lost to quarrying on the south western side. The pottery is scattered all around the site and resembles with site 1.2. Pottery resembles to early historic site of Harwan (100-500 AD) and later historic sites of Tapar (634 AD) and Parihaspora (750 AD). The site also showed some traces of structural remains, as piles of stone lie around the edges of the site.

Site 1.4 [N 34°19. 378' E 74°26. 870']

Name: Teng-3

Period: Early historic (c. 1st century - 5th century AD) and later historic (c. 6th century- 10th century AD)

Height: 1574 masl; **Size:** 11148 sq meters (120000 sq feet)

Finds: Pottery, terracotta artefacts such as wheels with pinched design and terracotta disks with neatly drawn holes

Details: This site was located in the midst of village Brath, tehsil and block Sopore. Seloo village is 3 kms towards north west and village Dangarpore is 2 kms towards north east. This mound site is surrounded by apple orchards on three sides. The

pottery resembled with early historic Semthan (700 BC to 500 AD) and with later historic site of Tapar (634 AD).

Site 1.5 [N 34°19.256' E 74°27.506']

Name: Puran (ancestral place)

Period: Later historic (c. 6th century - 10th century AD)

Height: 1597 masl; **Size:** 14632 sq meters (157500 sq feet)

Finds: Pottery only

Details: Located off-transect in an apple orchard in Mohlipora area of Sadpora village.

The site gently rises to two meters towards its eastern side forming a gentle mound, while as the western part of this site is disturbed. The pottery collected showed resemblance with Tapar (634 AD) and Parihaspora (750 AD) sites.

Transect 2

This transect was started from Sopore, tehsil and block Sopore and was walked towards north west. Jhelum River is c. 300 meters away towards southwest. The transect was 8 kms long, walked through apple orchards, paddy fields, ploughed fields, vegetable gardens and through the habitation areas. The area surveyed within transect was plain and level with an average height of 1583 masl. This transect was diverted at few places to avoid a military base and some private enclosures and due to this may have affected recording the presence or absence of archaeological material culture. The following sites were identified:

Site 2.1 [N 34°16.890' E 74°27.621']

Name: Usmanabad

Period: Later historic (c. 6th century - 10th century AD)

Height: 1584 masl; **Size:** 4273 sq meters (46000 sq feet)

Finds: Pottery only

Details: Located among apple orchards and pottery is strewn across the fields. Sopore town is towards north east and south east and Jhelum River is 200 meters away towards south west. The pottery is common however due to expansion in population a large area of this site is being encroached by modern constructions and thereby destroying much of its details. The pottery resemble with Tapar potteries (634 AD).

Site 2.2 [N 34°17.364' E 74°25.741']

Name: Bagh-i-Shaath

Period: Later historic (c. 6th century - 10th century AD)

Height: 1583 masl; **Size:** 10457 sq meters (112560 sq feet)

Finds: Pottery, stone querns and mortar and pestle

Details: This site was located among the vegetable gardens on the banks of Pohru River towards. The site is in Nowpora village 500 meters away towards north east. The material culture is strewn over the site and often retrieved and piled during activity times. The pottery collected when typified resembled with Tapar (634 AD), Martand (750 AD) and Fathgarh (550 AD) sites. Few isolated stone slabs were also observed on the northern part of the site.

Transect 3

This transect was started from the outskirts of Rinji village which is c. 0.5 kms towards north east in Bose. This transect is 8 kms long and walked towards northwest through *karewas*, apple orchards, paddy fields, villages and ploughed fields. This transect had an average height of 1586 masl with the highest point walked through the flat topped *karewas* at 1602 masl. Due to high *karewas*, this transect was diverted at several places to remain on track. The archaeological material culture was clearly visible and the following sites were located:

3.1 [N 34°13.454' E 74°29.862']

Name: No name

Period: Early historic (c. 1st century - 5th century AD) and later historic (c. 6th century- 10th century AD)

Height: 1586 masl; **Size:** 4645 sq meters (50000 sq feet)

Finds: Pottery, stone artefacts

Details: This site was located among the apple orchards on the base of a *karewa*. Hygam village is 2.5 kms towards north east and Bose village is c. 700 meters towards SW. The pottery observed and collected showed resemblance with Semthan period IV and Parihaspora. A significant portion of this site is disturbed towards northern side due to quarrying.

3.2 [N 34°13.447' E 74°29.842']

Name: Qasim Bagh-1

Period: Neolithic and early historic

Height: 1590 masl; **Size:** 8361 sq meters (90000 sq feet)

Finds: Neolithic and early historic potteries, sling balls, pounders, spindle whorl, terracotta figurine and stone bowls

Details: The site was located on a flat *karewa* now partly lost to quarrying. Hygam village and Hygam wetland are 2.5 kms and 1.5 kms towards north east respectively. The Neolithic pottery is abundant over the surface of site and still exist in-situ in few of the remaining sections and consisted of black burnished ware, coarse gray ware, fine gray and black ware and fine buff ware. The pottery resembled with Burzahom, Gufkral, Kanispora and Harwan (c. 3149 BC - c. 500 AD).

3.3 [N 34°13.268' E 74°29.603']

Name: No name

Period: Neolithic

Height: 1606 masl; **Size:** 8129 sq meters (87500 sq feet)

Finds: Pottery, stone polished celt, stem piece

Details: The site was located off transect on Wudur (locally *karewa*) in the village of Bose. Part of the *karewa* was found undisturbed due to agricultural activities. Bose village is 800 meters towards south east and Hygam wetland is 2 kms towards north east. The pottery was found in two wares, coarse black ware and black burnished ware. The material culture resembled to Burzahom, Gufkral and Kanispora (c. 3149 BC)

3.4 [N 34°13.464' E 74°29.736']

Name: Qasim Bagh-2

Period: Early historic (c. 1st century - 5th century AD)

Height: 1590 masl; **Size:** 139 sq meters (1500 sq feet)

Finds: Pottery

Details: This site was located in Bose village on a *karewa*, 1/3rd of the site is lost to quarrying. Hygam village is 2.5 kms towards north west and Hygam wetland is 1.5 kms towards north east. The material cultured was confined to northern portion of the site. The pottery when typified showed resemblance with Semthan period IV (1st century to 500 AD).

3.5 [N 34°13.675' E 74°29.640']

Name: Maz Wudur

Period: Early historic (c. 1st century - 5th century AD)

Height: 1607 masl; **Size:** 5574 sq meters (60000 sq feet)

Finds: Pottery

Details: This site was located among apple orchards in Bose village on the *karewa* sloping and dipping towards north east. Hygam village is 2.2 kms towards north east and Bose village is 1.5 kms towards south east. The site is in the form of a gentle mound. The north east side of the site was under mustard cultivation which limited the archaeological inspection. However, south western side was plain with pottery found strewn over the surface. The pottery when typified showed resemblance with Semthan site period IV (1st century to 500 AD). Archaeological material such as large

earthen pots, coins and stone artefacts are regularly salvaged during horticultural activities.

3.6 [N 34°13.863' E 74°29.603']

Name: No name

Period: Neolithic and early historic

Height: 1597 masl; **Size:** 8361 sq meters (90000 sq feet)

Finds: Potteries of the Neolithic and early historic period, stone celts and miscellaneous stone artefacts

Details: This site was located among apple orchards in Hygam village on the *karewa* which is almost lost to quarrying now. Hygam wetland reserve is 1.5 kms towards south west and Bose village is 2 kms towards SE. The Neolithic material culture and early historic potteries were both found mixed. The Neolithic pottery consists of coarse gray/black ware and black burnished ware resembling to Burzahom, Gufkral and Kanispora. The early historic material culture resembled to Semthan site period IV (1st century to 500 AD). Sling balls and finished celts were shown to me by the landlord. Human skeletal remains were found in-situ in the section being quarried.

3.7 [N 34°14.112' E 74°29.325']

Name: Chak Hygam

Period: Early historic (c. 1st century - 5th century AD) and later historic (c. 6th century- 10th century AD)

Height: 1594 fasl; **Size:** 3205 sq meters (34500 sq feet)

Finds: Pottery

Details: The site was located on the low lying *karewa* surface on the outskirts of Hygam village 1.5 kms towards north east. A water stream flows 100 meters away towards north west. The pottery is fairly common in the midst of the site; the eastern part of the *karewa* is levelled with no archaeological information. The pottery when typified showed resemblance with Semthan site period IV (1st century to 500 AD), Harwan (100 – 500 AD) and Tapar (634 AD).

Transect 4

This transect was started from the outskirts of Harwan village near Yemberzalwari Mountain range in tehsil Sopore and block Zaingeer at an elevation of 1662 masl. This transect is 9 kms long. The first 3 kms of this transect were difficult due to hilly and rocky terrain and as such limited moment through transect. The average height of this transect is 1615 masl. The transect was walked through hilly areas, villages, apple orchards, paddy fields, ploughed cultivated and un-cultivated lands. Due to hilly topography, rocky surfaces and bushes the visibility of material culture on the surface was difficult to plot; however, this impacted only few kilometres of the transect. The following sites were located:

4.1 [N 34°23.928' E 74°23.879']

Name: Kurkach Beth (slag mound)

Period: Undated

Height: 1615 masl; **Size:** 501.5 sq meters (5400 sq feet)

Finds: Slag and tuyeres

Details: This site was located in Harwan village on an isolated mounded land surface. The site has a sharp inclination and dips towards southern side. Zaloora village lies towards north west 2.5 kms away and Latishath village is 3 kms towards south west. There are also two small mounds nearby comprising of slag and tuyeres. The slag is black, heavy like metal with shiny surface, but sometimes also conglomerate of rock and earth or un-identified materials. The tuyeres are visible on the surface and sometimes can be unearthed by a little dig. No chemical composition of slag or smelting process is known. The pottery collected from the surface is very sparse and fragmentary and cannot be related to any site visited for this survey. The slag was further observed strewn beyond the site in the transect walked.

4.2 [N 34°24.114' E 74°23.936']

Name: Nagbal (place of springs)

Period: Early historic (c. 1st century - 5th century AD) and later historic (c. 6th century - 10th century AD)

Height: 1666 masl; **Size:** 4162 sq meters (44800 sq feet)

Finds: Pottery, spindle whorl

Details: This site was located off transect some 300 meters towards south west from Harwan village. The site is on the foothills of Yemberzalwari Mountain that is towards the north eastern side. A spring lies in the midst of this site containing several rock carved deities of Hindu gods and goddesses. The north western and south western sides of the site are abundant with pottery. The pottery resembled to Harwan (100 - 500 AD) and Parihaspora (750 AD) sites.

4.3[N 34°24.124' E 74°23.887']

Name: Bangalwaer

Period: Early historic (c. 1st century - 5th century AD)

Height: 1656 masl; **Size:** 1811 sq meters (19500 sq feet)

Finds: Pottery, stone artefacts (such as mortars and saddle querns) and structural debris

Details: This site was located on the outskirts of Harwan village. Zaloora village is 2.3 kms towards north west and Yemberzalwari Mountains are 150 meters towards eastern side. The site is in a terraced form and pottery of early historic period is abundantly found over the surface of these terraces. The pottery observed and some collected showed resemblance with Semthan site period IV (1st century to 500 AD) and Harwan (100 AD to 500 AD).

4.4 [N 34°21.989' E 74°24.544']

Name: No name

Period: Later historic (c. 6th century AD-10th century AD)

Height: 1595 masl; **Size:** 10405 sq meters (112000 sq feet)

Finds: Pottery

Details: The site was located in Zinpura village. Tujar village is 1.4 kms towards north west and a water stream is 100 meters towards north east. A small hillock is 200 meters towards north of the site. This site has few gentle mounds and is littered with pottery. No section is available to investigate these mounds. The pottery collected at this site when typified resembled to Parihaspora (750 AD), Tapar (634 AD) and Avantipora (855 AD) pottery.

4.5 [N 34°21.873' E 74°244.63']

Name: Puran (ancient habitational place)

Period: Early historic (c. 1st century - 5th century AD) and later historic (c. 6th century AD-10th century AD)

Height: 1584 masl; **Size:** 1672 sq meters (18000 sq feet)

Finds: Pottery and stone bowl fragments

Details: This site was located among apple orchards on the outskirts Zinpora village. Tujar village is 1.5 kms towards north west of this site. This site is in mounded form rising to approximately 1.5 meters from the ground below. Few gentle mounds lie adjacent towards north east. The northern part has been levelled to ground and the blocks of stones unearthed during the process lie scattered on the periphery of this site. The pottery is common available but also clustered at places over the surface of the site. The pottery collected resembled to Semthan site period IV (1st century to 500 AD) and Tapar (634 AD).

4.6 [N 34°21.932' E 74°25.056']

Name: Yemran

Period: Upper Palaeolithic and the Neolithic

Height: 1647 masl; **Size:** 8361 sq meters (90000 sq feet)

Finds: Upper Palaeolithic tools, the Neolithic pottery, plaster pieces of wattle and daub, stone artefacts (such as celts, axes, pounders, miniature muller and unknown terracotta objects)

Details: The site was located at the end of transect outside Bumai village on the foothills of Yemran Mountains. Bumai village is 500 meters towards south east.

Massive rock boulders lie below this site towards south east forming some natural rock shelters. Towards north west were found Upper Palaeolithic tools within 50 sq feet of this site. The Neolithic pottery is scattered all over the site although there is higher incidence of pottery towards south east and south west. The pottery was also found *in situ* embedded on the terraced sections. The pottery observed and collected was found in four types coarse gray ware, fine gray and black ware, Black Burnished ware, and fine buff ware. The material culture resembled to Burzahom, Gufkral, Kanispora, Sombur and Manasbal sites in Kashmir.

Transect 5

This transect was started from the middle of Luggarpora village in tehsil Sopore Zaingeer block. Pohru River is c. 0.8 kms towards south west. This transect is 9 kms long, at an average height of 1585 masl diagonally walked towards north east ending in Shiva village. The transect was walked through apple orchards, paddy fields, villages, uncultivated and rocky outcrops and *karewa*. The last 2 kms of transect fall towards Yemran Mountains with an inclination of 200 feet from the rest of the transect. The overall visibility of material culture was good in the fields with only few adjustments made while walking. The following sites were located:

5.1 [N 34°21.408' E 74°24.930']

Name: Badshah-teng (king's mound)

Period: Early historic (c. 1st century - 5th century AD) and later historic (c. 6th century - 10th century AD)

Height: 1588 masl; **Size:** 5202 sq meters (56000 sq feet)

Finds: Pottery, stone querns, stone bowl fragments, mortar and pestle, unknown stone artefacts

Details: This site was located among apple orchards outside Luggarpora village. Bumai village is 1 km towards north east. This site comprised of two mounds which are now levelled surrounded by paddy fields. Pottery is strewn over the surface of this site. The pottery collected resembled to Harwan (100 - 500 AD), Tapar (634 AD) and Parihaspora (750 AD) pottery. Large numbers of stone boulders lie on the fringes of the site. The owner of the land where this site lies excavated three room like structures while levelling the mounds.

5.2 [N 34°22.084' E 74°25.473']

Name: Yemran-2

Period: Early historic (c. 1st century - 5th century AD)

Height: 1595 masl; **Size:** 6967 sq meters (75000 sq feet)

Finds: Pottery

Details: This site was located on the low lying *karewa* outside Bumai village. Shiva village is 2.5 kms towards NE of this site. This site is being quarried by the local people. The pottery collected from the site showed resemblance with Harwan pottery (100 AD to 500 AD). This site has few sections which show pottery and ash bands at places.

5.3[N 34°22.145' E 74°26.259']

Name: Yuntaing-1

Period: Early historic (c. 1st century - 5th century AD)

Height: 1597 masl; **Size:** 464.5 sq meters (5000 sq feet)

Finds: Pottery

Details: This site was located on low lying *karewa* outside Bumai village. Shiva village is 1.3 kms towards NE of this. The site gently merges with a mound on its eastern side 10 feet high from the surface below. The pottery is abundant over the surface of this site. The pottery observed and collected showed resemblance with Harwan (100 AD to 500 AD). The site remains aloof from any agricultural or horticultural practices mainly because of its rocky surface and myths related to the site.

5.4 [N 34°22.140' E 74°26.272']

Name: Yuntaing-2

Period: Neolithic

Height: 1601 masl; **Size:** 9290 sq meters (100000 sq feet)

Finds: Pottery of four types, plaster pieces of wattle and daub, stone tools such as hand axes, mace heads, celts, stone harvester and human and animal remains

Details: This site was located again on low lying *karewa* outside Bumai village. Shiva village is 1.1 kms towards north east of this site. The site is in the shape of a mound 10 feet high from the surrounding fields. The southern end of this site has exposed sections and is strewn with the Neolithic period pottery. The sections show the cultural material up to five feet. The pottery observed and some collected include coarse gray ware, fine gray and red ware, black burnished ware, and fine buff ware. The material culture resembled to Burzahom, Gufkral and Kanispora in Kashmir.

5.5 [N 34°22.305' E 74°26.608']

Name: Kurkach Beth (slag mound)

Period: undated

Height: 1597 masl; **Size:** 1393.5 sq meters (15000 sq feet)

Finds: Slag and unknown pottery

Details: This site was located outside of Shiva village on an isolated piece of land dotted by few walnut trees and surrounded by village houses. Shiva is 0.5 kms towards north east. The section on the southern end is two meters high and reveals slag and tuyeres; fragmentary unknown pottery is sparsely available over the surface of this site. The chemical composition of slag is unknown.

5.6 [N 34°22.384' E 74°26.759']

Name: Greenland school

Period: Early historic (c. 1st century - 5th century AD) and later historic (c. 6th century - 10th century AD)

Height: 1597 masl; **Size:** 371.5 sq meters (4000 sq feet)

Finds: Pottery, slag pieces

Details: This site was located in the midst of Shiva village on the low lying mound surrounded by village houses towards south west. Machipora village is 2 kms towards south. The slag fragments are abundantly available over the surface of this site. The pottery when typified resembled to Harwan (c. 100-500 AD) and Parihaspora (c. 750 AD) pottery. However, there is also unknown pottery which could not be related to any site visited for this survey. The chemical composition of the slag is unknown.

5.7 [N 34°22.497' E 74°26.917']

Name: Hershiva

Period: Undated

Height: 1595 masl; **Size:** 1449 sq meters (15600 sq feet)

Finds: Slag and tuyere, unknown pottery

Details: This site was located in Shiva village towards the north western side of Satarhaal Mountains on a rocky surface. Machipora village is 2.3 kms towards south and village Duroo is 3 kms towards south east. The site does not differ much from site no. 5.5 in terms of slag and tuyeres. Slag and tuyere pieces are a common feature. A single pottery type was found, however due to its ambiguity it could not be related to any site visited. The section available on the eastern side runs to more than six meters and slag and charcoal deposits can be seen extending more than a meter embedded in it. This site is profusely covered by ash, slag and tuyeres.

5.8 [N 34°22.628' E 74°26.954']

Name: Hershiva-2

Period: Later historic (c. 6th century AD-10th century AD)

Height: 1604 masl; **Size:** 21 sq meters (225 sq feet)

Finds: Stone querns

Details: This site was located on the western end of the Satarhaal Mountains in Shiva village. Machipora village is 2.6 kms towards south west and village Duroo is 3.2 kms towards SE. Two parts of a stone quern were located over the surface at two different places. The quern pieces are carefully worked and good in condition. No pottery or any other feature or material culture was found alongside these two artefacts.

5.9 [N 34°22.383' E 74°27.031']

Name: Bunshiva

Period: Undated

Height: 1597 masl; **Size:** 185 sq meters (2000 sq feet)

Finds: Slag and tuyere

Details: This site was located adjacent to an open courtyard of a house in Shiva village. Machipora village is 2 kms towards south west and Duroo village is 2.9 kms towards south east. This site is a mound of slag and tuyere pieces. Isolated pottery fragments were visible over the surface of this but not reliable enough to relate to any visited sites. The chemical composition of the slag is unknown.

Transect 6

This transect was started from the outskirts of Hardchenum village, tehsil Rohama and block Dangiwachha. Hardchenum is 1 km north west from Rawoocha village. This transect is 9 kms long and walked towards north east covering apple orchards, paddy fields, *karewas* and village habitations and ends in village Waitergam. This transect has an average height of 1615 masl. Due to difficult terrain for the first 2 kms of this transect adjustments were made to remain on transect. The following sites were located:

6.1 [N 34°18.795' E 74°19.009']

Name: Manzdoon

Period: Later historic (c. 6th century AD-10th century AD)

Height: 1612 masl; **Size:** 4180 sq meters (45000 sq feet)

Finds: Pottery

Details: This site was located off-transect on the *karewa* slop among the apple orchards in Manzdoon area of Rawoocha village. Dangiwachha village is 2.5 kms towards east and Rawoocha village is 1.3 kms towards south east. The *karewa* on which the site is located gently rises towards western side shaping into a mound. The pottery is common over the surface except towards its southern end. The pottery collected when typified showed resemblance with Tapar (634 AD) pottery.

6.2 [N 34°18.618' E 74°19.637']

Name: Rawoocha

Period: Early historic (c. 1st century - 5th century AD) and later historic (c. 6th century - 10th century AD)

Height: 1617 masl; **Size:** 3846 sq meters (41400 sq feet)

Finds: Pottery, terracotta artefacts

Details: This site was located in the midst of Rawoocha village. Dangiwachha village is 1.7 kms towards north and Waitergam village is 4.2 kms towards NE. The pottery is abundant all over the surface and when typified resembled to Semthan site period IV (1st century to 500 AD), Tapar (634 AD) and Parihaspora (750 AD) pottery.

6.3 [N 34°18.571' E 74°19.831']

Name: Manzpura

Period: Later historic (c. 6th century -10th century AD)

Height: 1643 masl; **Size:** 650 sq meters (7000 sq feet)

Finds: Pottery

Details: This site was located on an elevated surface adjacent to a modern graveyard in the Manzpura area of Rawoocha. Dangiwachha village is 1.6 kms towards north of the site and Waitergam village is 4 kms towards north east. The sections available towards the north and north west show pottery embedded and strewn beneath the sections. The southern portion of the site has a small apple orchard and pottery is scattered over its surface. The pottery collected showed resemblance with Tapar (634 AD) pottery.

6.4 [N 34°19.021' E 74°21.244']

Name: Markipora

Period: Early historic (c. 1st century - 5th century AD) and later historic (c. 6th century - 10th century AD)

Height: 1592 masl; **Size:** 7246 sq meters (78000 sq feet)

Finds: Pottery

Details: This site was located in Markipora surrounded by paddy fields on three sides and merging with an apple orchard towards northern side. Dangiwachha village is 700 meters towards west of this site. The site is in a mound form rising gently to three meters from the surrounding fields. Pottery is scarce on mound itself however the small apple orchard on the northern side which is often tilled has a very dense pottery over its surface. The pottery collected from this site resembled to Semthan site period IV (1st century to 500 AD) and Tapar (634 AD) pottery.

6.5 [N 34°19.096' E 74°21.174']

Name: Markipora 'Payeen' or 'Sikhpuran'

Period: Early historic (c. 1st century - 5th century AD) and later historic (c. 6th century - 10th century AD)

Height: 1621 masl; **Size:** 5202.5 sq meters (56000 sq feet)

Finds: Pottery, stone bowl fragments, mortar and pestles

Details: This site was located on a flat topped *karewa* among apple orchards in the Markipora area of Dangiwachha village. Rawoocha village is 2.5 kms towards south west and Waitergam village is 1.8 kms towards east. The pottery is densely scattered over the surface of this site. The pottery collected showed resemblance with Semthan site period IV (1st century to 500 AD), Tapar (634 AD) and Parihaspora (750 AD) pottery.

Transect 7

This transect was started on the outskirts of Wagub village lying to its north eastern side in tehsil and block Sopore. Hygam village is 3 kms towards the north east and Sangrama is 2.5 kms towards west. This transect is 8 kms long and has an average height of 1707 masl. The transect was walked through apple orchards, paddy fields, *karewa*, ploughed and unploughed fields and through village habitations. Few adjustments have to be made due to security restrictions. The terrain was difficult at the end; however the surface visibility was good. The following sites were located:

Site 7.1 [N 34°13.124' E 74°25.525']

Name: Kalampur 'Cheerkujdej'

Period: Early historic (c. 1st century - 5th century AD) and later historic (c. 6th century - 10th century AD)

Height: 1722 masl; **Size:** 4738 sq meters (51000 sq feet)

Finds: Pottery

Details: This site was located in the Kalampur area of Delina village among peach and apple plantation on *karewa* surface. Singhpora village is 1.5 kms towards south west and Chatipadsahi Sikh temple is 300 meters towards south west. This site has pottery strewn all over the surface and is denser towards north east and north west. The pottery collected showed resemblance with Harwan (100-500 AD), Martand (750 AD) and Parihaspora (750 AD) pottery.

Site 7.2 [N 34°13.088' E 74°25.461']

Name: No name

Period: Early historic (c. 1st century - 5th century AD) and later historic (c. 6th century - 10th century AD)

Height: 1724 masl; **Size:** 10451.5 sq meters (112500 sq feet)

Finds: Pottery, slag, tile fragments

Details: This site was located on the outskirts of Kalampur village among the ploughed *karewa* surface. The pottery observed at this site is denser towards south west. The pottery collected showed resemblance with Harwan (100 AD to 500 AD), Tapar (634 AD) and Parihaspora (750 AD).

Site 7.3 [N 34°13.079' E 74°25.341']

Name: Kalampur

Period: Later historic (c. 6th century AD-10th century AD)

Height: 1721 masl; **Size:** 2090 sq meters (22500 sq feet)

Finds: Structural residue

Details: The site was located on the outskirts of Kalampur village among the ploughed *karewas*. Kalampur village is 200 meters towards north west Delina village is 2.3 kms towards north. The site rises to few feet from the surrounding area and suggests some sort of buried structure. This site has large dressed stone blocks half buried underneath the surface towards south west, towards eastern side is 10×10 feet circle demarcated by stones half buried in soil. The site has sporadic dressed stones over its surface. Unknown pottery sherds were also found over the surface of this site. The masonry at this site look similar to Tapar and Parihaspora (c. 600-855 AD).

Site 7.4 [N 34°13.048' E 74°25.268']

Name: Poshther (flower branch)

Period: Later historic (c. 6th century -10th century AD)

Height: 1723 masl; **Size:** 6967.5 sq meters (75000 sq feet)

Finds: Pottery, stone bowl fragments

Details: This site was located among apple orchards on the *karewa* surface in between Kalampur and Singhpora villages. Kalampur village is 500 meters towards north east. The pottery is scattered all over the surface and is denser towards north east. The pottery showed resemblance with Parihaspora (750 AD) and Avantipora (855 AD) pottery.

Site 7.5 [N 34°13.187' E 74°25.243']

Name: Navtoor (?)

Period: Early historic (c. 1st century - 5th century AD) and later historic (c. 6th century - 10th century AD)

Height: 1689 masl; **Size:** 836 sq meters (9000 sq feet)

Finds: Pottery, stone bowl fragments, terracotta artefacts such as wheels, toys, pot base stamped with human motifs

Details: This site was located off-transect on the slop of a *karewa* outside Kalampur village. Jhelum River is 3 kms towards SW. Pottery is strewn all over the surface of this site and is denser towards the sloping western end. The pottery collected showed resemblance with Semthan site period IV (1st century to 500 AD), Tapar (634 AD) and Parihaspora (750 AD) pottery.

Transect 8

This transect was started 800 meters east from Chura village. National highway is towards north east and Sangrama village 1.5 kms towards north west. This transect is 9 kms long at an average height of 1615 masl. This transect was walked through apple orchards, paddy fields, *karewas*, ploughed-unploughed fields and village habitations and ending in Wanigom village Kreeri. This transect had difficult terrain largely due to uneven *karewa* land-surface. The following sites were found:

Site 8.1 [N 34°13.321' E 74°27.622']

Name: Gunaar

Period: Early historic (c. 1st century - 5th century AD) and later historic (c. 6th century - 10th century AD)

Height: 1603 masl; **Size:** 4645 sq meters (50000 sq feet)

Finds: Pottery

Details: This site was located on the foothills of a *karewa* on the outskirts of village Bangdora in Athoora among apple orchards. Bangdora village is 600 meters towards NE. The pottery is spread all across the surface of the site and is high in density towards the sloping end of the site. The pottery collected from this site showed resemblance with early historic site of Semthan site period IV (1st century to 500 AD) and later historic sites of Tapar (634 AD) and Parihaspora (750 AD).

Site 8.2 [N 34°13.111' E 74°27.473']

Name: Shalimar

Period: Early historic (c. 1st century - 5th century AD)

Height: 1637 masl; **Size:** 3158.5 sq meters (34000 sq feet)

Finds: Pottery

Details: This site was located off transect among the *karewas* in Chanpora area of Athoora village. Bangdora village is 1.1 kms towards north east. The pottery is available all over the surface. The pottery showed resemblance with Semthan site period IV (1st century to 500 AD). This site was previously in a mound form but was levelled when I visited it.

Site 8.3 [N 34°12.962' E 74°28.100']

Name: Puran

Period: Early historic (c. 1st century - 5th century AD) and later historic (c. 6th century - 10th century AD)

Height: 1600 masl; **Size:** 650 sq meters (7000 sq feet)

Finds: Pottery

Details: This site was located among the apple orchards in Athoora village. Dulatpora village is 0.8 kms towards south west and Chura village is 1.5 kms towards north east. The pottery is spread all over the surface and is denser towards southern side. The pottery collected showed resemblance with Harwan (100 AD to 500 AD) and Parihaspora (750 AD).

Site 8.4 [N 34°12.126' E 74°28.347']

Name: Kanpuran (Stone place)

Period: Early historic (c. 1st century - 5th century AD) and later historic (c. 6th century AD-10th century AD)

Height: 1655 masl; **Size:** 17883.5 sq meters (192500 sq feet)

Finds: Pottery, tile fragments, slag and charcoal, plaster pieces, stone bowl fragments

Details: This site was located among the apple orchards on the *karewa* surface 1 km south east from Dulatpora village. The pottery collected from this site showed resemblance with Harwan (100 AD to 500 AD), Tapar (634 AD), and Martand (750 AD).

Site 8.5 [N 34°11.794' E 74°28.488']

Name: Jabarkhanin-Dej (habitational place)

Period: Early historic (c. 1st century - 5th century AD) and later historic (c. 6th century - 10th century AD)

Height: 1675 masl; **Size:** 21135 sq meters (227500 sq feet)

Finds: Pottery, stone bowl pieces, mortar and pestle, terracotta artefacts

Details: This site was located on the *karewa* 1 km west of Saloosa village. The pottery is spread all over the surface of this site. The pottery collected showed resemblance with Harwan (100 AD to 500 AD), Tapar (634 AD), and Avantipora (855 AD) pottery.

Transect 9

This transect was started from the foothills of Sar and Bagoo Mountains in Zaingeer block. This transect is 9 kms long at an altitude of 2073 masl. This transect was walked towards southern direction covering mountains, woods, *karewas*, apple orchards, paddy fields and ploughed-unploughed fields. The transect was started among the woods and ended where Botingo village starts at altitude 1554 masl. The following sites were located:

Site 9.1 [N 34°22.904' E 74°28.119']

Name: Cheerhaar

Period: Early historic (c. 1st century - 5th century AD)

Height: 2089 masl; **Size:** 390 sq meters (4200 sq feet)

Finds: Pottery

Details: This site was located off-transect on the foothills of Sar and Bagoo Mountains 500 meters away in the Cheerhaar village. Muqam village is 2.5 kms towards south east and Wular Lake is 6.5 kms towards north east. The pottery is available only towards the southern end of the site. The pottery collected showed resemblance with Harwan (100 AD to 500 AD).

Site 9.2 [N 34°22.962' E 74°28.617']

Name: Preen-Cheerhaar (Old Cheerhaar)

Period: Early historic (c. 1st century - 5th century AD) and later historic (c. 6th century - 10th century AD)

Height: 2055 masl; **Size:** 20903 sq meters (225000 sq feet)

Finds: Pottery, slag, saddle querns and structural residue

Details: This site was located in the ploughed fields on the outskirts of present day Cheerhaar village. Muqam village is 2 kms towards south east and Wular Lake is 6 kms towards north east. The pottery is dense and scattered all over the surface and . The pottery showed resemblance with Harwan (100 AD to 500 AD) and Tapar (634 AD) pottery. Besides pottery slag and strips of charcoal bands were observed in one of the available artificial sections. Two raised earthen platforms, resembling base of a structure in diaper rubble form were found at two places in the middle of the site.

Site 9.3 [N 34°22.173' E 74°29.863']

Name: Affarwat

Period: Neolithic

Height: 1665 masl; **Size:** 13935 sq meters (150000 sq feet)

Finds: Pottery in four types, wattle and daub plaster pieces, stone tools such as pounders, celts, harvester, mace head, net sinker, schist disks and several unfinished tools.

Details: This site was located on the slopes of a mountain facing towards southern and eastern sides of the Wular Lake. Botingo village is 500 meters towards south east and Muqam village is 700 meters towards north. The pottery consist of black burnished

ware, coarse gray ware, fine gray and black ware and fine buff ware. The material culture resembles to Burzahom, Gufkral and Kanispora sites of Kashmir.

Site 9.4 [N 34°22.025' E 74°30.024']

Name: Teng

Period: Early historic (c. 1st century - 5th century AD) and later historic (c. 6th century AD-10th century AD)

Height: 1610 masl; **Size:** 18116 sq meters (195000 sq feet)

Finds: Pottery, stone bowl pieces, slag pieces

Details: This site was located among the unploughed fields in Botingo village. Muqam village is 1.2 kms towards north west and Warpora village is 3.8 kms towards south west. The pottery collected from this site showed resemblance with Semthan site period IV (1st century to 500 AD), Tapar (634 AD), and Avantipora (855 AD) pottery.

Site 9.5 [N 34°19.824' E 74°27.521']

Name: Batbug

Period: Later historic (c. 6th century -10th century AD)

Height: 1583 masl; **Size:** 14632 sq meters (157500 sq feet)

Finds: Pottery, quern, stone bowl pieces

Details: This site was located off-transect 400 meters south east of Dangarpora village. The pottery collected from this site showed resemblance with Tapar (634 AD). Structural debris are strewn over the surface of this site. The mention can be made of a fluted pillar with a length of 3 meters besides two other unknown pieces 30 cm long and 28 cm wide and 32 cm long and 22 cm in breadth respectively.

Transect 10

This transect was started in tehsil and block Baramulla from 1 km from Heevan village. Ushkar village is towards northeast and Fathgarh village is towards western side. This transect is 9 kms long at an average altitude of 1585 masl. This transect was walked through mountainous surface, small hills, *karewa*, ploughed-unploughed fields, village and town habitations. The first 2 kms of this transect were walked through hilly terrain but as we proceeded the terrain was smooth. This transect ends at the banks of Jhelum River opposite to village Khadanyar. The following sites were located:

Site 10.1 [N 34°10.261' E 74°20.206']

Name: Pari

Period: Later historic (c. 6th century AD-10th century AD)

Height: 1640 masl; **Size:** 8825 sq meters (95000 sq feet)

Finds: Pottery

Details: This site was located among ploughed *karewa* fields 400 meters south west of village Heevan 400. Pottery is dense and scattered all over the surface of this site. The pottery collected from this site showed resemblance with Fathgarh (550 AD) and Martand (750 AD) pottery.

Site 10.2 [N 34°10.112' E 74°20.303']

Name: Noogul

Period: Later historic (c. 6th century -10th century AD)

Height: 1646 masl; **Size:** 905.5 sq meters (9750 sq feet)

Finds: Pottery

Details: This site was located on a *karewa* in village Heevan. Heevan village is 4.7 kms north east of Baramulla town. Two fresh water springs lie in the middle of this site. Compared to site no. 10.1, the pottery scatter is less dense. The pottery collected showed resemblance with later historic site of Parihaspora (750 AD). The site has mythological association as well.

Site 10.3 [N 34°10.474' E 74°19.343']

Name: Fathgarh temple

Period: Later historic (c. 6th century -10th century AD)

Height: 1611 masl; **Size:** 2787 sq meters (30000 sq feet)

Finds: Pottery, Structure

Details: This is a reported and excavated site in the village of Fathgarh boasting a large temple dating to 550 AD of pre-Karkota period. The site lies in the midst of transect and the potteries were related to this site for relative dating, hence marked as a site.

Site 10.4 [N 34°11.029' E 74°18.596']

Name: Shalwajin

Period: Early historic (c. 1st century - 5th century AD) and later historic (c. 6th century - 10th century AD)

Height: 1571 masl; **Size:** 3484 sq meters (37500 sq feet)

Finds: Pottery

Details: This site was located in the middle of Sheeri village 3 kms south east of Heevan village. Jhelum River flows 300 meters towards SW of this site. The site is being

quarried towards north western sides and is disturbed to a large extent. The pottery is abundantly available over the surface of this site. The pottery collected showed resemblance with Harwan (100 AD to 500 AD) and Fathgarh (550 AD) pottery.

Site 10.5 [N 34°11.401' E 74°18.399']

Name: Malsum

Period: Later historic (c. 6th century -10th century AD)

Height: 1580 masl; **Size:** 13378 sq meters (144000 sq feet)

Finds: Pottery

Details: This site was located towards the end of transect in the Malsum area 1 km away from Sheeri village. Jhelum River flows 200 meters towards south west of this site. Pottery is scattered all over the surface of this site and denser towards north western sides. The pottery collected from this site showed resemblance with Parihaspora (750 AD) pottery.

Transect 11

This transect was started from the left bank of Jhelum River in the Bajnigal (wooded area) area of old Sopore. This transect is 8 kms long at an average height of 1554 masl. This transect was walked through dense plantation of willow trees, apple orchards, paddy fields, ploughed-unploughed fields and village habitations. This transect ended in the village of Naidkhai with Asham village towards north and Hygam village towards west. This transect was smoothly walked however adjustments were made due to bypassing water bodies and village houses. The following sites were located:

Site 11.1 [N 34°16.483' E 74°32.896']

Name: Gund-jahangir

Period: Later historic (c. 6th century AD-10th century AD)

Height: 1575 masl; **Size:** 929 sq meter (10000 sq feet)

Finds: Pottery

Details: This site was located among apple orchards in the Gund-jahangir area of Naidkhai village, tehsil Sonawari and block Hajan. Pottery at this site was denser and strewn all over the surface. The pottery collected from this site showed resemblance with Parihaspora (750 AD) pottery.

Site 11.2 [N 34°15.080' E 74°33.274']

Name: Bathipora

Period: Later historic (c. 6th century -10th century AD)

Height: 1602 masl; **Size:** 743 sq meter (8000 sq feet)

Finds: Pottery

Details: This site was located among the vegetable gardens on the outskirts of Bathipora area of Naidkhai village. Bathipora is 700 meters south while as Jhelum River is 6 kms north east. Pottery was found abundantly strewn over the surface. The pottery collected from this site showed resemblance with Parihaspora (750 AD), Martand (750 AD), and Fathgarh (550 AD) pottery.

Site 11.3 [N 34°15.529' E 74°32.872']

Name: No name

Period: Later historic (c. 6th century -10th century AD)

Height: 1578 masl; **Size:** 2675.5 sq meter (28800 sq feet)

Finds: Pottery

Details: This site was located among the apple orchards in between Bathipora and Naidkhai villages. Bathipora is 500 meters towards west and Jhelum River 5 kms towards north east. The pottery collected from this when typified showed resemblance with Parihaspora (750 AD) pottery.

Transect 12

This transect was started from Hajan village, tehsil Sonawari and block Hajan situated on the left bank of Jhelum River. Naidkhai village is towards south west and Sumbal village is towards south east. This transect is 8 kms long and at an average altitude of 1585 masl. This transect was walked through apple orchards, paddy fields, ploughed-unploughed fields, and villages habitations and ending in Sumbal town. This transect was walked through smooth terrain, however to avoid Jhelum River which makes couple of bends while flowing through this area, few adjustments were made. No site could be located in this transect.

Transect 13

This transect was started from Wanigom village in tehsil and block Pattan. Kreeri village is towards west and Pattan village is towards south. This transect is 8 kms long. This transect was started at 1600 masl and it ended at 1848 masl in Batpora village, tehsil Pattan. This transect was walked through apple orchards, agricultural fields, villages and *karewas*. Due to uneven terrain and towering *karewas*, few diversions were made to remain on track. The following sites were located:

Site 13.1 [N 34°08.952' E 74°29.174']

Name: Bahrampora

Period: Later historic (c. 6th century AD-10th century AD)

Height: 1708 masl; **Size:** 2991 sq meter (32200 sq feet)

Finds: Pottery

Details: This site was located on the *karewa* in Bahrampora area of Tilgam village. The site is surrounded towards east and west by terraced paddy fields. Tilgam village is 0.5 kms towards northwest. The pottery is spread all over this site and is denser towards south western side. The pottery collected showed resemblance with Fathgarh (550 AD), Parihaspora (750 AD), and Tapar (634 AD) pottery.

Site 13.2 [N 34°08.294' E 74°28.382']

Name: Chanderseer

Period: Later historic (c. 6th century -10th century AD)

Height: 1793 masl; **Size:** 1672 sq meter (1800 sq feet)

Finds: Pottery

Details: This site was located on the base of a *karewa* in the Chanderseer area of Tilgam village. Wanigom village is 5 kms towards north east. The pottery collected from this site showed resemblance with Parihaspora (750 AD), and Fathgarh (550 AD) pottery.

Site 13.3 [N 34°08.324' E 74°28.361']

Name: Chanderseer-1

Period: Later historic (c. 6th century AD-10th century AD)

Height: 1791 masl; **Size:** 10405 sq meter (112000 sq feet)

Finds: Pottery

Details: This site was located on the *karewa* surface with a low tilt towards eastern side in village Tilgam, block Pattan. Tilgam village is 1.5 kms towards north east. This site has a very high density of pottery. The pottery collected from this site showed resemblance with Tapar (634 AD), Parihaspora (750 AD) and Fathgarh (550 AD).

Site 13.4 [N 34°09.552' E 74°27.409']

Name: Dholipora

Period: Later historic (c. 6th century AD-10th century AD)

Height: 1727 masl; **Size:** 2601 sq meter (28000 sq feet)

Finds: Pottery

Details: The site was located off-transect among apple orchards on the outskirts of Kreeri village, Block Pattan. Kreeri village is 2 kms towards north east and village Tilgam is 3 kms towards south east. The pottery is scattered all over the surface of this site. The pottery collected from this site showed resemblance with Parihaspora (750 AD), and Fathgarh (550 AD) pottery. The site seems to have suffered damage due to agricultural activities.

Section 2

Intensive transects

Transect 14

This intensive transect was started 500 meters north from Hathlangoo village. This transect is 3 kms long at an average altitude of 1554 masl. This transect was walked through apple orchards, paddy fields, vegetable gardens and ploughed fields and ended on the outskirts of Botingo village. The following sites were located in this transect:

Site 14.1 [N 34°21.309' E 74°30.404']

Name: Hagarteng (Birds mound)

Period: Early historic (c. 1st century - 5th century AD)

Height: 1557 masl; **Size:** 14715.5 sq meter (158400 sq feet)

Finds: Pottery

Details: This site was located in the Magraypora area of Hathlangoo village, block Zaingeer. Magraypora is 200 meters towards north east and Wular Lake is 2.5 kms towards north. The site is in a mounded form and gently rises to some 2 meters from the surrounding area. The pottery is scattered all over the surface of this site and also in the surrounding paddy fields towards north west and south west. The pottery collected showed resemblance with Harwan (100 AD to 500 AD) pottery.

Site 14.2 [N 34°21.450' E 74°30.381']

Name: Aharwaer

Period: Later historic (c. 6th century -10th century AD)

Height: 1591 masl; **Size:** 16297.5 sq meter (175428 sq feet)

Finds: Pottery

Details: This site was located among the vegetable gardens of Magraypora area of Hathlangoo village, block Zaingeer. This studied revealed pottery that is scattered all over this site. The pottery collected showed resemblance with Tapar (634 AD). I was informed that archaeological materials are often salvaged during activities.

Site 14.3 [N 34°21.450' E 74°30.297']

Name: *Teng*

Period: Later historic (c. 6th century -10th century AD)

Height: 1558 masl; **Size:** 5202.5 sq meter (56000 sq feet)

Finds: Pottery

Details: This site is called as *Teng*, located among the vegetable gardens surrounded by apple orchards in the Magraypora area of Hathlangoo village, block Zaingeer. The site is 200 meters from Magraypora and 2.3 kms from Wular Lake both towards north east. Pottery collected from this site showed resemblance with Tapar (634 AD) and Martand (750 AD) pottery.

Transect 15 (Intensive)

This transect was started from village Sempora, block Zaingeer. Sempora village is 4 kms south west of village Brath. This transect is 3 kms long at an average height of 1585 masl. This transect was walked through apple orchards, paddy fields, vegetable gardens and ploughed agricultural land. This transect ended 2 kms south west of the

Pohru River. The major portion of this transect was walked through paddy fields.

The following sites were located:

Site 15.1 [N 34°21.155' E 74°26.752']

Name: DeenBagh

Period: Early historic (c. 1st century - 5th century AD) and later historic (c. 6th century - 10th century AD)

Height: 1587 masl; **Size:** 17976 sq meter (193500 sq feet)

Finds: Pottery, stone bowl pieces

Details: This site was located among the apple orchards in the Machipora village, Block Zaingeer. This site appears to be part of a gentle mound which extends and merges towards south eastern side with a modern graveyard. This site has high density of pottery over the surface. The pottery collected showed resemblance with Harwan (100-500 AD) and Fathgarh (550 AD) pottery.

Site 15.2 [N 34°21.085' E 74°26.636']

Name: Tengwaer

Period: Early historic (c. 1st century - 5th century AD) and later historic (c. 6th century - 10th century AD)

Height: 1587 masl; **Size:** 14632 sq meter (157500 sq feet)

Finds: Pottery

Details: This site was located in a vegetable garden surrounded by paddy fields towards north east and south east and apple orchards towards north west in Machipora area of Zaingeer block. Pottery is visible over the surface of this site.

Pottery collected showed resemblance with Harwan (100-500 AD) and Fathgarh (550 AD) pottery.

Site 15.3 [N 34°21.104' E 74°26.547']

Name: No name

Period: Early historic (c. 1st century - 5th century AD) and later historic (c. 6th century - 10th century AD)

Height: 1585 masl; **Size:** 1207.5 sq meter (13000 sq feet)

Finds: Pottery

Details: This site was located off-transect among the vegetable gardens in the Machipora area of Zaingeer block. The site is heavily damaged by agricultural activities although pottery can be seen all over the surface of the site. The pottery collected showed resemblance with Harwan (100 AD to 500 AD) and Tapar (634 AD) pottery.

Site 15.4 [N 34°21.034' E 74°26.565']

Name: Moodan

Period: Early historic (c. 1st century - 5th century AD) and later historic (c. 6th century - 10th century AD)

Height: 1588 masl; **Size:** 1430.5 sq meter (15400 sq feet)

Finds: Pottery

Details: This site was located partly among apple orchards in the outskirts of Machipora area in Zaingeer block. Pottery is fairly visible over the surface of this site and showed resemblance with Harwan (100 AD to 500 AD) and Tapar (634 AD) pottery.

Site 15.5 [N 34°21.194' E 74°26.843']

Name: *Teng*

Period: Early historic (c. 1st century - 5th century AD) and later historic (c. 6th century - 10th century AD)

Height: 1589 masl; **Size:** 3678.5 sq meter (39500 sq feet)

Finds: Pottery

Details: This site called as *Teng* was located between Machipora and Sempora villages in Zaingeer block. Sempora village is 400 meters towards south. The pottery collected from this site showed resemblance with Harwan (100 AD to 500 AD) and Martand (750 AD) pottery.

Transect 16 (Intensive)

This transect was started south east of Machipora village in Zaingeer block. Bumai village is approximately 2 kms towards north west and Sempora village is 1.2 kms towards south east. This transect is 3 kms long at an average altitude of 1585 masl. This transect was walked through apple orchards, paddy fields, vegetable gardens, village houses, and ploughed fields. This transect ended outside Bumai village. Following archaeological site was located:

Site 16.1 [N 34°21.462' E 74°25.731']

Name: No name

Period: Early historic (c. 1st century - 5th century AD) and later historic (c. 6th century - 10th century AD)

Height: 1588 masl; **Size:** 4645 sq meter (50000 sq feet)

Finds: Pottery

Details: This site was located in the apple orchards of Darpora village in Sopore tehsil. Darpora is 300 meters towards south east. Pottery is visible over the surface of this site and is denser towards south west and south eastern sides. The pottery collected from this site showed resemblance with Harwan (100 AD to 500 AD), Tapar (634 AD) and Parihaspora (750 AD) pottery.

Transect 17 (Intensive)

This transect was started from the western end of village Bumai in tehsil Sopore. This transect is 3 kms long at an average altitude of 1585 masl. This transect was walked towards north east alongside the ridge of a mountain through paddy fields, *karewa*, ploughed and unploughed fields. This transect ended on the outskirts of Shiva village. The following archaeological sites were located:

Site 17.1 [N 34°22.069' E 74°25.522']

Name: No name

Period: Later historic (c. 6th century AD-10th century AD)

Height: 1597 masl; **Size:** 2229.5 sq meter (24000 sq feet)

Finds: Pottery

Details: This site was located on the *karewa* surface in the Yemran area of Bumai village. The site lies 600 meters south west of Bumai village alongside a link road leading to Shiva village. The pottery collected from this site showed resemblance with Tapar (634 AD) and Parihaspora (750 AD) pottery.

Site 17.2 [N 34°22.247' E 74°26.047']

Name: No name

Period: Later historic (c. 6th century -10th century AD)

Height: 1580 masl; **Size:** 7664.5 sq meter (82500 sq feet)

Finds: Pottery

Details: This site was located among the rocky outcrop of Yemran area of village Bumai. The pottery is visible all over the surface of this site and dense towards raised ground i.e., north west and north eastern sides. The pottery collected from this site showed resemblance with Tapar (634 AD) and Parihaspora (750 AD) pottery.

Appendix 2: Physiographic, vegetation and altitude situations

a) Key for various physiographic and vegetation situations on which sites where located; See table below

A	Valley floor
B	Karewa surface
C	Mound, or more or less raised surface
D	Mountains
E	River terrace
F	apple orchards
G	Paddy fields
H	Ploughed
I	Vegetable Gardens
J	Unploughed areas

b) Key to classification of altitude of sites provided in the table for co-relation with topography, see table below:

	Imperial measurement	metric measurement
0	< 5000 fasl	< 1524
1	5000-5200	1524-1585
2	5200-5400	1585-1646
3	5400-5600	1646-1707
4	5600-5800	1707-1768
5	5800-6000	1768-1829
6	>6000	> 1829

Table: Shows sites in relation to topography and vegetation

Site No.	Situation	Elevation	Site No.	Situation	Elevation	Site No.	Situation	Elevation
1.1	A-C-F	1	5.5	A-C-J	2	9.5	A-F-G	2
1.2	A-C-H	2	5.6	A-C-J	2	10.1	A-B-H	2
1.3	A-C-H	2	5.7	A-C-J	2	10.2	A-B-H	2
1.4	A-C-H	1	5.8	A-J	2	10.3	A-J	2
1.5	A-F	2	5.9	A-J	2	10.4	A-H	2
2.1	A-F	1	6.1	A-B-F	2	10.5	A-E-H	2
2.2	A-E	1	6.2	A-B-F	2	11.1	A-F	2
3.1	A-B-F	2	6.3	A-C-J	2	11.2	A-I	2
3.2	A-B-H	2	6.4	A-C-G	2	11.3	A-F	2
3.3	A-B-H	2	6.5	A-B-F	2	13.1	C-F	4
3.4	A-B-H	2	7.1	B-F	4	13.2	B-C-F	5
3.5	A-B-F	2	7.2	B-H	4	13.3	B-F	5
3.6	A-B-F	2	7.3	B-H	4	13.4	C-F	4
3.7	A-B-F	2	7.4	B-F	4	14.1	A-C-F	2
4.1	A-C-J	2	7.5	B-H	4	14.2	A-C-I	2
4.2	D-J	3	8.1	A-B-F	2	14.3	A-C-I	2
4.3	D-H	3	8.2	A-B-H	2	15.1	A-F	2
4.4	A-H	2	8.3	A-B-F	2	15.2	A-C-I	2
4.5	A-F	1	8.4	B-F	3	15.3	A-C-I	2
4.6	D-J	3	8.5	B-F	3	15.4	A-F-I	2
5.1	A-C-F	2	9.1	D-H	6	15.5	A-C-F	2

5.2	A-B-C- J	2	9.2	D-H	6	16.1	A-F	2
5.3	A-B-C- J	2	9.3	B-D-H	3	17.1	A-B-H	2
5.4	A-B-C- H	2	9.4	A-B-J	2	17.2	A-C-H	2

Appendix 3

Sites\Major water bodies	River Jhelum	River Pohru	Wular Lake	Hygam Wetland
3.2	7.5	9	7.5	1.3
3.3	7.5	9	7.5	1.9
3.6	6.5	8	6	1.5
4.6	10.5	2.7	11	16.5
5.4	10.5	4.5	9.5	16.2
9.3	9.8	7.4	3.6	14.5

Table 1: Shows distance of sites during the Neolithic phase around major water bodies in Baramulla. Distance is in kms.

Sites\Major water bodies	River Jhelum	River Pohru	Wular Lake	Hygam Wetland
1.1	5	1.8	5.8	11
1.2	5.2	2.1	5.7	11.5
1.3	5.2	2.1	5.7	11.5
1.4	5.3	2.5	5.5	11.3
3.1	7.5	9	7.5	1.3
3.2	7.5	9	7.5	1.3
3.4	7.5	9	7.5	1.5
3.5	6.7	8	6	1.5
3.6	6.5	8	6	1.5
3.7	6	7.4	5.7	2.5
4.2	14.6	3	13	20.8
4.3	14.6	2.9	13	20.9
4.5	10.4	1.7	12	17
5.1	9.4	2	11	16
5.2	10.5	3.5	11	16.6
5.3	10.5	4.5	9.5	16.2
5.6	10.9	5.3	9	16.3
6.2	9.5	9.5	15.1	18.9
6.4	9	6	12.7	17
6.5	9	6	12.7	17
7.1	3.6	6.2	10.1	7.9
7.2	3.6	6.2	10.2	8
7.5	3.1	6.2	10.3	8.3
8.1	7	6.7	8.2	5.2
8.2	6.5	6.9	8.6	5.5

8.3	7.5	7.7	8.6	4.7
8.4	8.2	9.1	9.8	5.9
8.5	8.6	9.8	10.3	5.3
9.1	11	7	6.5	16.5
9.2	11	7	5.6	16.5
9.4	9.6	8.3	3.4	14.2
10.4	0.2	14.3	21	19.3
14.1	9.6	8.4	2.4	12.4
15.1	8.6	3.5	8	14
15.2	8.5	3.3	8	14
15.3	8.6	3.2	8	14
15.4	8.4	3.1	8	14
15.5	8.6	3.7	8	14
16.1	9.5	2.3	10	15.3

Table 2: Shows distance of sites during early historic phase around major water bodies in Baramulla. Distance is in kms.

Sites\Major water bodies	River Jhelum	River Pohru	Wular Lake	Hygam Wetland
1.1	5	1.8	5.8	11
1.2	5.2	2.1	5.7	11.5
1.3	5.2	2.1	5.7	11.5
1.4	5.3	2.5	5.5	11.3
1.5	5.3	3.4	4.5	11.3
2.1	0.6	2.8	2.9	6.9
2.2	1.9	0	5.7	9.6
3.1	7.5	9	7.5	1.3
3.7	6	7.4	5.7	2.5
4.1	14.3	2.8	13	20.5
4.2	14.6	3	13	20.8
4.4	10.6	1.9	12	17
4.5	10.4	1.7	12	17
5.1	9.4	2	11	16
5.5	10.7	5.1	9.1	16.3
5.6	10.9	5.3	9	16.3
5.7	11	5.7	8.8	16.4
5.8	11.4	5.9	9	16.6
5.9	11	5.7	8.6	16.2
6.1	10	10	16	20
6.2	9.5	9.5	15.1	18.9

6.3	9	9	14.7	18.6
6.4	9	6	12.7	17
6.5	9	6	12.7	17
7.2	3.6	6.2	10.2	8
7.3	3.3	6.2	10.3	8.1
7.4	3.2	6.4	10.5	8.3
7.5	3.1	6.2	10.3	8.3
8.1	7	6.7	8.2	5.2
8.3	7.5	7.7	8.6	4.7
8.4	8.2	9.1	9.8	5.9
8.5	8.6	9.8	10.3	5.3
9.2	11	7	5.6	16.5
9.4	9.6	8.3	3.4	14.2
9.5	5.3	4	4.8	11.3
10.1	3	13.9	20	17.2
10.2	3.3	14	20	17.2
10.3	1.7	14.3	20.5	18.3
10.4	0.2	14.3	21	19.3
10.5	0.2	14.3	21	19.2
11.1	6.5	11.8	3	4
11.2	6.5	12.5	5.5	2.7
11.3	6.7	11.8	4.5	2.7
13.1	13.5	18	15.7	9.3
13.2	14	20	16.8	9.3
13.3	14	20	16.8	9.3
13.4	11.5	18	14.8	9.3
14.2	9.8	8.5	2.4	12.6
14.3	9.8	8.4	2.6	12.6
15.1	8.6	3.5	8	14
15.2	8.5	3.3	8	14
15.3	8.6	3.2	8	14
15.4	8.4	3.1	8	14
15.5	8.6	3.7	8	14
16.1	9.5	2.3	10	15.3
17.1	10.7	3.5	10	16.4
17.2	10.8	4.4	9	16.2

Table 3: Shows distance of sites during the later historic phase around major water bodies in Baramulla. Distance is in kms.

Appendix 4 Comparative material culture from sites Burzahom, Gufkral, Kanispora and Swat

1. Burzahom, Kashmir

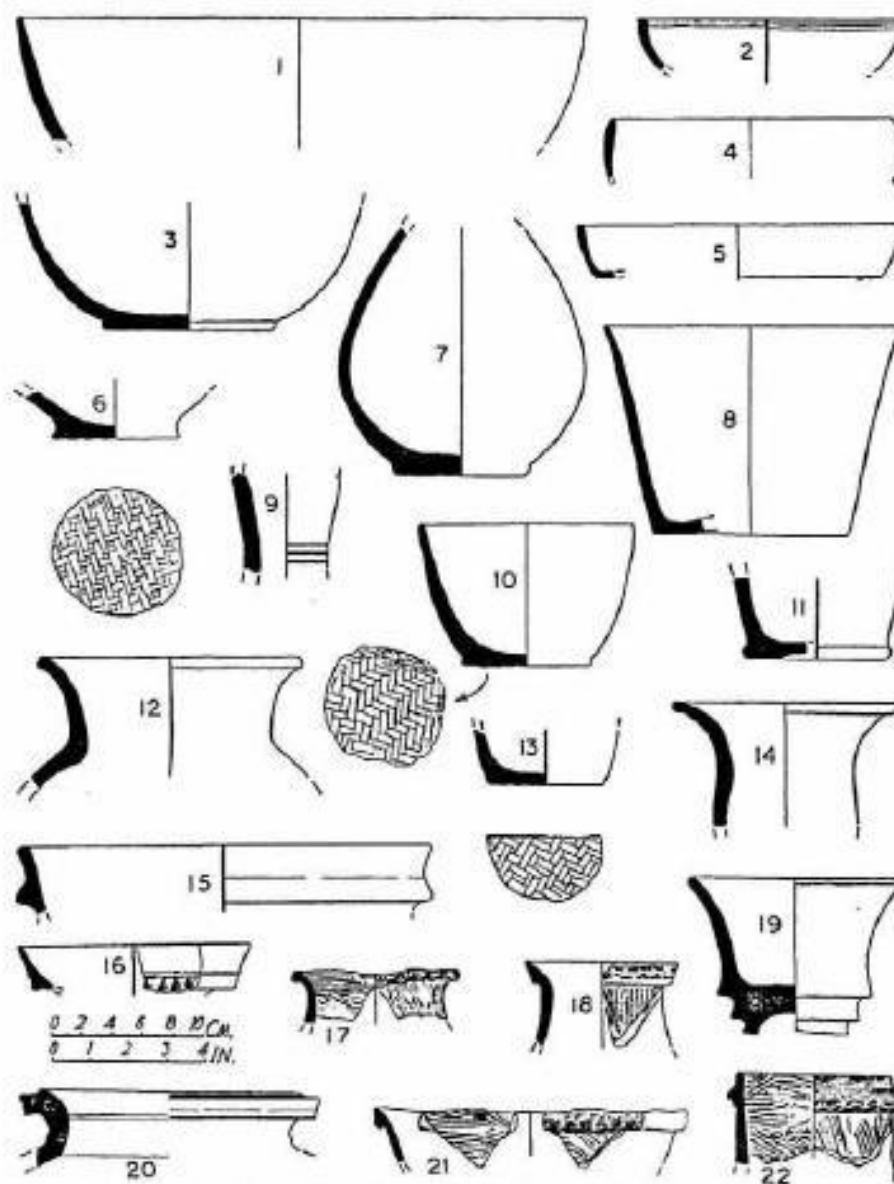


Figure 1 Coarse ware, fine ware and burnished ware pottery from Burzahom (after Ghosh: 1964: 18)

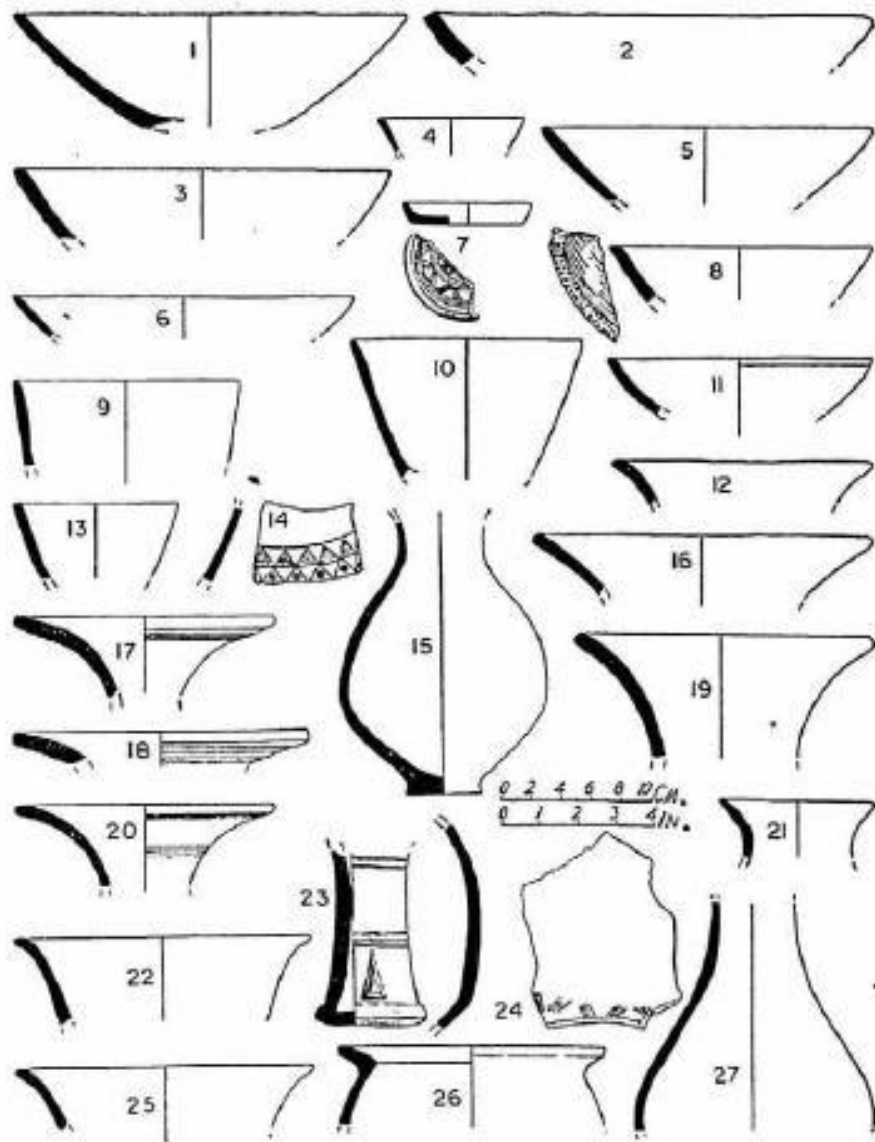


Figure 2 Fine ware and burnished ware pottery from Burzahom (after Ghosh: 1964: 20)

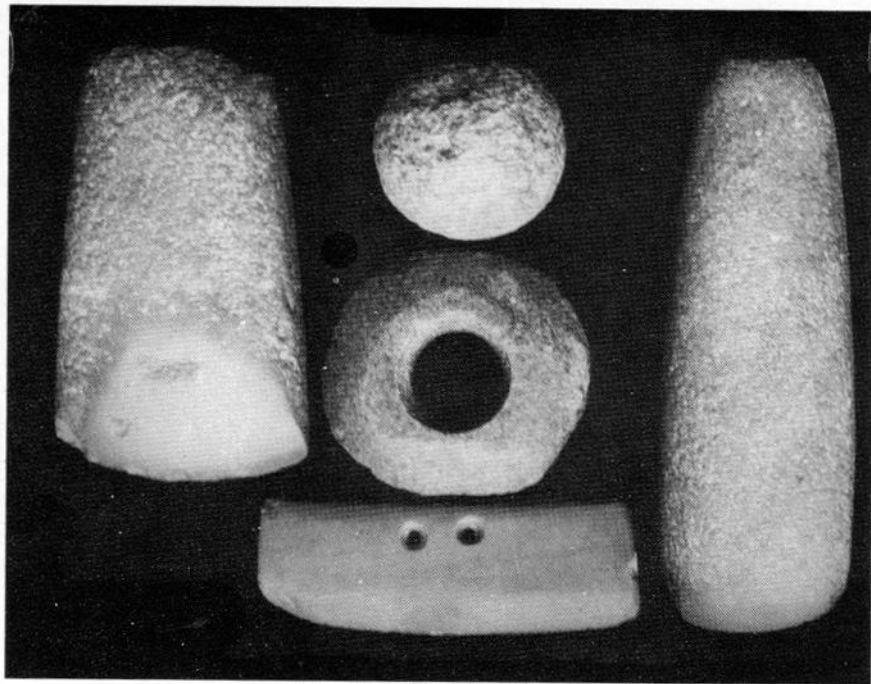


Figure 3 Celts, mace head, sling ball, harvester (after Bandey: 2009)

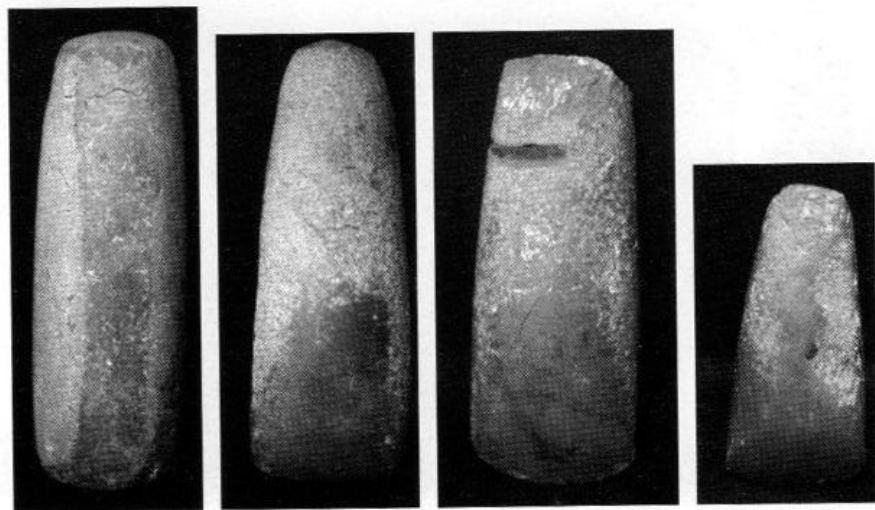


Figure 4 Celts (after Bandey: 2009)

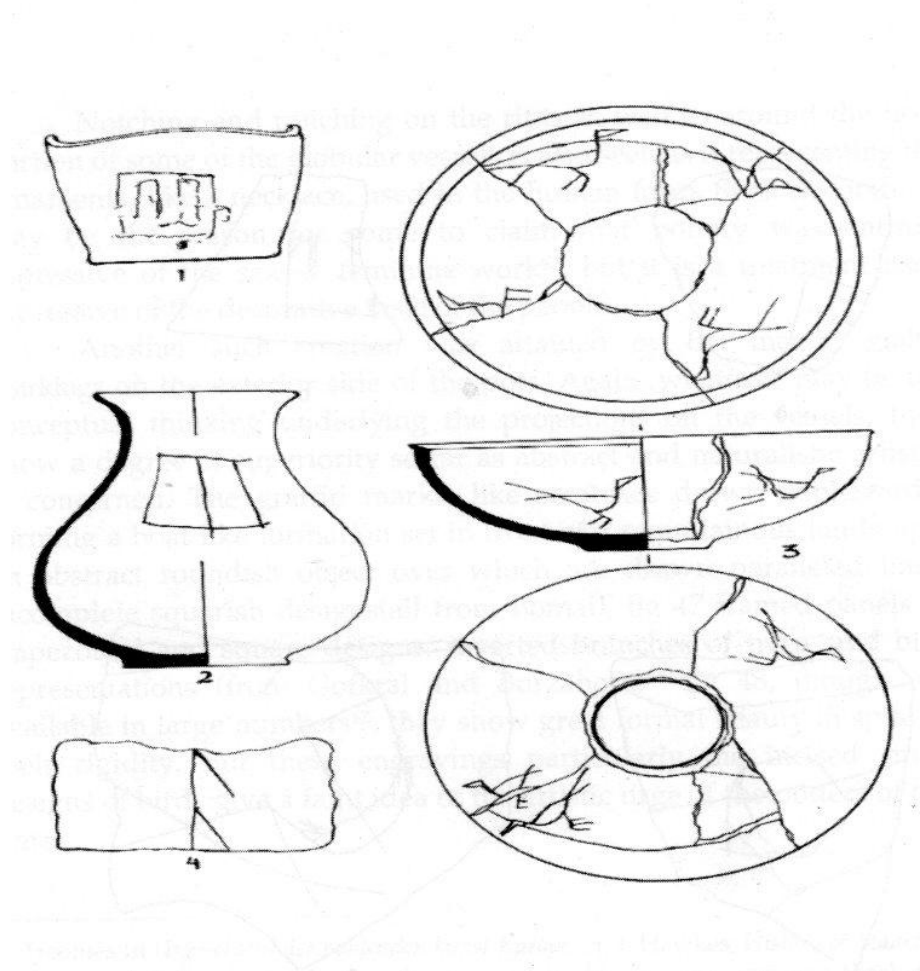


Figure 5 Graffiti (after Bandey: 2009)

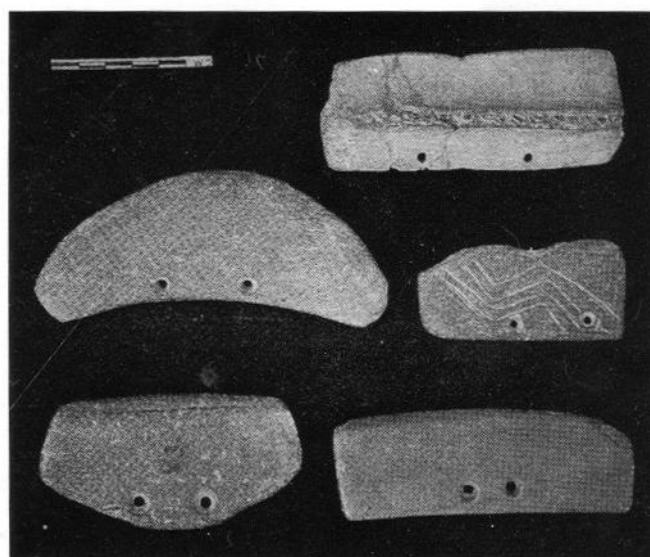


Figure 6 Harvesters (after Bandey: 2009)

2. Gufkral, Kashmir

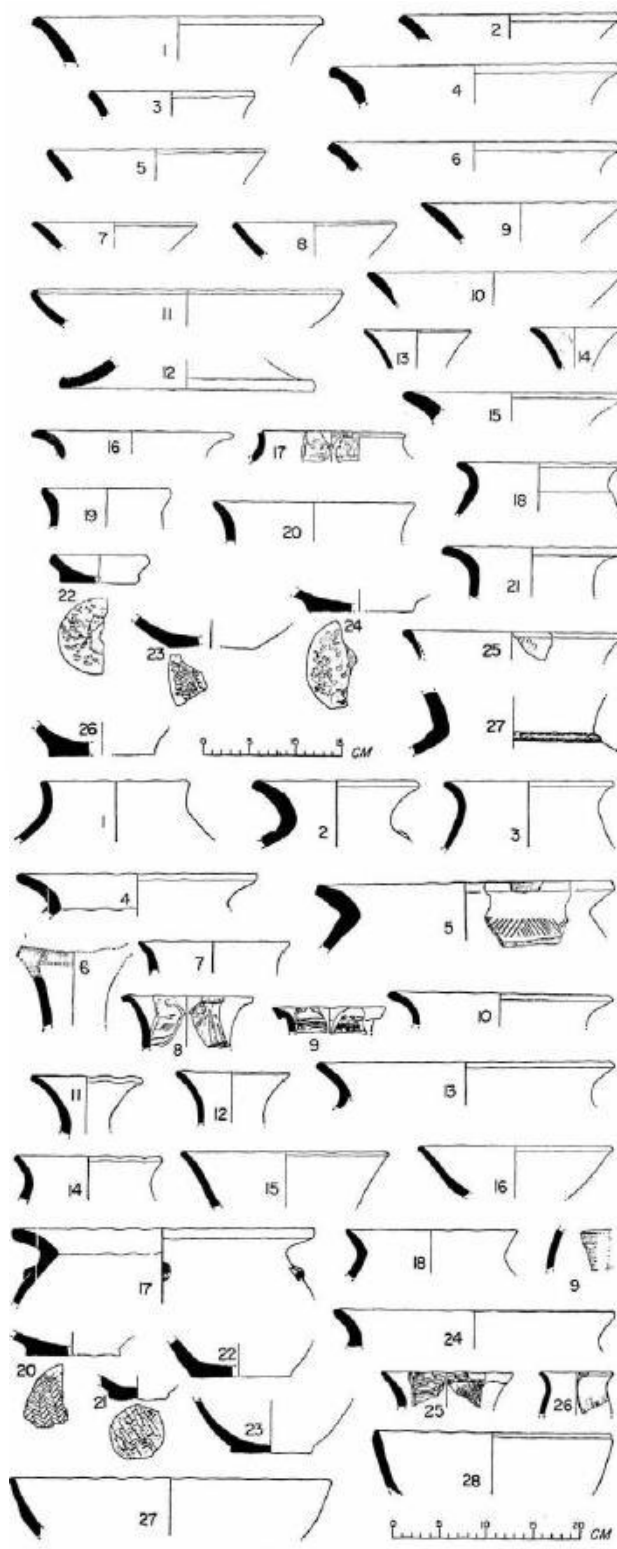


Figure 7 Coarse ware, fine ware, burnished ware and gritty ware (after Mitra 1984: 22)

3. Kanispora

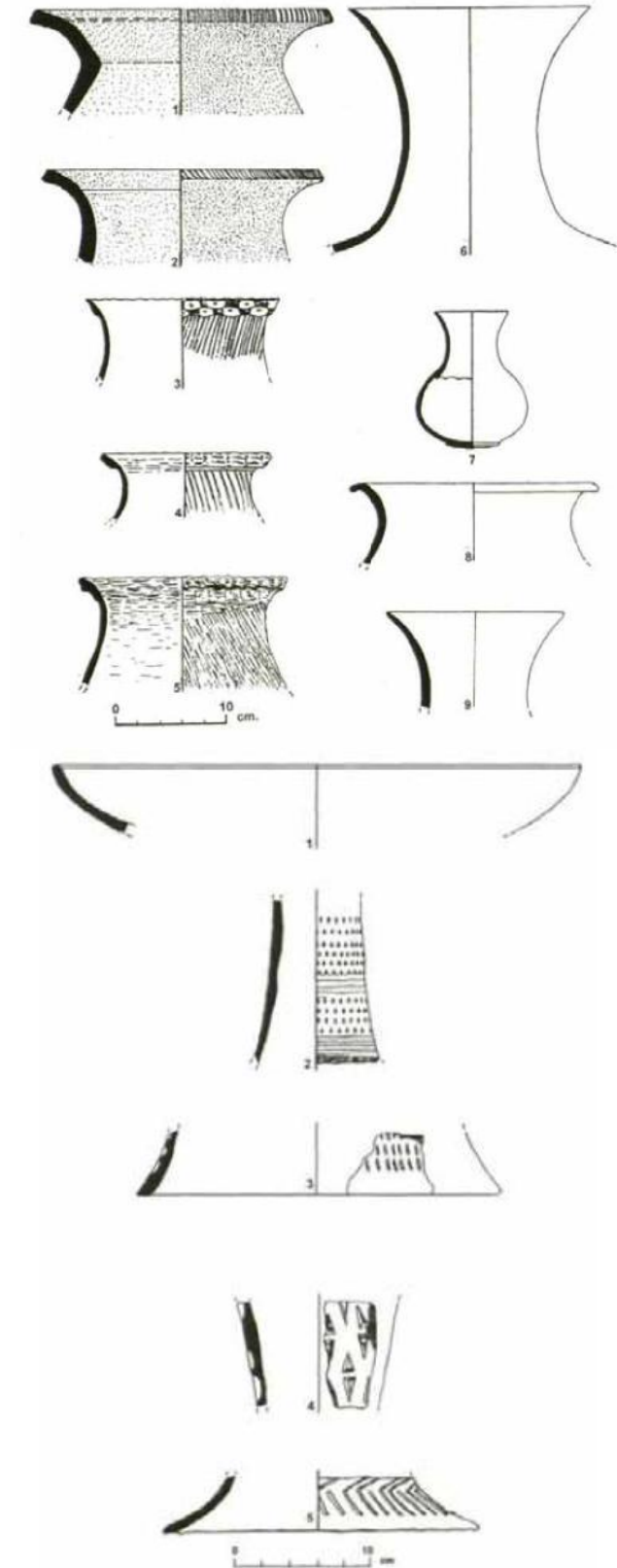


Figure 8 Fine ware and Burnished ware pottery (Indian Archaeology 2004: 34-35)

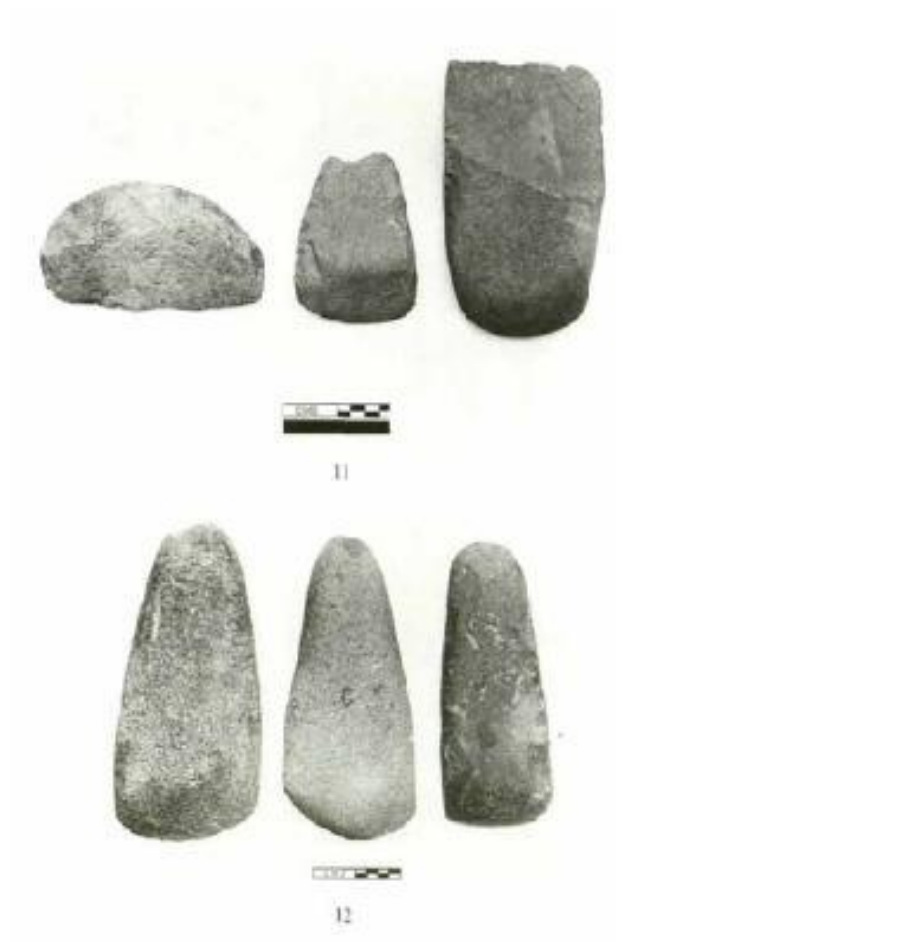


Figure 9 Celts and pounders (Indian Archaeology 2004: 34-35)

4. Swat, Pakistan

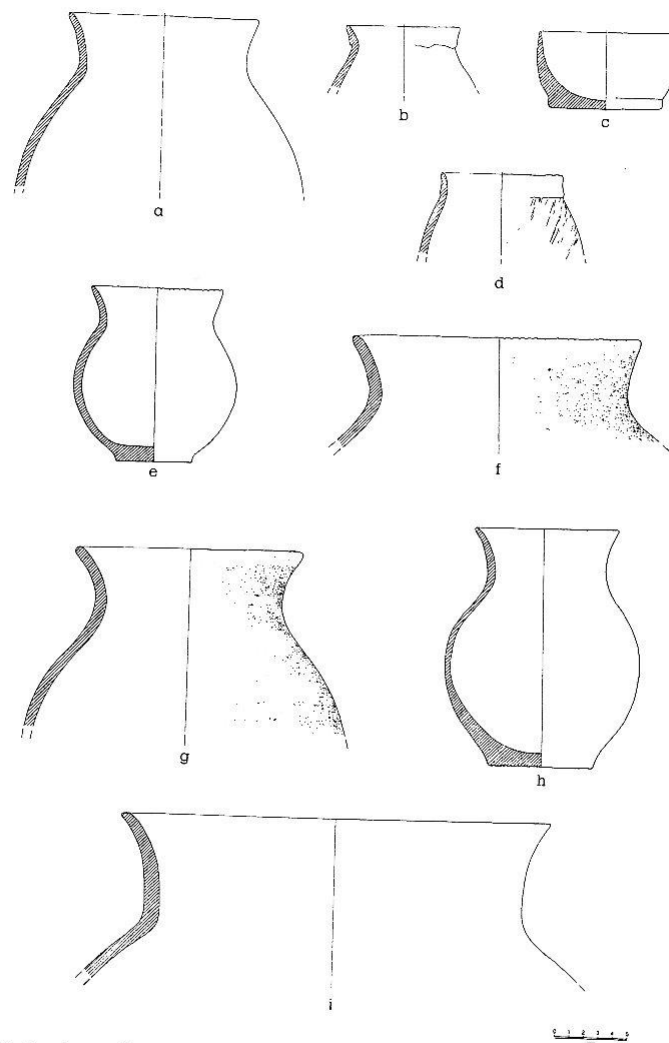


Fig. 10 - Kalako-deray. Pottery from Period III (a-d) and IV (e-i). Brown and gritty-brown ware: a-h; grey-burnished ware: i. Area A: a-d; Pit B5: h; Pit B7: e-g. a: Inv. no. KL 167; e: KL 257; h: KL 228.

80

[12]

Figure 10 Kalako-deray, Swat, Fine ware and Burnished ware (Stacul 1993: 80)

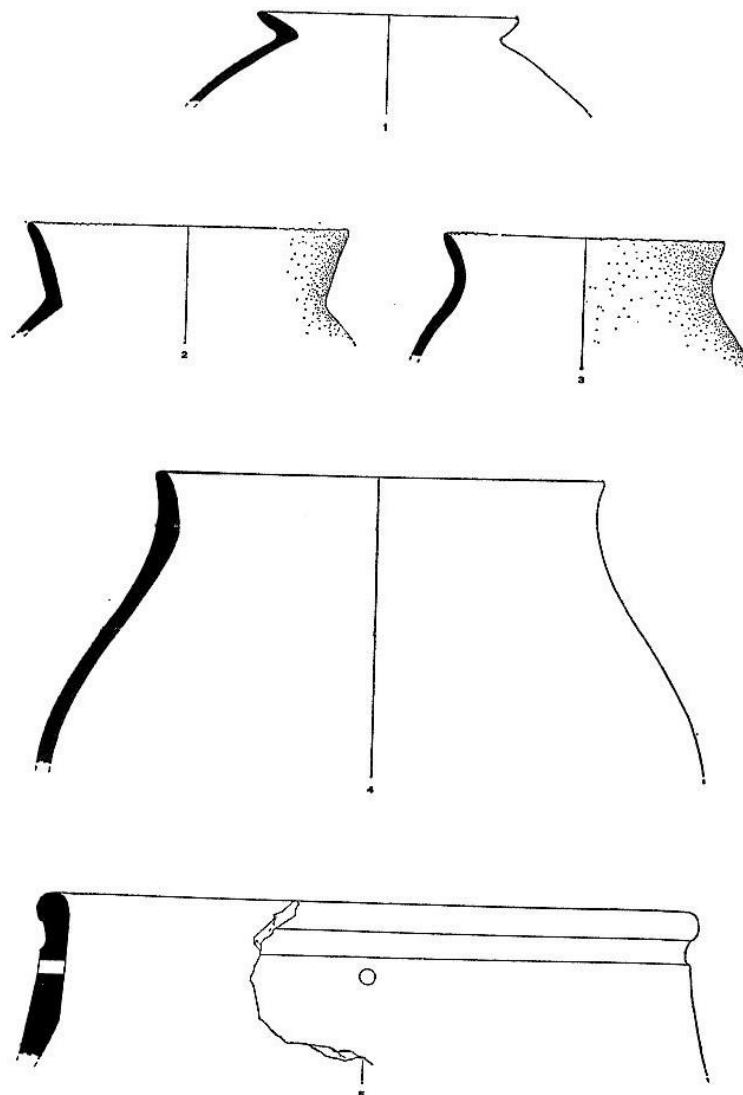


Fig. 3 - Pottery from Bir-kōt-ghundai, layer ⑩. Brown gritty ware: fig. 3.2,3; black-grey burnished ware: fig. 3.1,4; red ware: fig. 3.5. Scale 1:3.

Figure 11 Bir-kot-ghundai, Swat, Fine ware and Burnished ware (Stacul 1978: 141)

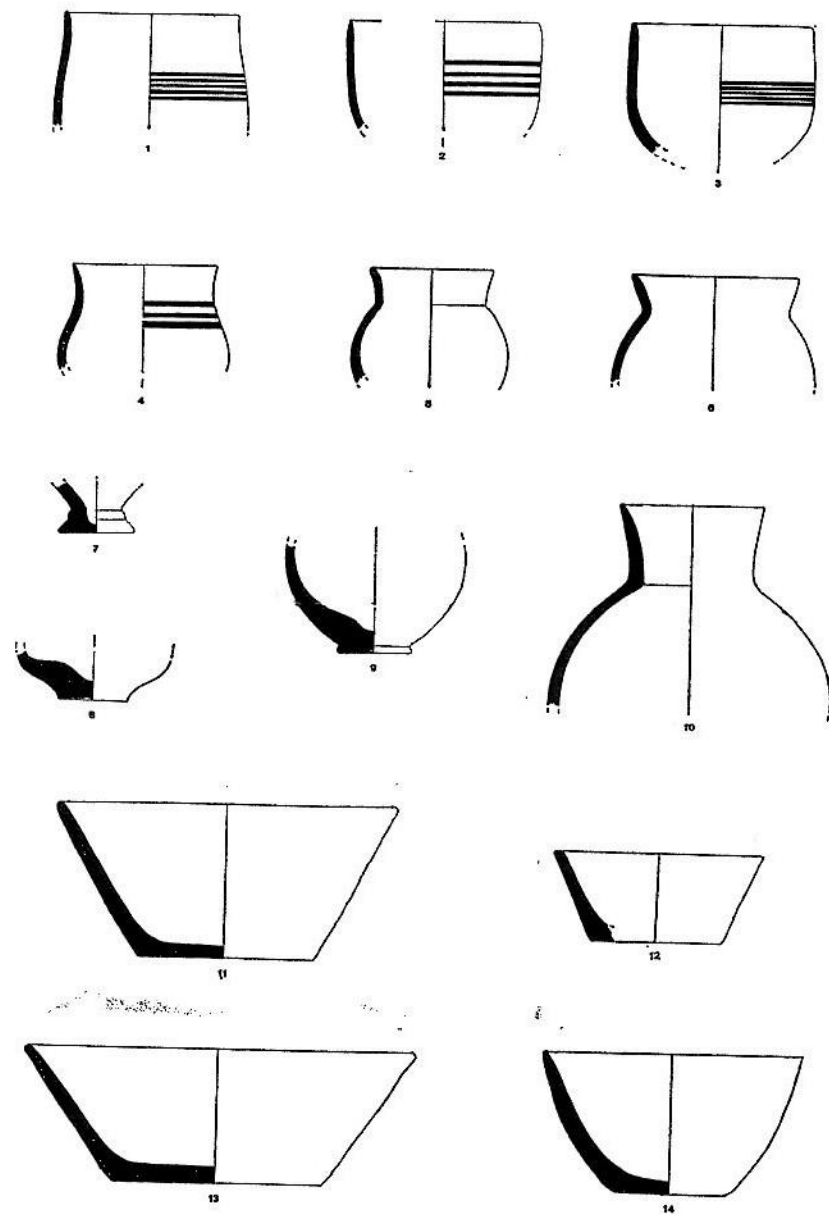


Fig. 5 - Pottery from Bir-kōt-ghundai, layers ⑪ (fig. 5.2,4,8) and ⑩ (fig. 5.1,3,5-7,9-14). Black-grey burnished ware: fig. 5.5,6,10. Red ware: fig. 5.1,2,3 (= fig. 14); fig. 5.4,7-9,11-14. Scale 1:3.

Figure 12 Bir-kot-ghundai, Swat, Fine ware and Burnished ware (Stacul 1978: 147)

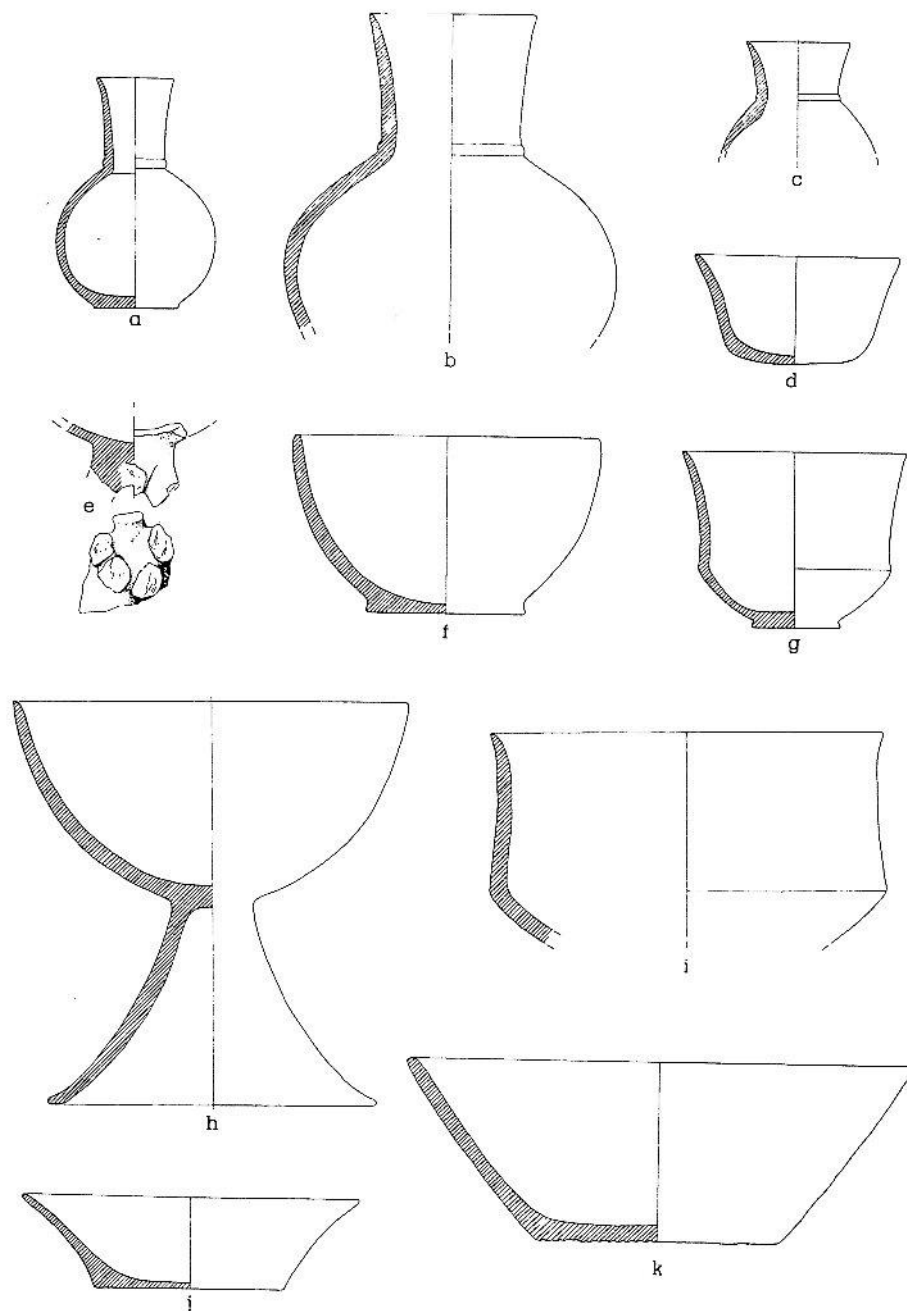


Fig. 11 - Kalako-deray. Pottery from Period IV. Black-grey burnished ware. Area AA: e, h; Pit B5: c, k; Pit B7: a-b, d, f-g, i-j. a: Inv. no. KL 256; e: KL 225; g: KL 264; h: KL 119. (a = Fig. 13).

[13]

81

Figure 13 Kalako-deray, Swat, Fine ware and Burnished ware (Stacul 1993: 80)

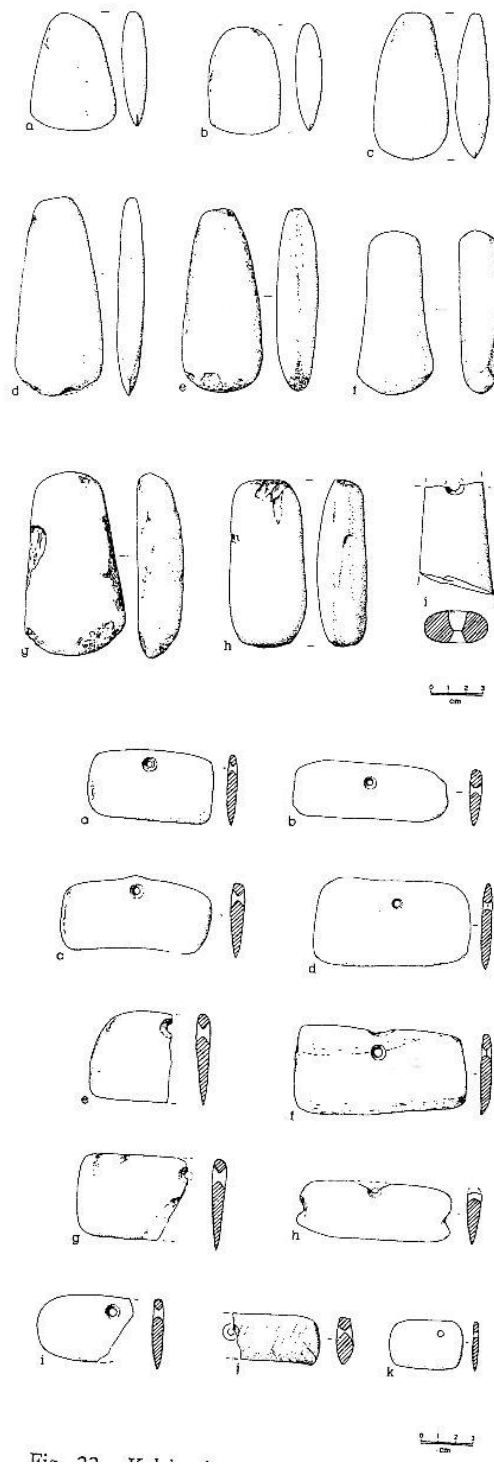


Figure 14 Kalako-deray, Swat, Celts, pounders and harvesters (Stacul 1993: 88-89)

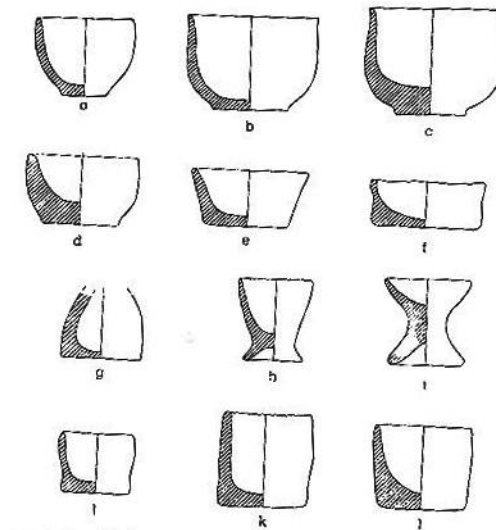
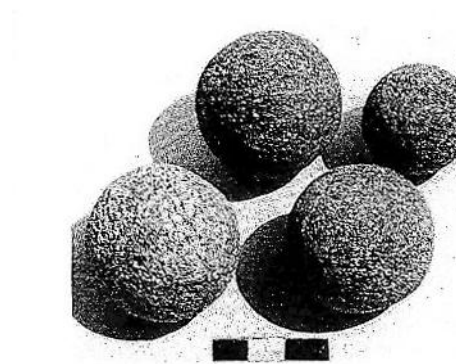


Figure 15 Kalako-deray, Swat, miniature burnished ware (Stacul 1993: 82)



Figures 21.6. Granite balls, Kalako-deray, Swat

Figure 16 Kalako-deray, Swat, sling balls (Stacul 1993)

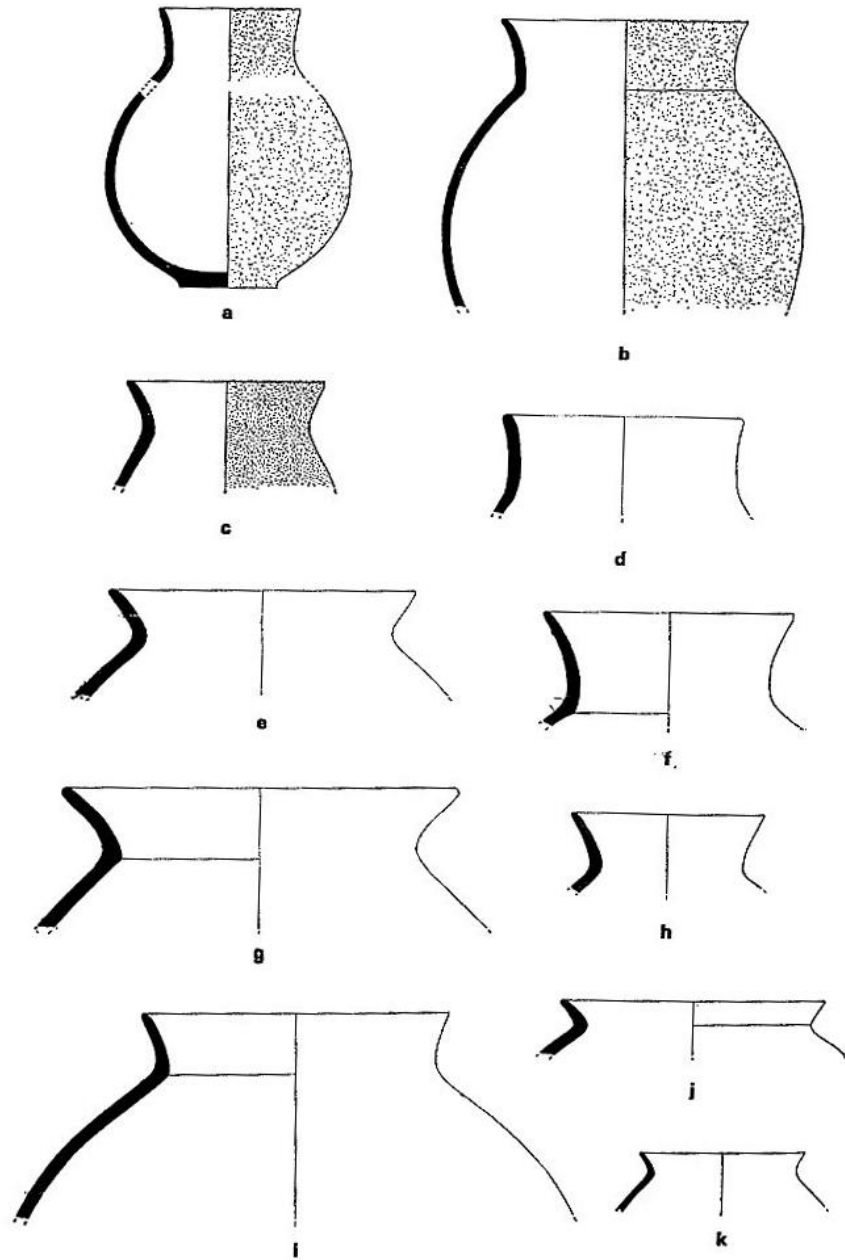


Fig. 7 - Pottery from Loebanr III. Gritty ware: *a-c*; burnished ware: *d-k*. From layer ②: *i*; from layer ③: *a, d-g, k*; from layer ④: *b, c, h*. Scale 1:4.

Figure 17 Loebanr, Swat, Burnished ware (Stacul 1976: 236)

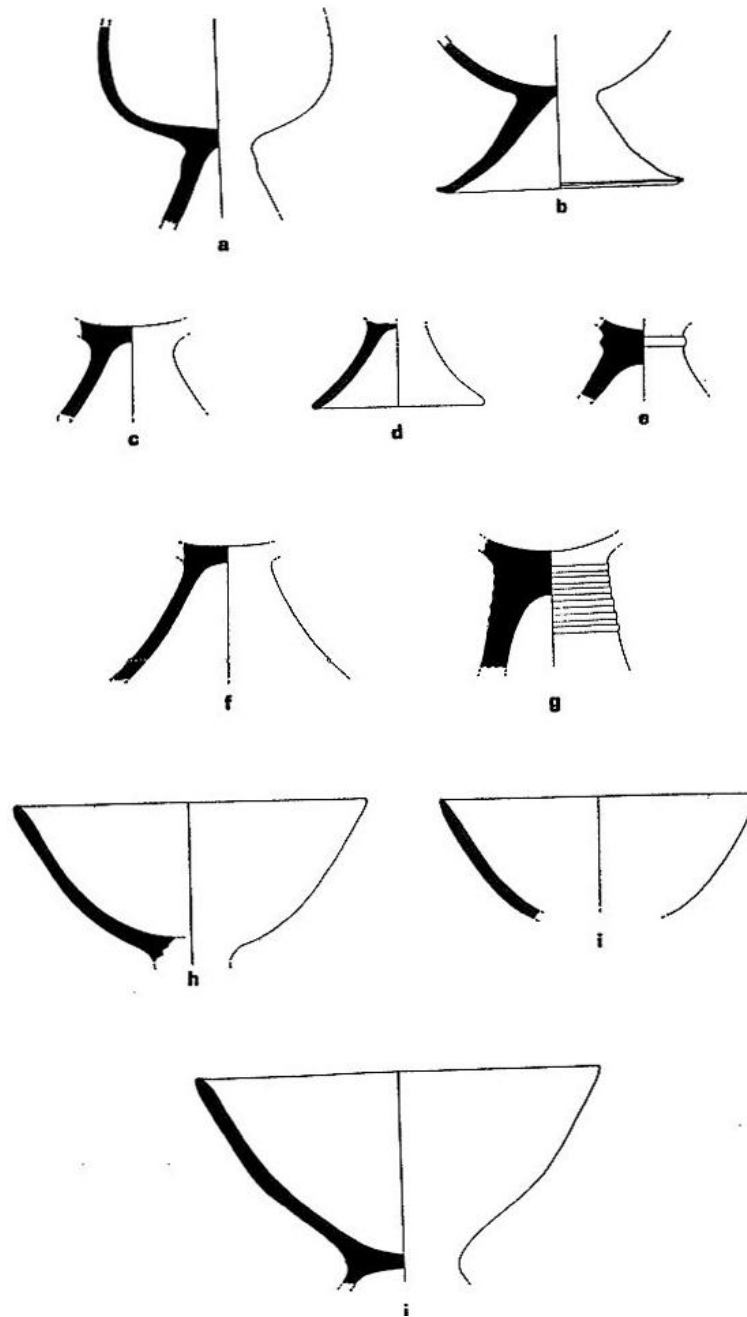


Figure 18 Loebanr and Bir-kot-ghundai, Swat, Burnished ware and fine ware (Stacul 1987: 85)



Figure 19 Loebanr, Swat, mat impression on pot bases of fine ware and burnished ware
(Stacul 1987: 213)



Figure 20 Loebanr, Swat, oval double notched harvesters (Stacul 1987: 216)

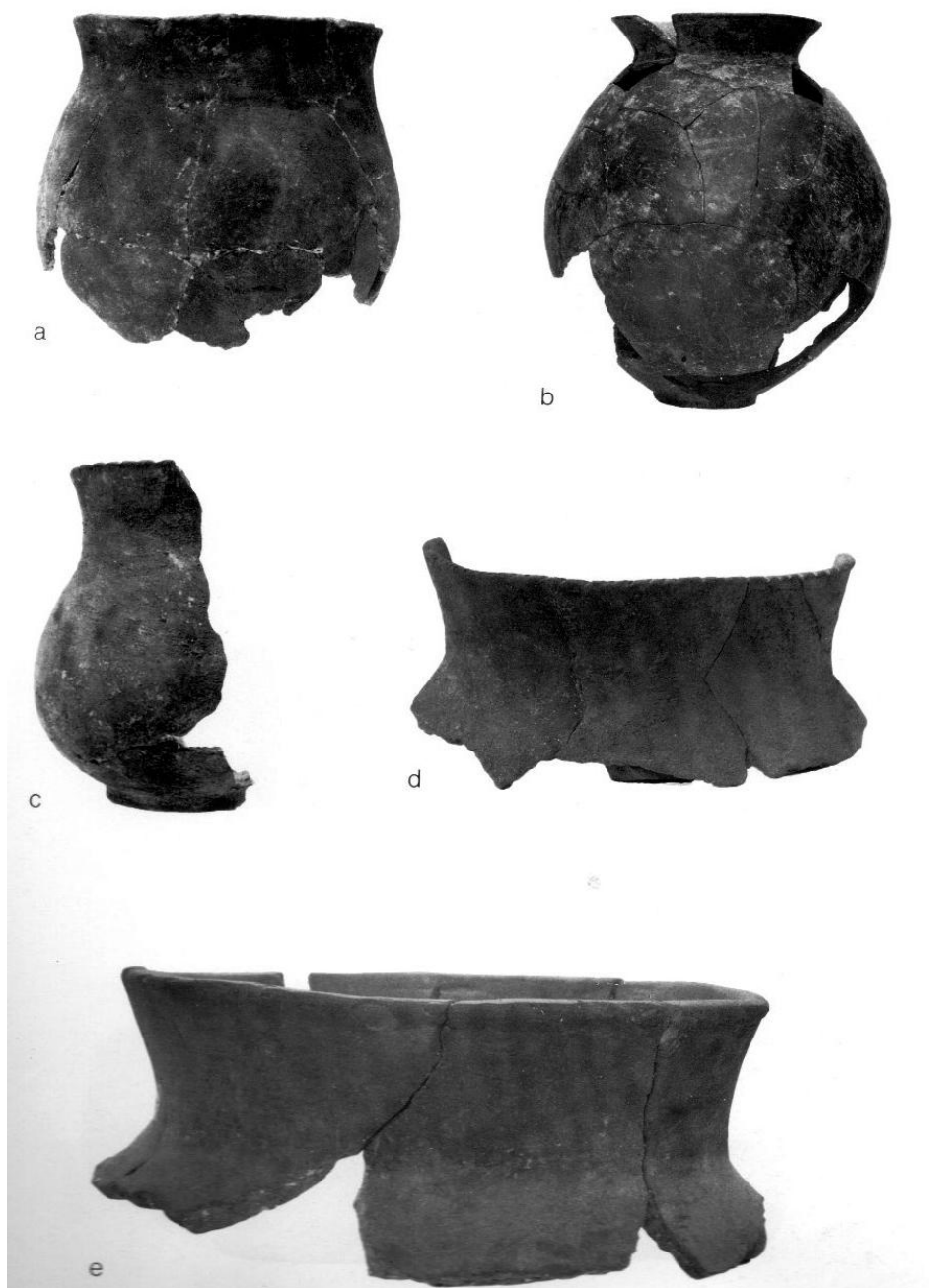


Figure 21 Loebanr, Swat, fine ware and burnished ware (Stacul 1987: 209)

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