Chapter - 2
REVIEW OF LITERATURE

Though Tibet was a ‘forbidden land’ and not many accounts are available on Tibetans except a few travellers and historians wrote about Tibet and its people up to the past years of 19th century, many scholars from Europe and India have studied the social cultural, linguistic, religious, geographical and biological aspects of the Tibetans in the last century. United Nations High Commissioner for Refugees, Wenner Gren foundation for anthropological research, and University Grants Commission of India, have sponsored the research projects among the Tibetans in India and abroad. Here I have mentioned few of the historical, social, cultural, biological and demographic studies conducted among the Tibetans.

2.1 Social cultural and historical studies among the Tibetans:

Andre Megot in 1956 in his book ‘Tibetan Marches’, recorded a detailed picture of Tibetan society, outwardly primitive and outlandish but based on whole way up the mountainous border land where western China marches with Eastern Tibet. This study can be viewed as a western travellers view on Buddhist Tibet.

H.E. Richardson in 1962 in his book ‘Tibet and its history’ goes through history of Tibet, particular religious kings, Dalai Lamas, Manchu protectorate in Tibet, Western rule, Restoration of
Tibet's independence in 1912, the agreement between Tibet and Britain, rising of Communist power in China, Chinese aggression in Tibet, and Dispute between India and China regarding Tibet have been given importance in this study. This work is a journey through the history of Tibet from initial days of Christian era to 1962.

Chanakya Sen in 1960 in his book 'Tibet disappears' gives detailed accounts on history of Tibet, lost glory of the land, rebellion, Indian stand on Tibet and diplomatic exchanges between China and India. He tried to analyse the border controversy between the governments of China and India and gave few solutions.

J.P. Mitter 1964, in his book 'Betrayal of Tibet', carefully observes the betrayal of Tibet and Chinese expansionism and its impact on sino-Indian relations. Author discusses the agreements between the governments of India and China and the impacts of Sino-Indian relations on South East Asia.

George Woodcock 1971, in his work 'In to Tibet' the early British explores, gives the accounts of British explore of Tibet, George Bogle 1774-75, Samel Turner 1783-1784, Thomas Manning 1811-12, two of whom Bogle and Turner were servants of the East India company and the third Manning an extremely eccentric sinologist. The book throws light on British Indian Policy concerning the northern frontier regions from the time of Warren Hastings. Though East India Company failed to penetrate beyond Shigaste in
Southern Tibet, the Thomas Manning who became the first Englishman to enter Lhasa without any official credentials. In this book early British contacts with Tibet and its impacts Tibetan people has been discussed.

L. Austrine Waddell in 1974 wrote a book titled “Buddhism and Lamaism of Tibet with its mystic cults symbolism and mythology and in its relation to Indian Buddhism” The book gives detailed accounts of the external facts and curious symbolism of Buddhism and its analyses of the internal movements leading to Lamaism and its sects and cults. It provides material called from hoary Tibetan tradition and explained by the lama’s for elucidating many obscure points in primitive Indian Buddhism and its later symbolism. The study gives details on changes in primitive Buddhism, leading to Lamaism, rise and spread of Lamaism, sects of Lamaism, Lamas and their duties, hierarchy and reincarnate Lamas, worship, rituals festivals, sacred dramas etc.

Suchitra Ghosh, in 1977, wrote a book on Tibet in Sino Indian relations 1899 In this book author has attempted on objective analyses of the status of Tibet based on historical facts, ancient China concept vassal-Suzerian relationship and finally international law. In this process an attention has been focussed on the principal events in Tibet during the period 1899-1914 affecting Sino-Indian relation. Author concludes that Tibet due to her geographical
position has been and will continue to be an inevitable factor in Sino-Indian relations throughout history.

T.C. Palaksappa in 1978 in a study, titled “Tibetans in India: a case study of Mundgod Tibetans”, examines the social cultural, economic and religious aspects of the Tibetans in India with special case study of Tibetan refugees of Mundgod, Karnataka. The study throws light on rehabilitation of Tibetans in India offer Chinese aggression, Tibetans as refugees in Mundgod cultural adaptation with local environment, and establishment of the Tibetan, social and religious life in Mundgod settlement.

A.V. Arakeri in 1979 in his study titled “Tibetans in India: the uprooted people and their cultural transplantation” thoroughly examines the traditional culture of Tibetan refugees, their rehabilitation in India and adjustment at various levels, individual and societal adjustment, the stresses and strains they face, the effects on their traditional social cultural life, the introduction of cultural traits of host society, their acclimatization to the present set up and the struggles to the maintain their culture customs, practices, beliefs and values.

Gugihal in 1985 in his work “Lamaism change and continuity”, examine the changes have occurred in Himalayan Lamaism. In his study he observes that in refugee condition the clergy have to do worldly duties, agricultural activities, sweater business etc. Is
affecting the religious life of lamas. Another important observation made by the author in the study is that of decreasing faith among youth towards Lamaism and the clergy loosing their grip on the people.

Nupur Pathak and B.G. Banerjee in 2000 studied the "culturogenic stress responses among immigrant Tibetans in India" In the study the data was collected from four settlements namely Dharmasala, Kula, Manali, Dolanj, in Himachal Pradesh. The study concludes the immigrant Tibetans undergoing the process of social change, gradual transformation into the culture of the host country. The empirical investigation reveals that migration causes change in living condition, occupation, economic condition, education, which creates culturogenic stress amongst immigrant Tibetans in India. As a response stress the immigrant Tibetans exhibit positive as well as negative attitude.

The case concerning Tibet’s sovereignty and the Tibetan peoples right to self determination by international committee of lawyers for Tibet (Andrew G. Dulaneg and Dennis M Cusack) and unrepresented and peoples organisation and Tibetan parliamentary policy research centre in 1998 gave a report regarding the present position and the future of Tibet and Tibetan people.

The report discusses two very important issues regarding the Tibet and Tibetan people. It argues that Tibet was fully independent
prior to 1951. The report draws on International legal definition of statehood to prove Tibet's pre 1951 independent status, disapproves the seventeen point agreement of 1951 and systematically states how Tibet historically never became a part of China. By using International law this report determines the illegality of Chinese actions and the legitimacy of the Tibetan peoples' right to self-determination. It approves the government of Tibet still functioning in exile in India is a legitimate government of Tibetan people.

Michael Piessel in 2002 in his book 'Tibet: the secret continent' reveals the unique Buddhist culture, the flora, fauna of this mystic land but also delves in to the history of early Tibetans and the rise of Dalai Lamas. The plunder and distribution of Tibet and invasion by the British and the dismembering of Tibet in colonial times to the Chinese take over, the secret resistance of the Khamba and Lhasa uprising give the reader a historical insight in to the region.

2.2 Bio-anthropological studies among the Tibetans:

The first study of the Tibetan skull was done by Morant in 1923 using craniometric method. The two types of skulls were studied as Tibetan A and Tibetan B taken from two different parts, Lhasa of Sikkim region and Khams the Eastern portion of the Tibet respectively. The data was compared with Asiatic races and population groups. The results indicated the marginal differences between two skulls and Morant concluded that "there are in Tibet at
least two distinct races, the type A is closely allied to southern Chinese, Malayans and Burmese, the other Tibetan B, showing no marked affinity with any oriental race resembles the Burmese types." He concludes that the skull is very similar to those of both Fuegians and Moriori and the impression cannot be avoided that we may possibly be dealing with widely scattered fragments of fundamental human types with long headed broad faced rouges and massive cranium. The study explains the micro differences of two types of skulls drawn from different parts of the world.

The Tibetan blood groups were studied by Tennant in 1936. He collected 187 samples in Tibet and tested for A, B, O and AB blood groups. The gene frequencies of p, q, r calculated. It is found that among the 187 samples, 14.97% were belongs to O group, 47.06% were belongs to A group, 13.90% were of B and 24.06% were AB groups. The frequencies of p, q, r and D/6 were 0.4484, 0.2058, 0.3458 and 2.61 respectively.

Buchi in 1952 studied the ABO and Rh(d) blood group distribution in 150 Tibetans. The results were slightly different than that of earlier study by Tennant. Out of 150 Tibetans, 42.0% were belongs to O group and 20.00% were of A, 30.67% were of B and 7.33% were of AB groups. The P, q, r and D/6 values were 0.1469, 0.2717, 0.6414, 0.66 respectively.
Tiwari 1966, studied A,B,O and Rh(D) blood groups for 290 individuals. The distribution of blood groups were like this 40.69% of O, 21.38% of A, 32.07% of B and 5.85% of AB. The P,q,r frequencies were 0.1500, 0.2127, 0.6373 respectively. Thus the study shows similarity with that of Buchi (1952) in the results.

Bhalla and Kaul in 1966 reported the A,B,O and Rh(D) blood groups among 62 Tibetans. Out of 62, 41.93% were of O, 22.58% were of A, 25.81% were of B and 9.68% of AB blood groups were noted. The distribution of p,q,r and D/σ were 0.1660, 0.1872, 0.6470 and 0.138 respectively. Thus the study shows similarity with the earlier studies by Tiwari and Buchi.

Bhattacharjee carried out studies on the distribution of Rh blood groups among the Tibetans in 1967. The distribution of p,q,r and R¹ (Cde), R² (cDE), R⁰(cDe), R⁴(CDE), r(cde) were as follows. 0.1830, 0.2311, 0.5859, 0.5350, 0.2126, 0.2524, 0 and 0 respectively.

In 1968 he went on to study A, B, O and Rh blood groups among 233 Tibetans. The gene frequencies of p, q, r were 0.1277, 0.2590 and 0.6133 respectively. The Rh gene frequencies for 127 samples calculated as R¹, R², R⁰, R⁴, r values were 0.5536, 0.2658, 0.1673, 0.0133 and 0 respectively. Thus both the studies have close resemblance with the earlier studies by Tiwari, Buchi and Bhalla and Kaul.
Tiwari and Chattopadyay in 1967 studied the finger dermatoglyphics of the Tibetans. The whorls, loops and arches distribution were 60%, 39% and 1% respectively. The study showed the Mongoloid affinities.

PTC non taster frequencies were studied by Sharma in 1967 among 242 Tibetans the 't' non taster frequency was found to be 0.3277. In 1968 Tiwari studied the same among 401 samples. The t non-taster frequency was noted as 0.3835. Thus marginal difference in the non-taster frequency was noted down.

Tiwari and Bhasin in 1969 observed the earlobe attachment in Tibetans. It is found that 69.9% males and 83.9% females were having attached earlobe.

The inheritance of Bettman's figure among the Tibetans of Chandragiri Orissa was worked on by Patel S. in 1970. The study was carried out in 71 Tibetan endogamous families. The attempt was made to understand the genetics behind the inheritance of the Bettman's figure. Only 28 pedigrees showed the presence of Bettman's figure, unilaterally or bilaterally and 19 individuals out of 369 unrelated families displayed the Bettman's figure. It is observed that males possessed higher frequency than females and left hand showed high frequency than right hand.
The incidence of ABH secretion, dry cerumen, earlobe attachment, hand clasping, arm folding and digital hair, occipital hair, relative length of first and second toes was reported for Tibetan refugees of Chandragiri Orissa, by Patel in 1971. It was found that out of 369 individuals 40.4% were right handers, and 64.0% were right hand claspers. The mid digital hair was present among the 34.5% people. The occipital hair whorl was studied for 110 samples and the clockwise, anti clockwise and double were observed as 71.8%, 21.8% and 6.4% respectively. The low incidence of longer toe was noted. Out of 110 males, 10.0% were classified as first toe longer, 34.6% second toe longer and 55.4% were having equal length. It is also observed that 80.2% secretors, 71.8% having attached earlobe. The dry cerumen was found in 95.7% people.

Singh, Gupta and Goel reported the ABO and Rh(D) blood group distribution among 256 Tibetans in 1974. The results were like this: 35.16% of O, 8.20% of AB, 21.49% of A and 35.16 % of B. The P, q, r and D/6 frequencies were 0.1615, 0.2474 and 0.5929 and -0.008 respectively.

The ethnic composition of the populations of the Himalayan region of India was reported by Tiwari A.C and Bhasin M.K in 1975. The study is based on the anthropometric studies on the Raj Bhotia, the Dom of Kumaon, the Srestha and the Jyapu Newar of Nepal and the Tibetan refugees of the Himalayan region. The data on the Tibetan refugees was mainly collected from Dalhousie, Mussorie and
Simla. The study shows the below medium stature, broadest face, scanty body hair and other typical Mongoloid element weakens one proceeds from the Eastern and Central Himalayas and Mediterranean element seems to present on the western Himalayan populations.

Patel S. studied some morphological, genetical and Biochemical characters of Tibetans at Chandragiri, Orissa in 1976. The anthropometric measurements were made in 200 adults (100 males and 100 females) and it is found Tibetans are short to medium in stature mean stature being 162.4 cms. The result indicate their head is dolicocephalic (64%) nose is messorrhine (60%) and face is medium to long. The foot anthropometric studies reveals that the differences between the right and left foot of Tibetan male and female are not much, except only in case of foot index of both the sexes. The t test of significance in case of foot index for males was 1.49 where as for females it was 1.49 where as for females it was 2.71. The mean cranial capacity calculated for males is 1406.63 cc and female 1206. The mean cranial index calculated was in males 74.7 and in female 75.2. The foot impressions indicate males exhibited higher frequency of whorls (37.14%) and lesser of arches (19.29%) while in females the frequency of whorls (33.33%) and arches (22.35%). The pattern intensity index in males and 12.69, whorl loop index 85.23 is more than the females having 12.39 and 79.23 respectively. The frequency of haptoglobin in 136 Tibetans studied was found to be 0.26. The Hb-A was found to be higher.
The association of Malaria with some of the genetic markers in Tibetans residing Delhi were studied by Tiwari and Sarin in 1989. The total parasite rate 55.19% was observed in the Tibetan population. The spleen rate among the children was 22.34 thus Tibetan population group was found to be mesoendemic to Malaria. It is found that B and AB group are more susceptible to Malaria and O, has mild association with Malaria. The Rh negative group and non secretor status provides resistance of mild nature and sickle cell trait, and G6PD deficiency, \( \text{Fy}^a \), \( \text{Fy}^b \) and \( \text{Fy}^a \) \( \text{Fy}^b \) and \( \text{Fy}^a- \) \( \text{Fy}^b+ \) groups are associated with Malaria. But authors concludes that results have to be reviewed again in else were, to drawn conclusions.

Tarshi Droma et al studied increased Vital and Total lung capacities in Tibetan Compared to Han residents of Lhasa. The larger chest dimensions and lung volumes have been interesting because of the high altitude, the impact of environment on human beings can be notice. The study was conducted among 38 Tibetan and 43 Han residents of Lhasa, Tibet Autonomous Region, China. Matched for age, height, weight, and smoking history. The Tibetan compared with the Han subjects had a larger total lung capacity \( 6.80 \pm 0.19 \) Vs \( 6.24 \pm 0.18 \) BTPS, \( P<0.05 \) vital capacity \( 5.00 \pm 0.08 \) Vs \( 4.51 \pm 0.10 \) IBTPS \( P<0.05 \) and tended to have a greater residual volume \( 1.80 \pm0.12 \) Vs \( 1.56 \pm 0.09 \) IBTPS, \( P<0.06 \). The chest circumference was found greater in the Tibetan than Han subjects. The author concludes that Tibetans like North and South American high altitude residents have larger lung volumes.
The evaluation of primary dental arch characteristics in 3-5 years old Davanagere (Karnataka) and Tibetan Children born in India (residing in Mundgod) Karnataka, was carried out by Subba Reddy and Rajesh T. Anegundi in 1995. The study was done in 200 children from Davanagere and 200 children of Tibetans of Mundgod, Karnataka. The study compares the base information like overbite, canine relationship, second molar relationship, arch form and arch spaces. The following conclusions tabulated. Over all main arch configuration was avoid in both the groups. The Davanagere children showed higher prevalence (67.8%) of primate spaces than Tibetan children (56.5%). The maxilla showed a higher percentage of primate spaces than the mandible in both the groups. Davanagere children showed higher over bite (66.0%) than Tibetan children (38.0%) (43.5%). Davanagere children showed higher over bite (66.0%) than Tibetan children indicates the arch characteristic differences between these groups. The Davanagere children showed high prevalence.

A.K. Kapoor and VijayKumar compared the gene differentiation among the Himalayan populations, in 1994, using the serological studies. The genetic distances between Eastern, Central and Western Himalayan populations has been compared using the earlier studies. The study also includes the Tibetans in India and those who settled abroad, shows the heterozygosity per locus between these populations. Authors observes that, among the Tibetans and the population groups of South East Asia, the average
frequency of gene M is above 60%. The highest genetic differentiation is observed between the Tibetans settled abroad, and the Bod populations i.e. 0.0448 or 4.48% indicating that the gene differences between any two population group is small accounted for by not more than 4.48%.

K.K. Bagai reported the anthropometric and growth variations among the Tibetans of Bylkuppe Mysore in 2000. The study highlights the growth patterns and anthropometric variations among the Tibetan refugees and the impact of nutrition on the growth of children in Tibetan population of Bylkuppe Mysore.

Bhasin et al in 1992 reported the red cell enzyme polymorphisms in Tibetans of Jammu Kashmir. The study was conducted among 107 Tibetans, the distribution of acid cell phosphatase, phenotypes A, 4, BA 28, B, 75, CA, O CB, O and the allele frequencies p^a 168, p^b 83.2 P^c 0.0 respectively. The distribution of Adenosine deaminase among 107 samples were like this 1-1, 97, 2-1, 10 and 2-2, 0 phenotypes and Allele frequencies ADA^1, 95.3 and ADA^2, 4.6 respectively. The distribution of esterase among 107 Tibetans were 1-1, 43, 2-1, 47, 2-2, 17 phenotypes and allele frequencies ESD^1 62.2 and ESD^2, 37.8 respectively. The distribution of Adenylate Kinase (AK) system in 107 samples are recorded as follows. The phenotypes, 1-1, 104, 2-1, 3 and 2-2, 0 the allele frequencies AK^1 and AK^2 98.6 and 1.4 respectively. The distribution of Kell blood groups were reported in the same study. It is found that
all the 107 samples tested were found to be K- i.e. the allele frequency of K is 100.00.

2.3 Demographic studies among the Tibetans:

Jampha thupten studied the demographic aspects of Tibetan refugees of Mundgod in geographical perspective, in 2000. The population density, Education, Infrastructure, Sex ratio and the distribution of households and population were discussed in the study. It is found that, the high female numbers, increasing novices, are the recent trend among the Tibetans of Mundgod.

By keeping in mind above mentioned all literatures, in this study, the biological aspects of demography i.e. migration, natural selection, admixture in breeding, drift, sex ratio, fertility, mortality, studied.