CHAPTER-I

INTRODUCTION
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An invaluable heritage of the great Indian tradition is the richness of its wide variety of cultural life. The Indian sub-continent is a panorama of social diversities, ethnic differences and rich cultural heritage. From the time immemorial peoples of different ethnic backgrounds and languages have come to India. After the bases of Indian civilization were laid some 3,000 years ago by the fusion of the cultural worlds of the speakers of the Austric, the Dravidian, the Tibeto - Burman and the Aryan languages, there has been a continuous and a general enrichment of this civilization and extension of it century by century through the arrival of later incomers.

1.1 Peopling of India

In the following pages we briefly provide an account of the available lithic and skeletal evidences regarding the process of peopling of India.

1.1.1 The Lithic Evidences

Numerous sites belonging to various prehistoric periods from early stone age (lower palaeolithic) to protohistoric period have been discovered from almost all parts of the country. Figure 1.1 gives the locations of some of the important sites of various periods (after Malhotra and Vasulu, 1993) The discovery of lithic bones and metal tools establishes beyond doubt that man existed for a very long time in India, and the recent discovery of osseous remains of *Homo erectus* in central India shows the presence there of his antecedents also. Figure 1.1 and Table 1.1 which incorporate the chronology of Indian prehistory from Acheulian to Iron Age reveal the following main points:

i) man lived in different parts of the country since Acheulian period dated over 3,50,000 years B.P., the evidence has come from a number of sites;

ii) by middle palaeolithic period man had spread to many parts of the Indian sub-continent (this period is dated 50,000 - 20,000 years B.P.);

iii) by Iron Age dated 1,000 - 700 B.C man had occupied almost all parts of the country, and
iv) many sites/regions in different parts of the country showed uninterrupted human occupation right from early stone age to the Iron Age (for details see Sankalia, 1974, Maloney, 1974; Allchin and Allchin, 1982).

Table 1.1: Chronology of prehistoric culture in India

<table>
<thead>
<tr>
<th>Culture</th>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron Age</td>
<td>1000 - 700 B.C.</td>
</tr>
<tr>
<td>Chalcolithic</td>
<td>2300 - 700 B.C.</td>
</tr>
<tr>
<td>Neolithic</td>
<td>2500 - 1000 B.C.</td>
</tr>
<tr>
<td>Mesolithic</td>
<td>8000 - 2000 B.P.</td>
</tr>
<tr>
<td>Upper Palaeolithic</td>
<td>20000 - 10000 B.P.</td>
</tr>
<tr>
<td>Middle Palaeolithic</td>
<td>50000 - 20000 B.P.</td>
</tr>
<tr>
<td>Lower Palaeolithic</td>
<td>&gt; 350000 B.P.</td>
</tr>
</tbody>
</table>

1 Source Sankalia (1974), Agarwal et al. (1978), and Mishra (1992)

The stages in man's progress in India inferred from the material culture remaining, and proposed by Sankalia et al., (1973) are as follows:

1) Early and Middle Stone Age - Primitive food collecting stage;
2) Late Stone Age/Mesolithic - Advance food collecting stage,
3) Transition to incipient food producing of early Neolithic;
4) Settled village communities or Advanced Neolithic/Chalcolithic; and
5) Urbanization or Bronze Age.

In India, like most of the other areas in the old world, majority of the palaeolithic sites are located along the river valleys. The topological assemblage in majority of the sites suggest tool-making materials and the materials of the river deposits were same.
Indian Mesolithic, the period between Late Palaeolithic and Neolithic, is distinguished by the manufacture of microlithic tools of geometrical and non-geometrical shapes and with associated fluted cores, scrapers, points and small blades and chipped pebbles. An agate flake was found as early as 1865 by Wynne (1866) in the Godavari alluvium near Paithan. In 1930 Burkitt found a large collection of artifacts at Cammiade in Krishna basin; Todd (1932) found in Khandivli near Bombay; De Terra and Paterson (1939) found along the Narmada river near Hoshangabad and Gordon (1938) in Central India, Aiyappan (1945) and Zeuner and Allchin (1956) on the Madras coastal plain, Sankalia (1946) in Gujarat. Since these early discoveries were made, numerous sites belonging to this period have been discovered from different parts of the country.
There is evidence of use of bow and arrow and domestication of dogs that were important components of a Mesolithic hunting-gathering lifestyle dependent upon large game. More permanent settlements and a hunting-gathering lifestyle that was combined in some areas with incipient pastoralism. Kennedy (1984) commented that large sedentary sites are rare in Indian Mesolithic, and social organization may have been characterized by localization of communal bands with close ethnic and cultural ties. Artistic creativity of the Indian Mesolithic has been established by the investigations of cave paintings and engravings of Bhimbetka caves near Bhopal in central India (Wakankar, 1973) and cave art appeared in many other places as well. This period of food-gathering economy of South Asia has been the subject of a number of general and regional archaeological studies (Allchin, 1959; Mishra, 1965; Deraniyagala, 1981).

Neolithic period started with ground stone and ended with copper-with stone. The chalcolithic period, which is estimated to be 2500 to 1000 B.C. The chief characteristics of Neolithic period are exclusive use of non-metal implements, domestication of animals, and a knowledge of agriculture. Corollary to agriculture is the development of village life. Towns started appearing during the Neolithic phase. Towards the end of Neolithic phase pottery began to appear and metal come into use. Neolithic, which began in different communities, was not characterized by a uniform step-by-step technological sequence from one type of artifact to another. Neolithic industries ubiquitously are found all over the country.

Prehistoric India owes a rare distinction of being the paradise as cultural development did not unilinearly occurred here. At a given point of time an urban culture, a rural system, a Neolithic settlement, Mesolithic hunting-gathering cave culture, or a nomadic way of life could be easily assessed. India’s ecology and geography had a considerable role in shaping these diversities. Her mosaic ecological zones were the abode of early hominids and prehistoric men as could be visualized from the fossil finds.

The Harappan civilization arose in the lower Indus valley of what is now known as Sind or Pakistan. Geographically the Harappan site encompasses a triangular area.
occupying North west India and Pakistan extending from foothills of the Himalayas to the Maracan coast, Gujarat, Bahawalpur and Rajasthan. Of all the Harappan sites, Mahenjodaro which covers an area of some 240 acres is the most impressive, antedating the Harappan culture by about 5000 to 3300 B.C. featured with domesticated cattle, sheep, goat and limited cereal agriculture.

The historical roots of palaeodemography in India may be traced to points beyond the Himalayan mountains. The first known discussion of palaeodemography was initiated by Datta (1959) and in 1960s analysis of abundant skeletal remains from Harappa was started (Datta, 1962; Sen, 1967) Unfortunately, the broader utilization of palaeodemographic work in analyzing the biology of prehistoric man in India is precluded by several practical and theoretical obstacles. Small size and fragmentary nature of many South Asian skeletal series often precludes the observation and analysis of demographic variables (Krogman and Sassaman, 1943; Gupta and Dutta, 1962; Malhotra, 1965). These and many other investigations of the skeletal biology of prehistoric Indian populations consist of anatomical descriptions and comparative anthropometric analyses, necessary steps in defining the range of phenotypic variation within and between populations (Kennedy and Malhotra, 1966; Gupta et al., 1970, Kennedy, 1980; Lukacs and Badam, 1981). The large post-Harappan farming village of Inamgaon has yielded abundant human skeletal remains permitting preliminary demographic reconstruction of Chalcolithic period of Jorwe culture (1400-700 B.C.) of Deccan Plateau. Similarly settlements of substantial size of population emerged at Brahmagiri, Nevasa, Chandoli, Pandu-Rajar Dhibi etc.

The discovery of a number of wall-enclosed complex urbanized mound based Neolithic settlements in the now dried-up Saraswati river bed in Rajasthan, in Kathiawar and parts of Southern Gujarat have the distinctive features of Harappan civilization with its uniform assemblages of tools, water supply, drainage, system for heating central bath, ceramic techniques, systems of weights and measures, differentiation between citadel and servant quarters etc. All these points to existence of complex society with considerable social stratification and complex administrative machinery. Biologically such developments meant an increase in demographic dimensions of a limited number of populations (gene
These people possessing the knowledge of food production, technical innovation, division of labour, the formation of social classes and administrative controls, at the expense of others who retain their earlier type of natural economy and who could not expand numerically. About the origin of Harappan civilization practically nothing definite is known. Different versions are put forward - starting from Sumerian or Semitic origin, to the Dravidian or Mundari are often mentioned. Even origins from Baluchistan and Iranian uplands were suggested.

1.1.2 The Skeletal Evidences

Many new hominid fossils have been recovered which have changed dramatically the scenario of our knowledge of hominid palaeobiology in the past 15 years, principally from middle and late Miocene deposits of Asia and Europe. The Siwalik fossil collection includes approximately 135 hominid specimens. Particularly Potwar (now in Pakistan), Ramnagar and Hari Talyanagar in India yielded significant material (Andrews, 1982; Pilbeam, 1982; Ward and Pilbeam, 1983). These fossils were dated to be 15 to 16 million years ago. Huge number of South Asian fossils provide a composite sequence spanning last 20 million years and with wide range of morphological diversities amongst them.

The skeletal evidence after Siwalik hominids becomes scarcer till the recent find of a skull cap of *Homo erectus* found in central India and dated around 200,000 B.P. After this, again there is long gap of skeletal evidence, till we reach Mesolithic and younger periods. An examination of the morphological features of the skeletons from various sites of Mesolithic (Lekhahia, Sarai Nahar Rai, Langhnaj, Bagor); Neolithic (Piklihal, Maski, Brahmagiri, Tekkalakota, T Narsipur, etc.); Chalcolithic (Harappa, Mahenjodaro, Chandoli, Nevasa, Lothal, Kalibangan etc.); and Iron Age (Yelleswaram, Brahmagiri, Additanallur, etc.) period reveal (after Malhotra, 1978a):

1) the presence of proto- Australoid and Caucasoids in all periods,

2) the absence of Mongoloids (it may be noted here that no site in the north east where Mongoloids are presently distributed has so far yielded human osseous remains) during all the periods,
iii) considerable variation in the cephalic index of the Caucasoids, from dolicocephals to brachycephals (mostly occurring from Iron Age onwards); and

iv) both proto - Australoids and Caucasoids right from the Mesolithic period to Iron Age show wide geographical distribution (southern, central and western India).

Historical evidence shows that a number of migration brought several people into India. Just to mention a few important ones; Indo-Aryans (2000 - 1400 B.C.), Sakas (2 century B.C.), Kushans (1 century A.D.), Huns (5-6 century A.D.), and subsequently the people of modern Europe - the Portuguese (14 century A.D.), the Dutch, the French and the English (18 century A.D.). The people of African ancestry were also brought to the west coast beginning from 16th century A.D. (Vijayakumar et al., 1987).

Summarizing archaeological (lithic and skeletal) and historical evidence, it is evident that several waves of immigrants from west and central Asia, and from north and north east Asia, came to India during at least the last 10,000 years.

1.2 Biological Composition of the People of India

Although morphological studies started in 1868 among the Indian population, systematic studies of all India nature started only in the early part of this century. Risley (1915) was the first to have undertaken such a study. This was followed by other studies by Giuffrida - Ruggari (1921), Haddon (1924), Eickstedt (1934), Guha (1935), Sarkar (1948), and Malhotra (1978a). The main concern of all these studies was to delineate the various 'racial types'. Although these workers disagreed with each other in the matter of details regarding the number, nomenclature of 'race' and their source of origin, etc., they all agreed and recognized the existence of more than one 'racial type' and a great deal of morphological heterogeneity among the people of India. Although it is outside the scope of the present study to give a comprehensive account of the above studies, we list here the classifications proposed by various scholars to illustrate the point mentioned above.

1) Risley divided the peoples of India into the following seven types:

1 Turko-Iranian, 2. Indo - Aryan,

3 Scythio - Dravidian, 4. Aryo - Dravidian or Hindustani,

ii) Eickstedt classified the peoples of India into four main divisions:
1. Weddid or Ancient Indians - a) Gondid, b) Malid
2. Melanind or Black Indians - a) south Melanid, b) Kolid
3. Indid or New Indians - a) Gracile Indid, b) North Indid
4. Palaeo - Mongoloid.

iii) Guha delineated the following ethnic elements in the population of India:
1. The Negrito,
2. The Proto - Australoid,
3. The Mongoloid,
4. Mediterranean:
   a) Palaeo - Mediterranean,
   b) Mediterranean,
   c) Oriental,
5. The Western Brachycephals:
   a) Alpenoid, b) Dinaric, c) Armenoid, d) Nordics.

iv) Malhotra classified the populations of India into following five types:
1. Negritos (Andaman Islands),
2. Nishadas or Australoids or Proto - Australoids (West, Central and Southern India),
3. Mongoloids (Northeast and Sub- Himalayan region),
4. Europoid or Caucasoids (almost all over the country),
5. Negroes (West Coast and Southern India, numbering around 15,000).

In terms of antiquity of these elements the evidence both cultural and biological, suggests that the Nishadas/Australoids on the main land and Negritos in Andaman Islands are probably the oldest elements in the country. Europoids came to India in several waves stretching over 10,000 - 15,000 years B.P. The antiquity of the Mongoloids is not yet fully established but perhaps they came in recent times, at least in several parts of North East, and
the Negroid from Africa were brought in during the historical period beginning 16th Century A.D.

Malhotra and Vasulu (1993) recently estimated the numerical strength of the various ethnic types in the country as: Negrito (306), Negroids (15,000), Proto-Australoids (56 million: 6.6%), Mongoloids (15 million: 1.76%), and Caucasoids (779 million: 91.64%). It is thus evident that the Caucasoids constitute the bulk of the contemporary Indian population.

1.3 Emerging Social Organization

The process of peopling of India not only brought different biological elements, but also a wide variety of cultural, religious and technological traits. The factors which form the matrix of social life could be categorized into (1) Natural environment, (2) Population, (3) Human beings, (4) Material technology, and (5) Social environment. These go to constitute social life.

The people of India can be grouped into various socio-political categories depending upon the criterion used. Considering the linguistic map of India the people can be divided into the speakers of (1) Dravidian, (2) Indo-aryan, (3) Austro-Asiatic and (4) Tibeto-Burman language families. The Dravidian speaking tribal of central and South India can be considered to be the descendants of the their original inhabitants of India, who gave up their languages in favour of Dravidian (Fuchs, 1973), where as the Tibeto-Chinese language speaking tribal in North East India and Austro-Asiatic speaking overs in East India immigrated into the sub-continent since ancient historical times. Most likely they came in several waves from Southern China (Tibeto-Chinese speakers) and from South East Asia (Austro-Asiatic speakers), respectively. These immigrating groups met with the ancient Indian populations, which were living already on their migration routes, and thus can not exclude some cultural and also biological contacts between the immigrants some places (Fuchs, 1973; Furer-Haimendorf, 1985; Icke-Schwalbe, 1983; Walter et al, 1991). It is worth mentioning that these immigrated tribal populations could in general maintain their cultural and specially linguistic identities up to the present, where as the original inhabitants
of South and Central India adopted the Dravidian and to some extent also Indo-European languages.

If the religion is the criterion then there are Hindus, Muslims, Christians, Jains, Sikhs, Nava-budhs, etc. India is a predominantly a Hindu country as returns of 1981 Census show. 82.6% Hindus, 11.4% Muslims, 2.4% Christians, 2.0% Sikhs, 0.7% Buddhists, 0.5% Jains and 0.4% others.

Although the criteria listed above can provide some insight on the human variation in India, a more meaningful approach would be to consider endogamous groups. It is estimated that the people of India consist of over 40,000 Mendelian populations (Gadgil and Malhotra, 1983). From the point of certain socio-economic considerations, the endogamous groups in India can be grouped into two broad categories: (1) an estimated 37,000 endogamous groups are structured in a system commonly referred to as Hindu caste system. Individually, each population in the system is called a Jati or a caste (Karve and Malhotra, 1968), and (2) the rest 3000 groups are outside the caste system. These populations include the tribal groups and religious communities. The main features of the Indian population structure are summarized in Figure 1.2.

The most unique feature of the Indian population structure is a system of social gradation or a hierarchy. Each caste theoretically belongs to one of the five varnas: Brahmin, Kshatriya, Vaishya, Sudra, and Panchama. The five varnas are arranged in a hierarchical order, the Brahmin varnas are at the top of the hierarchy and are followed by the Kshatriya, Vaishya, Sudra, and Panchama varnas. The social stratification of the society is not only hierarchical, but the hierarchy is rationalized by ritual and religious criteria (Malhotra, 1984).

The aboriginal elements in the population are organized on the basis of tribes which are composed of a large number of clans or septs, totemistic or territorial which are
Figure 1.2  Population structure of the Indian populations (after Malhotra, 1984)
generally exogamous though the tribes are endogamous. Each clan prohibits inter-marriage within the group, but confines its marriage within the tribe, however small it may be.

The tribal groups differ from the caste structure in their territorial affiliation, and in their freedom from economic interdependence though such distinction is not absolute. They are spread over the sub-continent, but instead of amalgamating with others to make bigger groups, each retain its separateness. The names of many of these groups are recorded in India's literature, such as Arya, Kushan, Shaka, Gujara, Naga, Dasa, Shabara, Malla and a hundred others (Majumdar, 1958).

Many of the tribes are known to have wandered from place to place, the same tribes have taken different names in different areas, their languages have changed. Still many of them practices hunting, food-gathering, shifting cultivation in many parts of India. A large number of them are settled agriculturist, horticulturist and pastoralist.

In the Indian situation it is necessary that the unit of study should be endogamous group as they have evolved their gene pools separately. And plenty of evidences exits to show that several genetic traits do not occur randomly in a region, but often are confined to specific endogamous groups (Malhotra, 1974). Since many of the castes or tribes are very small numerically, models used for analyzing large populations cannot be used for such populations. Such a situation occurs even in a small geographical area. Thus the Indian social structure, compared to structures in many parts of the world, poses very unique and special methodological issues.

1.4 The Tribal Population

Since the focus of the present study is on the tribal population of Island region of India, it is appropriate that we give a brief account of the tribal populations in India in general and Island regions in particular.

As per 1991 Census there were 67,758,380 tribal persons in the country. They constitute about 8.03% of the total population of India. In Table 1.2 and Figure 1.3 are
given the numerical strength of tribal population in different states and union territories in
the country. It is noticed that except in a few states like Jammu & Kashmir, Punjab,
Haryana, and the union territories of Chandigarh, Delhi, and Pondicherry, the tribal
population is present in all the remaining states. The numerical strength, however, shows
considerable inter state variation. The states in North-eastern Himalaya such as Meghalaya,
Arunachal Pradesh, Nagaland, and Mizoram, are predominantly inhabited by the tribes. A
substantial tribal population is also seen in Middle Indian Region (particularly in the states
of Bihar, Orissa, and Madhya Pradesh) and Western India Region (particularly in Rajasthan,
Gujarat, and Maharashtra). Southern Indian states also harbour sizable tribal population.

In terms of the percent of tribal population to total population in India, it is highly
noteworthy that the Middle India Region accounts for about half (48.50 %) of the entire
tribal population. The Western India Region has 28.15% of the tribes. It may be noticed that
in fact both these regions constitute a continuous belt in the country. In India, the Island
Region accounts for only 0.11 % of the entire tribal population.

The tribes are by no means homogeneous either in their history, language, livelihood
pattern, or social organization. There are matrilineal tribes as the Khasis of Meghalaya, or
patrilineal as Ho of Bihar, some tribes are true hunter-gatherers like the Jarawa, Onge and
Sentinelese of Andaman Islands, other are pastoralists like the Todar of Nilgiris, or shifting
cultivators as Mizos, or settled cultivators as the Mundas, and nomadic as the Birhors of
Bihar and Chenchus of Andhra Pradesh.

There are four linguistic families, with numerous dialects spoken in India. These
are: i) Austro-Asiatic, ii) Dravidian, iii) Indo-European, iv) Tibeto-Burman. The Austro-
Asiatic languages are only spoken by the tribes and not by any Hindu caste population. The
other three languages viz., Dravidian, Indo-European and Tibeto-Burman are spoken by
both tribes as well as castes. It is highly noteworthy that the Andamanese language families
are only spoken by the Andaman Negritos. As per 1971 Census there were 73 8% speakers
of Indo-European languages, 24.2% of Dravidian languages, 0.8% of Tibeto-Burman family
and 1 2% Austro-Asiatic speakers. The geographical distribution of the four language
families is shown in Figure 1.4.
Figure 1.3 Distribution of tribal population in India

Figure 1.4 Geographical distribution of four language families in India
There were some 700 tribes in India (Census, 1981). The population size of these tribes varies enormously, from a mere 26 individuals among the Andamanese to about 4 million among the Gonds and the Bhils in Central India (Census 1971).

Table 1.2: Distribution of Scheduled Tribe (ST) population in the five Regions of India (Census, 1991)*

<table>
<thead>
<tr>
<th>Region/States/Union Territories</th>
<th>Total population</th>
<th>Tribal population</th>
<th>% ST population to total population of State/Union Territories</th>
<th>%ST population to total ST population of India</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Himalayan Region</strong></td>
<td></td>
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</tr>
<tr>
<td>i) North eastern Himalayan Region</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arunachal Pradesh</td>
<td>858,392</td>
<td>550,351</td>
<td>64 11</td>
<td>0 81</td>
</tr>
<tr>
<td>Assam</td>
<td>22,294,562</td>
<td>2,874,441</td>
<td>12 89</td>
<td>4 24</td>
</tr>
<tr>
<td>Manipur</td>
<td>1,826,714</td>
<td>632,173</td>
<td>34 61</td>
<td>0 93</td>
</tr>
<tr>
<td>Meghalaya</td>
<td>1,760,626</td>
<td>1,517,927</td>
<td>86 22</td>
<td>2 24</td>
</tr>
<tr>
<td>Mizoram</td>
<td>686,217</td>
<td>653,565</td>
<td>95 24</td>
<td>0 96</td>
</tr>
<tr>
<td>Nagaland</td>
<td>1,215,573</td>
<td>1,060,822</td>
<td>87 27</td>
<td>1 57</td>
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<tr>
<td>Tripura</td>
<td>2,744,827</td>
<td>853,345</td>
<td>31 09</td>
<td>1 26</td>
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<tr>
<td>ii) Central Himalayan Region</td>
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<tr>
<td>Uttar Pradesh</td>
<td>139,031,130</td>
<td>287,901</td>
<td>0 21</td>
<td>0 42</td>
</tr>
<tr>
<td>iii) North western Himalayan Region</td>
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<td></td>
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<tr>
<td>Himachal Pradesh</td>
<td>5,111,079</td>
<td>218,349</td>
<td>4 27</td>
<td>0 32</td>
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<td><strong>2. Middle India Region</strong></td>
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<td>Bihar</td>
<td>86,338,853</td>
<td>6,616,914</td>
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<td>9 77</td>
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<td>Madhya Pradesh</td>
<td>66,135,862</td>
<td>15,399,034</td>
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<td>Orissa</td>
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<td>7,032,214</td>
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<td>West Bengal</td>
<td>67,982,732</td>
<td>3,808,760</td>
<td>5 60</td>
<td>5 62</td>
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<td><strong>3. Western India Region</strong></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Daman and Diu</td>
<td>101,439</td>
<td>11,724</td>
<td>11 56</td>
<td>0 02</td>
</tr>
<tr>
<td>Dadar and Nagar Haveli</td>
<td>138,401</td>
<td>109,380</td>
<td>79 03</td>
<td>0 16</td>
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<tr>
<td>Goa</td>
<td>1,168,622</td>
<td>376</td>
<td>0 03</td>
<td>0 00</td>
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<tr>
<td>Gujarat</td>
<td>41,174,343</td>
<td>6,161,775</td>
<td>14 97</td>
<td>9 09</td>
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<td>Maharashtra</td>
<td>78,748,215</td>
<td>7,318,281</td>
<td>9 29</td>
<td>10 80</td>
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<tr>
<td>Rajasthan</td>
<td>43,880,640</td>
<td>5,474,881</td>
<td>12 48</td>
<td>8 08</td>
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<td><strong>4. South India Region</strong></td>
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<td></td>
<td></td>
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<tr>
<td>Andhra Pradesh</td>
<td>66,354,559</td>
<td>4,199,481</td>
<td>6 33</td>
<td>6 20</td>
</tr>
<tr>
<td>Karnataka</td>
<td>44,806,468</td>
<td>1,915,691</td>
<td>4 28</td>
<td>2 83</td>
</tr>
<tr>
<td>Kerala</td>
<td>29,032,828</td>
<td>320,967</td>
<td>1 11</td>
<td>0 47</td>
</tr>
<tr>
<td>Tamil Nadu</td>
<td>55,638,318</td>
<td>574,194</td>
<td>1 03</td>
<td>0 85</td>
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<tr>
<td><strong>5. Island Region</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Andaman and Nicobar</td>
<td>279,111</td>
<td>26,770</td>
<td>9 59</td>
<td>0 04</td>
</tr>
<tr>
<td>Lakshadweep</td>
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<td>48,163</td>
<td>93 19</td>
<td>0 07</td>
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<tr>
<td><strong>All India</strong></td>
<td><strong>844,324,222</strong></td>
<td><strong>67,758,380</strong></td>
<td><strong>8 03</strong></td>
<td><strong>100 00</strong></td>
</tr>
</tbody>
</table>

* The remaining states of Jammu & Kashmir, Punjab, Haryana and the union territories of Chandigarh, Delhi and Pondicherry did not show any Scheduled Tribes
To classify the tribes of India, several scholars proposed various schemes. (see among the others, Guha 1951; Roy Burman, 1972). Vidyarthi (1983) critically reviewed the literature by considering the geographical, ecological, social, economic, administrative, ethnic and racial factors proposed a four-fold geographical regions with one distinct sub-region of the islands as follows:

1. Himalayan Region, with three sub-regions; i) North Eastern Himalayan region comprising Assam, Meghalaya, mountainous region of West Bengal (Darjeeling), Arunachal Pradesh, Nagaland, Manipur, Mizoram and Tripura ii) Central Himalayan region, and iii) North - Western Himalayan region including the Tarai areas of Uttar Pradesh and Jammu and Kashmir

2. Middle India Region : Comprising Bihar, West Bengal, Orissa and Madhya Pradesh with the concentration of 49% of the total tribals in the country

3 Western India Region : Including Rajasthan, Gujarat, Maharashtra, Goa and Dadra and Nagar Haveli, and Daman and Diu, with more than 28% of the total tribals in India.

4. South India Region : Comprising Andhra Pradesh, Tamil Nadu, Karnataka and Kerala constituting only 10% of the total tribal population of the country.

5. The Island Region: The islands of Andaman and Nicobar in the Bay of Bengal and Lakshadweep in the Arabian sea with 51 39 % tribal population constitute a distinct sub-region

A number of workers studied the biological relationships between tribal populations and non-tribal by distance analysis. In general, irrespective of the type of biological data used (anthropometry, dermatoglyphics, genetic markers) the tribal populations show marked differences from the non-tribal populations (Malhotra, 1978a, Roy Choudhury, 1982, 83,
Walter et al, 1981). Further, the tribes in different parts of the country are genetically more dissimilar than non-tribes, indicating their diverse origins, long isolation or genetic drift (Roy Choudhury, 1983). The tribal communities can be broadly divided into three 'racial' groups viz., (i) Negritos, (ii) Australoid, (iii) Mongoloid. Most of the tribal groups living in the North and North eastern areas are of Mongoloid stock, the largest group of tribals in Central India belongs to the Australoid stock, and Negritos are only concentrated in the Andaman Island in India.

1.5 The Indian Island Region

It is evident from the above that the island region of India are the Andaman and Nicobar groups of islands in the Bay of Bengal and the Lakshadweep group of islands in the Arabian Sea. According to 1991 census there are 74,933 tribal population in this region (26,770 in Andaman and Nicobar islands and 48,163 in Lakshadweep islands) i.e., only 0.11 % of all the tribes in the country. Demographically, whereas the Lahshadweep exhibit one of the highest arithmatic density of population (1615 persons per km² against 267 for the country as a whole in 1991) the Bay Islands is one of the thinly peopled (34 persons per km²) territories of India. The Andaman and Nicobar Islands are characterised by two distinct native cultures. The Andaman have been the homeland of a few inbreed, Negrito population groups - the Great Andamanese, Jarawa, Sentinelese and the Onge, while the Nicobar islands are inhabited by the Mongoloid people viz, the Nicobarese and the Shompen. It is evident that the demographic composition of the Andamans has become heterogeneous by this time. Besides the aboriginal inhabitants of these islands, the people of Andamans consist of ex-convicts and their descendants, the Burmese, the Karens and the settlers. The physical barriers such as inaccessible hilly terrain, and dense forest, sea and intercepted by number of creeks and channels prevented an easy flow of human groups from one island to another. Thus, from time immemorial the aboriginal tribal groups of Andamans have been living in almost isolation and have evolved their morphogenetic characteristics in their respective ecological niches.
1.6 The Negrito population

The word 'Negrito' is of Spanish origin which means 'Little Negrio'. The present day Negrito are distributed over the Andaman Islands, the Malay Peninsula, and the Philippine. The Kensis of south Thailand and the Aiom Pygmies of New Guinea have also been classified as Negrito by some authors. The scattered groups of pygmies found in the Philippine islands, the Malay peninsula, and the Andaman islands are now called as a group Asiatic Negritos. They are approximately 35,000 in strength in Southeast Asia and Oceania, including the Andamanese, the Aeta of the Philippine, and the Semang of Malaysia (Eggan, 1983; Hartt, 1990).

They are a very short but well proportioned people, the mean average height is less than five feet. Their hair is woolly, nose concave with flarily alae, hair and eyes darkly pigmented and skin colour a moderate to a very dark brown. In contrast to the Negriod type, they do not have the thick everted lip. The Negritos have been characterised as forest dwellers, but they are found as often in open regions formed by grasslands and rivers. The traditional way of life of most of the Negritos is based on hunting and food gathering. Traditionally they were small semi-nomadic food gatherer, hunters, and fishermen. The characteristic implement of most of groups is the bow and arrow.

Limited historical and archaeological evidences suggest long antiquity of the Negritos in Southeast Asia. It is assumed, nevertheless, that the Negritos were one of the first peoples to enter the Philippine Islands, when the archipelago was connected to the mainland of Asia by land bridges. Archaeological data suggest that the first human inhabitants of the Philippines were some type of Pleistocene Homo sapiens that evolved some 20,000 years ago into the Negrito found in this island today (Solheim, 1981; Rambo, 1984, Bellwood, 1985), although the Papuan New Guinea and Australia were first inhabited by humans about 40,000 years ago. Reynolds (1983) also stated that, "For thousands of years, the Negritos in the tropical forests of Southeast Asia had managed to maintain a traditional life by withdrawing from prolonged contact with non-Negritos". Rambo (1985) also opines that the Malaysian Negritos may have evolved into specialist forest collectors for maritime trades as early as 5,000 years ago. The palaeoanthropological evidences
suggest that sea-faring Negritos reached the Andaman Islands by sea, sometimes around the beginning of the Christian era (Dutta, 1978). More recently, Nei and Ota (1991) suggested that perhaps the Munda speaking people in India known to have dark skin constituted another wave of migration from Africa, who first came to India then went to Southeast Asia. This suggestion thus opens up an entirely different way of thinking at genetic affinities among the Austric speakers in particular, Papuans, native Australians and some island populations in Southeast Asia, for example the Philippine Negritos, Andaman Negritos and other Mundari speaking tribes on the mainland of India. In this context it has to be mentioned here that the Andaman Negritos (geographically most isolated groups viz., the Jarawa, Sentinelese and the Onge) only speak languages that are not related to those of neighboring non-Negrito peoples. However, all Negritos in the Philippines speak Austronesian languages, and all Malayan Negritos speak Austro-asiatic languages of the Mon-khemer group (Blust, 1989 and Ruhlen, 1987).

Unfortunately, like the Pygmies of the Congo, the Bushmen of Kalahari, the Indians of the Amazon valley, the Austral i/an aborigines, and some island communities in the Pacific, the tribes of Andamans including the Onge have been diminishing in number ever since they came in contact with the civilization, and now they have dwindled to a size where the chance of extinction is very real. The field investigation among such vanishing peoples should be accorded priority for the simple reason that if the data on them are not recovered now will become irretrievable lost for ever. Such studies would provide a unique information on human evolution and diversity from the biological as well as cultural standpoints. The process of genetic drift, social disintegration and cultural collapse can be understood better. The Onge of Little Andaman is one of the such marginal tribes, which are on the verge of extinction.

1.7 Some Attributes of Small Population and Micro-Evolution

1.7.1 Micro-evolution

In this section we briefly provide an account of the evolutionary significance of small populations. From the point of view of micro evolutionary theory, the unit of study is a population. In the genetic sense, such a unit is the Mendelian population, as defined by
Dobzhansky (1962) a reproductive community of sexual and cross fertilizing individuals which share in a common gene pool. It is difficult to delimit such a Mendelian population accurately from the totality of mankind. Although, it is obvious that humans are found clustered into groups which are characterized by the proclivity of their members to mate within the group (endogamous mating) rather than outside it (exogamous mating), boundaries are not sharply demarcated. As members of the single species *Homo sapiens*, humans are biologically capable of breeding with one another. This biological fact, combined with migration, industrialization, trade, warfare etc., help to bring individuals and population together, prevented complete genetic isolation of any human group for an extended period of time. Therefore, human populations are not totally closed systems because their gene pools are shared to varying degrees by individuals from other populations. The term 'Deme' is now often used, instead of the term population, with reference to a small endogamous group which is relatively self sufficient and isolated from other such groups. There are hundreds of human populations in the world today which fulfill the definition of a deme. In this context, the various populations in the stage of hunting and food gathering economy provide a unique opportunity to study their biological attributes in terms of their socio-cultural practices and ecological conditions.

Genetic isolation may be the result of: i) the actual physical separation of populations by spatial distance or geographical barriers such as mountains, river, ocean and ii) the social separation of populations, that culturally differ in language, religion, dress and other such characteristics. In the early history of human populations geographical isolation was more important in keeping populations apart than in the modern world. Populations that are isolated because of geographical barriers include the Eskimos of Greenland; the inhabitants of islands such as Pitcairian in the Pacific (Lasker, 1952); Tristan da cunha in the South Atlantic (Roberts, 1956); and the Andamans in the Bay of Bengal; the mountain villagers of Switzerland; and the Harasupai Indians of the Grand canyon in Arizona.

At present the geographical isolation of many 'primitive' groups has been broken down in the wake of expanding industrialized societies with their technologically advanced transportation and communication. It is unlikely that any human population has ever
remained in total geographical isolation, for any significant period of time. The more important mechanism maintaining genetic isolation of populations are cultural rather than geographical. A large portion of the behavioral patterns of any human group is directly or indirectly involved in maintaining its cultural distinction, and consequently leads to both social and genetic isolation from other groups. The various institutions and customs that operate in such a way in a society as to maximize matings within the group. A careful demographic investigation of any group will distinguish between the primarily social or linguistic units and the true biological units.

It is clear that the evolutionary forces acting on a gene pool are external to it which derive from the immediate environment. The diversity of environments exerted on human populations continues to lead to various biological stresses. The 'stress' is defined as those natural or cultural environmental forces which potentially reduce the population's ability to function in a given situation (Baker, 1984a). 'Environment' is conceived as the total web of life wherein all living organisms including animals and plants interact with one another and with physical environmental factors in a particular ecological niche. Thus it plays a great role in determining the human biological variation, human individuals and populations continuously trying to adopt to any environmental changes such as physical, biological and/or socio-cultural. The change of physical environment comprises change in respect of climatic factors e.g., temperature, humidity, rainfall etc., and physiography e.g., altitude, desert, coastal environment etc. The biological environment encompasses all living entities surroundings a population. The fauna and flora of different regions affect populations in different ways, by affecting dietary patterns and nutritional status as well as disease patterns through the presence of different types of pathogenic microorganisms (Lasker, 1969). On the other hand the socio-economic environment comprises components of the social, economic and cultural life of populations e.g., child rearing, marriage, conjugal family life and social life, admixture, urbanization, modernization, education, food and nutrition, health consciousness and facilities, exposure to new diseases and so on. These three major components of environments and the stress clusters associated with them interact constantly with each other and can change the major characteristics of human population through time and space.
1.7.2 Studies on Small Population

The studies on evolutionary significance of small populations were well recognized by the group of International Experts (WHO, 1964 and 1968), particularly those with a hunter-gatherer, simple pastoral or digging stick and hoe type agricultural economy reflecting their size and level of economic conditions under which man survived for greater part of his existence. Morton (1964) suggested that small population studies merely maximized the ratio of noise to signal. Neel (1972) pointed out that the interest of present day anthropologists and human geneticists has been shifted from large widely scattered populations to small, unacculturated ethnic groups, since the parameters of these populations come closest to reflecting the circumstances under which human evolution occurred and under which the vast amount of variability now known to be present in human populations arose. Such studies on small populations are interesting not only for their limited size but also for less of intricacies in their social structure. Keith (1950) mentioned that the small isolated communities are evolutionary units which reveal many important factors concerning the processes of human evolution.

Since, 1950's several attempts have been made to assess the genetic consequences of evolutionary forces on small populations in the West (Lasker, 1952; Roberts, 1956 and 1968, Lasker and Kaplan, 1964, Tohen et al., 1979, Sutter and Tabah, 1956; Benoist, 1964, Cavall-Sforza et al., 1964 and others). In India studies on small populations are few but their contributions to the knowledge of human population genetics are quite significant. Studies by Basu (1969 and 1971) on the Pahira — a small food gathering tribe of Eastern India; Ghosh (1976) on the Kota of Nilgiri Hills; Malhotra (1978b) on the Nandiwallas — a nomadic isolate of Maharashtra; Talukdar (1979) on the Dule Bagdi - a small caste population of West Bengal; Chakravarty (1982) on the Man of Assam; Sahu (1983) on the Mallia - a small community of temple priests of Orissa; Sirajuddin (1993) on the Chenchu - a nomadic tribe of Andhra Pradesh; Choudhury (1992) on the Shipi - a caste isolate of the high altitude region of Western Himalayas. The result of these studies are mostly concerned with quantification of probable gene frequency fluctuations by genetic drift and comparing actual changes with respect to certain genetic traits with these probabilities. Although these
studies report some data on fertility, mortality and population growth etc., but did not fully address the problems of biological survival of the small populations groups.

The first anthropological study that draws our attention to the problems of extinction of small populations was carried out by Cappiéri (1953) on the Andamanese followed by Basu (1969) on the Pahira, Basu (1972) and Ghosh (1976) on the Kota. Cappiéri (1974) suggested that diseases and epidemics like pulmonary infection, syphilis, measles etc., some of which were imported by settlers from the mainland, India have played havoc on these 'virgin' population of Andaman Islands. In this context it is mentioned here that the penetrating account of disappearance of the Tasmanian aborigines (Boodyck, 1884) following arrival of the European settlers may find a close parallel in India particularly among the Andaman aborigines during the early colonial period. Basu (1969 and 1971) reported that the process of splitting occurred among the Pahira and the fragments of them were not growing as fast as Indian populations and one of them was actually declining. Sanyal (1973) also tried to focus on the problems of biological survival of the Toto of northern West Bengal, which has a slow rate of population growth. However, the mechanism of extinction of such population is yet to be fully addressed.

1.8 Earlier Studies on the Tribes of Andaman Islands

The tribes of Andaman Islands received a considerable attention by both cultural and biological anthropologists in the past. However, in the present endeavour we would briefly indicate the nature and extent of data that are available, as well as the gaps that still exist to our knowledge about the affinities between the tribes of this region and their probable cause of depopulation. For the sake of brevity we shall present the material under the following heads

i) Cultural anthropological studies; and

ii) Biological anthropological studies
   - Anthropometry
   - Dermatoglyphics
   - Genetic markers.
i) **Cultural Anthropological Studies**

Several scholars studied the tribes of Andaman islands since the late part of the nineteenth century. Man (1883) and Portman (1899) documented ethnographic details among the various tribes of Andaman And Nicobar islands. Radcliffe-Brown (1922) in his outstanding publication *The Andaman Islanders* reported the results of his in-depth studies on the ethnography of the Andamanese. The Onge of Little Andaman was also studied by Cipriani (1955). The language of the Andamanese were studied by Ganguly (1966) and Manoharan (1989). Besides, numerous articles covering various aspects of the culture of the tribes of the region have been published by different scholars (among other see Pandit, 1976; Chanda, 1976; Ganguly and Pal, 1984; Danda, 1987; Basu and Sarkar, 1994). More recently, the change of the Andamanese culture has also been studied by (Basu, 1990; Chakraborty, 1990; Sarkar, 1990; Pandya, 1993; Reddy et al., 1993).

The above studies contain extremely valuable information on lifestyles, material culture, kinship organization, religion, folk-lore etc., of the tribes of the region. The above studies were conducted within the framework of ethnography. Therefore, are mostly descriptive rather than analytical and also usually contain more of qualitative data rather than quantitative. However, most of the above studies do provide a valuable baseline data on which to build upon analytical studies.

ii) **Biological Anthropological Studies**

The biological anthropological studies among the Negrito tribe of this region began somewhat earlier than the cultural anthropological studies as mentioned above. Among the tribes, the study on biological anthropology have mostly been confined to two groups, namely, the Great Andamanese and the Onge. (Dobson, 1875; Sullivan, 1921; Eickstedt, 1928, Gates, Cappieri, 1955, 1940; Guha, 1938; Sarkar, 1952; Buchi, 1953; Lehmann and Ikin, 1954, Chatterjee, 1955; Gupta and Basu, 1960; Gupta et al., 1960; and others). Recently, a few attempts have been made to study the Jarawa (Sarkar 1985, 87, 89) but the Sentinelese still remain outside the pale of any investigation because of our inability to
establish rapport with them. A few observations from a distance confirm that the Sentinelese are of Negrito stock.

The earlier biological work among the Onge was carried out by Eickstedt (1928) in 1927 among 42 males and 38 females for three anthropometric characters viz, stature, cephalic index and nasal index. This was followed by Guha (1954) (who studied a sample of 14 males and 15 females), Chatterjee (1955) and Mitra (1962). All these scholars measured different head and body dimensions and observed anthroposcopic traits to study the phenotype of Negritos. A few studies on genetic markers including blood groups, PTC taste ability, colour blindness among the tribes of Andamans including the Onge have been conducted. Gates (1940), Sarkar (1952), Lehmann and Ikin (1954), Kumar and Mukherjee (1983) provided blood group data on a few bands of the Onge. Buchi (1953) also reported a few genetic markers like PTC, secretor traits and colour blindness. Compared to anthropometric and sero-genetic studies, investigation on dermatoglyphics traits are rather few. Only Gupta and Basu (1960) reported a few dermatoglyphics traits of the Onge of the Little Andaman. The earlier demographic studies were mostly confined to enumerate the total population of this tribe. However, in two studies attempt were made by De (1970) and Agarwal (1967) in spite of these studies which focused on individual aspect based on a few samples no coherent study has been conducted among them from the point of view of population genetics.

1.9 Objectives of the Present Study

From the foregoing description, it emerges that: (i) the Onges of Little Andaman are one of the remnants of true Negrito populations in Asia, (ii) they have dwindled to a size where the chance of extinction is very real, resulting in the irretrievable loss of their biological data for ever, (iii) the study on such a population would provide a unique opportunity to understand the evolutionary history of mankind, (iv) the earlier biological studies focused on individual aspects based on a few samples and due to limited nature of contact, no coherent and systematic biological study has been conducted so far among the Onges from...
the point of view of population genetics, and (v) although limited ethnohistoric information suggest the affinities of the Onges with the Negritos of south east Asia, no comprehensive biological studies have been undertaken to establish this. In view of the above mentioned considerations, the over all objective of the present study is to generate a set of bio-anthropological data to examine the nature and extent of biological variation among the Onge, and their relationship with Negrito groups of Andamans and other Southeast Asian Negritos with the help of morphological, dermatoglyphic and genetic data.

The specific objectives of the study are:

1) to generate fresh bio-anthropological data on this fast dwindling tribe;

2) to throw light on their biological relationship with other Negrito populations of Asia;

3) to examine the temporal changes in the biological characteristics of the Onge by utilizing the fresh data and the data reported in the earlier studies; and

4) to determine the possible ecological, cultural, and biological factors that may be responsible for declining population of the Onge.