

## CHAPTER 2

# ENVIRONMENT AND CULTURE: SOUTH ASIA'S ENVIRONMENTAL, LINGUISTIC AND RELIGIOUS PATTERNS

### INTRODUCTION

This Chapter will introduce South Asia's main geographical and environmental characteristics and the linguistic and religious patterns of its inhabitants, both of which provide context for our study of the two urban-focused traditions and beyond. We will begin with a geographical definition of South Asia and explain why parts of the archaeological sequence of neighbouring countries such as Afghanistan and Iran will, at times, be included within this study. We also consider some of the wider potential spheres of influence, such as the Indian Ocean, Arabian Sea, Persian Gulf, Central Asia, Western Asia, and South East Asia, and how they relate to South Asia. The major geographical boundaries, such as key mountain ranges and rivers, will be discussed in the light of the opportunities and barriers they may have presented to the movement of people, goods and ideas over time. In turn, this will lead to a discussion of the major changes in the environment of South Asia which are thought to have occurred over the last 10,000 years and the impact such changes may have had on the populations of the two urban-focused developments, both directly and indirectly. More detailed environmental change in individual regions and at specific times will be considered, where appropriate, within later chapters in relation to key archaeological events and developments. The drying of the Ghaggar-Hakra River, for example, is thought by many to have had a major effect on the stability of the Indus Civilisation, and will be discussed again in greater depth in Chapter 7.

We will also introduce the major linguistic families of the region in this chapter, Indo-European, Dravidian, Sino-Tibetan and Austro-Asiatic, and discuss the attempts to use and misuse their current and postulated ancient population patterns by archaeologists and historians in constructing historical frameworks and narratives. Another issue which will be introduced is that of caste, the common English term for the complex South Asian concept of *varna*. One of the most fundamental socio-economic forces within contemporary South Asia, caste is found throughout South Asian communities from Hindu

and Roman Catholic to Muslim and Buddhist, and geographically from Nepal to Sri Lanka. Although affected by different phases of imperial and colonial rule and administration, it continues to govern access to occupation, diet, sex and housing for millions of people. Thought by many scholars to have been present in the Early Historic period on the basis of textual and epigraphic references, there is still debate as to whether it was also present during the occupation of the Indus cities. Finally, the extremely complex patterns and relationships between South Asia's religions will be introduced, highlighting the problems of attributing single, simplistic identities and heritages to the modern human populations of the region. This, in turn, indicates that exploring the ideological affiliations of communities in the past is both difficult and challenging.

#### DEFINITIONS OF SOUTH ASIA

South Asia is sometimes referred to as the Indian subcontinent or the Indo-Pak subcontinent, and comprises the modern nation states of Bangladesh, Bhutan, India, the Maldives, Nepal, Pakistan and Sri Lanka. Today, they are linked by membership of the South Asian Association for Regional Cooperation (SAARC), which extended membership to Afghanistan and observer status to China and Japan in 2005; Iran has also held discussions about joining. While SAARC is primarily aimed at the core South Asian countries, such broader-links demonstrate clearly that South Asia is well aware of its wider regional position and connections. Indeed, many of the geographical, linguistic, historical and archaeological factors which unify many areas of South Asia also include parts of Afghanistan and Iran, as well as China and Tibet, parts of Central Asia and South East Asia. Physically, South Asia is recognisable as a roughly triangular landmass covering some 4.5 million square kilometres with self-defining boundaries. To the east lies the Bay of Bengal, where the Ganges or Ganga and the Brahmaputra Rivers link the mountains to the sea. To the west is the Arabian Sea, where the desert plateau of western Pakistan and eastern Iran meet in the provinces of Baluchistan. In the north, the mountain ranges of the Hindu Kush, Karakoram and Himalayas provide an almost continuous barrier separating South Asia from the Tibetan Plateau and Central Asia beyond (Figure 2.1). To the south lies the Indian Ocean, Sri Lanka and the island chains of the Andamans, the Laccadives and the Maldives (Robinson 1989). This definition is by no means uniform and other scholars have further subdivided South Asia into the 'Himalayan States' of India, Pakistan, Bangladesh, Bhutan and Nepal and the 'Indian Ocean Nations' of Sri Lanka and the Maldives (Hoffmann 1998: 44). As we will demonstrate in the following chapters, the lands and oceans around South Asia have played far more important roles than just as neighbours or boundaries. They have also provided opportunities for human contact, movement and expansion, and have done so



Figure 2.1. View of the Himalayas from Pokhara, Nepal.

for centuries as urban centres and their inhabitants' demand for resources and luxury goods have ebbed and flowed in different localities and polities.

Twenty-four percent of the world's human population live in South Asia (Bloom and Rosenberg 2011), and within this wider grouping, some 80 percent of South Asians live in India. These figures give an indication of the importance of this region in the modern world, and an understanding of the history and prehistory of South Asia is essential if we are to approach any of the issues relating to land and people which have arisen from this complex trajectory of interaction and contact. Today, as in the past, the density of population varies enormously across South Asia. Bangladesh, the most densely populated country, has an average of 1,142.29 people per square kilometre, whereas in India this drops to 393.83 people per square kilometre and is 332.64 in Sri Lanka, 208.99 in Nepal and 225.19 in Pakistan, according to 2010 World Bank figures (Trading Economics 2012). This high average density and the growing trend for the expansion of urban populations in megacities have huge implications for the lifestyles of South Asia's modern nation states. Indeed, Dhaka, the capital of Bangladesh has a population of 12 million and is subject to the highest population growth in the world. The city has a population density of 27,700 people per square kilometre and a massive 47 percent of the city's residents live in poverty. Notwithstanding their impact on social issues, such as health, literacy and education, these population issues also have a number of implications for archaeological investigation and preservation, as well as urban heritage management and preservation, and we will return to these issues in our final chapter. Beyond the cities of South Asia, it is possible to perceive

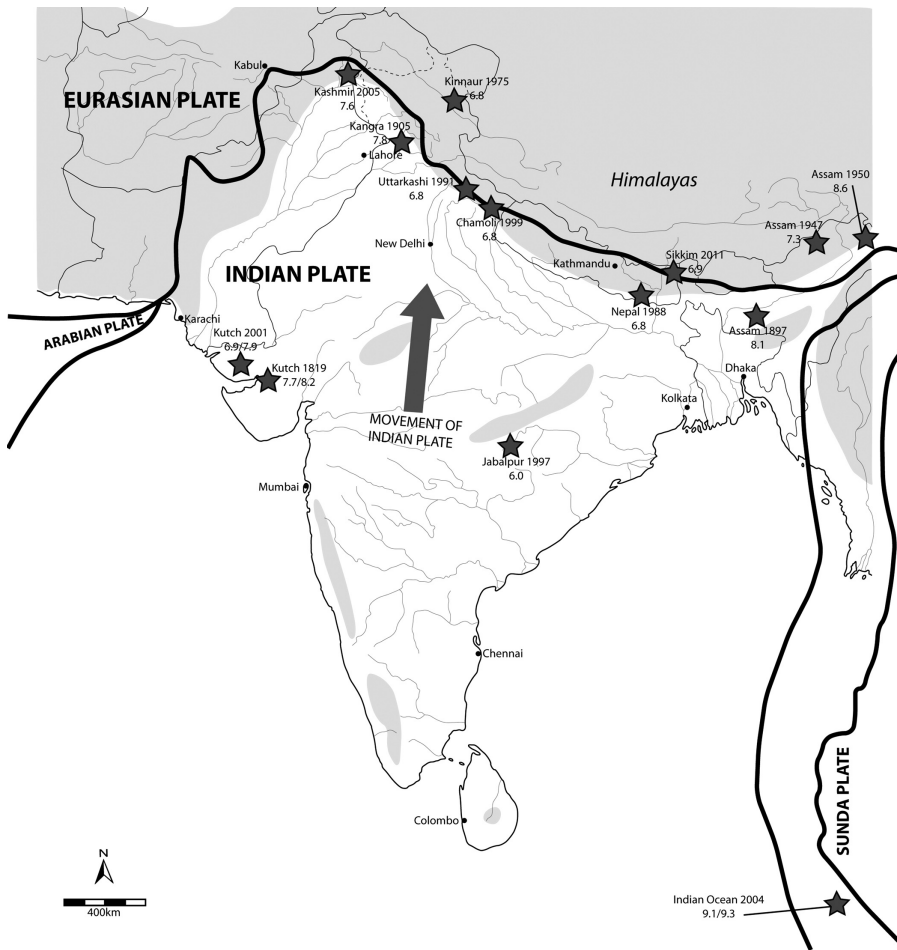


Figure 2.2. Map showing South Asia’s tectonic plates.

some general correlations between rural population densities and land fertility (Farmer 1993: 4), although human intervention in the form of political settlement and irrigation, among many other factors, has done a great deal to obscure underlying and historical trends.

### THE MAIN GEOGRAPHICAL FEATURES OF SOUTH ASIA

As noted in Chapter 1, describing South Asia as ‘the subcontinent’ has numerous colonial overtones, but this name is derived from the physical fact that the region rests on the Australian-Indian tectonic plate, which is separate from the rest of Asia. The boundaries of this plate are shown in Figure 2.2 and are marked above ground by the extensive Himalaya, Karakorum and Hindu Kush mountain ranges in the north, separating South Asia from the neighbouring states of China and Tajikistan. While the physiography of South Asia can be divided into three broad areas of plateau, plain and mountain, the reality is far



Figure 2.3. View of the Padma River, Bangladesh.

more complex than such a simple description suggests. There are numerous physical regions within the larger areas, all of which have their own distinctive geology, weather patterns, hydrography, soil types and vegetation cover (Farmer 1993: 5–10). Regional geographies will be explored in greater detail in relation to specific archaeological issues and sites throughout this volume but it is useful here to describe some of the physical features which have helped define South Asia, both in the past and the present.

As already noted, South Asia's northern boundary is provided by the Himalaya, Hindu Kush and Karakorum mountain ranges with peaks up to 8,848 metres (Sagarmatha/Everest), 7,708 metres (Tirich Mir) and 8,611 metres (K2) respectively, and many of the great rivers of South Asia have their source in these mountains, including the Indus, the Ganga, and the Brahmaputra (Spate and Learmouth 1967: 457). The Indus River, which is 3,180 kilometres long, rises in the Tibetan Plateau and flows for some distance in a north-westerly direction before reaching Kashmir and then continuing to the south-west, meeting the coast near modern-day Karachi. The Ganga rises in the Himalayas, where it flows from the north to the south-east before being swollen by a number of other rivers along the way (Figure 2.3), until it meets the coast after a course of 2,252 kilometres in the Bay of Bengal, in what is today Bangladesh (Spate and Learmouth 1967: 427). The region's third great river, the Brahmaputra, also originates in the Himalayas in western Tibet and flows 2,900 kilometres eastward before turning south and joining with the Ganga and Meghna rivers to form the largest river delta in the world at the mouths of the Ganga and Sundarbans National Park in the Bay of Bengal. The interaction of sea and



Figure 2.4. Ploughing in Rajbari District, Bangladesh.

river at this point creates one of the few tidal bores or tidal waves in the world, where the sea periodically forces its way up river against the current in the form of a large wave (Farmer 1993).

Many other great rivers flow across South Asia. Some, such as the Kabul and Sutlej, are connected with the Indus, while the Yamuna joins the Ganga and, in Peninsular India, important rivers such as the Narmada and the Krishna flow from east to west and west to east respectively. The rivers of South Asia have played an important role in prehistory and history, in economic and ideological capacities. The regular alluvial deposits of those rivers originating in the Himalayas and other northern mountains support millions of people; some 400 million alone in the case of the Ganga (Figure 2.4). The Ganga and Indus are estimated to each transport around 1 million tonnes of suspended alluvial particles each day, and the Brahmaputra even more than this (Spate and Learmouth 1967: 43). In contrast, the rivers of Peninsular India carry much less in the way of matter, and are far more reliant on rainfall, which means far greater human input is required in order to exploit them for irrigation (Spate and Learmouth 1967). The effect of river-borne sediment on archaeological visibility is also an important area for consideration. For example, when conducting a surface survey in the Vale of Peshawar in northern Pakistan, Ali (2003) found very few prehistoric sites and very few small Early Historic sites, which may well be the result of the deep alleviation noted in this area (Young and Ali 2007). Rivers are also intimately involved in issues of ritual and identity. The Ganga is perhaps the most readily recognised Holy River in the world, in a country where the water of certain rivers is



Figure 2.5. View of Brahmagiri, India (courtesy Peter Johansen).

considered sacred by Hindus, who constitute the majority religion in India (Singh and Khan 2002: 21).

The Indo-Gangetic plain stretches from the Indus River and the Aravalli Hills in the east across northern India to the Bay of Bengal in a great arc, taking in the Ganga River. The southern edge of the plain is marked by the Vindhyan escarpment, the Satpura range and the Chota Nagpur plateau, and in the east meets the Great Thar Desert. The Indo-Gangetic plain thus forms a natural divide between Peninsular India and the northern and western regions of South Asia, and this divide is further marked by the 1,312 kilometre long Narmada River. To the south of the Indo-Gangetic plain, Peninsular India is bounded by the Bay of Bengal, the Laccadive Sea and the Arabian Sea. The main geographical features include the Deccan Plateau, which is a large triangular-shaped upland area sitting between the Vindhya escarpment and the Satpura range to the north (Figure 2.5), and the Eastern and Western Ghats in the south-east and south-west. The Western Ghats (Sahyadri Mountains) and Eastern Ghats (Mahendra Pravata) run separately up each side of the Peninsular and have an important impact on regional climate and biodiversity as they rise to a maximum of 2,524 metres (Figure 2.6). Sri Lanka is an island lying off the south-east coast of Peninsular India but, in geological terms, is an extension of the peninsula itself, separated some 12 million years ago by rising sea levels (Cooray 1984). In the Palk Straits, which separates Sri Lanka and India, a series of limestone islands are visible above the sea, indicating the remnants of a natural land bridge linking the two areas, called either Rama's or Adam's Bridge. The Palk Straits are only about 64 kilometres wide at its narrowest



**Figure 2.6.** View of the Western Ghats from Madurai, India (courtesy Jo Shoebridge).

point and has caused a natural break of bulk for larger ships wishing to avoid the Basses Reefs off the south of the island (Carswell et al. 2013). Broadly, Sri Lanka may be divided into wet and dry zones, and lowland and upland zones, with the north and eastern areas of the island being relatively dry, while the west and southern areas receive far higher levels of rainfall (Deraniyagala 1992: 1–2). These lowland dry zones can be heavily populated with the assistance of artificial tank and bund technology (Figure 2.7). The highest land is found in the south central part of the island, including Sri Pada (Adam’s Peak) at 2,243 metres and Pidurutalagala (Mount Pedro), which is the highest peak in Sri Lanka at 2,524 metres (Figure 2.8). The Maldives lie 700 kilometres to the south-west of Sri Lanka and comprise an archipelago of 1,192 islands, most of which are no more than 1.5 metres above sea level.

#### MOUNTAINS AND RIVERS: BARRIERS OR OPPORTUNITIES?

South Asia is an area of great physical contrast containing, as it does, the world’s highest mountains, some of the wettest places on earth, deserts, lush tropical forests, sparse plains, extreme cold to extreme heat, and dryness to monsoon (Box 2.1) (Figure 2.9). During the course of this volume, we will demonstrate that such regional extremes act as unifiers for humans in some circumstances and in others have resulted in a history of separate, isolated development.





Figure 2.7. View of tank and bund complex from Yapahuwa, Sri Lanka.

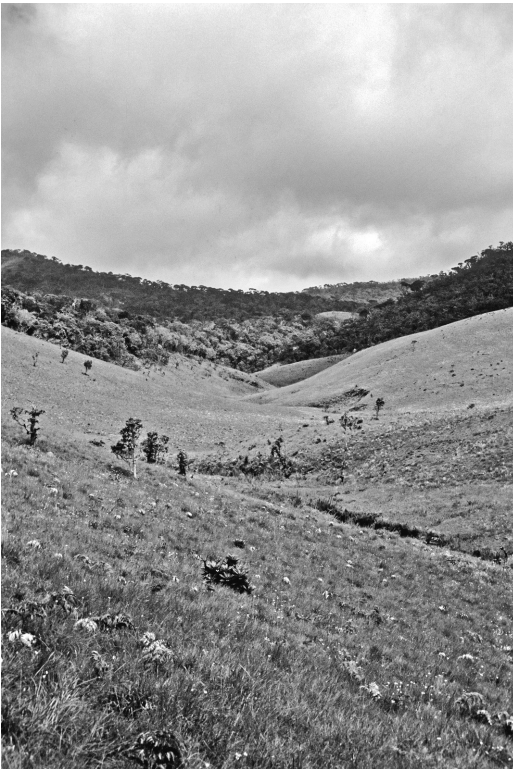


Figure 2.8. View of the Horton Plains, Sri Lanka.

**Box 2.1. The South Asian Monsoon**

The monsoon refers to a seasonal reversing wind accompanied by changes in precipitation and was first scientifically observed by Colonel James Capper of the East India Company in his monograph *Observations on the Passage to India* in 1784. There are two monsoon systems which affect South Asia; the south-west monsoon (SWM), which is also called the summer monsoon because it brings rainfall from June to September; and the north-east monsoon (NEM), which is also called the winter monsoon, bringing rain from October to December (Aguado and Burt 2007). Figure 2.9 illustrates the main patterns of both monsoons. Variations in the SWM particularly can have far reaching and devastating consequences as these variations can cause flooding or drought that affects nearly two-thirds of the world's population (Morrill et al. 2003: 465). The SWM is both longer and stronger than the NEM, and it has been the subject of more research and focus. In terms of weather and climate, there is known to be some link between the two monsoon systems: "long instrumental records have shown that the wider the geographic area of India receiving above-normal SWM rainfall, the wider the area of southeast India receiving surplus rainfall during the consecutive NEM season" (Gunnell et al. 2007: 211).

Many researchers of environmental change and archaeology have noted that there was a monsoon 'event' occurring around 10,000–7,000 years BP (c.8000–6000 BCE) with an above-average increase in rainfall and temperature. The wetter and warmer conditions of this event are viewed by many as the trigger for domestication, sedentism and ultimately civilisation in South Asia (Gupta et al. 2006: 1085). Although it is noted that an increased SMW may well have led to localised flooding and probably even inhibited farming near rivers, some researchers suggest that this may in fact have stimulated water storage and management for crop production outside of the monsoon season (Gupta et al. 2006: 1085–1086). Whether or not the environmental and archaeological data support environmentally determined theories of critical cultural development, whereby key events are the result of environmental factors, there is little doubt that the monsoon is a critical cycle for human life in South Asia today, as it would have been in the past. In particular, predicting the reverse of the monsoon winds has been central for those communities who trade with other Indian Ocean maritime populations as winds shift direction every six months.

Within each modern nation state of South Asia, there are numerous regions with their own character, and these regions are often, at least partly, defined by physical parameters. However, contact, trade and movement of goods, ideas, plants, animals and people between these regions occurs today, and the archaeological record shows this to be true in the past as well.

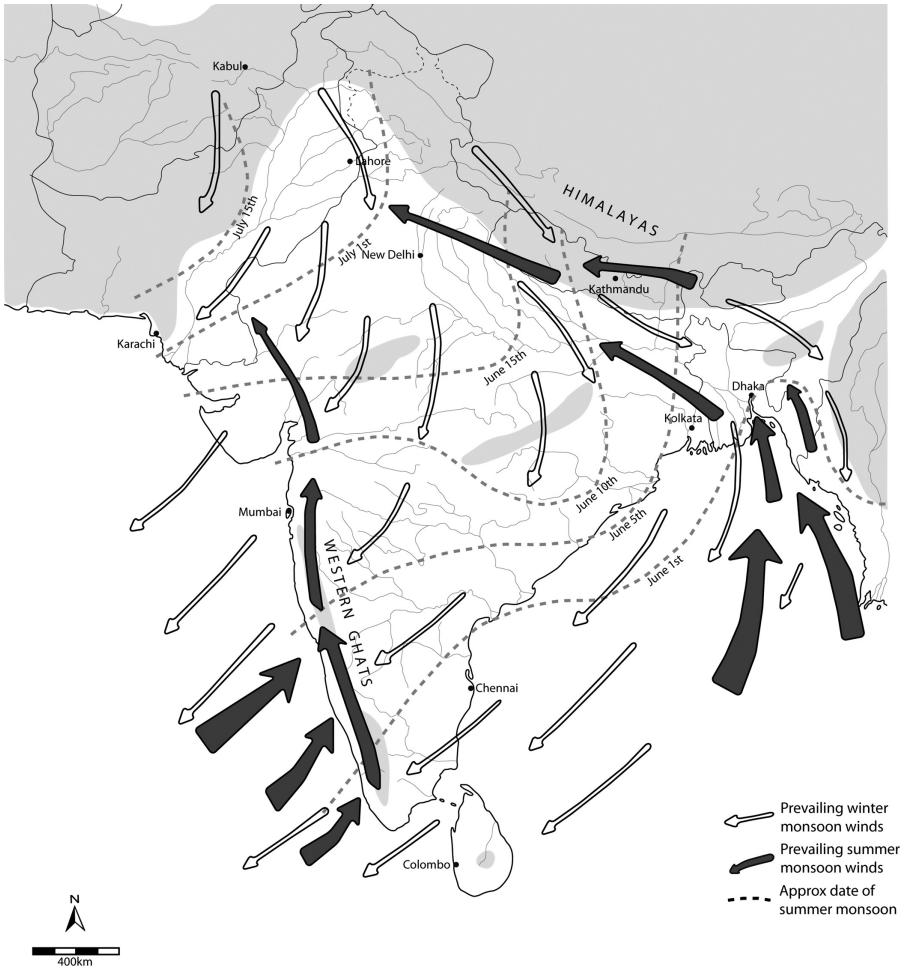
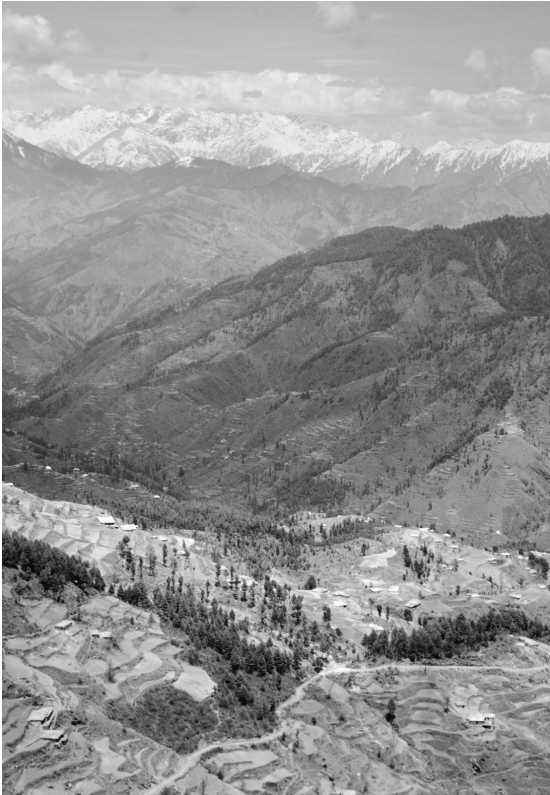


Figure 2.9. Map showing monsoon circulation.

Many archaeologists and historians have viewed mountains as physical and social barriers and have argued for the isolation of peoples living in and around them. For example, the explorer Aurel Stein (1862–1943) travelled extensively in the north-western parts of South Asia and eastern Iran in the early twentieth century and perceived mountains and passes as barriers and boundaries, restricting communities to limited areas on either side of them (1929). However, more recent archaeological research on the Gandharan Grave Culture within the Vale of Peshawar and its feeder valleys offers a good example of how alternative interpretations may present very different explanations of cultural change and adaptation. Tusa (1979) and Dani (1967), for example, both argued that the character of the Gandharan Grave Culture was determined by the isolated position of the sites within mountain valleys and the lack of contact with other groups and areas (Figure 2.10). However, archaeological and ethnographic work within Pakistan's Khyber Pakhtunkhwa Province



**Figure 2.10.** View of the Hindu Kush from Malam Jabba in the Swat Valley, Pakistan.

(formerly North-West Frontier Province) makes it possible to suggest that mountains integrate more than they isolate communities, and also that trans-humance was an important vehicle for the movement of people, ideas and even goods (Young 2003). Moreover, Dichter (1967: 104), a geographer of South Asia, has made an important point about the symbolic division of space and barriers from a geographical standpoint – he suggested that the Indus, particularly where it joins the Kabul River as it reaches Attock, is the main barrier between Central and South Asia, rather than mountain ranges themselves. Dichter argued that the river acted as a barrier at least in part because the land to the east of the Indus at this point is arid and dry, while to the west, the Vale of Peshawar is lush and fertile.

Rather than just representing boundaries and divisions, mountain passes and rivers are also extremely important as trade routes and, in South Asia, there is a wealth of historical data indicating the significance of the Indus River and passes over the Karakorum Mountains at Kunjerab within the Silk Route (Figure 2.11). Chinese pilgrims from the early centuries CE onwards recorded the presence of numerous passes and routes across mountains and along major

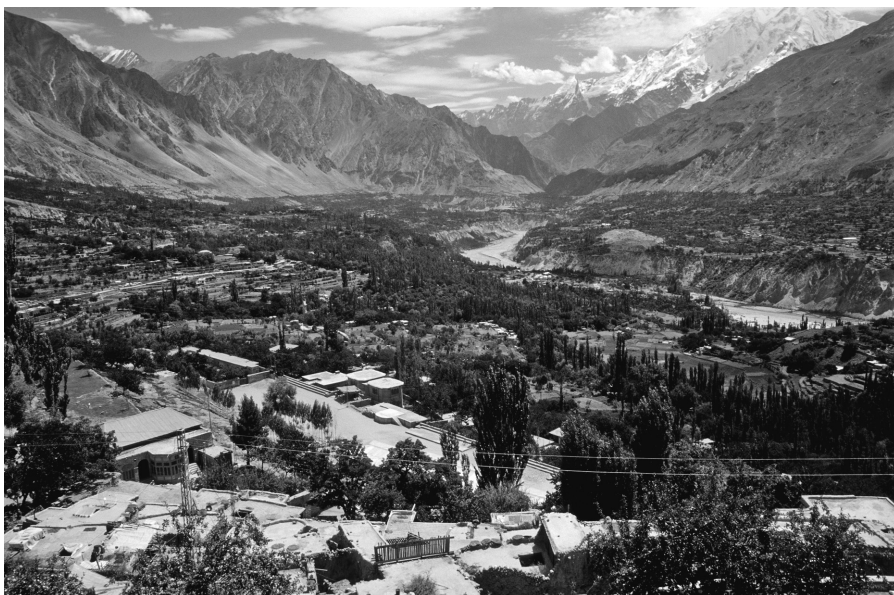


Figure 2.11. View across Karimabad to the Hunza River and the Hindu Kush, Pakistan.

rivers from their travels around South Asia (Legge 1965; Xuanzang 1996). Archaeological data has also demonstrated that trade along rivers and across mountain ranges has been important for many millennia, with lapis lazuli from Afghanistan found at a number of ‘Chalcolithic’ sites in Pakistan as well as the presence of carnelian from Gujarat in India in many inland Early Historic sites (Lahiri 1992). Moreover, the movement of Buddhists and Buddhism across the northern ranges and into Central Asia is attested at numerous points along the Hindu Kush, Karakoram and Himalaya ranges as well as to South-east Asia (Dani 1991). It is also clear that many mountains or peaks may play important roles as pilgrimage points for disparate communities, such as Adam’s Peak in Sri Lanka or Mount Kailash in Tibet.

Mountains also play an important role within the seasonal movement of people and animals, whether this is transhumance or pastoral nomadism. Pastoral mobility has been recognised as an extremely important subsistence strategy from many different areas of the world throughout antiquity. For example, Gilbert recorded archaeological evidence for pastoral nomads in south-west Iran from 6000 BCE (1983: 107), while Mughal’s survey of the Cholistan Desert in central Pakistan has demonstrated that pastoral nomadic groups in this region were numerous, and had considerable contact with sedentary groups identified as part of the Indus urban-focused Tradition (1997; 1994: 53). Detecting transhumance and pastoral mobility in the archaeological record is a challenging issue, but important in order to understand population and settlement dynamics (Young 2010; Young et al.

2008). We will return to the role of transhumant and nomadic groups in future chapters when we consider the multiple lifeways pursued by the disparate communities of South Asia.

#### AREAS OF ATTRACTION AND AREAS OF RELATIVE ISOLATION

These debates are not, of course, restricted to the mountainous barriers or conduits of South Asia as illustrated by the thesis of Subbarao, who analysed the nature of the environmental setting of Protohistoric and Early Historic settlement in his volume *'Personality of India'* (1958). Notwithstanding concerns raised about his overemphasis on the influence of geography and barriers on the shaping of the cultural development of South Asia (Chakrabarti 2001a: 21), he identified key areas of attraction, areas of refuge and, finally, areas of relative isolation. Subbarao defined areas of attraction as mapping well against the major river basins of the Indus, Ganga, Narmada, Tapi, Godavari, Krishna and Kaveri, where they could be exploited by large-scale agricultural communities (1958). In contrast, he identified isolated refuge zone areas in Peninsular India, where the river valleys and land masses were separated by ridges of hills and forests. Finally, he defined the areas between the "perennial nuclear regions and the area of isolation" as areas of relative isolation as they were away from the major routes of transcontinental communication (ibid.: 56). Based on this geographical analysis, Subbarao suggested that later cultural differentiation was partly influenced by the initial differences of the first large-scale agricultural communities but noted that the isolation of most areas had been broken by the Early Historic period due to the expansion of large-scale agricultural and their subsequent colonisation of adjacent areas (ibid.: 63). Whilst most scholars would reject the driving premise of environmental determinism, Subbarao's definition of zones has had a lasting effect (Chakrabarti 2001a; Parasher-Sen 2008). With this in mind, it is interesting to note that the History Database of the Global Environment (HYDE 3.1) has provided more recent parallels to these earlier mappings of the most fertile land by offering a long-term global change study through the combining of historical population, cropland and pasture statistics with satellite information and allocation algorithms over the period between 10,000 BCE and 2000 CE (Klein Goldewijk et al. 2011). However helpful, the resultant maps fail to acknowledge variable levels of technology or environmental changes and, for example, predict that the north central plains of Sri Lanka hosted fewer than 175 people per 10 square kilometres by 0 CE – a result significantly at odds with the data from the intensive settlement and survey and clearly a pattern resulting from intensive investment in artificial irrigation (Coningham and Gunawardhana 2013).

## MAJOR CHANGES IN THE ENVIRONMENT OF SOUTH ASIA, THE LAST 10,000 YEARS, AND THEIR IMPACT

Understanding environmental conditions and environmental changes is an important aspect of learning about past interaction with the land. Humans have shown that there are few areas of the world that they cannot, and indeed will not, inhabit. However, environment does shape the way humans live, and changes in environment will almost certainly affect this too. 'Environmental Determinism' as an interpretative theory in archaeology has had periods of great popularity as an explanation for change, and key to this theoretical approach is the concept that environment determines all human responses. It is closely linked to ideas of cultural ecology, whereby it is argued that all societies are determined by their material surroundings, and thus adapt to them, and to any changes in them. Such modelling devices as site catchment analysis, optimal foraging theory and the least effort principle, risk and seasonality, have developed from the cultural ecology movement, and been used within archaeology (Johnson 2010: 144).

Critics of environmental determinism and cultural ecology argue that ideological issues are at least as important as are environmental factors, if not more so, and that concepts such as 'risk' and 'least effort' are modern, and originate largely in western capitalism. Given that humans have developed complex, state-level societies, in different parts of the world in very different environments (Trigger 2003), it is clear that environment alone is not a determining factor in social organisation. Indeed, this becomes clear in our study of South Asian settlement patterns where increasing and decreasing complexity is known from the archaeological record across a very diverse environmental trajectory. On the other hand, environmental resources clearly do play a role in shaping the way people live, and one of our aims in this volume is to explore these differential developments, but we will be examining them as a facet of material culture, rather than as a primary determining force of human activity. In order to begin this process, here we summarise some of the major environmental changes that are currently known, by looking at a range of sources of evidence. In future chapters, we will then be able to consider direct archaeological evidence within this environmental context, without placing undue emphasis on environment as a prime mover for change.

### SUMMARY OF SOME OF THE MAJOR ENVIRONMENTAL CHANGES IN THE HOLOCENE

In this section, we look at some of the main changes in the Holocene, the period since the Last Glacial Maximum (LGM), which is approximately the last 10,000 to 11,000 years worldwide. We present the results from the analysis of a range of different proxy climate indicators, and these results will

be considered against human activity in South Asia in the same timeframe (Box 2.2). A summary of various published studies gives us a broad outline of some of the better recorded and widely agreed upon climate changes (Morrill et al. 2003). Although many short-term and relatively localised changes are noted, the most important are at the start of the Holocene, when abrupt world-wide changes included a temperature increase, which in Europe is known to have been between 4 and 7 °C within a few decades. This change to a moister and hotter climate around 11,500 BP is also clearly visible in the South Asian records. The next major climate change occurred in the mid-Holocene, and was a move towards much more arid conditions. This aridification has been noted in other parts of the world, such as Mesopotamia, although this is qualified by the information from marine varves off the coast of Pakistan which indicate that conditions became moister around this time. This reinforces the difficulties in analysing environmental data and attempting to apply it to large areas, and highlights the importance of local variations and changes.

#### **Box 2.2. Proxy Environmental Indicators**

There are many analytical techniques used by geographers, geologists, climatologists, archaeologists and others to reconstruct and explore changes in climate and environment in the past. Different types of data are used, including sea level fluctuations, tectonic activity, glacial activity, riverine activity, palaeolakes and associated wind activity; marine and terrestrial sedimentological analysis, including analysis of Aeolian deposits, palaeosols, cave sediments, lake and swamp sediments. There are a number of biological sources of information about past environments such as pollen analysis (or palynology), diatoms, plant macrofossils (e.g. wood charcoal), insects, small mammals and reptiles, and molluscs (both marine and land) (Lowe and Walker 1984). Many of the analytical techniques used to study these, and other related sources of evidence about past environment and climate, are the product of non-archaeological research, drawing on geological and geographical methods and research questions. While geological and geographical studies provide a wealth of information, they do not necessarily provide a framework of environmental and climate change that archaeologists can easily use in studying their own particular research questions. The rise of environmental archaeologists with specialisms directly aimed at exploring the ways in which environment have been affected by and affect human activity in the past have helped this understanding immensely. However, the work of such specialists within South Asia remains relatively limited, and this has given rise to concentrations of coverage, rather than a full understanding of environmental and climate change from an archaeological perspective. In the course of this volume, we will be discussing environment

*(continued)*



and climate in relation to each area and cultural complex we address, and considering the different interrelationships.

Proxy environmental indicators rely on two main principles: the use of modern analogues and uniformitarianism. Uniformitarianism is the concept that processes which can be observed happening today in the natural world can be reasonably assumed to have happened in a similar way in the past too. Originally developed to explain geological processes as a series of regular events, rather than as the result of singular catastrophes, uniformitarianism has been applied to many other natural sciences, as well as formation processes in archaeology. Within the field of environmental reconstruction, uniformitarianism is used to predict rates of flow, sedimentation, and so forth, which can then be analysed in order to understand different processes and events.

Modern analogues are used in many areas to aid identification and interpretation. Insects are a good example of this, where scientists have identified many modern and recent insect species, and developed a good understanding of the different habitat requirements each species has. They are able to determine whether a certain species requires moist, shady conditions or whether they require arid, sunny conditions. This understanding of modern species is then applied to species recovered from archaeological or geological contexts – they are assumed to have had the same habitat requirements in the past, and by looking at an assemblage of insects (or pollen, plants or reptiles) an understanding of a particular environment and the way it has changed is then possible.

There are of course many challenges associated with environmental reconstruction, not least of which are flaws in the principle of uniformitarianism and the use of modern analogues. Rates of change may well have been different at different times in the past, and different environmental factors may have had a greater or lesser impact on other factors. Species may change their habitat requirements over time, or be tolerant of a range of environmental factors. An understanding of events in one region of the world may not translate to another, albeit relatively close in distance, meaning that there is a great need for numerous, localised studies. Dating environmental processes and events is also very difficult – not only because of the error margins and intrinsic issues in almost all archaeological and geological dating methods, but also because of inconsistencies in application and interpretation by researchers in this area. For example, in South Asian environmental studies published since 2001, radiocarbon dates are presented as both calibrated and uncalibrated, as dates BC and BP, and this of course leads to great variation (see Box 2.3 for a further example of dating problems).

Different proxies use different time scales, and they are also applicable on different geographical scales – some give very localised information while

some are regional in scope. The results of different proxies are at times also contradictory – see the discussion later where sea varve data is at odds with terrestrial data – which requires great knowledge about the physical processes at work and careful interpreting in order to understand what is actually happening where, in terms of environmental change. In summary, environmental reconstruction is invaluable for archaeologists, but all studies and techniques need to be considered critically, and linked carefully to the archaeological evidence.

The Nilgiri Highlands in South India have provided peat cores for analysis, and cores for the analysis of carbon isotopes (Caner et al. 2007). These peat cores show more humidity and higher temperatures between 18,000 and 10,000 BP, which coincides with other records for the south-west monsoon maximum circa 11,000 BP. From circa 10,000 BP to the present, there has been a long-term trend towards an increasingly dry climate, which was accompanied by an increase in grass cover in the region. Interestingly, the records from the Nilgiri Highlands show that grasslands were in fact more extensive at the LGM than at any time since, although with the move towards a moister and hotter climate came an increase in forest cover. The analysis of carbon isotopes agree with the peat data, showing that extensive grassland was replaced by forest, which in turn has been replaced by grassland again. Differences between the carbon isotope and peat analysis lie primarily in the dating of the main events.

Yadava and Ramesh (2005) carried out oxygen and carbon isotope analyses on speleothems from two limestone caves in Orissa and Chhattisgarh (formerly Madhya Pradesh). Although the caves were some 30 kilometres apart, there were nevertheless interesting differences in the results, with indications of an arid phase between circa 3700 and 3200 BP from Dandek in Orissa, and indications of a more humid phase between circa 3400 and 3000 BP from Gupteswar in Chhattisgarh. The authors compared these results with river varves on the Karachi coast, and again, they found that there were many differences for each time period. For example, the speleothem isotope analyses indicated a period of higher than average rainfall between 1000 and 500 BP, which compares to results from pollen cores in Rajasthan, while the varve data for circa 600 BP shows evidence for lower than average rainfall, and the analysis of nitrogen levels in sea cores from the Arabian Sea show similar results. The varve and speleothem data also show differences in rainfall levels in the period circa 1000–2000 BP, but between circa 2000 and 3400 BP, both show higher than average rainfall.

Work at Sanai Lake in the Indo-Gangetic plain (Sharma et al. 2004, 2006) draws on both pollen analysis and carbon and oxygen isotope analysis, and indicates a number of climate changes. At around 15,000 BP, the lake is believed to

have formed during conditions that were less humid than the long-term average, and this coincided with a decrease in the south-west monsoon known from other sources. The vegetation around the lake points to open scrub and grassland in the region, and very importantly, the pollen record shows that *Cerealia* pollen, and other 'cultural' pollen or pollen associated with human disturbance and activity were present from the beginning of the Holocene, and from quite early in the core itself. From circa 13,000 to 5800 BP, the lake expanded as there was an increase in rainfall due to a strengthening of the monsoon, and more varied vegetation around the lake. This coincided with the known mid-early Holocene climatic optimum. From circa 5000 to 2000 BP, the pollen and isotope records indicate a much more arid phase, with reduced monsoon activity, agreeing with a recorded dry phase in Rajasthan at this time. There is a great lack of tree and shrub pollen throughout the whole period of the pollen core (Box 2.3). This suggests that over the last 15,000 years, the Gangetic plain was largely a savannah landscape with some forest thickets (Sharma et al. 2006: 976). This grassland was established before the appearance of the cereal and other cultural pollen, which contradicts the argument that this area was thickly forested prior to the arrival of humans and the spread of agriculture (Sharma et al. 2006). Interestingly, there was a decline in pollen indicators for cultural activity in the period circa 10,000–5000 BP, which was the climatic optimum, and the authors suggest that this may be due to the expansion of the lake and inundation of the lake margins (Sharma et al. 2004: 156).

### **Box 2.3. Pollen Evidence for Environmental Change**

Pollen analysis, or palynology, is one of archaeology's most reliable and effective techniques for looking at long-term environmental change (Moore et al. 1991). Some regions of the world have been better served with intensive pollen research than have others, along with the production of pollen diagrams, and these regions have in general been linked to active programs of archaeological and geographical sciences. In South Asia, there has been an increasing awareness of the valuable information that can be obtained from pollen studies, especially when combined with site-specific analyses, although these have tended to be mainly in India, and then further west in Iran (Singh 1991: 283).

Pollen diagrams from northern India suggest an increase in both temperature and rainfall from circa 8000 to 2500 BCE (Singh 1991: 285). Human impact on vegetation can also be detected in pollen diagrams, most noticeably when tree cover decreases while cereal, or species such as plantain, associated with disturbed, agricultural ground, increase commensurately. The detailed work carried out at a series of salt lakes in the Thar Desert region, as summarised in Singh (1991: 286–288), has produced a clear record of

environmental change which is closely linked to human activity. The pollen records for the salt lakes show that during the early to mid-Holocene period rainfall levels increased markedly, and at the same time, cereal pollen increased in the pollen diagrams. When pollen and charcoal results from sites such as Sambhar, Lunkaransar and Didwana were published in the 1970s (Singh et al 1974), the results were challenged, and even discounted by some other researchers as being far too early to support the traditional model of agriculture, which until then had placed the earliest agricultural activity at circa 4000 BCE in South Asia. However, the analysis of pollen cores showed not only the appearance of cereal pollen in the region around 7000 BCE, but charcoal associated with this pollen could be both radiocarbon dated and interpreted as an indication of increased forest clearance by fire to create areas for cereal cultivation. Excavations at the site of Mehrgarh in modern Baluchistan have revealed a great deal of archaeological evidence to indicate an indigenous domestication of animals and plants as early as circa 6500 BCE (see also Chapter 4). The research at Mehrgarh has overturned earlier models of agricultural adoption and sedentary settlements in South Asia, and the early dates from the site seem to support the indications of the Thar Desert pollen studies.

#### *More Recent Pollen Studies*

In their summary of pollen analyses from lakes in Kashmir and Rajasthan, and from coastal areas of Karnataka, Korisettar and Ramesh (2002: 36) note that results from recent studies using high precision dating techniques do not always agree with earlier results, in some cases even contradicting them. Similarly, recent research by Premathilake in the peats of the Horton Plains in central Sri Lanka has suggested the presence of oat and barley pollen grains at a date of 13,000 BP (2006: 468), although there is no known evidence in the island of a distinct Neolithic tradition. These contradictions have many implications for environmental models of change; not least, those developed to explain the emergence of urban periods in light of ameliorated environmental conditions, and will be considered further in sections dealing with the emergence and contraction of each urban period in turn.

Between 6000 and 4000 BP, the Thar Desert received year round increased rainfall and dunes stabilised (Korisettar and Ramesh 2002: 47), but it seems clear from other studies in this area that overall there have been many fluctuations and short-term increases and decreases in such aspects as precipitation and temperature. This is reinforced by faunal studies in the Holocene (Chattopadhyaya 2002: 368), which demonstrate that while changes in species

profiles occurred, along with changes in human practices with regard animals, these were by no means unilateral or unidirectional changes. However, it has been suggested that, in northern India at least, it is possible to discern changes in fauna due to expansion of forest cover due to rise in rainfall in early Holocene (Chattopadhyaya 2002: 369), where the archaeological record indicates a rise in the number of deer as compared to larger fauna.

Despite this very uneven background, there are several broad climatic trends that most researchers agree on. Firstly, following the LGM, the climate in South Asia became more humid and warmer with increased south-west monsoon activity between circa 10,000 and 7000 BP (Gupta et al. 2006). This was followed by increasing aridity in the early-mid Holocene, peaking circa 5000–4000 BP, although there is considerable regional variation associated with the onset and duration of this dry phase, perhaps as much as 1,500 years between different places across South Asia. Many researchers have linked climate change to cultural developments, and this is particularly true of the cities of the Indus Tradition. The transformation of early agricultural communities into a flourishing urban-focused, state-level society has been attributed to climate change and, equally, to the demise or collapse and transformation of the Indus Tradition network of cities, and integrated materials has also been explained by climate change. While climate is undoubtedly of great importance to human activity, the impact of human agency should never be underestimated. We also need to remember that scientific advances allow us to continually critically reassess earlier work and results, and update our interpretations. For example, early work by Singh (1971) and colleagues (Singh et al. 1974) on pollen sequences with associated radiocarbon date estimates from Rajasthan were interpreted as showing a period of increasing rainfall during the third millennium BCE as the Indus developed, and then a period of increasing aridification during the second millennium BCE as the Indus collapsed. However, the radiocarbon dates used in this study were not calibrated and the effect of calibrating the dates provides a rather different interpretation, which places the rise of the Indus during a period of increasing dryness. Given the agreement of many studies (of which a few are noted previously) on the long-term increase in aridity, and decrease in south-west Monsoon strength from around 7000 BP (c.5000 BCE) onwards, reaching the greatest intensity of dryness around 5000–4000 BP (c.3000–2000 BCE), it seems clear that the Indus Tradition was indeed expanding and developing during an established change in climate towards drier conditions.

Many archaeologists, who have moved beyond the early climate change models for the demise of the Indus, are more convinced by the evidence supporting changes in river courses (e.g. Madella and Fuller 2006; Possehl 1997, 2002a; Kenoyer 1998; Ratnagar 2000) and this will be considered further in Chapter 7. Human and social adaptation remains a very powerful intervention within South Asia, and there are numerous examples of how technological

development has enabled the populations of settlements to develop resilience to environmental challenges. For example, Anuradhapura, one of the great Early Historic cities of Sri Lanka, was founded within the island's dry zone in an area with an average annual rainfall of between 120 and 190 centimetres between October and January and a natural carrying capacity of only 0.4 people per square kilometre (Coningham 1995a). Anuradhapura's success as a permanent urban settlement of 100 hectares with a suburb of 25 square kilometres of Buddhist monasteries lay within the development of a simple gravity irrigation system storing and conserving rainfall during the wet season and then using it for irrigation agriculture, and for animal and human needs during the dry season. This simple system was later augmented with storage reservoirs, channels from other watersheds and diversions to cope with the city as its needs expanded. In this way, the population's resilience was developed and a system established which lasted for more than one and a half millennia (Coningham and Gunawardhana 2013).

#### MAJOR LINGUISTIC FAMILIES OF SOUTH ASIA

The theme of unity and diversity which can be seen in the physical geography of South Asia is evident again when we come to consider the region's languages. There are four main language families in South Asia: Indo-European, Dravidian, Austro-Asiatic and Sino-Tibetan (Chaubey et al. 2007: 96), but there is such great diversity of linguistic forms that in India alone there are 22 official languages and a further 179 'important languages' (Kaminsky and Long 2011: 422). Languages in South Asia are not simply a means of spoken communication, but they can represent changing ethnicity, and indeed have been drawn into debate about cultural origins, development and identity. For this reason, we feel that an introduction to the different language groups and some of the controversy that surrounds their presence in South Asia is important.

The Indo-European language family is the most widely spread throughout South Asia with 1.5 billion speakers, and is found mainly concentrated in the north, central and western areas, as well as the south and central regions of Sri Lanka (Chaubey et al. 2007: 96) (Figure 2.12). Indo-European languages are related to each other and are assumed to have branched out from a common root or ancestor in Eurasia. They are found in a wide arc from eastern South Asia, across Iran, Anatolia, and then both northwards through western Russia to the Baltic States and westward to the Atlantic Seaboard and the United Kingdom (Renfrew 1987). Within South Asia, the earliest known Indo-European language is Sanskrit, the language used in many historic and sacred texts, such as the *Vedas* (in a form known as Vedic Sanskrit or Vedic) and the *Puranas* (Thapar 2006a). Sanskrit is, of course, related to a number of extinct Indo-European languages, such as Latin, Ancient Greek and Persian, and is also recognised as the ancestor of many of the Indo-European languages

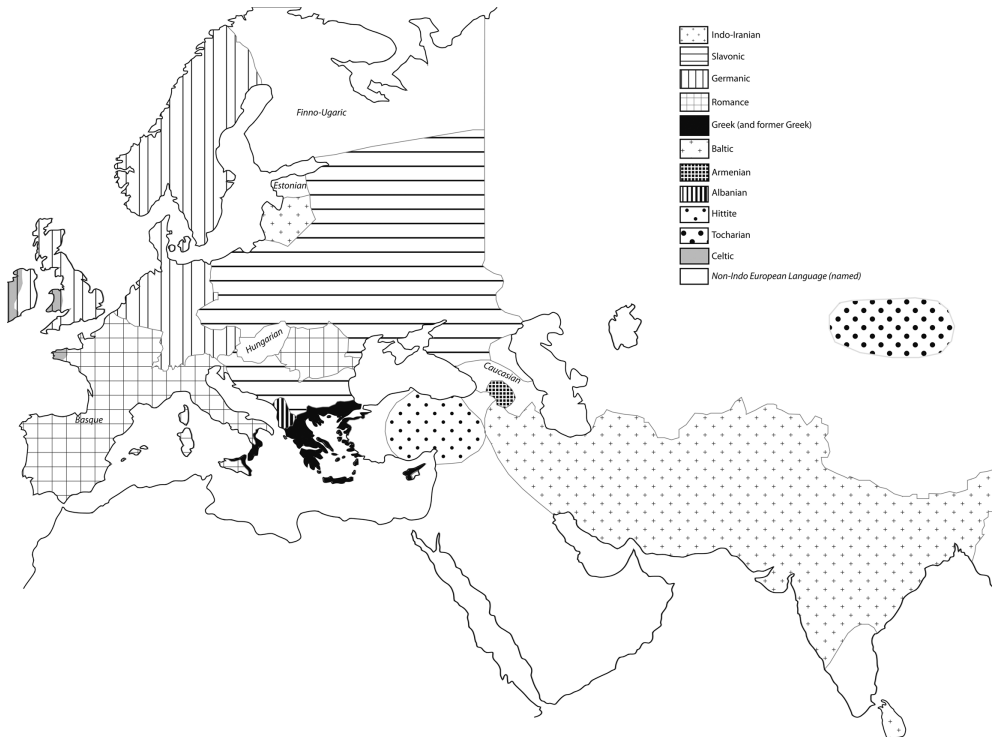


Figure 2.12. Map showing the distribution of Indo-European languages.

spoken in South Asia today, such as Hindi, Sindhi, Gujarati, Nepali, Bengali and Sinhalese (Mallory 1989: 15; Renfrew 1987: 10).

As introduced in Chapter 1, one ongoing controversy in South Asian archaeology involves conflating Indo-European languages with a separate Indo-Aryan (or even simply Aryan) ethnic and cultural grouping or identity. While there is little doubt in linguistic terms that the languages spoken in northern and central South Asia belong to the major linguistic Indo-European family, equating the language with the archaeological evidence of a single population group is far more problematic and in great part results from nineteenth-century antiquarian explorations into physical biology and language (Thapar 2006a). The implications of this controversy will be explored further in later chapters, but Trautmann has offered the following summary of the key problem with what he calls the ‘racial theory’ of South Asian civilisation, whereby: “India’s civilization was produced by the clash and subsequent mixture of light-skinned civilizing invaders (the Aryans) and dark-skinned barbarian Aborigines (often identified as Dravidians)” (1997: 4). This explanation recurs frequently in South Asian archaeology and history, with Indo-Europeans or Aryans presented as an actual people, often an invading presence in South Asia, overrunning ‘native’ Dravidian peoples and bringing with them chariots and horses (Sharma 1999; Lal 2005).

The 'Indo-European Question' and the search for the homeland of Indo-European speaking peoples, has been debated for several hundred years since William Jones's 1786 report of a degree of similarity between Sanskrit, Latin and Greek so strong that he believed they must come from the same root. Over the next two and a half centuries, many other scholars have pursued the study of linguistic roots for languages. Once the idea of a proto- or ancestral language had been established, scholars then wanted to reconstruct the people they believed responsible for the language and its spread, and where they came from; a practice that Thapar refers to as 'monogenesis' (2006a: 4). Researchers broadly agree that there is a similarity between the major languages of Europe, Iran and India – not only in vocabulary, but also in pronunciation and grammar, and comparison of such a wide range of languages over a wide geographical area suggests that these Indo-European languages may have originated from one common but extinct language, now known as *\*Proto-Indo-European (\*PIE)*. Many archaeologists and linguists have taken this idea further and believe that there was a cohesive group or culture speaking *\*PIE*, living in a designated homeland, and various archaeologists have used elements of *\*PIE* combined with their interpretation of archaeological data to propose *\*PIE* homelands in Anatolia (Renfrew 1987) and Central Asia (Gimbutas 1971, 1989; Kohl 2007). In Chapter 3 we will explore the impact of models of change based on the movement of people and, in particular, consider the impact of Mortimer Wheeler's research on the transmission of ideas in archaeology and his understanding of the Indo-European debate (1950) which has been continued by others (Lal 2005; Sharma 1999). At many stages of the archaeological sequence, Indo-European movement has been proposed as an agent of change in South Asia, although even one colonial scholar commented that "At times one despairs about ever making contact with these very elusive people" (Gordon 1960: 93). We will consider both the models and the archaeological data that have been used to support it.

Of course, Sanskrit was only one of the many languages spoken in India, and a number of languages, particularly in the south, are not part of the Indo-European family. These non-Indo-European languages have been designated Dravidian and so from a very early point in the construction of the cultural history of South Asia, there was a major division. This language division 'naturally' divided people and cultures, and this has led to a number of major issues in South Asian archaeology. Most modern speakers of Dravidian languages, some 164 million people, live in Peninsular India but the presence of a Brahui-speaking pocket, a Dravidian language, in western Pakistan has suggested to some scholars a much wider distribution of the languages in the past (Coningham 2002) (Figure 2.13). This pattern, when overlain by the distribution of Indo-European languages, has led many archaeologists and historians to suggest that Dravidian speakers were displaced from the north-west by an invasion of Indo-European speakers (Parpola 1994). This pattern



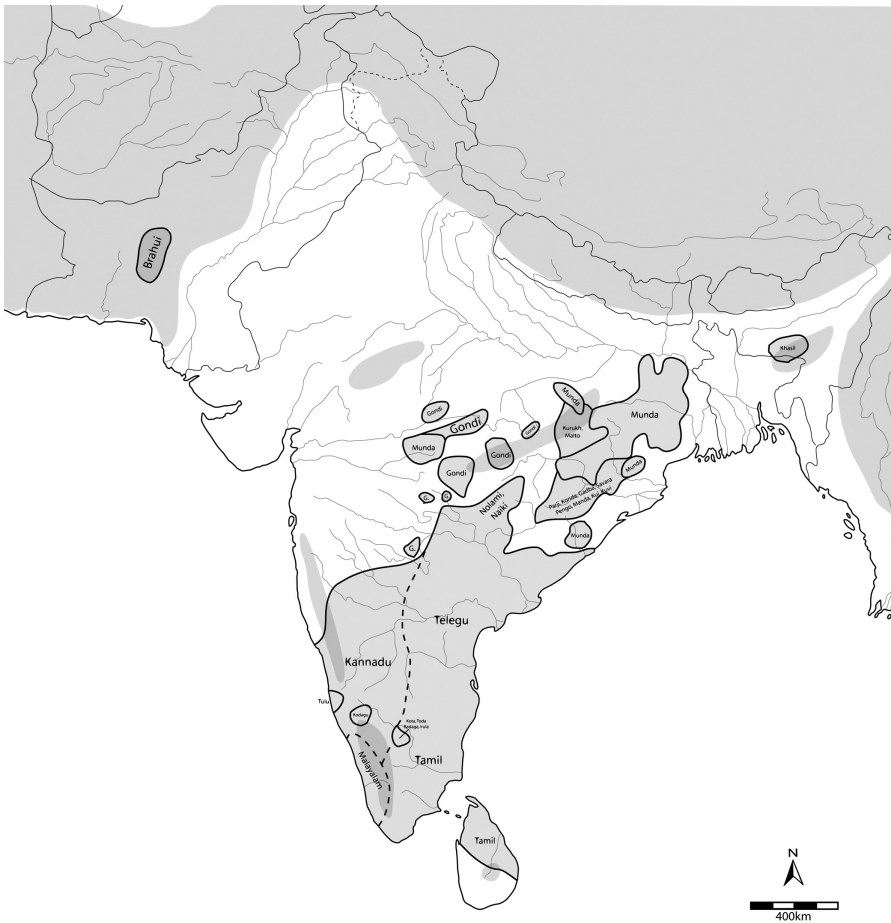


Figure 2.13. Map showing the distribution of non-Indo-European Languages.

is repeated in microcosm in Sri Lanka where the majority speak Sinhalese, an Indo-European language, but there is a distinct northern and eastern distribution of Tamil speakers, a Dravidian language (de Silva 1981). However, recent genetic studies involving the comparison of mtDNA have indicated that there is a closer affinity between the Brahui speakers of Pakistan and Indo-Iranian speaking populations to the west, than with Indian Dravidian speaking populations to the south, questioning these linguistic links (Chaubey et al. 2007: 96). Such advances in our understanding of languages and, through genetics, the relationships between populations, show that this is an ever-changing and developing field. Alongside the well-documented difficulties of using languages as an indicator of population movement, it is clear that archaeologists need to avoid simply equating languages with people or ethnic and cultural groups. It is also clear that archaeologists beyond South Asia are still motivated by the search for Indo-European homelands and the physical signature of such speakers as illustrated by David Anthony's recent book (2007).

Austro-Asiatic languages are widely spread across South and East Asia and are thought possibly to have been linked to agricultural population expansions from southern China (Chaubey et al. 2007: 96). Some tribes in the Central Indian states of Chotanagar and Orissa speak a Mundari branch of Austro-Asiatic, while there are speakers of the Mon-Khmer branch in Khasi in Meghalaya. Genetic studies indicate that the Mundari group have mainly Indian mtDNA, while the Mon-Khmer group have East Asian mtDNA (Chaubey et al. 2007). Sino-Tibetan speakers are found in the north-eastern part of South Asia, and it is thought that their language family originated in China. Genetic studies of populations in the north-east show a closer relationship to East Asian populations than to Indian populations, which is thought to be consistent with their recent spread to India from East Asia (Chaubey et al. 2007: 96). Whilst many scholars have been preoccupied by the dynamics of linguistic change within ancient South Asia, it is useful to reflect on a study of contemporary linguistic changes within Baluchistan by Fredrik Barth (1972). Barth worked on the premise that based on their more warlike and aggressive reputation, speakers of Pushto would increase in numbers in Baluchistan as Baluch lost ground and more individuals adopted Pushto. Barth was surprised to find the reverse was actually the case as disgraced Pathans could not be re-assimilated within their own clans but were more freely inducted into Baluch communities – indicating that group organisation and self-perception dictate language assimilation rather than perceived cultural superiority and dominance.

#### CASTE IN SOUTH ASIA

While there is a great deal of debate about the definitions and origins of caste in South Asia, there is agreement that caste was, and remains, a major force shaping social, economic, political and ideological relationships in the whole region. Caste has been studied by anthropologists, sociologists, ethnographers and historians within South Asia, but less work has been carried out by archaeologists. Those archaeologists that have attempted to explore caste in prehistory or Early Historic periods have encountered the difficulties involved in using historical models and ideal patterns of behaviour to explore actual behaviour (e.g. Coningham and Young 2007; Kenoyer 1998). Yet caste is a critical part of modern South Asia, affecting almost all aspects of life and playing a major role in politics and economics (Khare 2007), and thus it has been argued that it also needs to be considered by archaeologists (Gupta 2013; Boivin 2005 and 2007) although some scholars have indicated that they are less willing to engage (Sinopoli 2003: 309).

Within academic circles there are currently two major views of the origins of caste (Rogers 2004a: 2–3). The first view of caste is that it is a set of practices that characterise Indian social organisation, that these are concrete and absolute and may be recognised and analysed from historical, late pre-colonial,

colonial and post-colonial periods. While there may be regional variants of the practice of caste, the fundamental ordering or rules remained and remains constant. The second view of caste maintains that caste is the primary construct of British officials, missionaries and orientalist transforming an existing sacred order based on *varna* (as discussed later) into an imposed rigid social system which allowed the British to consolidate their own positions of power at the apex. Whether or not we agree that caste has its roots in history if not prehistory, and has shaped modern South Asia, or that caste is an essentially colonial construct that drew on earlier forms of social organisation purely to subordinate indigenous populations and allow colonial rulers to extend their power, caste is a key part of South Asia and is present not only in Hindu societies, but in Muslim and Buddhist societies as well. What follows is a brief explanation of what caste is generally agreed to be, and how it operates within a range of different examples.

One of the most influential and wide ranging definitions of caste was compiled by Hutton (1946: 49) and may be summarised within seven key elements which ranged from endogamy to respect for Brahmins. Gough agreed with this broad definition of caste, arguing that it also offered a means of ranking a group according to birth status (1960: 11). Caste is usually endogamous, associated with occupation, and the formal ranking of castes is defined through concepts of ritual purity and pollution, and the distances and differences between castes stem from these beliefs. Gough also noted that the recording of caste and beliefs was carried out by the Brahmins, who were the educated caste of religious specialists at the top of the caste hierarchy.

The word 'caste' itself derives from the Portuguese word '*casta*', meaning race, breed or lineage (Quigley 1993) and was used by the Portuguese settlers in South Asia to describe the social system they encountered. Indian Hindus today use the term '*jati*' when describing their birth group, tribe or caste, and *jati*, although usually translated as caste, actually is closer to 'genus' in meaning (Boivin 2005: 228). The hierarchical system observed by the Portuguese and others, and now commonly known as caste or *jati*, is based on *varna*, a term known from historical texts such as the *Rig Veda* and Laws of Manu. *Varna* is believed to equate to a term similar to 'colour' or 'rank' and in the societies described in the *Rig Veda*, there were four ranked *varnas*, with *Brahmans* (priests) above, then *Kshatriyas* (rulers and warriors), followed by *Vaishyas* (merchants) and *Sudras* (cultivators and servants) below. Below the *Sudras* were the untouchables, not even accorded a ranking (Boivin 2005: 234). The *Rig Veda*, traditionally dated within the first millennium BCE, is the earliest known reference to *Varna*, whilst the Laws of Manu or *Manavadharmasastra* were compiled between the second century BCE and the second century CE (Buhler 1886).

There are, of course, many dangers involved in the use of a historical description of an ideal social network such as this. Many studies of religious and other practices show that there is frequently a large gap between orthodoxy (right

thinking) and orthopraxy (right practice), in other words, what we should do, what we would like to do, and even what we say we do is not always the same as what we actually do. Classificatory systems also tend to ignore local variations and adaptations, as Kosambi (1944) pointed out in his critique of a mid-twentieth century description of caste in South Asia, and he gave numerous examples of social activities and practices that seemingly breached strict caste and class rules. Texts are usually written by dominant groups who write their own histories and, as Gough noted in her work in Tanjore Villages in Southern India, it was Brahmins who carried out the recording of caste and ideological issues (1960: 11). Caste is also known to vary considerably from region to region throughout South Asia, and to have changed over time (Rogers 2004b: 51), and it is also possible for lower castes to undertake a process of 'Sanskritisation' whereby they emulate certain behaviours and practices of upper classes in order to improve their own status in society (Jayaram 1996: 78). Yet this issue of Sanskritisation, and potential de-Sanskritisation, is in direct contrast to the sixth part of Hutton's definition of caste noted earlier, which clearly stated that caste is decided at birth and is almost always immutable. This contrast is reiterated by Yalman's observation that when a high caste family relocated to part of a Sri Lankan village traditionally inhabited by lower castes, they were treated socially in accordance to their geographical standing not their own social or ritual standing (Yalman 1960). Within anthropology there have been recent challenges to the use of collective cultural categories such as caste and religion in order to define and explore people, with an emphasis on the individual and their roles and relations with wider social groups (Mookherjee 2013: 3–5). In line with archaeology's growing awareness of the importance of agency and the individual, this poses a further challenge to archaeologists working in South Asia and who are concerned with exploring the ways in which hierarchies and inclusive/exclusive social groups were constructed.

Colonial accounts such as the writings of Robert Knox, a British sailor captured by the Kandyan King Rajasingha II (r. 1624–1687 CE), described the honours and ranks of the people of Sri Lanka as being based on descent and blood. This record provides an interesting insight into how caste shaped many aspects of life quite early in this period of contact with European colonising nations (Knox 1681: 105). Knox noted that marriage and sexual relations outside marriage, social ranking, occupation, and interaction between groups were all subject to this overall ranking or caste system. Such accounts inform us that there was in place a rigid system of social organisation that has some similarities to the modern and anthropological definitions of caste in South Asia, but we need to remember that such descriptions are place specific, lack detail, and are the subjective record of the individual author.

Caste is closely linked to Hinduism and some authors have argued that caste is a purely Hindu phenomenon, as elements of Hinduism have been

utilised to underpin the framework to justify and maintain the Indian caste system (Dumont 1966). Yet others claim that caste is a more universal means of ordering social relations (Barth 1960; Leach 1960) and a way of ensuring that communities may reproduce themselves even with the absence of central state or polity control (Quigley 1993). Various studies have explored caste systems in non-Hindu South Asian countries, for example, Buddhism was introduced to Sri Lanka in the second century BCE and has remained closely associated with state identity ever since (Coningham 1995b). Rogers's (2004b: 53) discussion of caste in Sri Lanka draws on historical records to demonstrate that in the Kotte Kingdom, under the Portuguese and then the Dutch, hereditary groups were used for organising and activating labour, economic practices and taxation. The groups in the south-west recognised by the Portuguese and Dutch included the Goyigama or cultivators, who were the most numerous and highest status caste; Karava or fishers; Durava the toddy tappers; and Salagama, the cinnamon peelers. While these occupational groups were called 'natural occupations', the occupation of a caste could be officially changed – for example, the Salagama were formerly weavers, but as the importance of cinnamon grew, their occupation was changed (Rogers 2004b: 54). Although subject to great local variation and an absence of Brahmins, there was a clear caste-like system in place in Sri Lanka controlling not only occupation, but dress, housing, marriage, funeral customs and so forth which was continued and reinforced by the Portuguese and Dutch "not out of any ideological commitment, but in order to maintain social order" (Rogers 2004b: 55). In economic, administrative and labour terms, colonial rulers also extended this control to non-Sinhalese and non-Buddhist groups such as Tamil-speaking Muslims, thus demonstrating that this system was not simply restricted to the numerically dominant religion or group (Rogers 2004b: 53, 57). In the 1830s the British, who succeeded the Dutch as the colonial power in Sri Lanka, decided that the caste system was no longer desirable as a social or economic force and, through a series of legal moves, ostensibly removed the caste system from the island. In practice, however, caste has continued to shape Sri Lankan society up until the present day, albeit in an altered form and with less formally recognised powers (Rogers 2004b: 51). Although beyond the chronological coverage of this volume, it is notable that a number of scholars have identified a clear social stratification amongst some Muslim communities in India and Pakistan, which has many similarities to the caste system as outlined earlier, although is by no means identical to it (Ahmad 1978; Barth 1960: 117).

Caste then has many implications for everyday life, as it controls not only hierarchically ranked groups and their interaction, but also the access of individual people to dress, food, habitation, marriage, and occupation. Further codification of caste came in the *Arthashastra* of Kautilya, a textbook of the ideal for rulers, written in the third century BCE (Kangle 1965) and also the Laws of Manu (Buhler 1886), and a great deal of our understanding of the

historic practice of caste comes from these two texts. Present within the Early Historic period, some scholars have also attempted to identify caste within the cities of the Indus Tradition (Lal 1998; Malik 1984) and the role that the presence of rigid manufacturing communities may have contributed to the production of very uniform artefact categories across time and space.

## RELIGIOUS IDENTITIES IN SOUTH ASIA

One of the oldest living religious traditions in the world, Hinduism remains the majority religion for India and Nepal today – indeed, until recently Nepal was the only official Hindu state in the world. While there have been various attempts to identify the origins of Hinduism within the Indus Valley Tradition, this remains a matter for active debate, and we will explore various ideas and issues further in Parts II and III of this volume. This section offers a brief account of the main religions of South Asia and an indication of how they are linked together, thus reinforcing the complexity of social identity and organisation in our study region and this underlying issue of simultaneous diversity and unity. Hinduism is not only linked to the oldest religion in South Asia and possessing the most significant numbers of adherents, it also shares origins with numerous other religious communities, including those still practiced not only in South Asia but also worldwide, such as the Jains and Buddhists, and also at least in part, the Sikhs. However, like ‘caste’, the term ‘Hinduism’ is a relatively modern construct and one that was externally created and applied. Just as the name ‘Hindu’ was developed by Muslim rulers from the fourteenth century CE onwards and used to describe the inhabitants of India, in other words non-Muslims, so ‘Hinduism’ was developed by the British and other European powers to describe the religion and religious practices of the non-Muslim majority living in India (Narayanan 1996a: 14). Because Hinduism is thus a blanket term, used to refer to what would have been numerous local and regional practices, with probably certain shared elements, it is of course very hard to offer one single, simple definition or even description of ‘Hinduism’.

Early Hinduism is correctly referred to as Brahmanism and is believed to represent the oldest and purest form of the religion, the traditions of which were largely complied by *Brahmans* or priests (Parrinder 1957: 31 and 34). Records of an early tradition of Hinduism come from the Vedic texts, which have been attributed to the end of the second millennium and the beginning of the first millennium BCE (Box 2.4). Both Jainism and Buddhism emerged contemporaneously from mainstream Brahmanical tradition in the northern half of South Asia with a number of other heterodoxical sects, and although the Jains have remained quite a small but influential religion, Buddhism developed into a major missionary and monastic-focused tradition. Founders of both religions were members of *Kshatriya* or the warrior-ruler caste, not *Brahmans* (Parrinder 1957: 41), which was at least in part due to the major social, political

#### Box 2.4. Early Historic Texts and Traditions

There are a number of Early Historic texts and traditions which have been used by archaeologists and historians in order to shed light on the prehistoric and protohistoric periods of South Asia. These texts are of course subject to the same caveats as all texts used by archaeologists: they may well have been written hundreds of years after the events they narrate having been passed on orally and subjected to multiple changes and interpretations; they may have been compiled by politically, socially or economically dominant groups or their hired scribes; they may have been intended to be associated with ritual practice or as poetic entertainment; they may have described an ideal or state to aspire to, rather than offer a realistic description of practice; and so forth. It is useful, however, to have an understanding of the main texts to which are commonly referred as these have shaped a great deal of scholarly work in South Asia, and indeed continue to contribute.

##### *The Vedas*

*Veda* translates as ‘knowledge’ and there are four main Vedic texts or books: the *Rig Veda*, *Sama Veda*, *Yajur Veda* and the *Athura Veda*. All contain hymns, prayers and formulas for incantation. The Vedas are generally believed to have been composed between 1500 and 600 BCE (Narayanan 1996a: 20) and the oldest and most important of these is generally considered to be the *Rig Veda*, or ‘Song of Veda’, which contains 1,028 hymns to gods arranged in subdivisions or circles (Parrinder 1957: 34–35). There are thirty-three gods or *devas* in the *Vedas*, belonging variously to the sky, air and earth, and there is no single, supreme god. Many Hindus uphold the belief that the *Vedas* were divinely constructed and, as such, are transhuman – eternal and authorless – and they are known as *sruti*, or ‘that which was heard’ (Narayanan 1996a: 23 and 35). The four *Vedas* came to have commentaries associated with each which contain directions for performing sacrificial and other rituals, and these commentaries are called *Brahmanas*.

##### *The Upanishads*

In addition to the *Vedas* themselves containing hymns and prayers, the *Brahmanas*, and *Aranyakas*, or ‘compositions of the forest’, comprise the *Upanishads*. *Upanishad* is a Sanskrit word meaning ‘session’ or ‘communication’, and the *Upanishads* are thus theological and philosophical treatises, essentially presenting the philosophical development of Hindu thought (Parrinder 1957: 38). Although there were some 300 *Upanishads*, only 13 are known to have survived, and these teach the importance of such practice as repetition and meditation, including an explanation of the syllable ‘Om’ within recitation of the *Vedas*. One doctrine of the *Upanishads* deals with

reincarnation of the soul and the idea of good action and *karma*, or ‘deed’ (Parrinder 1957: 38–40).

### *The Epics*

The epics are known as *smṛti* or ‘that which is remembered’ and are therefore of human origin, although still divinely inspired (Narayanan 1996a: 35). Two of the most widely known epics are the *Ramayana* and the *Mahabharata* and are generally believed to have been completed around the first or second century CE, although undoubtedly this was the formalising of older oral traditions with some scholars setting the former to the fifth century BCE and the latter to 400 BCE (Singh 2008: 18). The *Ramayana*, the story of Rama, is set in northern India where the young prince Rama is born in Ayodhya. He is exiled by his father on the eve of his coronation, and so sets out for the forest with his wife Sita and brother Laksmana. Sita is captured by Ravana, the demon king, and Rama, helped by Hanuman, the monkey god, searches for her. When they find Sita, Rama and the monkeys go to war with Ravana in Lanka, eventually killing him and winning Sita back. Rama then returns to Ayodhya and is crowned king. In later accounts, this becomes the story of Vishnu descending or appearing in the form of Rama to slay Ravana, and this incarnation of Vishnu is said to be the seventh descent or avatar of the god (Parrinder 1957: 46).

The *Mahabharata*, the ‘Great Epic of India’ (or ‘the Great Sons of Bharata’) is nearly three times as long as the *Ramayana* and narrates the relationship of Bharata, a major house of northern India, and one of the neighbouring houses. The story of two tribes and two chiefs, Arjuna and Karna, in this epic, Krishna is believed to be the ninth incarnation or *avatar* of Vishnu. One of the most important sections of the *Mahabharata* is the *Bhagavad Ghita*, which is one of Hinduism’s holiest books (Narayanan 1996a: 38), meaning song of the Lord, or Song of Blessed One. In the *Bhagavad Ghita*, Krishna describes three ways to achieve liberation from the cycle of birth and death: firstly, the way of action or *karma yoga* (where *yoga* simply means discipline); secondly, the way of knowledge or *jnana yoga*, through scriptural knowledge; and thirdly, the way of devotion or *bhakti yoga* (Narayanan 1996a: 41–42).

### *The Puranas*

The *Puranas* or ‘Old Tales’ were composed between circa 300 BCE to circa 1000 CE, and they are devotional books, praising the deities and their actions. The deities covered in the *Puranas* are those that have become important in modern Hinduism, while many of the older Vedic gods such as Varuna were now less regarded (Narayanan 1996a: 43). They include references to a number of ancient dynasties, including the Nandas and Mauryas.



and economic transformations taking place in central India during the seventh and sixth centuries BCE (see Chapters 10 and 11). Jainism as a spiritual teaching was developed by twenty-four great ascetics, called *Jinas*, meaning conquerors or forgers (Parrinder 1957: 41). The last of these *Jinas*, Mahavira or Great Hero, known as Vardhamana Mahavira was born circa 599 BCE and established the Jain community. Jainism teaches the idea that there are many individual souls, which exist for all eternity and that the Self is a stable and eternal principle (Parrinder 1957: 42). Key to Jainism is the concept that through a life of non-violence and non-hatred and practicing of right conduct, one's soul is cleansed and restored and one is liberated from the cycle of life and death – this is achieved through spiritual practice, not the intervention of some divine being (Narayanan 1996b: 136).

With Hinduism recognised as the earliest extant religious tradition within South Asia, generations of South Asian archaeologists have sought to identify the presence of related gods and practices within the archaeological record. For example, John Marshall interpreted the seated figure on an Indus seal as “a prototype of the historic Siva” (1931a: 52), and Wheeler suggested that phallic-like stone pillars indicated that “Siva and linga-worship have been inherited by the Hindus from the Harappans” (1968: 109). Such identifications were not just restricted to colonial archaeologists but to those active in the years after independence too. One of the best known examples are the ‘fire altars’ from the Indus city of Kalibangan as reported by B.B. Lal, who linked the presence of apparent firepits and washing facilities, suggesting that they represented “a tradition still in vogue in India amongst Hindus” (Lal 1979: 78). Other fire altars have been reported, such as the one at Nageswar, but alternative interpretations have suggested that it was a ceramic kiln (Hegde et al. 1991: 6). This particular example illustrates the complexities of trying to differentiate an individual's ritual practice from an imperfect archaeological record. A number of more recent researchers have tried to demonstrate that the Indus Tradition was Vedic in nature (Tiwari 2010). However, we should also remember the comments made by the archaeologist Dilip Chakrabarti whilst reviewing the archaeology of Hinduism: “There is no Vedic Age. Similarly, there is no Vedic Archaeology. ... In such a situation archaeology can do only one thing: try to trace different ritual behaviours which Hindus traditionally associate with Hinduism” (2001b: 35).

Buddhism is thought by many to have emerged in the same century as Jainism; certainly within the latter part of the first millennium BCE (Barnes 1995; Amore and Ching 1996: 221; Parrinder 1957: 43; Coningham 2001). Buddhist philosophy offers a belief in the impermanence of the human self, social egalitarianism and a desire to be free of suffering and want. Like Hinduism, it ascribes successive re-birth cycles, the spiritual ideal of ascetic, and also many gods, demons and spirits alongside central Buddhist doctrine (Amore and Ching 1996: 220). Siddhartha Gautama, a royal prince, was born

at Lumbini in what is now Nepal but the date of his birth has been uncertain as there are different regional chronologies for his life, both long and shorter. In Sri Lanka and South-east Asia his life has been dated to between 624 and 544 BCE; Indian and some Western scholars date his life between 566 and 486 BCE using Greek sources, or alternatively between 563 and 483 BCE; Japanese scholars use Chinese and Tibetan texts and date his life to between 448 and 368 BCE (Amore and Ching 1996: 221). Recent archaeological evidence from the Maya Devi Temple at Lumbini in modern Nepal has demonstrated the presence of a structure sequence at the shrine from the sixth century BCE onwards, favouring the longer chronology (Coningham et al. 2013). As a young man Siddhartha Gautama was taken outside the protected atmosphere of his childhood palace at Kapilavastu and saw three sights: a sick man, an old and suffering man, and a dead man. He then saw a fourth sight – a renunciant whose calmness and peacefulness showed the way to overcome suffering. After many years as a wandering ascetic, Siddhartha Gautama finally achieved enlightenment or *nirvana* (thus he became a *Buddha* or enlightened one) under the Bodhi tree (*Ficus religiosa*) at Bodh Gaya in modern India. He continued to wander and preach for the rest of his life, and when he died at the age of eighty, he entered the state of *parinirvana*, in which the necessity for rebirth was gone, there is no more suffering, and perfect happiness is achieved (Amore and Ching 1996: 230). In Chapters 11 and 12, we will explore the impact of Buddhism on the Early Historic Tradition of South Asia and its patronage by the early rulers and merchants – including the Mauryans.

Difficulties in assigning a single religious or ideological identity in archaeological contexts can be illustrated by reference to some of the material culture of religion in South Asia. For example, the architectural entity of the *stupa*, now closely identified with Buddhism, was used by both Jains and Buddhists in the Early Historic periods. Likewise, tree shrines are both Hindu and Buddhist in nature and even Lumbini, the birthplace of the *Buddha*, is a place of pilgrimage for Buddhists as well as Hindus. There are many other local examples, and this sharing or blending is important to recognise when trying to assign religious identity, or even trace origins of particular religions through material culture.

Within the timeframe of this book, these are the main religious identities with which we are concerned. There are other smaller religious communities such as Parsis, who are modern followers of the ancient Zoroastrian religion founded in Persia and are believed to have arrived on the coast of western India in the first millennium CE (Mushrif-Tripathy and Walimbe 2012). Christianity was known from very early years CE in South Asia through trade contacts with the Persian world and beyond, and the advent of Islam of course has had a huge impact on South Asia, not least of which is the development of the Sikh religion from the fifteenth century CE onwards, which began as a blending of elements of Hinduism and Islam (Oxtoby 1996: 178). Christianity, Islam and Sikhism, however, are of importance at periods later than those covered

at the end of this volume and, for this reason, we offer no discussion of the religions themselves or their development here. We also consider the evidence for the development of religion and ritual behaviour within the two great urban-focused traditions and examine the debate which surrounds a number of the aspects of the Indus tradition and its possible affiliations with modern Hinduism, as well as the use of the state sponsorship of Buddhism in the Early Historic period.

## CONCLUSIONS

The main purpose of this chapter has been to familiarise readers with the main features of South Asia's environmental, linguistic and religious landscapes which act as a context for our study. Beginning with a definition of the region under focus, it explained why parts of the archaeological sequences of neighbouring regions, such as Afghanistan and Iran, are included within the study. It also introduced some of the major geographical boundaries such as mountain ranges and rivers, and considered them in terms of the opportunities and barriers they may present for the movement of people, goods and ideas. This was followed by a discussion of some of the major changes in the environment of South Asia that have occurred over the last 10,000 years and the impact they may have had on the two urban-focused developments and their inhabitants. We also introduced the major linguistic families of the region, Indo-European and Dravidian, and discussed their use and misuse by archaeologists and historians in constructing culture-historical frameworks and narratives. Whilst 'mosaic' is a rather over-used term in modern archaeology, there is little doubt that South Asia represents a mosaic of languages, ethnicities, religions, caste groups and environmental and geographical zones today and did so throughout the past. To fully explore all aspects of this diversity in all the regions and time periods we cover in this book would be impossible, but equally, we wish to avoid the overemphasis of homogeneity where it did not exist. As a result, we will acknowledge and characterise the major cultural developments under study whilst endeavouring equally to reflect the mosaic pattern in which that development occurred. Finally, we should note that as the history of the practice of archaeology in South Asia is crucial for understanding the nature of its discipline, and is particularly important in understanding the different approaches taken following Independence and Partition, the following chapter will review the development of archaeology within South Asia.