Normal growth and development depends upon the systematic sequence of events starting with genetic or constitutional factors which may be modified by environmental or nutritional elements and by endocrine physiology. Harmonious physiological processes produce growth whereas discordant processes may produce deviations from normals and result in gross abnormalities. Disease is a discordant process whether it occurs before or after birth. Hence mental retardation which may be hereditary or a result of diseases occurring not only in pre-natal life, full of "critical moments", but also through the later stages during or after birth, is expected to deter the growth processes of the affected group (Thelander and Pryor 1966).

The study of physical growth in mentally retarded children began in 1883, when Tarbell presented a paper to the Association of Medical Officers of American Institutions for Idiotic and Feeble-minded persons. His investigation demonstrated that the mentally retarded children were shorter in stature and lighter in weight than "normal" children of the same age. This pioneering work of Tarbell on the mental defect and growth failure was followed by a number of investigations, carried out by a number of research workers (a complete review of the past and recent studies has been given separately).
The studies undertaken by later workers support, in substance, the findings of Tarbell (1883) that mental defect correlates with impaired physical growth and also that growth in mental defectives proceeds at a slower rate than in the normals and continues for a longer period of time.

Tarbell's study and almost all the succeeding ones, suffered from several methodological problems which have resulted in limiting the validity of the results. The difficulty of classified retarded individuals into meaningful and homogeneous diagnostic categories is one of the major difficulties. Diagnostic heterogeneity of mentally retarded populations effects the results seriously. However, in the past some recognition of heterogeneity of mentally retarded populations was shown by Flory (1936). For studying growth of retarded children, Flory (1936) excluded all patients "with some confining illness" and divided the sample into three categories, according to intelligence. Still another study by van Gelderen (1962) represents one of the few past attempts to cope with the heterogeneity of an institutionalized population. He divided his sample into six diagnostic groups based upon the time, the alleged insult responsible for the retardation took place. Intelligence categories (moron, imbecile and idiot) of Flory (1936) do not seem to be reliable guides to diagnosis, neither do the
'prenatal' or 'postnatal' categories proposed by van Gelderen (1962). Moreover, it cannot be assumed that all children with in-born errors of metabolism are affected in the same manner with regard to growth as any other measure of development. There seems to be only one study on the physical growth of retardates (Bailit and Whelan, 1967) which has taken the problem of diagnostic heterogeneity of mentally retarded population seriously. Bailit and Whelan (1967) examined anthropometrically only those children who had been diagnosed mentally retarded without other neurological signs or symptoms (familial and cultural retardates), thereby describing growth in a diagnostically discrete group of mentally retarded children. On the other hand, in mongols (Down's syndrome), where diagnosis is not arbitrary, this difficulty is readily overcome and consequently ensures the validity of the results reported in this field. For these reasons, it is no accident that some of the best work in this field has been done on children with Down's syndrome.

Another major problem confronting growth studies in general, and growth studies of mentally retarded children in particular, is the lack of suitable populations for comparisons. The studies of normal growth selected for comparison with the growth of mentally retarded children, have been found to be highly selective with regard to the racial background and
more importantly with regard to the socio-economic class. Thus it would be better to compare institutionalized children with normal children from the same social class and racial background, as far as possible, to ensure more valid comparisons.

The present study of physical growth in mentally retarded children attempts to overcome to some degree the major methodological problems i.e., (i) the heterogeneity of the mentally retarded population and (ii) the selection of the suitable normal population for comparison. The present sample of mentally retarded children includes only those individuals who have been diagnosed as mentally retarded but without established reasons for their low intelligence, and without any physical, neurological, metabolic or chromosomal abnormalities. Hence the present group is diagnostically discrete and here it has been called 'a group of mental retardates of unknown aetiology'. For added contrast, mongols (Down's syndrome patients) have also been included to provide a genetically distinct group, in which deviations in the body size might be expected. The normal group selected for the purpose of comparison is racially and socio-economically similar to the abnormal groups.

The present study of physical growth in two groups of mentally retarded children (i) mongols; and (ii) a group of
retardates of unknown aetiology, is essentially an anthropometric evaluation of body size in comparison to the control group of normal individuals. This is because, an anthropometric approach offers an objective way to illustrate deviations in physical growth and development associated with handicapping conditions. Most of the studies carried out in the past discuss post-natal physical growth in handicapped children with respect to height and weight only. In contrast, the present study is based on a large number of physical measurements taken on each individual. A comparison of the growth trends in different segments of the body in the three groups viz. Mental Retardates, Mongols and Normals has been made by plotting the mean values for various physical measurements at each age level. This comparative study of the growth curves for different body measurements in the abnormal and normal populations attempts to bring out the physical characteristics, trend of growth of different body parts and also the health status of the affected groups.

To find the significance of difference between the two sexes of each of the three groups, in respect of the mean of each physical measurement at each age level, t-test (as recommended for the small samples) was applied. The same statistical test was applied to find the significance of differences among the abnormal and normal groups (males and females separately),
in respect of the mean of each anthropometric measurement at each age level. An attempt has also been made to compare the findings with those of the available data on mentally retarded and mongol samples. The present study also tries to find out whether genetic defects (mongolism) distort growth curves more than the unfavourable genetical/non-genetical factors (mental retardation of unknown aetiology)?

In India, in recent years, a number of studies have been undertaken concerning the growth of normal children. However, no attempt whatsoever has been made to make a systematic study of the physical conditions of mentally retarded children. The need of such studies is evident from the fact that the study on abnormal children provides an important scale to measure any deviations in the growth of a child and thus helps in an early detection of developmental anomalies. Although numerous such studies have been reported from the western countries, no attempt has been made to study the mental retardates in India in a similar way. The present study on the physical growth of mentally retarded children is an attempt to provide some base line data on impaired physical growth as a correlate of mental retardation due to genetic or constitutional factors, for the North Indian children.