CHAPTER I

INTRODUCTION

The progressive development of a living thing, especially the process by which the body reaches its point of complete physical development is called growth. So it is a normal process of increase in size of an organism as a result of accretion of tissue similar to that originally present. Growth therefore is the increase in size of the various parts and organs of the body and this increase is limited to pre-established constitutional hereditary factors and influenced by exogamous factors (Comas, 1960).

The study of growth is important in elucidating the mechanism of evolution, for the evolution of morphological characters necessarily comes about through alteration in the inherited pattern of growth and development (Tanner, 1988). Growth also occupies an important place in the study of individual differences in form and function of man, for many of these also arises through differential rates of growth of particular parts of the body relative to others.

On the other hand, development consists in the "progression of changes" in form and function, thus, it can be defined not only as a change in functional capacity due to increase in size or mass, but also as a unified network of the differentiation and modification that translates a single fertilized egg into a complex-multi cellular individual of mature state. For example, the development of skills and functional capacity to stand up and walk on two feet due to increase in size of locomotion parts of the body or the development of an embryo into fetus or the development of reproductive organs plus their functions, and so on. Thus according to Bogin (1999) development refers to the "progression of changes either quantitative or qualitative that
leads from an undifferentiated or immature state to a highly organized specialized and mature state. It is obvious from the above that the term “development” is broader than that of "growth" or the former includes the latter. On the other hand, growth is considered as the "developmental process lasting from conception to adulthood through which the genome is translated into adult structure" (Strickland and Tuffrey, 1997). Nevertheless, physical growth and development are interdependent through which an individual attained adulthood in terms of forms and functions. Therefore, these two terms are often used simultaneously, and sometimes synonymously.

Linear growth and physical maturation are dynamic process encompassing molecular, cellular, somatic and organism changes. Traditionally, stature has been primarily used for growth assessment but changes in body proportion and composition are also essential elements of growth, especially of maturation (Rogol et al., 2000).

**Factors affecting growth**

Growth in several dimensions shows a significant family resemblance. Adult stature, tempo of growth, timing and rate of sexual development, skeletal maturation and dental development are all significantly influenced by **genetic factors** (Sinclair, 1978).

The overall contribution of heredity to adult size and shape varies with **environmental circumstances**, and the two continuously interact throughout the entire growth period. Children with similar genotypes, who would reach the same adult height under optimal conditions, may be differentially affected by adverse circumstances. Thus, the interaction between genetic makeup and the environment is complex and non additive. The genetic control of the tempo of growth
appears to be independent of that for body size and shape and environmentally induced changes in tempo do not seem to significantly alter adult height or shape (Tanner, 1989).

The regular human growth curve appearing in sigmoid shape indicates that a rapid growth rate occurs during the early foetal life and infancy stage, and begins to decelerate gradually in the later growing phase. Again, during adolescent stage there is a remarkable spurt of growth known as adolescent growth spurt. However, when an adverse condition prevails in child's environment the accelerating growth rate diminishes and this condition begins to reciprocate with the improvement in the child's environment. This sudden rise in the magnitude, or an increase in growth rate of the children with the improved environmental quality is known as catch-up-growth (Bogin, 1999).

But the interaction of socio-cultural and biological factors is more important from anthropological point of view. For instance, people whose ancestors have lived in areas that have had endemic malaria for thousands of years often inherit some degree of immunity to this serious disease. Genetic change in response to environmental stresses usually takes many generations to become widespread in a population. There is a considerable difference between and within populations in the rate of physical growth and attainment of body size at any given age (Eveleth and Tanner, 1990; Bogin, 1999). It has been observed that the largest differences take place between the developed and developing countries as well as between the higher and lower socioeconomic groups within the same population (Ulijaszek, 1994). The basic causes of such differences are believed to be due to both genetic and environmental factors. However, it is believed that the growth patterns of all major population groups are likely to have a similar genetic potential for growth and development, and the differences between them are mainly due
to environmental factors including infections and socioeconomic conditions (Waterlow, 1988; Neumann and Harrison, 1994: Ulijaszek, 1995).

Since physical growth as a dynamic process is considered to be the product of interaction between genetic endowment which the organism inherits and a host of environmental factors in which it lives. Study of the relationship of total man to total environment constitutes the ecological approach to the study. To assess the influence of the environment on the growth pattern, it is suggested that genetically similarly endowed groups living under different ecological conditions should be studied (Hiernaux, 1963). Stinson and Frisancho (1978) showed that the High Land Peruvian Quechua children had different body proportions compared to their counterparts living in low altitude, though they were genetically similar in ABO and Rh factors, these differences were attributed to altitude, temperature and nutritional resources.

**Weather** and **climate** are key environmental factors which determine the state of natural environment, which influences the human being in to a large extent. In brief, weather and climatic condition determines the state of natural environment in relation to land, soil, water, flora and fauna, etc. Natural state of environment creates foundation for human livelihood practices. The natural environment and associated livelihood practices leads to formation of different social groups and traits of belief, values, norms and knowledge system and thus in human physiology (http.www.sseaep.org).

Several studies revealed that children belonging to higher socio-economic groups are better in growth status when compared with their counter parts in the lower socio-economic
group (Eveleth and Tanner, 1990; Reddy and Rao, 2000). On the other hand, it is also believed that a better growth performance is directly related to physical fitness of an individual that enhances physical capacity for work which is related to socio-economic development of the society (Strickland and Tuffrey, 1997).

Regional differences were noticed in the height and weight of children even in the developed countries like U.S.A. The boys of the richer Boston district were found to be taller and heavier (Meredith, 1941) compared to their counterparts of the poorer districts of U.S.A. The mean heights and weights of children from four geographical regions of U.S.A – North-East, Mid- West, South and West were shown to be different (Hamill et al., 1970). Such regional differences were reported by Udjus (1964) for Norway and by Takahashi (1966) for Japan. Regional differences (Somswara Rao, 1961) were also reported in India. The children from Bengal, Orissa and Punjab occupied the upper third of the distribution of growth curves and those of Madhya Pradesh, Assam, Travencore and Hyderabad occupied the lower third while the children from Bihar, Delhi, Bombay and Madras occupied the middle third. There is however no contiguity and consistency in the observations. Well-to do school age Punjabi children living in Punjab, Himachal Pradesh, Rajasthan and Delhi are similar (Singh, 1974).

Variation in size is one of the most obvious ways that humans differ. These differences are also easy to measure and compare across populations. The study of human growth and development has been a part of anthropology since the beginning of the twentieth century. The work of Franz Boas and his colleagues are well known in this respect. The interest of
anthropologists in human growth and developments is due to the fact that it refers the biocultural nature and evolutionary processes of human species (Bogin, 1999).

**Nutrition**

According to Eveleth and Tanner (1990), “A child growth rate reflects, perhaps better than any other single index, his state of health and nutrition, and often indeed his psychological situation also. Similarly the average values of children’s heights and weights reflect accurately the state of a nation’s public health and the average nutritional status of its citizens, when appropriate allowance is made for differences, if any in genetic potential. This is especially so in developing and disintegrating countries”.

WHO’s constitutions says, “The enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being without distinctions of race, religion, political, economic and social condition” As such health is a holistic concept and one may define health in any manner relating to either one or all physical, mental and well being of an individual of a population, according to one’s study.

One of the major health problems in many developing countries is the widespread prevalence of under nutrition and infectious diseases (WHO, 1990). Inadequacies in nutritional intake, under nutrition can be considered a major source of many adverse effects on growth and development of individuals (Mitra, 1985; Masscie-Taylor, 1991; Edmundson *et al.*, 1992). It is generally reported that the basic cause of under nutrition and infections in developing countries are poverty, poor hygienic conditions and little access to preventive and health care (Mitra, 1985; WHO, 1990). Hence, assessment of the nutritional status of population has attracted the attention
of not only the nutritionists and other biological scientists, but also the economists and other social scientists with a view to understanding the health and socioeconomic status of the population.

**Nutritional Status**

Nutritional status is defined as the physical expression of the relationship between the nutrient intakes, or bio-availability of nutrients, and the physiological requirements of an individual. Of different methods, anthropometry is one that is generally used for measuring the magnitude of under nutrition at both individual and population levels.

A well-designed growth study is very important tool not only for assessing the health and nutritional status of a population, but also for understanding the interaction between biological and socio environmental factors. This is besides its association with genetic factors.

One of the major health problems in many developing countries is the widespread prevalence of under nutrition and infectious disease (WHO, 1990). It is generally reported that the basic causes of the under nutrition and infections in developing countries are poverty, poor hygienic conditions and little access to preventive and health care (Mitra, 1985; WHO, 1990). Hence, the assessment of nutritional status of population has attracted the attention of not only the nutritionists but other biological scientists with a view of understanding the health and socio-economic status of the population (Gopal Das and Seshadri; 1987; Osmani, 1992). Nutritional status is defined as the physical expression of the relationship between the nutrient intakes, or bio-availability of nutrients and the physiological requirements of an individual.
Somatometric measurements can reflect the nutritional status of different populations. In order to access the progress of a population in the fields of health and nutrition different somatometric measurements can be used as indices. The measurements of muscularity in children of under developed countries can be used as a general index of nutritional status and growth in size (Frisancho and Garn, 1971; Frisancho, 1974). Waddington (1950) states that “measurement is never an end itself and biological objects are usually so complex that they possess an embarrassing number of characteristics capable of being measured and if the results of measurement are to be of any interest or value it is essential to keep firmly in mind the objective in relation to which they are required”.

For children, use of the following two indices has been recommended for most purposes by WHO (1986).

i) Weight for age: indicates wasting or thinness.

ii) Height for age: refers to stunting or shortness.

iii) The combination of these two indices gives another index, weight for height. It represents the sum of information given by the earlier two indices. It is useful and gives an overview of the distribution of nutritional problems in a country, or the direction of change.

All these three indices are compared with the standard reference to distinguish the deficits.
Another set of indices comprises those, which are expressed arithmetically and are obtained from age-dependent anthropometric measurements. For screening of protein calorie malnutrition Body Mass Index (BMI) of Quetelet is generally used.

BMI is also found to be a reliable index for assessing malnutrition in growing children (Gupta et al., 1979, 1981; Raman et al., 1989) as well as among infants below one year whereas weight-for-height is reliable for infants when ages are not known accurately (Raman et al., 1989). Prevalence rates of under-nutrition and over-nutrition were found to vary by age, sex and socio-economic status (Rao, 1974, 1980; Rao and Satyanarayana, 1976; Banik, 1982; Gopalan and Srikantia, 1973; Satyanarayana et al, 1980; Rao et al., 1986).

The pattern of malnutrition in any region gives some information about the nature of dietary deficiency and so has a bearing on the preventive measures, which are most appropriate.

Under nutrition slows down growth and delays the onset of maturity. In most populations where comparisons have been made, poor girls reached menarche later than the well-off and the rural later than the urban (Eveleth and Tanner, 1976).

**Puberty status of girls**

Puberty is characterized by menarche or first menstruation (from the Greek word ‘arche’, meaning ‘beginning’), typically late in the sequence of pubertal events from the 10.5 to 15.5 years. There is a close relationship between height spurt and age at menarche. All girls start menstruation when the height velocity is falling, i.e. during downward part of the height velocity curve. Indeed, on average menarche occurs at the time of minimum deceleration of height growth, the moment when velocity is dropping fastest (Tanner, 1978).
There are various factors which influence menarche. Hereditary factors contribute substantially to the time of pubertal changes. Identical twins are more similar than fraternal twins in attainment of most pubertal milestones, including growth spurt, menarche, breast developments, body structures, hair and voice change (Eaves et al., 2004, Mustanski et al., 2004).

Other than heredity nutrition, strenuous physical work, socio-economic status, blindness and medical facilities etc. may influence the menarche (Mokha et al., 2006). The timing and tempo of puberty vary even among the healthy children. Although moderate activity is associated with cardiovascular benefits and favourable changes in body composition, excessive physical activities during the childhood and adolescence may negatively affect the growth and adolescence development (Rogol et al., 2000).

Bielicki et al. (1986) studied the menarcheal age of the polish school girls from the largest cities finding a similar sort of result that menarcheal age tends to increase with decreasing parental education, occupation, family income, family size and dwelling conditions. Similarly, countryside girls with higher age at menarche was found by Rosenberg (1991).

Wolanski et al. (1993) studied the Maya and non-Maya from Merida, Mexico. They have found the Maya mothers and daughters to be older at menarche (at ages of 12.85 and 12.38 years, respectively) than the non-Maya (12.29 and 11.98). Living and housing conditions were similar for both the Maya and non-Maya, except for sewage system (sanitation), but the income among the Mayas was 64% lower than the non-Mayas. The Maya girls were also found to be shorter, more round headed and broad faced than non-Maya girls.
Early family experience may also affect the pubertal timing when children’s safety and security are at risk; it is adaptive for them to reproduce early. Researches indicate that girls with a history of family conflict, harsh parenting and separation tend to reach puberty early. In contrast, those with warm, stable family ties reach puberty relatively late (Ellis and Essex, 2007, Mustanski et al., 2004).

The effect of socio-economic status on menarche had been studied by Sidhu(2002, Khatoon et al. (2011) and indicated a lowering in age at menarche moving from higher socio-economic status and also a rural-urban difference, where the girls who are living in rural area are associated with strenuous physical activity results in the delay in age at menarche. Similar result was observed by Mokha et al. (2006).

Regional variations on its onset have been observed to be conspicuous among the populations of the Indian sub-continent (Sen, 1953; Rakshit, 1960; Banerjee and Mukherjee, 1961; Dubey and Srivastava, 1963; Biswas, 1967; Chattopadhyay and Khulllar, 1969).

Variation in pubertal growth also exist between regions of the world and between under privileged population (Thomas et al., 2001) and ethnic groups. In poverty-stricken regions where malnutrition and infectious diseases are common, menarche is delayed, occurring as late as 14 to 16 years in many parts of Africa. In developing countries higher income families consistently reach menarche 6 to 18 months earlier than those from economically disadvantaged homes (Parent et al., 2003).
In Assam, population variation in mean age at menarche have been found by Rakshit (1960), Das and Das (1967), Srivastava and Goswami (1968), Gogoi (1972), Deka (1976). Das (1986) indicated a variation at the population level in respect of residence (rural and town), family type (nuclear and joint), socio-economic level of family according to father’s occupation, birth order and family size in the menarcheal age among Assamese girls of the post graduate classes of University of Gauhati.

Das (1992) while working among the Kaibarta girls of upper Assam found a regional variation in respect of menarcheal age in the samples of upper and lower Assam.

Begum (1994) found the effects of socio-economic factors including father’s occupation and birth order, family size on menarcheal age among the Assamese Muslims of Kamrup district.

**Studies on Growth**

Like most other disciplines, research on human growth and development also began with a descriptive phase. Tanner (1981) in his book, A History of the Study of Human Growth, could trace the study of growth to the second century B.C. However, the earliest surviving statement about human growth appears in a Greek elegy of the sixth century B.C., Solon (594-593 B.C.), in his poem, dealt with the division of the human lifespan into successive periods each of seven years’ duration (cf Choudhury and Begum, 2003).

A perusal of literature reveals that interest in the study of growth and development goes back to the work of Juan Lucis (1492-1540), Jan Amos Komansky (1592-1670) and Juan Jacques Roussen (1721-1778). Approach to these studies were indeed, more psychological than psychometric or morphological in nature. The first publication about the anatomical differences of the child and the adult with some references to developmental anatomy was by Gabrido-di-
zerbis in 1502 (Scammon, 1927). Amongst the classical works on growth, D Archy Thompson’s (1942, 1961) “Growth and Form” is still commonly read.

Scammon (1927), found a steady increase in studies on human growth since the beginning of 16th century. A great deal of the study to understand the growth process focusing on adolescent spurt, parent-child similarities in body build, secular trends and patterns of growth have been contributed by Bod Witch (1877, 1880); Boas (1897,1932, 1933, 1940, 1950) and Davenport (1931, 1932, 1934, 1935, 1940).

The first longitudinal study of growth was by Count Philibert Gueneau de Montbeillard (Scammon 1972), who measured his son’s stature twice a year from birth to 18 years between 1759 and 1777.

Several studies have revealed the associations between adult anthropometry or adult body diminishions and socio-economic conditions (Eveleth and Tanner, 1990; Naidu and Rao, 1994; Nube et al., 1998; Reddy, 1998). Rothammer and Spielman (1972) have suggested that socio-economic condition has a great influence on variation in adult body diminishions which are in turn a reflection of health and nutritional status of an individual or a population.

The usefulness of different anthropometric indices to detect nutritional changes at the community level, i.e. in a number of children considered as a group, was compared by using data from a longitudinal study from rural Bangladesh which followed up quarterly an average of 413 children aged 6-35 months from December 1984 to December 1987. Weight change, mid-upper arm circumference and weight-for-height responded most quickly to seasonal variations of the food situation. Height –for-age was more responsive to long-term variations. Although similar conclusions were reached when proportions of children below a cut-off point or mean indices were compared, the comparison of mean indices required a smaller sample size to detect
changes. The difference in sample size needed ranged from 48 to 61 per cent. All indices varied significantly with age, which suggested that precise knowledge of age was essential for proper interpretation of nutritional surveillance data.

Around 6000 white children aged 4-11 years from primary schools in 22 areas in England were measured in two cross-sectional surveys, in 1984 and 1994 by Chinn and Rona (2002) to compare the then published international cut-off points for overweight and obesity in children with alternative cut-off points based on the UK 1990 reference data. The proposed international cut-off points exaggerate the difference in prevalence of overweight and obesity between English boys and girls in comparison to comparable measures based on UK data by up to 7% and are not compatible with the UK reference charts for BMI. Using proposed UK cut-off points the prevalence of overweight in boys was 10.2% in 1984, rising to 13.8% in 1994, compared to 5.4 to 9.0% using the international definition. Their study suggested that the limitations of the international definitions, due to averaging data from different countries and the choice of reference age, need to be known.

**Growth Studies in India**

In India, the large sample of growth study was first carried out by the Indian Council of Medical Research between 1956 and 1965 and reported in 1972, although stray researches began since the 1930 by workers like Aykroyd and Rajgopal (1936) Narinder Singh (1939), and others. However, growth studies in India are still limited in number especially those which are concerned with the assessment of health and nutritional status of different ethnic groups in the country.

The earlier data on growth in India were confined to some basic parameters like height, weight and some physiological variables (Mukherjee and Gupta, 1930; Risley 1931; Manson
Macfarlane (1937) measured height and weight of 700 Mukhuvar children, a non-vegetarian fisherman community of Trivandrum, Kerala between the ages of 3 and 17 years. The finds show that growth spurts in height and weight of the children occur between 12 and 13 years of age. She also compared her data with those of different population like vegetarian Brahmins and Nayars, the low caste Hindu children of Trivandrum, Malayalam and Tamil children, the Portuguese children and the English children. Wilson and Mitra (1938, 1939, 1940, 1941 & 1947), Shourie (1939) and Rao et al. (1954), measured the height and weight of school going children of 6 to 9 years in different parts of India particularly Assam, Bengal, Bihar, Delhi and South India. Chatterjee (1938) measured height, weight, chest circumference and the strength of grip of 33,151 students of Schools and Colleges in Calcutta and its suburbs during 1920-26.

Bharati (1989) has observed that almost all anthropometric measurements and indices considered under the study are higher in the higher economic groups among the Mahishyas of West Bengal. Similarly, Rao et al. (1990) have found that both male and female adults belonging to the upper middle income group are taller and heavier than those belongs to lower income group. Similar observations have been made among the south Indian population (Reddy, 1998).

Sahani and Dinda (2009) studied growth and development among 436 Nicobarese children of Nicobar island in the background of their socio-cultural and physical environment. The study revealed that the mean average values of all the linear anthropometric measurements in boys at 6 and 7 years was greater than girls of corresponding age but from 8 years onwards the girls mean values as compared to boys increases at a greater rate. This indicated that the girls
experienced pre-adolescent spurt earlier than boys. Nutritional statuses of the children revealed that majority of the children are normal.

In order to investigate the growth and development of adopted children, Proos (2009) studied 114 Indian children adopted in Sweden. The majority were stunted at arrival and caught up in height and weight after two years. Those that were stunted did not attain the higher catch-up levels of those not stunted at arrival. Low birth weight also limited the degree of catch-up growth.

Sharma and Joardar (2009) discussed the growth pattern of 401 unrelated Yadav children studied in the urban area of Varanasi District, Uttar Pradesh on 401 unrelated school going children, aged between 6 to 10 years. The growth and dental pattern exhibited that the rate of growth was high. The boys exhibited higher mean values for all the characters than girls except at 10 years and sexual dimorphism was not well marked. The Yadav children were marginally malnourished as assessed by different anthropometric measurements. The majority of the children had good or satisfactory health status.

Banerjee et al.(2009) studied school going healthy Bengali adolescent girls, aged 10 to 18 years from a peri-urban area (Duttapukur) of north 24 parganas district of West Bengal to assess the growth and nutritional status. The nature of distance curves and percentile curves of the body measurements showed a high rate of increase in 10–11 years of age group corresponding to an earlier adolescent growth spurt than average Indian girls. The adolescent girls in that study were found to be significantly (p<0.0001) taller than Indian girls and heavier than both Indian and urban Bengali girls but slightly shorter than urban Bengali girls. They were significantly (p<0.0001) shorter and lighter than American girls, which also corresponded to 50th percentile
curves. Age specific nutritional assessment showed different grades of malnutrition among them. Gomez’s classification indicates about 60 % to 70 % adolescent girls show either moderate to mild malnutrition during their growth period. Both the indices of Waterlow’s classification showed least percentage of least malnutrition among the girls.

**Growth Studies in North-East India**

In the year 1966, growth studies were started with the work of P. B. Das in North-East India. She worked among the Kalitas of Assam, a caste group. She studied the growth of the children by certain somatometric characters. It was found that adolescent growth spurts of the two sexes occur at the same age group of 12 and 13 years. These findings were compared with samples of Maharastrian and found that Maharastrian were taller and heavier in all the ages. The ‘Descriptive Stage’ of growth studies began with this work. In 1973 Das studied the growth of Kaibarta boys by height and weight. In 1973, she again made a study on the Baishya children. In 1974, she made a compilation of all the populations studied, i.e., the Brahmin, the Kalita, the Baishya and the Kaibarta boys. The study revealed that the growth trends of all the above mentioned castes were almost identical.

Ahmed Hazarika (1974) studied growth of Ahom boys of Dibrugarh district, Assam. The study revealed that the Ahoms had greater body dimensions and body weight than the Kalitas. Das (1978) measured Assamese and Rajasthani boys of Dibrugarh town and found that the Assamese boys were of greater body dimensions and body weight than the Rajasthani boys. This tallness, heavy weight and larger body traits were found only up to 9 years of age as this uniformity was not maintained later (1982).
The studies were all descriptive in nature and no tribal population was studied till that time. After that, a shift could be noticed towards an ‘Interpretative Stage’. The tribal studies began with the work done by Choudhury (1979). He studied the growth pattern of the Rabha boys of Assam in respect of certain somatometric characters. This was the first systematic study on growth of a mongoloid population in North-East India. This study revealed that, though the adult Rabhas were shorter and lighter than the adult caste population, the Rabha children were taller and heavier than the caste children during their early age periods. The difference in stature and weight between Rabha and caste children is said to be because of their cultural differences which determine their nutritional status.

Till that time all the studies were cross-sectional studies. Das and Choudhury did the first semi-longitudinal growth study in the North-East. It was done among the Assamese children from 1 to 7 years old from Gauhati University Model School and from Sundarbari area. In this study no significant caste variation was found.

Devi (1985) studied the growth pattern and differential nature of growth rates of various body measurements of the Meitei Kshatriya and Muslim girls of Imphal, Manipur. She found that the general trend of growth is more or less the same in both the groups though the rate of growth at all ages and in different characters are not exactly similar. A slight difference in stature during the early age period has been found which was said because of the difference in environmental and economic condition.

Duarah (1985) studied the growth pattern of the Monpas from Arunachal Pradesh living at three different altitudes. The Tawang Monpas living at highest altitude, the Dirang Monpas
living at middle altitude and the Kalaktang Monpas living at lowest altitude. The variation in the
growth as per him was not because of varying altitude but socio-economic factors.

Choudhury et al. (1992) studied the growth pattern of school children of Guwahati city. The study reveals that the Assamese children are the tallest and the heaviest and the Bengali children the shortest and lightest of all in almost all the ages. In other characters also the Assamese children show the highest and the Bengali children the lowest mean values in most of the ages. It also reveals that the adolescent growth spurt of the Assamese boys occur at the same time (13 to 14 years) with that of the well-off Indian boys, European boys and American boys. The Assamese girls pass through the adolescent spurt two years earlier than the boys.

Begum (1994) studied the growth and nutritional status of the Assamese Muslims of Kamrup district, Assam. The Assamese Muslims were found to be taller and heavier than the Rabhas. Malnutrition was found to be below 50% in both the sexes. This was the first study in the North-East assessing the nutritional status of any population. Severe malnutrition was found to be more among the girls (1.51%) than the boys (1.02%). Nutritional status was also evaluated as per the economic status of the families based on the family income (Begum, 1998).

Choudhury and Gogoi (1995) made a study on pre-adolescent growth of Neo-Assamese Muslim children of Garaimari Block in Kamrup district, Assam. The study shows that boys have higher mean values than the girls at all ages from 2 to 10 years in all the somatometric characters. In stature, girth of bicep and girth of mid-f orearm, however, the girls are found to supersede the boys after 9 years. When compared with the indigenous Assamese Muslim boys no such clear difference between the girls of the two communities is however, observed.

Mukherjee (2003) attempted to examine the effects of heterosis on physical growth of girls in height and its segments. A cross-sectional sample of 1368 Khasi girls aged 3-18 of
Shillong in Northeast India was considered. The sample was divided into two groups, namely hybrid (HB) and non-hybrid (NHB) girls, in order to test the effects of heterosis using analysis of covariance with the household income as a covariate. The results indicated that HB girls were larger than NHB girls across ages. Such a higher anthropometric status in HB girls was mainly due to their higher growth velocities before the adolescent period. The effect of heterosis after household income was highly significant at many ages from 6 to 18 years, although it was not clearly perceptible in the case of subischial length.

Rao et al. (2004) examined the nutritional status of children in the north-eastern states of Arunachal Pradesh, Meghalaya, Manipur, Mizoram, Nagaland, Sikkim and Tripura. They found that the level of under-nutrition among children in the north-eastern region of India was much higher than the national average, however more than one third were stunted and more than a quarter were underweight. Babies, who were small at birth, tended to have a lower nutritional status. Children born at shorter birth intervals, as expected had lower Z-scores of weight-for-age.

Devi (2006) worked among the Meitei women to show the variation in physical structures of the Meitei women weight lifters and the controlled group. The Meitei women weight lifters of state, national and international class numbering 31 individuals had been studied considering 21 anthropometric variables and had also compared with 100 Meitei women non-athletes in respect of the above physical structure. The study revealed that weight lifters have significantly shorter stature with shorter upper and forearm lengths than the non-athletes. At the same time, they have significantly heavier body weight, broader breadth measurements of hand, bi-acromial, bi-iliocristale, bi-trochanteric, and bigger girth measurements of upper and forearm,
normal chest, thigh and calf than the non-athletes. Moreover, they have proportionately heavier body weight, larger proportions of bi-iliocristale, bi-acromial breadths and limb girths than the non-athletes. In respect of body composition, they have higher mean value of total body fat and lean body mass than the controlled group.

Varte (2006) studied the health and nutritional status of the Hmars of Aizwal district of Mizoram.


Basu et al. (2010) studied nutritional status of an ethno-homogenous sample of contemporary Khasi tribal adolescent cohort of age 11+ to 17+ years in the state of Meghalaya. This was achieved through the use of the following derived anthropometric measurements - total upper arm area (TUA), upper arm muscle area (UMA), upper arm fat area (UFA), and arm fat index (AFI). A total of 670 adolescents (335 boys; 335 girls) participated in their cross-sectional study. In comparison with North American NHANES 1999-2002 standards, UMA, a measure of upper arm muscle mass, was lower at all age groups in Khasi girls. Conversely, in Khasi boys, AFI, a marker of upper arm fat mass was lower at all age groups, thereby showing a gender dimorphic difference in upper limb muscle and fat proportions. They concluded that in upper arm indirect anthropometry, contemporary Khasi adolescent children remain nutritionally deficient with gender dimorphic muscle and fat proportions.
Shome et al. (2011) attempted to examine the prevalence of under or overweight including obese in the adult males and females and to find out major factors responsible for that. The study revealed that the prevalence of underweight exceeded overweight in India as well as in North-East Indian states except in Sikkim both for males and females while in Mizoram and Manipur in one of the sexes. The prevalence of underweight was high in Assam and Tripura for both males and females. As noted earlier, the review of related literature given above is far from being exhaustive, but it is obvious that there is an urgent need to carry out research relative to health and nutritional status of a population, especially in understanding the relationship between health and socio economic factors. Such studies are very limited in Northeast India in general and Arunachal Pradesh in particular.

Hussain and Choudhury (2011) made a comparative estimation of nutritional status of 869 preschool and early school age children of Barak valley to see the extent of variation and severity of malnutrition. Prevalence of malnutrition was more among the boys than girls while percentage of malnutrition was much higher among the early school age children than preschool age children in both sexes. Severity of malnutrition was slightly higher among the boys than girls. Poor nutritional status of the Bengali Muslim children could be interpreted as a multifactor entity.

Longkumar (2012) made a comparative study on growth in urban and rural children including 571 Ao Naga children aged 8-15 years from Mokokchung town, Nagaland.

The effect of parental consanguinity and increase of inbreeding intensity on the body size of growing children was studied among the Bengali speaking Muslims of Barpeta district of Assam. The difference between the char and non-char boys and girls in their growth in respect
of linear measurements after adolescence is statistically significant. The nutritional status of the non-char children is found to be better than char children. Lower nutritional level among the char girls is corroborated by a later menarcheal age (Medhi and Begum, 2014).

Aims and Objectives

Regional variation in the degree of development are well known in all countries but are more important in developing countries where more resources are usually assigned to urban than more remote areas.

The present study was therefore conducted to look into the variation in the physical growth of the Deori people by keeping their nativity of rural environment constant and who are living in two adjoining states. The effect of the length of residence of the Deori population would be eventually clear by this study.

The present study therefore intends to study Deori population from Assam and Arunachal Pradesh with the following objectives-

1. To look into the growth pattern of the Deori boys and girls from 3-18 years of age of both the sexes from Assam.
2. To look into the growth pattern of the Deori boys and girls from 3-18 years of age of both the sexes living in Arunachal Pradesh.
3. To study the adult growth pattern of the Deoris of both the sexes of Assam and Arunachal Pradesh.
4. To compare the pattern of growth in the growing ages and its final attainment among the Deoris of Assam and Arunachal Pradesh.
5. To study the puberty status of the Deori girls of Assam and Arunachal Pradesh.
6. To assess the nutritional status of the Deoris of Assam and Arunachal Pradesh anthropometrically and to study the variations between them.

7. To study the causes of differences in growth status of the children between the two states.

8. To compare the growth pattern and nutritional status with the other available populations of the North-Eastern region.
The map of the districts under study
The Area and the People

The Area

Known as the ‘Prabhu Parvat’ in the remote past, as mentioned in the kalika purana, the present day Arunachal Pradesh earlier was known as North- East Frontier Tract (Pre-1954) and as the North-East Frontier Agency (1954-1972). Till 1965, the administrative responsibility of the territory rested with the Ministry of External Affairs, Government of India. Post-1965 period saw this responsibility pass on to the Ministry of Home Affairs, Government of India till the territory attained the status of a Union Territory in 1972. It became a full- fledged state in 1987 (Assam Year Book, 2015).

Arunachal Pradesh is located in the extreme North-eastern corner of the Indian Union. It is situated between 26° 28' N to 29° 30' N latitude and between 91° 92' E to 97° 30'E longitude. The weather and climate of Arunachal Pradesh are quite distinct from rest of the states. The most important variables are the north to south variation in elevation, variability of rainfall, trend and range of temperature, so that the climate types in the state vary from humid meso-thermals of the southern foot hills and plains to alpine type in the higher altitude of the northern parts of the State. Arunachal Pradesh has16 districts and the total population according to 2011 census are 1,383,727 out of which total population of scheduled tribe is 951,821.

Assam is described as the second largest state after Arunachal Pradesh, of the ‘Seven Sisters’ comprising the North-eastern States of the country. It consists of 32 districts. Assam has mighty river Brahmaputra, with 2880 meter stretch, flowing through the heart of the state. It
It divides itself into tributaries flowing from mountains and hilly regions where the current of water is too high. It carries mud and other sandbars during its course and gets uncovered and thus becomes suitable for cultivation. The climatic condition of Assam is humid, tropical type in the plains and subalpine in the hills, with heavy rainfall and vegetation. It is situated between 24° 8' N to 28° 2' N latitude and between 89° 42' E to 96° 30'E longitude. Assam have 34 districts and total population is 31,205,576 out of which total number scheduled tribe population is 3,884,371 (census 2011).

The People

Deoris

The Deoris constitute one of the distinct plains scheduled tribe of Assam. Ethnically, they are affiliated to the Great Tibeto-Burman group and their language also belongs to the Tibeto-Burman linguistic families and racially from mongoloid stock (Bordoloi, et al. 1987). The Deoris are said to be the priests of the Chutiya kingdom and had performed magico-religious rituals in the royal temple of the community, at Sadiya of upper Assam (Gait, 1963). According to Borkakati (1968) the word ‘Deori’ is taken from Sanskrit word ‘Deva grihika’ and it means the people who perform the task of worshipping God in the temple. The original abode of the Deoris was on the banks of the river Dibang, Tengapani and Patarsal which now fall within the jurisdiction of Lohit district of Arunachal Pradesh and Chapakhoa Sub- Division of Tinsukia district of Assam (Bordoloi et al., 1987). Later on, they have migrated to the Brahmaputra valley of Assam, mainly for the frequently troubles created by their neighbours, Mishmis and Adis. There is an account (Brown, 1895), that king Gaurinath Singh (1780-1795 AD) being unable to protect them from the Abor (Adi) and Mishmi tribe, shifted them to the Majuli, the famous island
of river Brahmaputra. From there, they were gradually scattered to the different parts of Assam during the first part of seventeenth century. There was another flow of migration of Deori in the last century, which was caused due to the devastating Earthquake in 1950 and consequent flood and riverbank erosion in the areas of Deori settlement. They migrated to different districts of upper Assam (in both the banks of the Brahmaputra) and middle Assam forming some groups in their own khels (sub- groups).

The Deoris are bilingual and speak both Assamese and Deori language.

**Present distribution of Deoris**

During the first part of seventeenth century Deoris migrated and were redistributed in different parts of Brahmaputra valley. There was another flow of migration of Deori in the last century, which was caused due to the devastating earthquake in 1950, consequent flood and riverbank erosion in the areas of Deori settlement. They migrated to different districts of Upper Assam (in both the banks of the Brahmaputra), middle Assam, Jaidam near Sadiya and settled on the banks of the Dibang, Tengapani and Patarsal rivers in the Lohit district forming some groups among themselves (Bordoloi, et al. 1987).

Deoris are now found in Lohit and Changlang districts of Arunachal Pradesh and in Lakhimpur, Dhemaji, Sonitpur, Jorhat, Dibrugarh, Sivasagar, Tinsukia and Kamrup districts of Assam. The highest concentration of Deori population is found in Lakhimpur district followed by Sonitpur district. The total population of Deoris in Assam is 41161 which represents 1.2% of total ST population of the state whereas in Arunachal Pradesh it is 7,600 (Source: Office of the Registrar General, India) in 2001.
Sub- Groups of Deoris

There are four divisions or *khels* among the Deoris namely Borgonya, Dibongiya, Tengaponiya and Patorgonya. Each one derived its name either from a particular place or river. Dibongiyas lived in the bank of the river Dibang, Tengaponiyas are the inhabitant of the riverside of Tengapani, Borgonya who lived in the bank of the river Bornoi or Borgang and Patorgonya near Patarshaal. Patorgonya group has reportedly become extinct. Each of this division is again divided into a number of exogamous clans called Bansha or *Phoidya*. Each group has certain distinctive features which help them to maintain its own identity. They follow the patriarchal system of family structure and live in villages, though vary from the great long established. The Deoris are Hindu by religion.

The Mongolian characteristics are visible on the Deoris. They are short to medium statured, scanty hair on body and have yellowish skin colour. They are strong built and possess charming features. The Deoris are very labourious. Both men and women engage in agricultural activities. Except for ploughing, cutting trees and jungles, the women folk help their men in all other daily activities.

Deori villages are generally found in the riverine areas. The houses are constructed in such a way that they face east to west direction, with the doors opening to the east. All of the houses are of similar pattern, although they vary in length according to the size of the family. The floor of the house is made of flattened bamboos or timbers and is raised from the ground on the wooden posts about five feet and above with a long passage having a good number of small
apartments on one side. The apartment in the last end of the house is used for cooking purpose. A typical Deori house can accommodate more than 40 persons.

Their traditional dress is most commonly seen wearing by men and women. The Deori men wear dhuti with a shirt or sporting. They adorn white cloths while they take part in traditional social function. The Deori women wrap up a long mekhela enclosed from chest along with sheet called jokachhiba which is enclosed in the waist and a gamucha to cover their head. However they wear riha occasionally. They wear a ring gema and use bangles called uchoon in their wrist. They wear madoli, joonbiri, digdugi, kotu, hasumora lee ornaments while performing Bihu.

The young girls wear mekhela same like women but they wrap it up within stomach along with blouse and a gamocha around the chest. They also wear various ornaments like gema, lee, junbiri, madoli, digdugi, hasumora, etc. during ritual performance like puja, marriage ceremony, bihu, etc.

**Physical features of the Deoris**

**Agriculture:** The main occupation of Deori is cultivation and they cultivate rice, pulses, mustard seeds, sweet potatoes, cotton and other seasonal vegetables, earning a good profit. Agriculture is the principal means of support for the family. Animal husbandry like keeping of cow, buffalo, elephant, pig, poultry etc. is a common practice. The Deoris still depend upon the traditional method of cultivation except a very few families who are adopting modern method like tractors for ploughing and application of fertilizers and pesticides. Majority of the people plough lands with bullocks. Cow-dung is used in fields as manure
Food: The staple cereal food of the Deoris is rice. Along with rice they take boiled green vegetables seasoned with chillies and salt. For their meat supply they rear fowls, pigs, ducks, goats etc. The poultries and pigs are reared by the womenfolk who use the money for purchasing yarn, cloths, ornaments, etc. Fish form a special delicacy in the Deori menu. Rice beer is prepared in every household and it is served to all irrespective of age and sex. It is considered as the most valuable item for entertaining the guests. Habit of taking tea is not popular among them. The elderly people take red tea without milk and sugar. Beef is avoided by the Deori. Fishing is a common affair among them particularly in winter season when the water level of ponds and river goes down. They prepare many delicacies out of rice flour.

Family: Monogamy is widely practiced by the Deoris. Polygamy is also practiced by them. Clan endogamy is strictly prohibited. They prefer joint family system. Besides a father, his wife and children, the same home is occupied by father’s brothers or cousins, their wives and children. The father is the head of the family and all the members obey his orders.

Curing illness

In the traditional Deori culture, when a member of the family suffers from any ill health, they go to the shaman for the treatment. After observing ‘Mongol’ in the banana leaf, the shaman says that the ‘Deo’ (worshipping god) is offended by some of his (patient’s) works or there is some defects in their house which offends the ‘Deo’. For example the shaman will tell him to remove a part of his boundary fencing standing in a particular side of his house or to cut the
chilli tree which is placed in a particular point of the garden, as these resist the free movement of the ‘Deo’s or ‘Prets’ within the area.

**Religious rituals (Puja)**

Deori society performs a number of “Puja”s in the whole year round. Deori culture is related to agriculture. Agriculture is related to the seasons of the year. So in order to increase the production of agriculture and for welfare of the village, domestic animals Deoris worship the deities and perform several Pujas. They believe that if they do not perform these pujas, the deities will harm them in different ways. While performing Pujas, the house has to be purified first known as Khin Pelua. Crows, vulture, hawk, fowls, snakes are considered very impure and unfortunate. Entering of a snake in the house is considered as bad sign. So puja is performed to purify the house. This puja of purification is not necessarily performed by deodhai or Deori priest. Anybody of the village who has the knowledge can perform the puja.

The Deoris generally worship their deities in a temple present each village. The sites of such temple are always located either on the eastern side of the village or in the centre of the village. The villagers select priests and their office bearer in a systematic way.

*Kundi –Mama* is the supreme god of the Deoris. *Kundi* was said to be son of *Rishi Deol* after whose name the great name ‘Deori’ was originated. One day *Kundi- Mama* decided to distribute the major portion of his Joydam estate to his son *Pishadema (Bolia Baba)* and daughter *Pishachidema (Tameswari)*. However, *Pishachidema* taking advantage of a dark night, disguised herself like *Pishadema*, came to *Kundi Mama* to ask for major portion of land. *Kundi-Mama* agreed for it. But when *Pishadema* came to know the mischievous action of his young
sister, he was angry and became uncontrolled with madness. He started destroying the whole world in search of his sister to take revenge and to kill her. But his parents somehow prevented him from this act by requesting the daughter of Lohit to convey message of love and marriage. Therefore, from that point, Pishadema was known as Balia baba who became the son-in-law of God Lohit. After that, the Joydam estate was divided into three parts. The parents kept the major portion of the kingdom separately for Dibongiya population. The God Baliababa got southern part of the Lohit river with the population of Tengapaniyas, while Tameshwari (Pishachidema) got the northern part of the Lohit river with the population of Borgonyas and Patorgonyas. Due to this incident, a rivalry between brother and sister started forever and it is continued till today among the Deoris. No one of Tengapaniya enters into the temples of the Borgonyas and vice-versa. Even for the funeral purpose, Borgonyas have to purchase land from Tengapaniyas by paying four annas in southern side of Lohit river and vice-versa, while Tengapaniyas funeral is required to be done in the northern banks.

**Deoghar or Than ghar (Temple) of Tengapaniyas:**

*Deoghar or Than ghar* is built in dense forest at a short distance from the village and in front side of the village. There are several small and big houses in the Deoghar campus. All the houses face to the west. The main temple is of two parts. The first is Chora ghar and second is Monikut to the east of it. Siva-sia, Na-Kuanr (son of Shiva), Na-bhani and Sagor Gasiachi, these four gods and goddesses are believed to live in the Monikut. Chora ghar is open and the priest sacrifices animals in Chora ghar. A house containing Monikut and Chora ghar is located in the Northern side of the main temple. It is believed that Indra Devata and Ganga Devi reside here. The necessary things are kept in the Chora ghar. Another house containing Monikut with Chora
ghar is located to the Southern side of the main temple. Siva Shia or Siva Raja Bosia, Saat Kuanr and Goddess Saraswati are believed to be present in that house. Another open house is located to the west of the main temple. This is known as Baat Chora ghar. One has to enter to all the temples through this Baat Chora. Dinning house and well/tubewells are located outside of the Baat Chora.

**Tameshwari temple or Gosani Shaal of Borgonyas**

The temple is built in forest. The Gosani Shaal is composed of three houses: the temple, Monikut and Sadura. These are found in two blocks. The house for feasting is located in the north of the Monikut. Well/tube-well is generally found between feast house and Monikut. To the South of the Monikut, Bharalghar is located. Only Goddess Tameshwari Devi is worshiped in this temple.

**Deoghar (Temple) of Dibongiyas**

The social structure of Dibongiyas is same as the two other sub-groups (khels). The main difference between them is that Dibongiyas speak ‘Deori dialect’ without mixing Assamese, but other two groups speak Assamese language mixing ‘Deori dialect’. It is noteworthy that during religious worshipping the Borgonyas and Tengapaniyas use ‘Deori dialect’ without mixing Assamese.

In a Dibongiya temple, the first house is believed to be inhabited by five deities namely Kundi-Mama, Aborchi, Kundiyo Picha, Saiguru Kundi and Kuanr Kundi. This house is known as house of Kundimama. Animal sacrifice is practiced in the second house. In third, Chun Keteri and Numali Kuanri, Goddesses lives. Balia Baba or Gailurung Kundi lives in the fourth house.
Gailucha Haya, Jimolucha Haya, Koruchi Roja Kundi, Achipatal Duya, Dulia Nulia and Chal Bal Kundi are the deities also living in the fourth house. The fifth house is known as Niyama Anch. This is also known as Jakoruaya. This house is used for cooking purpose for the deities. Sixth house is known as Tula Kuchaya or Baat chora which is kept open. Seventh house is known as Morong or Mengso house where the villagers take feast.

**Priestly council and its officials**

It is observed that there are two sets of religious functionaries for conducting the rites and rituals in their villages. One important set is called Chari- Deori consisting of Bordeori, Sarudeori, Borbharali and Sarubharali. Among them only Bordeori and Sarudeori are entitled to perform sacrifice and rituals and enter into the main temple and sing hymns which are scarcely sung by the common people. While elaborating the functions of the priestly council it has been stated that the Sarudeori (younger Deori) only assists the Bordeori (elder Deori) and during the absence of the latter he performs his works. In a sense, Sarudeori and Sarubharali are only to accompany Bordeori and Borbharali respectively during the performances of the rituals. They can also perform the duties assigned to Bordeori and Borbharali respectively in the latter’s absence. It is the duty of Borbharali to collect the dues of the temple and to provide animals for sacrifice; he is privileged to hold the head of the sacrificed fowl or animal. He collects its blood for offering to the deities.

The Bordeori is the most respected person of the village. The village is controlled according to his instructions. He acts as the judge for the villagers. The Deoris attach much importance to their religion, and the priests. The designation of the Bordeori is not heirarchy.
When the present Bordeori is unable to continue his duties the villagers can select any suitable man from his clan.

The eligibility qualifications for selection to the post of Bordeori are observed during the time of induction. Generally he should be a man of good character and perfect form. He should not be a person mauled by a tiger or bitten by snake earlier, no excreta of a vulture or crow should have fallen upon him. In spite of having such defects somebody may hide them and inspire to become a Bordeori. In such cases, it is believed that his defects are easily detected by the Midi-Girachi (Deo-dhani) in course of time. It is also believed that the offerings to the deities made by such priests become fruitless which leads to downfall of the society.

In addition to the ‘Chari Deori’, there are a set of officials consisting of Bora, Barik, Ladani, Telia, Dupia etc. More over Pariyas selected from the Pashakial or Paik are also engaged to assist the priests in conducting shrine-pujas as the probationary pupil of the priests.

The following chart shows the name of clans from which the priestly posts are filled up in different sections:

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Div.of the Deoris</th>
<th>Name of the clans for the posts of-</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Sarudeori</td>
</tr>
<tr>
<td>1</td>
<td>Dibongiya</td>
<td>Sundario</td>
</tr>
<tr>
<td>2</td>
<td>Tengapaniya</td>
<td>Machiya</td>
</tr>
<tr>
<td>3</td>
<td>Borgonya</td>
<td>Ikucharu</td>
</tr>
<tr>
<td>4</td>
<td>Patorgonya</td>
<td>Not found now a days</td>
</tr>
</tbody>
</table>
**Festivals**

The Deoris observe two major festivals during a year viz. Bohag Bihu or ‘Bohagiyo Bisu’ and Magh Bihu or ‘Magiyo Bisu’.

The Bohag Bihu is the most important festival of the Deoris which is related with their agricultural activities. It may be mentioned that Deori Bihus may be differred to a day or two as they observe the same from Wednesday. The Deori Bihu must be preceded by a *Than puja* and evidently the Bihus must start on Wednesday. Sacrificing of goat is a must in the Bihu Puja. On this day every household prays ‘Suwasani Puja’. The headman of each household prays before the household deity in ‘Suwasani’ room for the welfare of the family members.

During Bihu the elderly villagers visit all the households in the village and they bless the inmates of the households. The members of each household entertain them with ‘Suze’ and ‘Khaji’ (a curry prepared out of cane sprouts and flesh of fowls).

Besides the major deities, the Deoris have a good number of household deities. They believe that if these deities are worshipped regularly then peace and plenty will prevail upon the households. Sacrifices are offered to these deities. Ricebeer (*Suje*) is not offered to the deities but consumption of ricebeer after puja is not forbidden. Wednesday is the most auspicious day for worship and pujas are generally performed either on Wednesday or on Sunday.

Some of the Hindu rituals like Durga puja, Saraswati puja, Janmastami, etc. have also been incorporated in the religious structure of the Deoris.
Marriages

For a Deori boy marriage is indispensable. Clan exogamy is strictly followed in case of marriage. Marriage is regulated by moiety which is an exogamous group of related people. Monogamy is the general rule and the second wife is taken after the death of the first wife. The system of levirate and sorrorate are not practiced by the Deoris.

The Deoris have broadly four different forms of marriage namely ‘Bor Biya’ (Jonenga Laharuba), ‘Maju Biya’ (Chachibachi), Bhakat Rupiya’ (Bakat Rupia) or ‘Saru Biya’ and Gandharba’ (Churubachi). Bor Biya is arranged by the parents and it is continued for three days. Maju Biya is arranged by the parents of the prospective couple. Expenses on this type of marriage are slightly less than the former. Its duration is two days. Bhakat Rupiya is completed in one day and expenditure in such marriages is considerably low. The most widely prevalent type of marriage is ‘Gandharba’ or marriage by elopement in which the couple takes the initiative. No formal ceremony is performed in such marriages. However, once during the lifetime of the couple a ceremony called ‘Suje Lagua’ has to be performed. The essential items of a Deori marriage constitute dried fish, pork, ‘Suje’ and betel leaves and nuts. The ‘Pathoria’ or a mediator plays important role in a Deori marriage.

Child birth

After delivery of the baby, the purification ceremony is done right after the falling of umbilical cord of the baby. Usually 3 to 5 gopinis (elderly women who had attained menopause) are invited to perform the aforesaid ritualistic purpose. The mother sits with the new born baby and and she is being served with all the food items. The leg portion of the cock/hen is being served to
the mother. The mother put the *kochu jhaal* and *suje* in the baby’s mouth and then she eats. On
the same day, the *gopinis* also named the new born baby.

**Death**

Among the Deoris cremation is the rule, the dead bodies of children, pregnant woman and
epidemic cases are buried. The pyre has seven layers of wood but for the priests layers of wood
are raised to nine. The final ceremony may be held any time of the year. As it is an expensive
affair, the villagers observe this ceremony when they can afford. Pork, rice-beer (*suje*),
vegatables, etc. are required in large quantities as the feast on this occasion is shared not only by
the consanguinal and affinal kind but by all the villagers.