Trachoma remains a Public Health problem of world wide interest. Research workers in the field of Medicine and Science have devoted much of their time in studying its etiology, prevention and treatment within the last few centuries. Recent studies of TRIC (Trachoma Inclusion Conjunctivitis) viruses have given a new hope and shape, in the prevention and eradication of the disease.

Trachoma is one of the most wide spread chronic eye diseases and is a single major cause of preventable blindness in the world. It is highly prevalent in Asia, Africa and in many Latin American countries. In India as in many other tropical and developing countries it has been a problem of great importance and is significant since pre-historic times. Now it is highly prevalent in the north and northwestern states of India. Since no systematic data collected on sound statistical principles are available on the prevalence pattern of trachoma in India, the I.C.M.R. carried out the survey
on geographical distribution of trachoma during 1958-63.

The studies in this thesis has been largely based on Trachoma Control Pilot Project data of the Indian Council of Medical Research, where I had the opportunity of planning, collection tabulation and analysis of the data. This has been studied extensively by me for the past three years.

The present statistical study in this thesis on the prevalence pattern of trachoma in rural India on a countrywide basis is an unique one as no study of this kind is available. Many other details which are not available at present regarding the disease has been illustrated. Statistical studies have been widely used here in this study of prevalence pattern of trachoma. These studies will further help in the development of the epidemiology of the disease.

The application of statistical methods to trachoma studies along with the suggestions of a trachoma index has been my aim in writing up this thesis.

CHAPTER I :- In the introductory chapter the details regarding the importance of health statistics and statistical methodology in respect of trachoma has been drawn up and its importance in preventing the blindness if properly attended to has been stressed.

CHAPTER II :- This chapter deals with the historical development of the disease in India starting from pre-Susrutha days to the present day. Spread of the disease from the people of central Europe & Asia to India has been conclusively drawn based on the disease pattern in the world.
CHAPTER III: This chapter begins with the description of the Statistical sampling method adopted to collect the data on "The prevalence pattern of Trachoma in Rural India." The method and questionnaires used to collect the data has been discussed in detail.

CHAPTER IV: This chapter which is the beginning of the analysis of the data on the above study, a detailed description regarding the geographical position of India has been given. The total trachoma prevalence rates has been analysed by the analysis of variance method. The States have been grouped into three categories (i) States with low endemicity (prevalence less than 10%) (ii) States with medium endemicity (Prevalence between 10-40%) (iii) States with high endemicity (Prevalence more than 40%).

The analysis of variance has been carried out for each of the group separately and the distribution was found to be too uneven.

The prevalence of active stages of the disease in a highly endemic state has also been analysed through analysis of variance method after using arc sine transformation to the percentage rates. It was found that the disease trachoma passes through successive Mac Callan stages of classification.

Standardised prevalence rates have also been calculated by taking standard million population to make intra State comparison,
CHAPTER V: This chapter deals with the prevalence pattern of the disease by age and sex. It has been found that in respect of total trachoma females suffer more than the males and children below 9 years suffer more than the adults, standard statistical methods have been applied to come to definite conclusions. $\chi^2$ test between observed and expected suffering has been calculated and inference drawn.

In the analysis of prevalence of active trachoma in rural India, 118,245 persons belonging to different population groups of fourteen Indian States have been studied. The observations showed that for these large samples, the percentage prevalence of active trachoma increased progressively up to 14 years of age, and thereafter there is a definite decrease. Children below 4 years of age of North Indian States has a higher prevalence rate compared to South Indian States. In all the age periods, the percentage prevalence of active trachoma in Northern Indian States is found to be more than in South Indian States. The difference in percentage prevalence in lower age periods is more than in latter age periods, the difference gradually decreasing with increasing age.

CHAPTER VI: This chapter deals with the socio-economic factors affecting the disease. The various socio-economic factors affecting other communicable diseases has also been studied in respect of total trachoma and $\chi^2$ test has been employed to draw definite conclusion. The data collected from two different studies have been analysed in this chapter.
(i) General systematic survey data from 29 villages of Aligarh district.

(ii) Survey on geographical distribution of trachoma in rural India.

The following conclusions have been drawn:

School going children are found to be less affected than the other children of the same age.

From the point of view of wiping and cleaning habits of eye by the people, those who used sarees or dhoties had a higher incidence than persons who made use of towels independently.

Poverty, illiteracy and insanitary conditions prevailing in the community are found to be responsible for the infection of the disease. Further habits, belief patterns and lack of personal hygiene are some of the contributory factors.

It has been found that various belief and attitude pattern of the people is also helping towards the high prevalence of the disease.

Trachoma has been shown to be a family disease rather than anything else based on the relationship between the number of trachomatous individuals in the family and the family size.

**CHAPTER VII :-** This chapter gives the note of warning on trachoma as a blinding disease. A comparative study of blindness due to trachoma in different countries has been made. It has been observed that blindness due to trachoma increases with age. No significant sex difference has been observed. Also no uniform pattern of blindness in rural India could be traced. Mathematical
curves have been fitted in respect of age vs. impairment of vision due to trachoma and age vs. economic blindness due to trachoma. 

CHAPTER VIII: - This last and significant chapter deals with the finding out an index on gravity of trachoma which in summary is as follows:

The importance of an Index on Gravity of Trachoma being largely recognised, the method of multivariate analysis - centroid method has been made use of here to find out such an index. The principal factors considered are percentage prevalence rates of (1) Total Trachoma (2) Trichiasis (3) Entropion (4) Pannus (5) Total Pannus (6) Pannus Crassus and (7) Corneal opacity, the factors according to Ophthalmologists which are responsible for the high gravity of trachoma. It is found that the linear combination of these principal factors will give a better index than just considering the proportion of trichiasis and/or corneal opacity to the total trachomatous individuals examined as the former involves many factors. The establishment of the principal factor coefficients for this index which can be used widely for comparing the areas in respect of gravity of trachoma needs more detailed study on the uniform data from various parts.

The index so obtained has been found to be highly related to the Economic blindness due to trachoma prevalence. The generalisation and easy applicability of this index to other countries has been stressed which can only be attempted when a uniform data is made available from all parts of the world.
More could be done on this wide subject of public health importance of trachoma in rural India, but I feel I have covered it in the outline at least for the first time and if this thesis serves besides collating our local knowledge from my analysis and experience of the disease to emphasize and bring to the notice of those authorities and other responsible persons, the necessity for organised action in the field, my efforts will have been well spent.