Chapter 8. Summary

The human species is characterized by a migratory nature since very early times. It has moved over a vast range encompassing diverse environmental conditions, viz., physical, biological and sociocultural, and presumably has adapted to them in various ways and to various degrees. Since migration has continued to be one of the major characteristics of human populations through ages, study of its impacts on diverse populations deserves particular attention.

Migration does often affect human biological traits, but relevant environmental factors affecting them are generally not specifically detected, nor whether these effects are independent of ethnicity specifically studied. Further, hardly any systematic studies on this issue have been conducted on Indian populations. Keeping in view these considerations, the present study was undertaken; however, it does not claim to have answered all the relevant questions.

The objectives of the present study were (a) to identify in the usual manner the biological changes which might be due to migration into a new habitat by comparing Oraon sedentes and migrants, (b) to check whether these
changes might in fact be due to effects of factors associated with the new habitat, independent of ethnicity, by comparing two migrant groups, the Oraons and Tamangs, inhabiting similar physical environments; and (c) to check further whether these changes might not be due to the effects of certain sociocultural and biological factors, like family planning practices, age, length of stay in the new habitat (e.g., migrational status) and income level, operating in situ in the new habitat on the two different ethnic groups, rather than being due to migration per se.

The study was conducted among the Oraon and Tamang tea labourers (two genetically and linguistically different groups) working in three tea gardens, namely, Lankapara, Tulipara and Birpara in the Duars area of Jalpaiguri district, West Bengal, India. The study was also conducted on the Oraons inhabiting five villages of Gumla district (earstwhile Ranchi district), Bihar, India, the ancestral area of the migrant Oraons.

The field work was conducted for nine months in several instalments in the Duars area and three months at a stretch in the Gumla area. Data were collected on demography on the sedente and migrant Oraons and migrant Tamangs. Ten anthropometric measurements were taken on children of
the three groups. The study on growth of children (aged 2-19 years) was based on a cross-sectional sample of both sexes from the two areas. Twentyone anthropometric measurements were taken on subjects belonging to both sexes, aged 20 years and above from the three groups following standard techniques (Weiner and Lourie, 1969). Some indices/ratios were computed. Haemoglobin concentration and packed cell volume (PCV) were studied also on the three groups. Blood pressures were taken only from the migrant Oraons and Tamangs.

The study design comprises primarily of comparing a population inhabiting a certain habitat with its migrant counterpart inhabiting another habitat, to detect the possible effect(s) of migration. A few other comparisons were also made. Specifically, it was intended to (a) compare a group in its native habitat with its migrant counterpart in a new habitat; (b) compare the migrant group in the new habitat with another group in the same habitat; and (c) compare microlevel subgroups within each migrant group in the new habitat, with the objective of detecting the effect(s) of migration as well as of a few sociocultural factors on the traits under consideration.
Comparison of the three groups, namely, sedente Oraons of Gumla district (Og), migrant Oraons (OM) and migrant Tamangs (TM), both of the Duars area, were expected to provide the following information:

(a) Similarities between Og and OM were expected to occur with respect to traits which were related to ethnicity.

(b) Differences between Og and OM were expected to occur with respect to traits which were subject to short term phenotypic change in response to environmental differences.

(c) Similarities between OM and TM were expected to occur with respect to traits which were subject to short term phenotypic change in response to environmental differences from their native habitats (Og and OM were expected to differ with respect to these traits).

(d) Differences between OM and TM were expected to occur with respect to traits which were related to ethnicity (Og and TM were expected to be similar with respect to these traits).

Internal comparisons were made, to the extent feasible, within both migrant groups to detect the effects, if any, of migration, at the generational level, as well as of certain biocultural characteristics, e.g., age, family planning practices and income level.
The salient findings of the study are presented below.

The data on demographic traits show that (a) no consistent pattern of difference exists between the sedente and migrant Oraons in fertility, but mortality is higher in the migrants; (b) no consistent pattern of fertility difference exists between Oraon and Tamang migrants but mortality is higher in the Oraons; (c) no consistent pattern of fertility and mortality differences exist in relation to migrational status in either migrant group; (d) both fertility and mortality are higher in the non-sterilized than sterilized women in both Oraon and Tamang migrants; (e) fertility is generally higher in the older women in both migrant groups but no consistent pattern is observed in mortality; (f) fertility is higher and mortality lower in the lower income group in both migrant groups.

The data on child growth show that (a) migrant Oraons have lower values of weight, height and chest girth and higher values of skinfold thickness measurements than the sedentes among both sexes; (b) the growth curves of weight, chest girth and subscapular skinfold measures diverge in the later age groups in both sexes in both migrants and sedentes; (c) the Oraon migrants possess higher values of
stature and cephalic length and lower values of cephalic breadth than Tamang migrants of both sexes; (d) no consistent pattern of differences occur among migrational status groups in either Oraon or Tamang migrants; (e) most of the growth curves have an upward inflexion in the 8-10 years age group in both sexes; and (f) generally IG(1) children have higher values in the later age groups than IG(2) ones.

The data on adult body dimensions show that (a) no consistent pattern of difference exists in body mass and stature between migrants and sedentes, but the values of sitting height is lower and total arm length higher in migrant Oraons of both sexes than sedentes; (b) in width measurements, the values of biacromial and biiliac diameters are lower and bicondylar femur diameter higher in the migrants; (c) all girth measurements have higher values in the migrants; (d) no consistent pattern of difference occurs in skinfold thicknesses between the migrants and sedentes; (e) in cephalofacial measurements, no consistent pattern of difference exists in head length and head breadth, nasal length is higher and breadth lower in the migrants of both sexes and bizygomatic breadth and morphological face height are lower in the migrants; (f) in the derived values the migrants of both sexes have lower values of weight/stature,
weight/(stature)^2 and chest/stature ratios and cormic index and a higher value of ponderal index than sedentes and the log of sum of skinfold thicknesses and cephalic index are higher and nasal index lower in the migrants; (g) Tamang migrants of both sexes have a higher value of weight and sitting height but a lower value of stature and total arm length than Oraon migrants; (h) the bicondylar femur diameter has a higher value in the Tamangs; (i) the Tamangs have higher values of the girth measurements except biceps girth in males; (j) in cephalofacial measurements, the Tamangs have higher values except in cephalic length and nasal breadth; (k) Tamangs have higher values in weight/stature and chest/stature ratios, cormic index, surface area, body fat, log of sum of skinfold thicknesses and lower values of ponderal index, surface area/weight ratio and nasal index; (l) in respect of generation-wise length of stay in the new habitat (i.e., migrational status), no consistent trend exists except that in Tamangs of both sexes stature decreases with generation-wise length of stay in the new habitat; in Oraons, sitting height and total arm length increase, skinfold thickness measurements also increase in both sexes in Oraon and Tamang migrants and Oraon migrants of both sexes have an increasing trend of nasal index; and (m) income group does not seem to affect adult body dimensions in either migrant group [no consistent pattern of difference
exists between the two migrant groups and in internal comparison in respect of the traits other than those mentioned in (g) to (l) above.

The data on haematology and blood pressures show that (a) no significant differences exist in haemoglobin level and PCV between migrant and sedente Oraons except in females; (b) no significant differences exist between the two migrant groups with respect to haemoglobin level and PCV; (c) blood pressures increase with age in both migrant groups and both sexes, the slope of the regression line for the systolic blood pressure being much steeper in Oraon females than in the others; (d) no consistent pattern of differences exists in haemoglobin levels, PCV and blood pressures in relation to migrational status; and (e) no consistent pattern of differences in haemoglobin level, PCV and blood pressures exists with respect to income either.

From the foregoing description it appears that the effect of migration is detectable by the conventional method of migrant-sedente comparison in case of infant mortality and, perhaps, fertility as well as some anthropometric traits of children and adults. However, in case of anthropometric traits, our results are the reverse of those
obtained elsewhere and the additional check involving comparison of migrational status groups within each group does not confirm migration effect, in case of either demographic or anthropometric traits. Unlike in other studies, effects of neither migration nor ethnicity-related factors are clearly discernible in case of haematological traits and blood pressures, although ethnicity-related factors as well as socioeconomic ones generally seem to affect many traits (the effect of income is not discernible in case of these traits either in the present study).

The lack of universality in the responses to migration and operation of sociocultural factors like income strongly suggest complex and varied interactions of ethnic and environmental factors in different populations and/or regions, which need to be studied carefully before any generalization regarding the possible effects of migration can be made.