

UNIVERSAL  
LIBRARY

**OU\_150278**

UNIVERSAL  
LIBRARY









POVERTY AND POPULATION  
IN INDIA



# Poverty and Population in India

BY

D. G. KARVE, M.A.

*Principal and Professor of Economics,  
Willingdon College (University of Bombay)*

HUMPHREY MILFORD  
OXFORD UNIVERSITY PRESS

1936

**OXFORD UNIVERSITY PRESS**

**AMEN HOUSE, LONDON, E.C.4**

**Edinburgh Glasgow Bombay**

**Calcutta Madras Melbourne**

**New York Toronto Capetown**

**HUMPHREY MILFORD**

**PUBLISHER TO THE**

**UNIVERSITY**

**PRINTED IN GREAT BRITAIN BY HEADLEY BROTHERS  
109 KINGSWAY, LONDON, W.C.2; AND ASHFORD, KENT**

‘ The practical question for us all to lay to heart is not the relative, but the absolute poverty and the present hopelessness of the country generally.’

MAHADEO GOVIND RANADE

‘ In order that a higher standard of living may affect the rate of reproduction it is apparent that not only is an increase in education and culture involved, since it seems definitely established that intellectual activity acts as a check upon fertility, but also the psychological appreciation of a higher probability of survival.’

DR J. H. HUTTON

‘ The truth is that the inhibitions connected with the study of the population problem have been chiefly on our side: we have been accustomed to plan our own lives in such a way as to secure a comfortable existence, but we have assumed, quite wrongly, that education in life planning is inadmissible in India.’

MAJOR-GENERAL SIR JOHN MEGAW, M.S.  
(Retired).



## PREFACE

DURING the last few decades the population of India has been regarded as a 'problem', by economists, politicians and social reformers. The publication of the census report of 1931 has added fresh interest to the discussion of the subject. There has been a widespread tendency to treat this problem as one of numbers, and hence it has been freely described as the problem of over-population. No doubt there has been considerable qualification of this description by the importation of such notions as that of relative and absolute over-population, and of over-population as a tendency and as a state. It has always appeared to the present writer that the population of India constitutes a problem neither in its numbers, nor in its rate of increase, but in its conditions of ill-health and poverty. On a survey of the facts of Indian life during the first three decades of this century, and their comparison with movements in other parts of the world, it would appear to be clear that numbers, instead of being a cause of the unwelcome phenomenon of disease and poverty, are but a symptom and an effect of a much deeper evil, that of social and economic backwardness and cultural and psychological passivity.

Considering the great importance of the problem, no amount of discussion on any of its aspects can be deemed superfluous. Even if a particular viewpoint is proved in the end to be of limited significance, the discussion that it provokes cannot but be beneficial. The present study of the problem has been particularly based on two lines of treatment which are not

so often met with as certain others. The latter chiefly consist in describing how very unsatisfactory the conditions of human life in India are at any given moment, and secondly in applying certain generalizations of eugenics to these features. Without denying the fact that conditions in India are very far from satisfactory, and that the conclusions of the study of human population in general have a useful role to play in promoting a proper understanding and a satisfactory solution of the Indian problem, the present writer feels that an adequate study of the problem of population must take account of at least two other features.

In deciding upon the exact nature of the evil, whether of numbers, or of disease and poverty, an historical review appears to be essential. Bad as conditions are at present, we must first ask ourselves the question whether they are deteriorating or improving. In judging the nature and cure of the problem this method of approach is indispensable. Equally important is the inquiry into the relation between the numbers of the population and their material well-being. We do not presume to say that the problem of population is exclusively or even principally an economic problem. But there can be no doubt that the interaction between the conditions of human life and economic efficiency constitutes a very important aspect of that problem. An attempt has been, therefore, made in the present study to treat the problem of the population of India both from the historical and analytical standpoints. The conclusions as regards the nature of the problem and future reform which naturally emerged during the course of the study have also been indicated.

The writer does not claim comprehensiveness or completeness for his work, which is only in the nature

of a study. It is more of a tract than a treatise. Nor does he desire to question the usefulness of other works bearing on the same theme. His is a contribution to the discussion of the subject offered from two specific points of view, viz. the tendency of population movements in India, and the relation between growth of population and increase in the production of wealth. It is hoped that the study, incomplete as it is, will be found of some interest to students of the subject. The conclusion arrived at that economic, hygienic and cultural reforms ought to combine to make a successful attack on this problem merits consideration from social as well as economic reformers.

The author acknowledges his indebtedness to the University of Bombay for the substantial financial help it has granted towards the cost of the publication of this book.

D. G. KARVE

*Willington College  
University of Bombay*



## CONTENTS

| CHAPTER                                                                | PAGE |
|------------------------------------------------------------------------|------|
| I    INTRODUCTORY    -       -       -       -                         | 13   |
| II   CERTAIN PREVALENT VIEWS ON THE<br>MOVEMENTS OF POPULATION       - | 18   |
| III   POPULATION MOVEMENTS -       -       -                           | 25   |
| IV   NATIONAL PRODUCTION   -       -       -                           | 63   |
| V    CONCLUSION       -       -       -       -                        | 112  |
| INDEX       -       -       -       -                                  | 125  |



# I

## INTRODUCTORY

### *Plan of the Study*

This study begins with a brief outline of certain prevailing views regarding movements of population in general and concludes with a résumé in which are included a few suggestions regarding lines of reform. Chapters III and IV deal respectively with the condition of the population of India as revealed in vital statistics and census reports, and with the evidence of material well-being as recorded in official publications. In both these chapters, but more extensively in chapter III, a comparison with a few of the leading countries is instituted. This course appeared to be necessary to bring out the real nature of the evils complained of in India. The historical method is followed in both chapters, and it is hoped that the picture of Indian life that the tables and comments on them reveal will not be without interest both for the analyst and for the reformer.

### *Period of Inquiry*

In this connexion it is necessary to state at the outset that the period through which the movements of the population and the progress of the means of material well-being are traced is the first three decades of the twentieth century. This course appears to be justified for several reasons. In the first place, both on account of the glaring imperfections of the methods of census operations and on

account of the fresh inclusion of extensive tracts at every successive census, the figures for the census of 1901 appear to be the earliest reliable starting point that we can take. In the second place, the organization of the collection of statistical information about the country was altogether undeveloped before it felt the enlivening influence of grave national calamities, like the famines and the plague epidemics that characterized our economic history during the closing years of the last century. The magnitude and frequency of these disasters impressed upon the Government the necessity of collecting and maintaining elaborate economic data to enable them to fight the famine by timely steps. Lord Curzon,<sup>1</sup> who was an enthusiastic and able administrator, took a great deal of personal interest in such matters, and this added influence worked towards the establishment of a less unreliable and more comprehensive statistical organization in India.

Another justification for choosing the beginning of the present century as the starting point of our study consists in the undoubted awakening that the twentieth century brought to the people of this country. What with the natural disasters noted above, which gave a rude shock both to the people and to the Government, and the new forces of enlightenment, self-confidence, and progress created in all eastern countries by the success of Japan over Russia, the early years of this century witnessed the birth of a genuine movement for Indian national

<sup>1</sup> In 1905 came a further change, and a definite extension of the system of expert control. The department of Statistics was then merged in a new department of Commercial Intelligence, which owed its inception to Lord Curzon and of which Mr. Noel Paton was the first Director-General.—H. A. F. Lindsay, 'India's Trade and Industrial Statistics, Past, Present and Future,' *Journal of the Royal Statistical Society*, Part III, p. 399.

regeneration. The beginnings of this movement are certainly traceable to a much earlier time, approximately to the year 1885. In or about this year several organizations, whose object was to bring about educational, social, industrial or political reformation of the Indian nation, were inaugurated. But the mass mind was not stirred by the new economic and cultural influences until the first few years of the present century. If the purpose of studying the population movements in India is to understand the mutual dependence between the means of welfare and the psychological and institutional equipment with the help of which people attain them, no useful purpose will be served by taking our stand on the experience of a period which has been left behind for good. The Government, as also the people of this country, have been distinctly affected in their outlook and in their organization by the events witnessed during the period of transition from the last to the present century. On this account also it is proposed to confine this study to the facts revealed by the last four censuses.

From another standpoint, however, the year 1901 is somewhat unsuitable as a base year in an historical analysis. The year 1899-1900 witnessed a very extensive famine in India, and about one-fifth of the population was directly affected by it. The indirect and long-term results of this famine continued much beyond the actual financial year in which it occurred. This partial unsuitability of the year 1901 as our starting point has been offset in this study by relying wherever necessary on quinquennial averages in addition to the figures for a single year. As will be seen in later pages, this factor has not been allowed to vitiate the force of our conclusions to any appreciable extent.

As the year 1901 has been chosen as the starting point, the year 1930 has been in most cases fixed upon as the last year of our survey. This is justified by the fact that the course of the world depression having affected India during the year 1930, the figures for industrial activity recorded then and thereafter are unsuitable to serve as a term in a series of comparable quantities. Owing to the comparatively stationary and self-sufficing character of Indian agricultural economy, its reactions to the course of world movements have not been so sudden and marked as might have been expected. The cultivation of important commercial crops such as jute, cotton and oil-seeds has, however, appreciably suffered. The impact of the depression on non-agricultural occupations has been even more pronounced. For purposes of comparison, therefore, the latest normal year has been taken to be 1930. In a few cases later figures are used, wherever no such consideration existed.

### *Sources*

We have relied throughout this study on published official sources. Besides the census reports, the *Statistical Abstracts of the Government of India* have been freely used. For the information bearing on other countries our principal source has been the *Statistical Year Book of the League of Nations*, particularly the issue for 1933-4. Though the constituent figures are thus taken from official and authorized sources, all the tables have been prepared specially for the purpose of this study. In reducing large masses of figures to manageable proportions approximations were in certain cases inevitable. Still the substantial accuracy of the figures has not been sacrificed, and such errors as might have crept

in are either clerical or are inherent in the method followed.

### *Scope of the Study*

Geographically the scope of this study is limited to British India. This entails the exclusion of the Indian States. There is reason to believe that in spite of differing tax systems and varying conditions of industrial employment the States form an integral part of the economy of India. Unfortunately, however, the factual data available for the States is extremely limited, and hence we have to restrict our inquiry to British Indian provinces. On the other hand, the present study suffers from another shortcoming. Though there is a marked economic individuality attaching to wider units such as India as a whole or British Indian provinces taken together, most of the problems of economic development are more directly regional. In this respect, however, it is only proper to observe that our present administrative provinces are by no means identical with the several regions into which India can be divided economically. Intensive data for particular regions spreading over a fairly long stretch of time are not readily available to students, and therefore no attempt has been made to study intensively the population conditions of any particular locality. It is obvious that no study of Indian population can claim to be adequate or readily useful which is not based on a thorough inquiry into the peculiarities of each region. The contents of the present study are only intended to throw some partial light on the general problem of Indian poverty and population.

## II

### CERTAIN PREVALENT VIEWS ON THE MOVEMENTS OF POPULATION

1. An exhaustive or elaborate discussion of the various 'theories of population' is unnecessary for the purpose of this study. We start with the conclusions of the two major systems of reasoning on this topic, the Malthusian and the Optimum theories. Our attempt in this chapter is merely to draw attention to certain far-reaching cultural and sociological influences that are relegated to the background in both these systems. In the two succeeding chapters we have tried to examine the recorded facts of Indian experience in the light of the conclusions of the Malthusian and the Optimum schools and to indicate their bearing on these more fundamental features of national life.

2. Predominantly biological explanations of the movements of population, such as those of Malthus<sup>1</sup> and Doubleday,<sup>2</sup> are only of limited validity inasmuch as they do not take sufficient account of two peculiarities of the relation between human beings and wealth. Non-human biological life cannot consciously add to the means of its own sustenance, and its members have no non-essential wants. Human beings can almost indefinitely increase the sources of their sustenance by scientific inventions and better organization. On the other hand, with every upward movement of civilization non-essential

<sup>1</sup> *Economic Scarcities*, by E. Cannan.

<sup>2</sup> *Census of India, 1931*, Vol. I, p. 40.

and even non-material wants come to occupy an important place in man's standard of living. Hence, while talking of human populations it is inadvisable to lay exclusive emphasis on a given quantity of resources and to relegate to the background such considerations as economic institutions and national psychology. The presumption, or the appearance of it, that men are unwilling to change their institutions to meet economic needs, or that they do not readily absorb non-material ends in their standard of life is unwarranted. It is obvious that regulation of numbers unaccompanied by a reform in ideas and institutions will not solve the problem of poverty. If ideas, institutions, economic and social policy—all these are favourably directed, a general social and economic improvement will take place, of which a better proportion between men and resources will be an incident. Neither the cutting down nor the multiplication of numbers can be an end in itself. The material and the moral progress of the community is the supreme end of all organized social action.

Maladjustment between numbers and wealth is, for the most part, a symptom and a result, not a primary cause of economic and social backwardness. Whenever an unsatisfactory relationship between these two terms, population and wealth, is witnessed, our attention should be primarily turned towards institutional reform in cultural, economic and political spheres, and not towards a mechanical restriction of numbers as a sovereign, real or lasting remedy. From all indications the proportion between population and national income in India is a source of dissatisfaction. " But whether the primary remedy for this unsatisfactory state of things is a restriction of numbers or educational, social,

economic and political reform is a question which will be answered differently by different people. Those who believe that both increasing numbers and continued poverty are the outcome of general social backwardness will favour the initiation of a comprehensive movement for national reformation and reconstruction. In such a scheme of reformation movements like those for artificial birth restriction may have their place. But as the evil is more fundamental than is indicated by the large numbers, other constructive and lasting remedies will be specially emphasized.

3. By the biological school of writers on population, particularly of the old Malthusian type, the prospects of increased production or of moral reform are held to be comparatively negligible, and hence their emphasis is on numbers and their regulation. An attempt is sometimes made to prove that there is an absolute excess of numbers by relying on certain Malthusian assumptions as though they are universal truths. The chain of reasoning runs thus: population tends to increase very rapidly, in fact to the maximum possible under given conditions of production; food supply or production in general increases, if at all it does, at a considerably lower rate; and hence wherever no preventive measures for curtailing the growth of the population are known to be practised, the presumption in favour of a state of over-population may be taken to be so strong as almost to amount to a certainty. This mode of thinking is, however, open to serious reservations. Men do not under all circumstances tend to increase to the maximum indicated by the prospects of a mere subsistence. Nor is the proposition regarding a comparatively slow growth of production universally or in a healthy civilized

society, even normally, true. Hence a conclusion regarding 'over-population' based principally on the absence of preventive checks cannot be admitted as valid. Each premise in the argument should be separately examined, and the relation between the growth of population and the increase in production should be ascertained. If then it is proved that population is tending to increase faster than production a state of over-population according to the traditional Malthusian version would be proved.

It must also be stated, in this connexion, that the existence or the frequency of famines, epidemics, wars and diseases does not by itself establish any definite relationship between resources and men. Famines are caused by natural disasters such as floods, droughts and pests which may persist even with a great reduction of numbers. The argument that with smaller numbers the capacity to resist a famine will be greater is also unsound. Given backward economic conditions and undeveloped social organization, smaller numbers will be equally liable to suffer from the consequences of a famine. The history of Indian famines, which ranges over the whole period of human habitation in this land, is a sufficient proof of this statement. That the wars in the modern world are not, principally, the outcome of what is called pressure of population is proved by the fact that in most cases these are provoked by nations who have enough material resources to engage in a land-and-trade-grabbing struggle and who are taking special measures to increase their population. Not pressure of population but ambition, vanity, greed and other moral weaknesses of mankind must explain most of the aggressive wars of history.

4. In the writings of Malthus the idea of a rising standard of life for the masses is not implied: at any

rate it is not prominently mentioned. His fear, in fact almost his gloomy certainty, is that men will so constantly multiply as to keep down the standard of life to a bare minimum for a large portion of the population. His forebodings have been belied by the experience of all healthy societies in the Old as well as the New World. Hence a new approach to the desirable relationship between numbers and wealth is adopted by some writers.<sup>1</sup> In effect their contention is that even though production may be increasing faster than population, if it is proved that a reduction or a slower growth of numbers would lead to an even greater increase in production, either total or *per capita*, a decrease in population would be economically desirable. Given the natural resources, the organization and the efficiency, a community should aim at regulating its numbers so as to realize the maximum *per capita* income. Apart from the possible moral objection to such a one-sided version of social ideals, it appears that some of these writers do not sufficiently emphasize the fact that anything that regulates the growth of numbers by a deliberate psychological or social alteration will not leave unimpaired the conditions of production. If the regulation of numbers is motivated by an appreciation of man's responsibility for his own condition, by a determination to get the best out of circumstances, and by a readiness to co-operate in the pursuit of a common economic object, then alone strikingly favourable results in respect of *per capita* income and of a higher standard generally might be expected. But if these desirable motives can and are to be instilled for a regulation of numbers, their presence can as well and even better be utilized for a positive improvement of the community's economic and other

<sup>1</sup> A. M. Carr-Saunders, *Theories of Population*.

social conditions. If, in the alternative, reduction or restriction of numbers is the outcome of a purely mechanical act, mostly selfish, irresponsible and narrow-minded, the increase in the *per capita* income will be problematical. Even if an increase is realized, it is likely to be very small and will certainly be obtained at the cost of a social and moral degeneration which may constitute a greater problem than that of mere poverty. It will thus be seen that even the pursuit of an optimum population has to start with moral, cultural and social reformation. In the absence of such an organic and comprehensive change a restriction of numbers can hardly add to the well-being of society or of individuals. Moreover, even from the purely technical standpoint of the optimum income, the crucial question will be, are there reasonable grounds to expect that reduction in or regulation of numbers will lead to an appreciable augmentation of wealth? This question will have to be answered with reference to the prevailing conditions and prospects before we assume that a restriction of numbers is a desirable end or a proper remedy.

5. Considering that there are very serious limitations to the *a priori* method of judging the population situation in a country, we must proceed by the more laborious but less objectionable method of an objective study of facts. The rate of growth of the population, its sex and age distribution, its occupations, its birth-rate and death-rate—all must be historically reviewed. A comparative study of these data can alone serve as a reliable foundation for our conclusions regarding the condition of the Indian people. So also with respect to the resources and the standard of life of the people, an investigation into the facts as they are ascertained, rather

than impressions or abstract deductions, must be relied upon. Agriculture, industry, trade, finance and other ways of adding to the national fund of utilities have undergone considerable alteration and expansion during the last thirty years. The peculiarities of this development and its bearing on the conditions of the population must be ascertained from factual data authoritatively supplied. In the following chapter is attempted a detailed historical and comparative study of the demographic features of population movements during the last generation, i.e. the first thirty years of this century. In the fourth chapter economic and material facts bearing on the period have been reviewed in the same historical and comparative manner.

### III

## POPULATION MOVEMENTS

1. It is proposed in this chapter to review important quantitative data bearing on the movements of the population of India during the first three decades of this century. All the tables herein used are based on official figures supplied by the census and other reports. The difficulties of having a faultless enumeration of things, persons and events over such an extensive territory as India are well known. Physically, financially and administratively the task involves such a stupendous amount of resources that even the best equipped census and statistical services can only hope to attain a more or less rough approximation to the real situation. The ignorance and prejudices of the enumerated, the inexperience and limited sense of responsibility of the enumerator, the lack of sufficient technical accuracy among the classers and sifters, and last, though not the least, the complex character of human life in India—these render the responsibilities of the officials very onerous indeed. But it is a relief to note that in these respects things are definitely improving. And though for adventitious reasons such as Congress opposition in a few areas at the last census the accuracy of some figures might now be more doubtful than in the past, taking the country as a whole, and speaking of all, regular and periodical, collections of figures together, it might be asserted with confidence that with the passage of time the evidence of Indian official figures becomes

less and less untrustworthy. Still it will be wrong to place implicit reliance on the figures themselves. The evidence of most of the data herein adduced lies in their character not of a measure but of an indication of tendencies. It is in this light, as marking the direction of movement, rather than measuring its extent, that we would call the attention of readers to the following tables.

2. Table I sets out the details of the growth of population in India from 1872. This table is adapted from the official census table, and it will show that the improvement of the census method was complete only in 1901. Further it will be noticed that the inclusion of new areas ceased to influence the census figures to any considerable extent only after 1901, though even in the 1911 census as much as 1·8 million of population growth has been set to the account of inclusion of new areas.

In this table attention must be drawn to the figures noted in the last column. As they represent the percentage of the real increase of the population, as calculated by the census authorities themselves, they are free from the disturbing influence of increased area or of administrative improvement. It will be seen from them that during the last half-century, though the population has continued steadily to increase, no uniformity is noticeable in the rate of increment. On the contrary, it will be seen that in alternate census years there is an acceleration of the rate of increment. From this fact it has been sometimes inferred that there is a rhythmical movement in the growth of population in India. It is, however, remarkable that there is no trace of a definite or normal extent of the rebound in either direction revealed by the figures. To a large extent the alternations in the rate of growth,

TABLE I  
THE POPULATION OF INDIA

| Year  | Total population | Increase due to        |                                     | Total increase in population |          | Real increase in population | Rate per cent of total increase | Rate per cent of real increase |
|-------|------------------|------------------------|-------------------------------------|------------------------------|----------|-----------------------------|---------------------------------|--------------------------------|
|       |                  | Inclusion of new areas | Improve-ment of census organization | Millions                     | Millions |                             |                                 |                                |
| 1872  | 206,162,360      | —                      | —                                   | —                            | —        | —                           | —                               | —                              |
| 1881  | 253,896,330      | 33.0                   | 12.0                                | 48.0                         | 3.0      | 3.0                         | 24.0                            | 1.5                            |
| 1891  | 287,314,671      | 5.7                    | 3.5                                 | 33.5                         | 24.3     | 24.3                        | 13.4                            | 9.6                            |
| 1901  | 294,361,056      | 2.7                    | .2                                  | 7.0                          | 4.1      | 4.1                         | 2.4                             | 1.4                            |
| 1911  | 315,156,396      | 1.8                    | —                                   | 20.5                         | 18.7     | 18.7                        | 7.0                             | 6.4                            |
| 1921  | 318,942,480      | .1                     | —                                   | 3.8                          | 3.7      | 3.7                         | 1.3                             | 1.2                            |
| 1931  | 352,837,778      | .0                     | —                                   | 34.0                         | 34.0     | 34.0                        | 10.6                            | 10.6                           |
| Total |                  | 43.3                   | 15.7                                | 146.8                        | 87.8     | 87.8                        | 71.4                            | 30.7                           |

which are termed rhythmical, are unsteady and are principally caused by the intensity of pernicious famines and the visitations of extraneous epidemics like those of plague and influenza. In spite of the attempts of certain physicists, no periodicity of famines, or rather of droughts and floods, has as yet been established. At any rate there is nothing to connect these natural occurrences with the decennial periods accidentally chosen for census operations. Moreover, it must be remembered that the significance of these natural occurrences for the movement of population depends in no small measure upon the human machinery set up to deal with them. Irrigation, drainage, and facilities of communication do not remain stationary, nor do they alter regularly. Hence we feel that there is no reason to consider that there is any special significance in the alternately sagging and accelerating rate of increase revealed in the table given above. It is principally the result, and the obvious result, of the changing moods of natural elements in a tropical climate and the relatively backward, unscientific and unplanned economic organization of the people.

3. For reasons already set out in the introductory portion, we are confining our detailed study to the facts as revealed by the last four censuses only. Moreover, as both the vital and material statistics are available in anything like an acceptable form only for British India, it is necessary to restate the census figures showing the particulars of the total increase in the population according to British and Indian State territories respectively. Tables 2A, 2B and 2C will serve this purpose.

It will be clear from these tables that during the last three decades the population of the whole country has increased by 20 per cent. The increase

TABLE 2  
POPULATION OF BRITISH INDIA AND INDIAN STATES

## (A) BRITISH INDIA

| Census Year | Population<br>(Millions) | Index |
|-------------|--------------------------|-------|
| 1901        | 232                      | 100   |
| 1911        | 244                      | 105   |
| 1921        | 247                      | 106   |
| 1931        | 272                      | 117   |

## (B) INDIAN STATES

| Census Year | Population<br>(Millions) | Index |
|-------------|--------------------------|-------|
| 1901        | 62                       | 100   |
| 1911        | 71                       | 115   |
| 1921        | 72                       | 116   |
| 1931        | 81                       | 131   |

## (C) ALL-INDIA

| Census Year | Population<br>(Millions) | Index |
|-------------|--------------------------|-------|
| 1901        | 294                      | 100   |
| 1911        | 315                      | 107   |
| 1921        | 319                      | 109   |
| 1931        | 353                      | 120   |

is greater in the Indian States than in British India, being as much as 31 per cent in the former and only 17 per cent in the latter. The comparatively late stage at which the development of the Indian States has commenced accounts in a great measure for this disparity.

That neither the increase in the population of India as a whole nor that in British India alone is at

all unusual will be clear from the following table for England and Wales.

TABLE 3  
POPULATION OF ENGLAND AND WALES

| Census Year | Population<br>(Millions) | Index |
|-------------|--------------------------|-------|
| 1901        | 32.5                     | 100   |
| 1911        | 36.1                     | 111   |
| 1921        | 37.1                     | 114   |
| 1931        | 40.0                     | 123   |

England is a country in which the process of industrialization has gone on for a number of decades. Since the days of the Great War a definite check has been put on the industrial, commercial and financial expansion of that country. Moreover, the English people do not suffer from the handicap of a restrictive social system or of a prolific religiosity. In view of this contrast between the cultural, social and economic conditions of the two countries, it is significant that during the last three decades, whereas the population of England has increased by 23 per cent, that of India as a whole has increased by only 20 per cent, and that of British India by as little as 17 per cent. There is, therefore, nothing absolutely excessive or abnormal in the rate of population increase in India.

The sense of proportion induced by the favourable comparison between the Indian and British *rates of increase* is a valuable corrective to generalized statements regarding the *total increase* of population in India. Commenting on figures for the growth of population during the last 50 years, which have been incorporated in Table 1, Dr J. H. Hutton, the Census

Commissioner for 1931, says<sup>1</sup> : ' These figures may be compared with an increase in England and Wales since last census of only 5·4 per cent, but of 53·8 per cent in the last 50 years, with an increase in the United States of 16 per cent since the last census, with an increase of nearly 18 per cent in Ceylon and with an increase in Java of 20 per cent since the last census and of as much as 26 per cent in the outer islands of the Netherlands Indies.' The condition of India is not comparable in all respects with that of each of these foreign countries. But the record of their population increase is enough to prove that there is nothing in the Indian increase which speaks of any inherent abnormality. If this be remembered, such remarks as the following are devoid of any real significance. ' Attention has already been drawn to the grave increase in the population of this country. The actual figure of the increase alone is little under thirty-four million, a figure approaching equality with that of the total population of France or Italy, and appreciably greater than that of such important European powers as Poland and Spain. The population now even exceeds the latest estimate of the population of China, so that India now heads the list of all the countries in the world in the number of her inhabitants. This increase, however, is from most points of view a cause for alarm rather than for satisfaction.'<sup>2</sup> No responsible person holds that the increase in our population indicated by the figures under review is in itself a source of satisfaction. But it is difficult to see wherein lies the cause for alarm in numbers alone. The Census Commissioner has not been able to show that in a single material respect the position in India with its 353 millions

<sup>1</sup> *Census of India, 1931, Vol. I, p. 5.*

<sup>2</sup> *Ibid.*, p. 29.

has been worse than what it was with a hundred million less half a century ago. Nor has he attempted to prove that in the absence of this increase conditions would have been any better. We suspect that the fact of India's size and its potential resources is inadvertently forgotten by the alarmist school. If our population has increased during the last census period, by the size of a whole nation in Europe is it

TABLE 4  
INFANT MORTALITY IN BRITISH INDIA

| Period  | Average Infant Mortality for<br>1,000 live births |
|---------|---------------------------------------------------|
| 1911-15 | 204·2                                             |
| 1916-20 | 218·8                                             |
|         | (for 1916, 1917 and 1920 only : 200·8)            |
|         | (for 1918 and 1919 : 244·7)                       |
| 1921-5  | 182·3                                             |
| 1926-30 | 177·6                                             |
| Year    | Infant Mortality per 1,000 live births            |
| 1911    | 204·98                                            |
| 1912    | 207·65                                            |
| 1913    | 194·61                                            |
| 1914    | 211·83                                            |
| 1915    | 201·90                                            |
| 1916    | 202·34                                            |
| 1917    | 205·18                                            |
| 1918    | 266·96                                            |
| 1919    | 224·40                                            |
| 1920    | 194·93                                            |
| 1921    | 197·90                                            |
| 1922    | 175·09                                            |
| 1923    | 175·09                                            |
| 1924    | 188·86                                            |
| 1925    | 174·40                                            |
| 1926    | 189·04                                            |
| 1927    | 166·93                                            |
| 1928    | 172·94                                            |
| 1930    | 180·83                                            |

so very strange when it is remembered that India is comparable not with a European country, many specimens of which are smaller in extent and population than some of our administrative districts, but with Europe as a whole? The problems of population, like many other problems in India, derive their immensity from the very size of the country, and no qualitative conclusions or inferences that are not proved by direct evidence can be held as justifiable.

4. Let us therefore start with a qualitative analysis of the information placed at our disposal by our own and other countries' census reports. Infant mortality is a very sensitive index of general health. Table 4 gives infant mortality rates for British India, and Table 5 for several other countries of the world.

TABLE 5  
INFANT MORTALITY  
Deaths under one year per 1,000 living births

| Country                     | 1921-1925<br>Average | 1925-1930<br>Average |
|-----------------------------|----------------------|----------------------|
| Chile .. .. .               | 265                  | 229                  |
| Straits Settlements .. .. . | 204                  | 203                  |
| Hungary .. .. .             | 187                  | 172                  |
| India .. .. .               | 182                  | 178                  |
| Japan .. .. .               | 159                  | 137                  |
| Bulgaria .. .. .            | 156                  | 147                  |
| Egypt .. .. .               | 144                  | 152                  |
| Italy .. .. .               | 126                  | 119                  |
| Germany .. .. .             | 122                  | 94                   |
| U.S.A. .. .. .              | 98                   | 93                   |
| France .. .. .              | 95                   | 89                   |
| United Kingdom .. .. .      | 78                   | 70                   |
| Netherlands .. .. .         | 64                   | 56                   |
| Australia .. .. .           | 58                   | 52                   |
| Norway .. .. .              | 52                   | 49                   |

These tables are significant. The mortality rate of Indian infants compares very unfavourably with that of such countries as Norway, Holland, Australia, France, the United Kingdom, Germany and the United States. But it is a source of some satisfaction that the Indian rate is steadily decreasing, and now approaches that of many European countries. This, of course, is no ground for complacency, but the tendencies revealed by these facts should serve a reassuring rather than an alarmist purpose. Particularly when people in authority begin to talk gloomily of 'the luxuries of baby weeks'<sup>1</sup> they must be reminded of the fact that it is exactly on account of the new consciousness about child-welfare and maternal health of which baby-weeks are an expression, that the infant mortality rate is showing a welcome tendency to fall. If we yield to the alarmists' pressure and leave the good work alone, either because we are afraid of saving children to swell the next census or because we despair of birth-control clinics that are recommended as an accessory, we will be deepening the evil of ill-health as well as of excessive numbers.

It must be further remembered that the great advance in preventive sanitation and healthy social conditions made in Western countries is primarily responsible for their superior vital statistics. In London<sup>2</sup> itself about two hundred years ago three out of four children died before they reached the age of five. The figures for Egypt, Japan, Bulgaria, Hungary and Italy are even now comparable with those for India. This should encourage us to go farther on the path of positive health reform, which

<sup>1</sup> *Census of India*, 1931, Vol. I, pp. 31-2.

<sup>2</sup> Cf. Sir John Megaw's paper, 'Population and Health in India', and the discussion on it. *Asiatic Review*, April 1934, pp. 243-65.

alone is the lasting remedy for all kinds of unsuitable pre-natal and post-natal conditions.

5. With regard to the next item of our survey, viz. birth- and death-rates and longevity tables based thereon, absolute reliability cannot be claimed. Both in cities and in villages the greatest slackness prevails in this matter. The smallness of villages is an aid to easy intelligence, but the isolation of the village official from superior administrative supervision is a temptation for slacking. Even though the recording of deaths is fairly accurate in cities, that of births leaves much to be desired. The only relieving feature again is that the inaccuracy is growing less and less under the constant pressure of official and non-official criticism. If we do not set much store by the actual figures and are guided only by the tendencies revealed, we need not be misguided by these obvious inaccuracies.

Table 6A gives the recorded birth-rate in British India for every fifth year since 1885 and Table 6B gives quinquennial averages from 1885 to 1930.

TABLE 6A  
BIRTH-RATE PER MILLE (BRITISH INDIA)

| Year | Births per 1,000 | Year | Births per 1,000 |
|------|------------------|------|------------------|
| 1885 | 36·74            | 1910 | 39·52            |
| 1890 | 36·47            | 1915 | 37·82            |
| 1895 | 34·51            | 1920 | 32·98            |
| 1900 | 36·58            | 1925 | 33·65            |
| 1905 | 39·13            | 1930 | 35·99            |

Taking the figures with all their imperfections, it must be said that they reveal a comparatively stationary position, with an occasional tendency

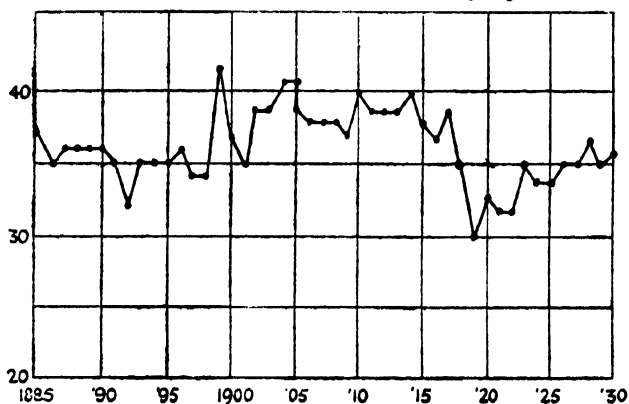
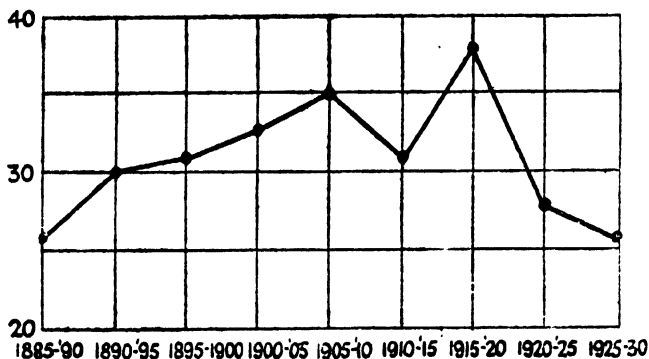
TABLE 6B

BIRTH-RATE PER MILLE (QUINQUENNIAL AVERAGES)

| Period    | Average | Period  | Average |
|-----------|---------|---------|---------|
| 1885-90   | 35·90   | 1911-15 | 39·20   |
| 1891-5    | 34·62   | 1916-20 | 35·97   |
| 1896-1900 | 36·20   | —       | —       |
| 1901-5    | 38·07   | 1921-5  | 33·30   |
| 1906-10   | 37·08   | 1926-30 | 35·19   |

towards a slight decrease. There is a tendency, particularly among village officials, either to neglect these returns as unimportant or to send up what seem to be traditional and customary figures. Sir Albion Banerji,<sup>1</sup> an ex-Dewan of Mysore, and once a distinguished district officer in the Madras Presidency, expresses the following opinion about this trait of Indian vital statistics: 'I venture to say that the vital statistics returns of India are the most unreliable of all the statistics prepared by the Government. I would give you my own experience while I was serving in the Tanjore district, a fairly healthy district and most populous. Cholera was raging in three parts of the district, and carried away thousands of people. For the period relating to a quarter succeeding the months when cholera was raging, the returns had to be prepared by the clerks in the Collector's office, and when the returns were submitted the very clever Brahmin clerk, who was a graduate in mathematics, repeated the figures of the previous quarter. These mistakes do occur, and I venture to think that our vital statistics returns, in spite of the fact that registration is compulsory, are most unreliable, so we need not be too alarmed at

<sup>1</sup> *Asiatic Review*, April 1934, p. 261.

INDIAN BIRTH-RATES PER MILLE, 1885-1930<sup>1</sup>INDIAN BIRTH-RATES: QUINQUENNIAL AVERAGES FROM 1885-1930<sup>1</sup><sup>1</sup> The ordinates are above 20.

these enormous figures that are shown under the increase of births, of infant mortality, or the increase of deaths.' These are then the unsatisfactory conditions under which the vital statistics are gathered, and hence we shall not be justified in deducing exact and positive conclusions from them. But a perusal of the actual figures given in Table 6A and of the quinquennial averages given in Table 6B will suffice to convince readers of the truth of the proposition that the Indian birth-rate is at worst stationary and is showing an occasional tendency to fall, particularly since the beginning of the present century. If a rising birth-rate is a symptom of an undeveloped and worsening demographic situation, and if a falling birth-rate is a sign of a progressive economy, we have very little better to say in our favour than that we are not getting worse and that occasionally we come down on the right side of the fence. This tendency is plainly visible in the two charts accompanying Tables 6A and 6B.

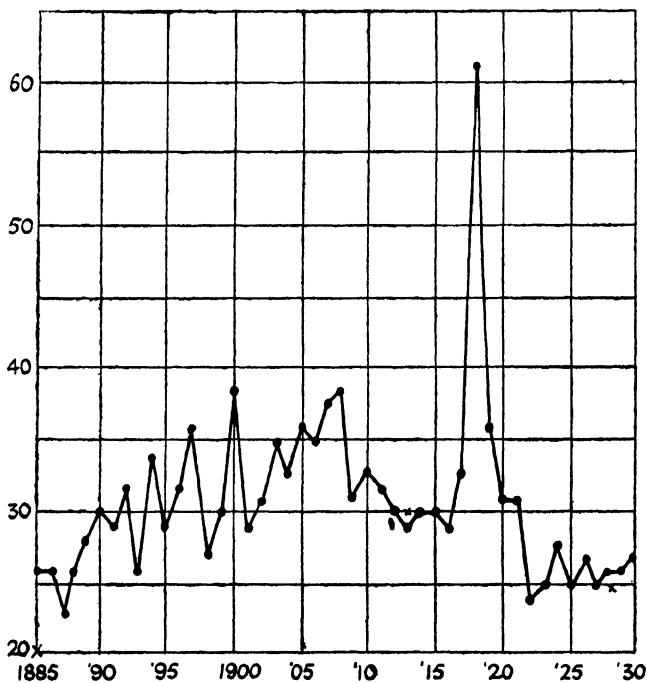
6. The evidence of the corresponding death tables is fortunately more definite. Table 7A gives the death-rate in British India for every fifth year since 1885 and Table 7B gives quinquennial averages for the period 1886-1930.

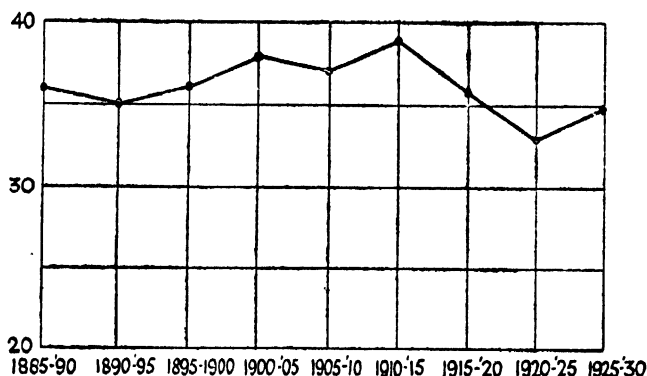
TABLE 7A  
BRITISH INDIA  
DEATH-RATE PER MILLE

| Year | Deaths per 1,000 | Year | Deaths per 1,000 |
|------|------------------|------|------------------|
| 1885 | 26·37            | 1910 | 33·20            |
| 1890 | 30·15            | 1915 | 29·94            |
| 1895 | 28·94            | 1920 | 30·84            |
| 1900 | 38·60            | 1925 | 24·72            |
| 1905 | 35·96            | 1930 | 26·85            |

TABLE 7B  
DEATH-RATE PER MILLE (QUINQUENNIAL AVERAGE)

| Period    | Average<br>Death-rate<br>per 1,000 | Period  | Average<br>Death-rate<br>per 1,000 |
|-----------|------------------------------------|---------|------------------------------------|
| 1886-90   | 25.78                              | 1911-15 | 30.72                              |
| 1891-5    | 30.18                              | 1916-20 | 38.00                              |
| 1896-1900 | 30.71                              | 1921-5  | 27.80                              |
| 1901-05   | 33.42                              | 1926-30 | 25.60                              |
| 1906-10   | 35.40                              | —       | —                                  |

INDIAN DEATH-RATES PER MILLE<sup>1</sup>

INDIAN DEATH-RATES PER MILLE, QUINQUENNIAL AVERAGES, 1885-1930<sup>1</sup>

Again, with due allowance for the essentially inaccurate but gradually improving character of the available figures, it must be clear that the death-rate is tending towards a fall since the beginning of this century and that the tendency is particularly marked in the last decade. This is clear from the quinquennial averages given in Table 7B. Such a definite indication of improvement as revealed in the above table cannot be altogether disregarded. In so far as a falling death-rate is indicative of the improving health conditions of the people, a by no means striking though a definite and appreciable improvement is revealed by the available data.

7. For assessing the intrinsic merits of the situation in India it is, however, useful to institute a comparison between the Indian conditions and those prevailing in foreign countries. In this respect Table 8 will prove of great interest. Taking averages for the quinquennium ending 1930 it is seen that the Indian death-rate is about the highest,

The ordinates are above 20.

TABLE 8  
BIRTH- AND DEATH-RATES

| Country                  | Quinquennial average 1926-30 Birth-rate | Quinquennial average 1926-30 Death-rate | Effective birth-rate |
|--------------------------|-----------------------------------------|-----------------------------------------|----------------------|
| 1. British India ..      | 35.7                                    | 26.0                                    | 9.7                  |
| 2. Egypt .. ..           | 44.4                                    | 26.2                                    | 18.2                 |
| 3. Japan .. ..           | 33.4                                    | 19.5                                    | 13.9                 |
| 4. Italy .. ..           | 26.8                                    | 16.0                                    | 10.8                 |
| 5. Roumania ..           | 35.2                                    | 21.2                                    | 14.0                 |
| 6. New Zealand ..        | 19.7                                    | 8.6                                     | 11.1                 |
| 7. U.S.A. .. ..          | 19.7                                    | 12.0                                    | 7.7                  |
| 8. France .. ..          | 18.2                                    | 16.7                                    | 1.5                  |
| 9. Sweden .. ..          | 15.9                                    | 12.1                                    | 3.8                  |
| 10. England and Wales .. | 16.7                                    | 12.1                                    | 4.6                  |
| 11. Germany ..           | 18.4                                    | 11.8                                    | 6.6                  |

though the Indian birth-rate is by no means in such a conspicuous position. There is a school of thought which believes that the death-rate can never go down unless the birth-rate goes down.<sup>1</sup> These people<sup>2</sup> allude in particular to the case of Japan. Their contention is that in spite of the increasing wealth of the Japanese people and in spite of their improving health services their death-rate is comparatively high, on account of the fact that the Japanese, who are strongly opposed to artificial birth restriction, do not care to reduce the birth-rate. Whatever might be the biological or eugenic justification for such an argument, clearly it can have no direct and immediate application to conditions in India. Japan, Italy and Roumania, whose

<sup>1</sup> P. K. Wattal, *The Population Problem in India* (1934), pp. 53-60.

<sup>2</sup> Sir John Megaw, *op. cit.*, pp. 246-7.

birth-rates are very nearly comparable to the Indian, have still a much lower death-rate than what India has. Is it not clear from this glaring testimony that the most urgent and significant cause of a high death-rate in India is other than a high birth-rate? This cause is, of course, to be found in the backward condition of the health services and the inadequate resources of the people.

The position that India occupies in respect of both birth- and death-rates is very clearly exhibited in the last column of Table 8. It will be seen that India has an effective birth-rate which is lower than that of Egypt, Japan, Italy, Roumania and New Zealand, while the United States, France, Sweden, England and Germany have a smaller rate of increase than India. Japan and New Zealand are countries with a progressive economic organization, and still they show a higher effective birth-rate than India. This point has some significance inasmuch as all the countries having a lower effective birth-rate than India are economically much more progressive. Economic progress is characteristic of Japan and New Zealand on the one hand, and of England, France and Germany on the other. The explanation of a lower effective birth-rate must, therefore, be sought not only in the economic condition of the people of these countries, but also in their psychological attitude to life and in their social institutions. Apart from the disturbing influence of the Great War on the birth- and death-rates of the leading combatants, it is clear that the increasing adoption of artificial birth restriction is an important cause of the narrowing margin between births and deaths in most western European countries. Both in England and in Germany this tendency is steadily on the increase, and attempts are being made, at least in

Germany, to counteract the effects of what is considered an anti-national tendency on the part of private citizens. In addition, therefore, to economic conditions and health services psychological traits, social institutions and national ideals have a good deal to answer for in the actual birth-rate of a given country.

8. The actuarial tables attached to the census reports contain some information which is directly significant for our purpose of discovering the tendencies of population movements in India. The figures regarding the expectation of life at birth fall into this class. These are given in Table 9A and Table 9B gives corresponding figures for certain other countries for purposes of comparison. Table 9C gives details regarding the improvement of this figure in the case of England and Wales.

TABLE 9A  
EXPECTATION OF LIFE AT BIRTH IN INDIA

|          | 1881  | 1891  | 1901  | 1911  | 1931  |
|----------|-------|-------|-------|-------|-------|
| Male ..  | 23·67 | 24·59 | 23·63 | 22·59 | 26·91 |
| Female.. | 25·58 | 25·54 | 23·96 | 23·31 | 26·56 |

TABLE 9B  
EXPECTATION OF LIFE AT BIRTH (OTHER COUNTRIES)

|         | Japan<br>1921-5 | Sweden<br>1921-5 | Italy<br>1921-2 | England<br>and<br>Wales<br>1920-2 | France<br>1920-3 | Germany<br>1924-6 | Russia<br>(Europe)<br>1926-7 | Spain<br>1908-23 |
|---------|-----------------|------------------|-----------------|-----------------------------------|------------------|-------------------|------------------------------|------------------|
| Male .. | 42·06           | 60·72            | 49·25           | 55·62                             | 52·19            | 55·97             | 41·93                        | 42·28            |
| Female  | 43·20           | 62·95            | 50·75           | 59·58                             | 55·87            | 58·82             | 46·73                        | 42·28            |

TABLE 9C

## EXPECTATION OF LIFE AT BIRTH

## ENGLAND AND WALES

| Census year | Expectation at birth (years) |
|-------------|------------------------------|
| 1901        | 44·07                        |
| 1911        | 46·04                        |
| 1921        | 55·62                        |

It will be futile to trace any steady movement for better or worse in the Indian age statistics. Apart from the general deficiencies in the system of census administration, the comparative ignorance and prejudice of most Indians are almost an insuperable bar to the collection of exact data for calculating the expectation of life. It is not, however, alleged that these deficiencies are increasing in their significance ; and hence we may be tolerably near the truth in saying that the expectation of life at birth, both for the male and the female population, is not worsening ; if anything it has slightly improved during the last two decades. This does not, however, detract from the gravity of the appalling situation revealed when the Indian figures are compared with the foreign : Sweden, England, France, Germany—these have more than double the expectation of life in India. Even such countries as Russia, Japan, Italy and Spain have substantially a higher expectation of life than India. This would show what a tremendous waste of human life and energy is involved in premature deaths in India. The conditions thus revealed are so immeasurably bad that the slight improvement noted in the expectation of life during the last few years pales into insignificance. Whereas in India the expectation of life at birth increased

from 24 to 26·6 during the last thirty years, the increase in England during the years 1901 to 1921<sup>1</sup> was from 44 to 56. Neither the expectation of life nor the rate of its increase is at all satisfactory in India, and the situation calls for very urgent reform through private and public action.

9. It appears that conditions of longevity have settled down at such a low level in keeping with our social practices and economic and climatic conditions that though the mortality in India is very high and the expectation of life very low, the distribution of the total population among the significant age-groups does not show any marked variation from census to census nor from the prevailing conditions in other healthier and richer countries. This is clear from the following three tables: 10A, 10B and 10C.

The classification of a people as between working and non-working, or between children, adults and old persons must be guided by local conditions. Not only is the expected span of life comparatively short in India but owing to lack of educational

TABLE 10A

PERCENTAGE OF WORKING AND NON-WORKING AGE-GROUPS IN INDIA

|      | Below<br>10 | Working<br>10-50 | Old<br>50-above |
|------|-------------|------------------|-----------------|
| 1901 | 26·8        | 61·9             | 11·3            |
| 1911 | 27·7        | 61·0             | 11·3            |
| 1921 | 27·4        | 61·1             | 11·5            |
| 1931 | 28·5        | 62·0             | 9·5             |

<sup>1</sup> Table 9C.

TABLE 10B  
DISTRIBUTION OF POPULATION ACCORDING TO  
AGE-GROUPS

| Year | Country   | Below<br>10 | Between<br>10-50 | Rest |
|------|-----------|-------------|------------------|------|
| 1917 | Egypt     | 28.0        | 58.4             | 13.6 |
| 1927 | "         | 27.4        | 60.0             | 12.6 |
| 1910 | U.S.A.    | 22.2        | 63.7             | 14.2 |
| 1920 | "         | 21.7        | 63.1             | 15.5 |
| 1930 | "         | 19.6        | 63.2             | 17.3 |
| 1925 | Japan     | 25.4        | 59.6             | 15.1 |
| 1930 | "         | 26.2        | 58.3             | 15.5 |
| 1910 | Germany   | 23.4        | 61.2             | 15.4 |
| 1930 | "         | 16.6        | 62.5             | 20.9 |
| 1911 | France    | 17.8        | 58.7             | 24.0 |
| 1926 | "         | 14.8        | 59.8             | 25.4 |
| 1911 | Australia | 22.0        | 64.2             | 13.8 |
| 1932 | "         | 19.1        | 62.6             | 18.3 |
| 1911 | India     | 27.6        | 61.0             | 11.3 |
| 1921 | "         | 27.4        | 61.3             | 11.5 |
| 1931 | "         | 28.3        | 62.0             | 9.7  |

TABLE 10C  
PERCENTAGE OF MINOR (1-20) ; WORKING (20-50) ; AND AGED  
POPULATION (50- )  
BRITISH INDIA

| Census<br>Year | Minor<br>(below 20) | Working<br>(20-50) | Aged<br>(50-above) |
|----------------|---------------------|--------------------|--------------------|
| 1901           | 47.0                | 41.5               | 11.5               |
| 1911           | 47.0                | 41.7               | 11.3               |
| 1921           | 47.4                | 41.2               | 11.4               |
| 1931           | 49.2                | 41.3               | 9.5                |

facilities the age at which a person begins to lend assistance in productive work is comparatively lower. For this reason we have taken the ages 10 to 50 as the working period of life in India. For the urban

and in particular for the socially superior classes the limit of ten years is obviously too low. But for the large percentage of rural population belonging mostly to the economically backward classes ten years is by no means an underestimate of the age of economic usefulness. Table 10A will show that 61 to 62 per cent of the total population of India has been regularly found in this group. In this respect Indian figures are closely approximating to those of most foreign countries revealed by Table 10B. A close examination of these two tables will, however, show very significant differences in the two other columns. Wherever longevity is high<sup>1</sup> the proportion of old persons to children is large, and wherever expectation of life is low the proportion of children to old persons is large. India falls definitely in the second category. At the last census the proportion of old persons has definitely been lowered, and this runs counter to the tendency<sup>2</sup> herein noted. It must, however, be remembered that the close of the previous decade, i.e. the 1911-21 decade, witnessed an epidemic which took a heavy toll of elderly persons. The most disquieting feature is, of course, the comparatively stationary nature of the Indian age distribution. In most other countries, Japan being the prominent exception, the ratio of persons under ten to the total population has been appreciably lowered during the last few years. That

<sup>1</sup> Compare Tables 9A, 9B and 9C.

<sup>2</sup> 'According to Sundbärg a normal population has about one half of its total between the ages of 15 and 50, and the proportion of those above that age-group to those below it indicates whether the population is increasing, stationary or decreasing. The youngest of the three population groups must be double the eldest if the population is to continue to grow. Just short of that point it may be stationary, but if the elder continue to exceed the younger the population must be regressive.'—*Census of India, 1931*, Vol. I, p. 87.

the increased adoption of birth restriction is a likely cause of the falling proportion of children to the total population is indicated by the figures for France and Germany in Table 10B. In France birth restriction has been normally prevalent for a long time, whereas in Germany this practice is known to have been on the increase during the last few years preceding the rise of Nazism. This fact has had its influence in lowering the ratio of children in Germany to a greater proportionate extent than the fall in the French ratio. No such downward tendency is, however, visible in India. This fact indicates that the increase in expectation of life indicated by actuarial figures given in Table 9A is more apparent than real and that on the whole we have settled down to conditions of a low expectation of life.

The position is clearer still if we adopt age 20 as the dividing line between the ages of minority and of working usefulness. In view of the heavy wastage of life consequent upon early deaths, there is always a large portion of the population which is in a sense out of action in the matter of wealth production. The early age at which children have to enter the field is not without its intimate relation to the shorter expectation of life and the paucity of maturer persons.

10. It is common experience that though by the process of a selective adjustment the ratio of males to females in a stationary society is about half, with the growth of peaceful industrialism and of increasing incomes, the ratio<sup>1</sup> of females to males increases.

<sup>1</sup> ' The first fact to notice in seeking the cause of this disparity is that in all western communities more boys than girls are born; the excess of male births ranging from twenty to sixty per thousand. The mortality amongst boys, especially in the first year of life, is greater than that of girls, and the numbers become equal in most countries between the ages of fifteen and twenty.

The ratio of the two sexes to one another, therefore, serves as an interesting sidelight on the population situation. Tables 11A and 11B are framed to bring out this side of Indian population movements.

In India, so far as the census figures show—if in this respect at least they might be considered sufficiently reliable—the ratio of males to females is higher than 50 per cent and is showing no signs of a falling tendency. In other countries, even where the male ratio is higher than half, there is a definite tendency towards a fall. This disparity of tendencies revealed by the figures for the sex ratio is, of course, indicative of divergent social and economic conditions. Not only are conditions of life in India more unfavourable to female than to male lives, but, except in the highest class, there is not enough ease and comfort available to the women to enable them to resist the natural wastage of their vital powers. The ratio between male and female population, however, is by no means an infallible or even a very significant, relation. Hence in the absence of more reliable data the mere existence of a slight disproportion between the sexes must not be construed as a proof of deteriorating or backward conditions. As in the present study we have centred our attention

---

Then it appears that the dangers to which men are specially subject in middle age, industrial accidents, war and exposure to weather, are more deadly than those encountered by women, of which the chief is child-birth, and the women begin to predominate in those years. In old age "the weaker sex" displays more vitality than the other, and increases its lead.'—Harold Wright, *Population*, p. 152.

'Although the birth-rate of males exceeds that of females, there is generally a greater mortality among males, due in part to their more dangerous occupation, in part to their more unregulated life. In less civilized older countries there is usually an excess of males, owing in all probability to the fact that more of the arduous labour there falls to the lot of women.'—E. R. A. Seligman, *Principles of Economics*, eleventh edition, p. 54.

TABLE 11A

DISTRIBUTION OF POPULATION BY SEX  
INDIA

| Census Year | Total | Total  | Per cent | Per cent |
|-------------|-------|--------|----------|----------|
|             | Male  | Female | Male     | Female   |
| 1901        | 149   | 144    | 51.0     | 49.0     |
| 1911        | 160   | 153    | 51.0     | 49.0     |
| 1921        | 164   | 155    | 51.4     | 48.6     |
| 1931        | 182   | 171    | 51.6     | 48.4     |

TABLE 11B

DISTRIBUTION OF POPULATION BY SEX  
OTHER COUNTRIES

| Year | Country   | Per cent<br>Male | Per cent<br>Female |
|------|-----------|------------------|--------------------|
| 1917 | Egypt     | 50.1             | 49.9               |
| 1927 | "         | 49.8             | 50.2               |
| 1910 | U.S.A.    | 51.5             | 48.5               |
| 1920 | "         | 51.0             | 49.0               |
| 1930 | "         | 50.6             | 49.4               |
| 1925 | Japan     | 50.2             | 49.8               |
| 1930 | "         | 50.4             | 49.6               |
| 1910 | Germany   | 49.3             | 50.7               |
| 1930 | "         | 48.6             | 51.4               |
| 1911 | France    | 49.1             | 50.9               |
| 1926 | "         | 48.0             | 52.0               |
| 1911 | Australia | 51.9             | 48.1               |
| 1932 | "         | 50.8             | 49.2               |
| 1911 | India     | 51.2             | 48.8               |
| 1921 | "         | 51.4             | 48.6               |
| 1931 | "         | 51.5             | 48.5               |

on population movements in India as a whole, the very interesting problems arising out of a marked disproportion between males and females in certain specified castes or areas cannot here be discussed.<sup>1</sup>

II. The distribution of the population as between agriculture and other pursuits is significant from at least two standpoints. Excessive reliance on agriculture, particularly if it is practised by non-intensive and non-scientific methods, has a definitely

<sup>1</sup> On this topic the following extracts from the *Census of India, 1931*, pp. 196-8, will be read with interest :—

'A good deal of recent work on sex ratios has tended to the view that an increase in masculinity is an indication of declining population. Clearly that is not the case in India as a whole. . . . It is not unlikely that the caste system itself definitely tends towards a preponderance of masculinity. Westermarck takes the view that a mixture of race leads to an increase in the proportion of females. . . . Heape likewise concludes that inbreeding increases masculinity . . . Since the higher the caste the stricter, in the past at any rate, the ban on external exogamy, this tendency would show more patently in the higher caste and explain why the proportion of females to males increases in inverse ratio to social status. . . . This is well illustrated by the figures for Bombay where the whole Hindu population has been divided up according to education and social status into advanced, intermediate, backward and depressed classes. For the advanced castes the ratio of women to men is 878 per 1,000, for the intermediate castes it is 935 per 1,000, for the aboriginal tribes 956, and for other backward 953 while for the depressed classes it rises to 982 per thousand males. On the other hand the ratio for the Muslims taken as a whole in the same province is only 809 females to 1,000 males. . . . It is probable that some proportion of the excess number of males both among Muslims and Brahmans or other high-class Hindus is to be accounted for by the purdah system, not so much because there is a deliberate concealment of females, as because it makes the household generally more difficult of access to the enumerator, who might be tempted to put down the names of the members of the household personally known to him and to omit those unknown, among whom the women of the household would naturally preponderate, to avoid having to make himself a nuisance to the inmates. . . . Local conditions may also have some bearing on the case, as the proportion of females to males is much higher in the damp climate of the south and the east than in the drier Deccan and north-west. . . .'

rusticating effect on the population. A variety of pursuits makes for a fuller and progressive culture having an intimate bearing on the attainment of welfare by the population. Secondly, the prospects of the same territory supplying expanding means for an increasing population to live a rising standard of life are definitely brightened by the progress of industrialization. Thus, though extreme fertility coupled with an exceptionally low standard might result in very great density even in agricultural areas—such for instance as 4,090 per sq. mile in a village in Cochin State<sup>1</sup>—still as a general rule industrial countries can hope to maintain at an improving standard a bigger population than what an agricultural country can. From both these standpoints the accompanying tables of occupational distribution of the population for India and certain other countries will be found interesting. Table 12A gives the distribution of the total population of several countries in three classes: (1) agriculture, fishing and other primary industries; (2) mining, industry, transport, trade and other industries and occupations incidental to the working out of modern industrial life; and (3) the rest. Figures are so arranged as to indicate the tendencies of recent years. Table 12B gives the figures for All-India, and Table 12C for British India and the Indian States.

The comparability of these figures with corresponding figures in previous census reports has been considerably affected by an important change in method. The previous figures for the occupational distribution of the population were arrived at by compiling the recorded answers to a direct question to that effect put to each householder by the census enumerator. This procedure resulted in a

<sup>1</sup> *Census of India, 1931, Vol. I, p. 27.*

TABLE 12A  
OCCUPATIONAL DISTRIBUTION OF THE POPULATION

| Year | Country          | Agriculture,<br>Fishing,<br>etc. | Mining,<br>Industry,<br>Trade,<br>Marine,<br>Transport | Rest |
|------|------------------|----------------------------------|--------------------------------------------------------|------|
| 1917 | Egypt            | 60.2                             | 20.8                                                   | 19.0 |
| 1927 | "                | 67.0                             | 23.0                                                   | 10.0 |
| 1910 | U.S.A.           | 33.1                             | 47.1                                                   | 19.8 |
| 1920 | "                | 26.3                             | 51.2                                                   | 22.5 |
| 1930 | "                | 22.0                             | 51.4                                                   | 26.6 |
| 1920 | Japan            | 53.8                             | 36.5                                                   | 9.7  |
| 1930 | "                | 50.4                             | 38.0                                                   | 11.6 |
| 1925 | Germany          | 30.5                             | 57.7                                                   | 11.8 |
| 1921 | France           | 41.5                             | 46.5                                                   | 12.0 |
| 1926 | "                | 38.3                             | 50.3                                                   | 11.4 |
| 1921 | Italy            | 56.1                             | 35.0                                                   | 9.9  |
| 1931 | "                | 46.3                             | 43.3                                                   | 10.4 |
| 1911 | U.K.             | 7.7                              | 65.9                                                   | 26.4 |
| 1921 | "                | 6.8                              | 68.1                                                   | 25.1 |
| 1911 | Australia        | 24.2                             | 56.2                                                   | 19.6 |
| 1921 | "                | 22.9                             | 58.4                                                   | 18.7 |
| 1921 | British<br>India | 72.3                             | 17.9                                                   | 9.8  |
| 1931 | "                | 67.1                             | 17.5                                                   | 15.4 |

TABLE 12B  
OCCUPATIONS OF THE INDIAN PEOPLE

| Year | Agricultural | Non-<br>agricultural<br>industry | Rest |
|------|--------------|----------------------------------|------|
| 1901 | 69           | 23                               | 8    |
| 1911 | 72           | 19                               | 9    |
| 1921 | 73           | 18                               | 9    |
| 1931 | 67           | 17                               | 16   |

TABLE 12C

PERCENTAGE OF AGRICULTURAL POPULATION IN BRITISH INDIA  
AND INDIAN STATES

|                  | 1901 | 1911 | 1921 | 1931 |
|------------------|------|------|------|------|
| British India .. | 68.5 | 73.8 | 74.4 | 67.0 |
| Indian States .. | 60.0 | 68.0 | 68.0 | 67.0 |

disproportionately large number of people declaring themselves as being dependent on agriculture, which, according to Indian ideas on the subject, is the most respectable occupation. At the 1931 census no direct questions bearing on this topic were put to householders. The number of the total population dependent on agriculture was compiled from answers to several indirect queries such as those bearing on principal and subsidiary occupations, and on the number of dependants. The result has been that in many cases women, who under the old system would have been returned as agricultural workers, and, therefore, as dependent on agriculture, have now been returned as domestic workers, owing to the snobbish preference for domestic over field labour as suitable for women of respectable family. The number of such cases has been estimated<sup>1</sup> by the census authorities at about 7,000,000. If this is included in the figure for persons dependent on agriculture, the percentage of the population classified as agricultural will rise to 69, and the percentage for 'the rest' will be lowered to 14. As a general caution, attention must be drawn to the avowal of the Census Commissioner that of all census tables the least reliable is that giving the distribution of the people by occupations. This is due partly to

<sup>1</sup> *Census of India, 1931, Vol. I, p. 276.*

the multiplicity and unsteadiness of occupations followed by a large number of people and partly to the limited efficiency of the census organization.

There is an important reason which further vitiates the significance of the occupational figures in the 1931 census report. The depression of 1929 and subsequent years, the consequent unemployment in industry, trade and public services—all these tended to reduce the number returned for a definitely non-agricultural occupation, and to swell the number returned as agricultural or miscellaneous. Only one thing is clear beyond doubt, and it is that there is no evidence to show that the percentage of population dependent on agriculture is increasing. It will, however, be seen that the proportion of people living on industrial and allied pursuits has slightly fallen and the miscellaneous group has gained at the cost of the two others. In India where mechanized industries have not advanced to a great extent and where economic life is yet organized on a small scale, the prospects of a really remunerative group of miscellaneous pursuits are very limited. It is true that some industrialization has resulted during the last decade, which has unfortunately closed with the economic depression. All the same the falling industrial figure, which according to our classification includes trade, transport, etc., is by no means a healthy sign.

A comparison with the figures for other countries during the last few years is only partially helpful. The authors of the *Statistical Year Book of the League of Nations*, writing about the occupational statistics of different countries, state as follows: 'The differences in the scope and classification of the returns are such that, with a few exceptions, the national statistics cannot be compared. Moreover,

comparisons between the successive censuses of the same country are often difficult if not impossible. The divergences between one country and another are not due solely to statistical procedure, but frequently to differences in national occupational and industrial structure. Similarly, changes made at the time of a new census are due, not only to a desire for improvement, but also to the growing complexity of the structure.' It will be wrong to read in the contrasted figures of different countries a reliable index of the nature of economic changes. From the nature of changes indicated by the statistics of each country it is possible to know only roughly the trend of development for that country. Thus it will be noted that the United States developed industrial in preference to agricultural economy ; so did Japan, France, Italy, Australia, and even the United Kingdom. Egypt developed both her agriculture and industry by reducing dependence on the miscellaneous group. Whereas India maintains a paltry 17 per cent of her population by industry and industrialized pursuits, Australia, England, Germany, France and the United States have as much as 58, 68, 58, 50 and 51 per cent respectively of their population dependent on occupations in this group. It is more significant, as Table 12A will show, that high as these percentages are, they are still tending towards an increase. Even such late arrivals in the industrial arena as Italy, Japan and Egypt have a higher and an increasing industrial ratio than India. In the light of these figures it must be definitely stated that the progress of industrialization in India is much too slow to meet the requirements of the situation. There is room for some encouragement in the fact that the agricultural percentage has not increased, and that with all the evil results of the

great depression the industrial ratio has not moved down very considerably. The development of non-agricultural pursuits on a more intensified and comprehensive scale than has been attempted hitherto is clearly indicated as a pressing reform in India. The increment in the ratio of the residuary class is principally contributed to by the nondescript unemployed and under-employed. From this standpoint also the situation calls for urgent economic reform.

12. As an index of the tendency of the movement of Indian population it will also be interesting to study the figures for the distribution of the population as between urban and rural areas. The significance for us of such a distribution is again twofold. Firstly the cities and the towns are centres of non-agricultural pursuits such as industry, arts and trade. Moreover, it is here that the people imbibe the civic and progressive notions which alone can serve as a leaven in the mass of backwardness and apathy. The five tables given below, viz. 13A, 13B, 13C, 13D and 13E, give all the relevant information on the subject.

TABLE 13A  
PERCENTAGES OF RURAL AND URBAN POPULATION  
ALL-INDIA

| Year | Percentage Rural | Percentage Urban |
|------|------------------|------------------|
| 1901 | 90.21            | 9.89             |
| 1911 | 90.65            | 9.45             |
| 1921 | 89.70            | 10.30            |
| 1931 | 89.00            | 11.00            |

TABLE 13B  
BRITISH INDIA

| Year              | Percentage Rural | Percentage Urban |
|-------------------|------------------|------------------|
| 1901              | 90.5             | 9.5              |
| 1911              | 90.6             | 9.4              |
| 1921              | 89.9             | 10.1             |
| 1931 <sup>1</sup> | 89.1             | 10.9             |

TABLE 13C  
URBAN AND RURAL POPULATION IN ENGLAND AND WALES

| Year | Percentage Rural | Percentage Urban |
|------|------------------|------------------|
| 1911 | 21.9             | 78.1             |
| 1921 | 20.7             | 79.3             |
| 1931 | 20.0             | 80.0             |

TABLE 13D  
NUMBER PER MILLE OF EACH MAIN RELIGION WHO LIVE IN TOWN (1931)

|              | Total population | Hindu | Jain | Zoroastrian | Muslim | Christian |
|--------------|------------------|-------|------|-------------|--------|-----------|
| India ..     | 111              | 105   | 346  | 891         | 135    | 202       |
| Provinces .. | 109              | 106   | 373  | 905         | 121    | 246       |
| States ..    | 118              | 101   | 331  | 782         | 224    | 133       |

<sup>1</sup> Had it not been for the depression the ratio of urban population in this year would probably have been somewhat higher. A large number of industrial workers left the cities and towns, and swelled the rural population at census time. This is illustrated by the fact that in a famine district like Ahmednagar in Bombay Presidency during the last census period the population increased by 35 per cent, while that of Bombay, an industrial centre, registered a comparative decrease.—*India in 1930-31*, p. 148. Even allowing for the fact that during non-famine years the population of famine tracts increases at an exceptionally fast rate, this increase in Ahmednagar, which supplies Bombay with only a small part of its labour force, is not without its significance.

TABLE 13E  
GROWTH OF TOWNS DURING 1921-31

| Class and description of town | No. of towns in class |      | Total population in towns of the class |           | Percentage increase of population in class |      |      |      |
|-------------------------------|-----------------------|------|----------------------------------------|-----------|--------------------------------------------|------|------|------|
|                               | 1921                  | 1931 | 1921                                   | 1931      | 1921                                       | 1931 | 1921 | 1931 |
| I 100,000 and over            | 35                    | 38   | 8,211,704                              | 9,674,032 | 100                                        | 108  | 100  | 126  |
| II 50,000 to 100,000          | 54                    | 65   | 3,517,749                              | 4,572,113 | 100                                        | 130  |      |      |
| III 20,000 to 50,000          | 200                   | 268  | 5,968,794                              | 8,091,288 | 100                                        | 136  |      |      |
| IV 10,000 to 20,000           | 451                   | 543  | 6,220,889                              | 7,449,402 | 100                                        | 120  |      |      |
| V 5,000 to 10,000             | 885                   | 987  | 6,223,011                              | 6,992,832 | 100                                        | 112  |      |      |
| VI Under 5,000                | 691                   | 674  | 2,333,129                              | 2,205,760 | 100                                        | 95   |      |      |

It will be observed from a perusal of Table 13A that for the whole country there has been a noticeable tendency for the population to be more and more urbanized during the last twenty years. The ratio of urbanization, however, is still only about 11 per cent, though in view of the general trend towards greater industrialization we would have expected a higher urban ratio. At most both from the figures for the ratio of agricultural to non-agricultural population given in Table 12B and from the figures in Table 13A it can be said that the trend towards the increase of non-agricultural urbanized pursuits is being maintained. That the population of the town and city areas is principally engaged in industrial and allied pursuits is obvious. But an indirect light on the position is supplied by the contents of Table 13D. Those communities like the Jains and Parsis who have a lion's share of the industry and commerce of the country are in a substantial measure also urbanized communities, as distinguished from the Hindus who are predominantly agricultural, and therefore, a ruralized community. Definite as is the positive indication of the figures for urban and rural population, the extent of the movement towards urbanization is by no means satisfactory. For economic as well as cultural and civic advantages we need a good deal more urbanization than what has already taken place.

The position in England and Wales, as depicted in Table 13C, will show that even now the direction of movement in that country is towards greater urbanization. If this is the case when already over 80 per cent of the population is living in the city, the scope for urbanization in India, even allowing for the essentially agricultural nature of our economy, must be immense. That the increase in the number and

population of large-sized cities in India has been substantial is a fact which is clearly revealed by Table 13E. This is also a welcome sign indicating the growing opportunities of employment in urban areas. The comparatively larger extent of urbanization in Indian States is significant, inasmuch as it is due principally to the greater proportionate industrialization that has latterly taken place in their territories. How far this tendency is due to the less stringent taxation and labour legislation in Indian States, and how far to the comparatively later commencement of industrialization it is not possible to say without further inquiry.

13. From the contents of tables given in this chapter it will be clear that whether we adopt one test or another the reaction is almost uniformly the same. This can be no mere accident, and we feel convinced, that even apart from the direct evidence regarding the material conditions of the people to be adduced in the next chapter, the evidence contained in these facts will have to be admitted as conclusive on three points. These are : firstly, that there is no deterioration in the position as regards the population ; the rate of increase, infant mortality, birth- and death-rates, expectation of life, distribution of age-groups, the occupational and residential distributions—all these indicate a movement pointing in a favourable direction ; secondly, it is equally clear that the movement in the right direction in these respects is very slow ; and thirdly, and lastly, as compared with what we consider to be desirable and what has already been achieved in advanced countries the position in India is about as bad as ever. When we remember the comparatively inexact nature of the quantitative data supplied in India, this paucity of positive and appreciable results

induces a feeling of anxiety for the future. The difficulties in India, social and intellectual as well as economic and political, are of course great. But given a keen desire to achieve an appreciable improvement in the conditions of the people, the evidence of figures adduced in this chapter, all of them from official sources, is by no means very flattering, though it fails to lend colour to the extremely gloomy pictures of the present situation painted by certain people. Whatever melancholy satisfaction there may be in saying that it could have been worse, we have as a result of our study of the facts and figures here reproduced. But this satisfaction is hardly enough to serve as a reliable basis for confidence in the future. Of this, however, more will have to be said when the evidence of figures bearing on the material conditions of the people is passed in review.

## IV

### NATIONAL PRODUCTION

I. As has been observed in the preface to this study a mere increase of population is by itself neither a cause for congratulation nor for commiseration. It is perhaps true that in a healthy society a small and steady increase will be normal unless as a matter of social policy restriction of births has been decided upon as a desirable end. The really dependable indications of the condition of a people are to be found not in largeness or smallness of numbers but in the health and welfare of the population. We have reviewed in the last chapter a number of facts bearing on the conditions of health of the population during the last three decades, and from them we have concluded that though there is no reason to fear that ill-health is increasing, yet the improvement in health is extremely disappointing, judged from the standard of our own ideal or from the prevailing conditions in progressive countries. In this chapter we are going to attempt a survey of the facts bearing on the economic productivity of the people. The proportion between the growth of the population and the increase in productivity is obviously a significant feature of the problem. What exact significance is to be attached to the facts as are revealed by the inquiry must clearly be decided after the facts themselves are ascertained.

2. The two most obvious and ideally the most reliable methods<sup>1</sup> of ascertaining the rate at which the wealth of a people is increasing are unfortunately impracticable in India. Neither a census of production nor a collection of data bearing on incomes of different classes is possible here. A direct and detailed census of production has never been attempted in India. Dr A. L. Bowley and Mr D. H. Robertson, who were brought out from Great Britain to advise the Government of India, among other matters of statistical intelligence, on the organization of a census of production, have recommended that the only practicable census of the wealth of India is one based on sampling. In urban as well as in rural areas, certain centres, groups and families should be intensively studied both from the standpoint of their property and from that of their income. The information thus collected, by official and non-official agencies, will no doubt go a long way in clearing up a good deal of the mystery and uncertainty in which the conception of the Indian national dividend is at present shrouded. But it will take some time before this plan is put into operation. Even then it will not be free from many shortcomings which will reduce its significance. For our present purpose it will be of very limited help, as we have an interest in studying the situation not only as it is but as it is developing. For such an historical and comparative purpose the census of production contemplated along lines suggested by Messrs Bowley and Robertson will have to be repeated at intervals before it can serve as a means

<sup>1</sup> For an exhaustive survey of the several methods used in different countries for estimating national income, see a paper on that subject by Sir Josiah Stamp published in the *Journal of the Royal Statistical Society*, Vol. XCVII, Part III, pp. 423-55 ; and discussion thereon, pp. 455-66.

of enlightening us on the trends of economic and population movements in India. In the meanwhile we have to make the best of such material as already exists.

3. It is not intended in this short study to duplicate the very valuable efforts hitherto made to estimate the *per capita* income of the Indian people at various stages in the recent history of India. Admittedly there is a considerable amount of intelligent guessing involved in these attempts, but with the very limited statistical material at our disposal very little else can be attempted. As the available statistics and the facilities for acquiring first-hand information improve, it might be possible to frame more dependable estimates of Indian incomes. In the past such estimates have originated with Government protagonists like the late Lord Curzon, and once the alleged figures for the income of the Indian people became a subject of controversy, alternative figures were constructed by several non-official writers. It must, however, be noted that the authors of these estimates have been adequately conscious of the limited value to be attached to the actual figures arrived at as a result of elaborate calculations.<sup>1</sup>

4. As an alternative or supplement to this well-worn method, therefore, an attempt is made in this study to trace the changes in those branches of national production about which comparatively accurate information is available. We content ourselves with collecting, arranging and presenting the facts as they are given in official publications. One method of preparing a combined index of those branches of production for which official data are available has been suggested. It is not, however,

<sup>1</sup> The following table giving estimates of the *per capita* income

claimed that the results of this method do more than roughly indicate the direction in which things are moving.

5. In a predominantly agricultural country like India the prime factor in national production is the cultivated area. Table 14 gives the averages for quinquennial periods from 1901, as also the actual figures for every fifth year from 1901.

of Indians according to several authorities calculated at different periods will prove interesting.

| Authority                                        | Year of Calculation | Estimate of annual <i>per capita</i> income (Rs.) | Index of prices 1873 = 100 | Income adjusted to price changes (Rs.) |
|--------------------------------------------------|---------------------|---------------------------------------------------|----------------------------|----------------------------------------|
| Dadabhoy Naoroji ..                              | 1870                | 20                                                | 102                        | 20                                     |
| Famine Commission as corrected by Lord Curzon .. | 1881                | 27                                                | 96                         | 27-8                                   |
| Lord Curzon ..                                   | 1901                | 30                                                | 110                        | 27                                     |
| Findlay Shirras                                  | 1911                | 80                                                | 129                        | 62                                     |
| Wadia and Joshi ..                               | 1913                | 45                                                | 143                        | 30                                     |
| Findlay Shirras                                  | 1921                | 107                                               | 236                        | 45                                     |
| V. G. Kale ..                                    | 1921                | 84                                                | 236                        | 35-9                                   |
| Shah and Khambatta ..                            | 1921                | 74                                                | 236                        | 31-6                                   |
| Findlay Shirras                                  | 1929                | 111                                               | 207                        | 53-10                                  |

Findlay Shirras, *The Science of Public Finance*, pp. 138-49.

*Poverty and Kindred Problems*, p. 42.

P. A. Wadia and G. N. Joshi, *The Wealth of India*, pp. 91-117.

V. G. Kale, *Indian Economics*, pp. 767-70.

K. T. Shah and K. J. Khambatta, *Wealth and Taxable Capacity of India*, pp. 199-200.

TABLE 14  
CULTIVATED AREA (MILLION ACRES)

| Year | Cultivated Area | Index | Period  | Average cultivated area | Index |
|------|-----------------|-------|---------|-------------------------|-------|
| 1901 | 200             | 100   | 1901-5  | 205                     | 100.0 |
| 1905 | 208             | 104.0 | 1906-10 | 218                     | 106.0 |
| 1910 | 223             | 111.5 | 1911-15 | 222                     | 108.0 |
| 1915 | 222             | 111.0 | 1916-20 | 211                     | 103.0 |
| 1920 | 212             | 106.0 | 1921-5  | 225                     | 110.0 |
| 1925 | 220             | 110.0 | 1926-30 | 227                     | 111.0 |
| 1930 | 229             | 114.5 | —       | —                       | —     |

It will be seen from the above table that during the first 15 years of this century considerable additions to the area under cultivation took place. This was due partly to extension of irrigational facilities and partly to the growing demand for Indian raw materials and foodstuffs in foreign countries. Tables 15, 16 and 20 might throw a useful light on this position. It is well known that since the commencement of the Great War the foreign demand for India's raw products has been disorganized and latterly it has shown a tendency to fall. In spite of this fact the total for 1930 was 14.5 per cent above that for 1901, and the average of the last quinquennium is 11 per cent above that of the first five years. Taking into account the fact that the population of British India has increased by 17 per cent in the interval, the percentage of increase in the total cultivated area is not very satisfactory. Attention must, however, be drawn to a qualitative factor of great significance. We refer to this factor, namely irrigation, in Table 15.

Between 1901 and 1915 the total irrigated area increased by about 46 per cent and the latest actual figure is 51 per cent above that of 1901, the latest quinquennial average being 45 per cent above that at the commencement of the century. Irrigation, as we know, is important not only because of its direct effect in insuring agricultural production from drought and in adding to the productivity of the field, but because it also acts as a good spur to an extensive and intensive improvement of agriculture. If we remember that, barring exceptions at either end, the productivity of the soil in India is now stationary except where irrigational facilities are available, we might look upon the percentage of irrigated area as a qualitative multiple of the gross

TABLE 15  
IRRIGATED AREA (MILLION ACRES)

| Year | Irrigated area | Index | Percentage of irrigated to total cultivated area | Period  | Average of irrigated area | Index | Percentage of irrigated to cultivated area |
|------|----------------|-------|--------------------------------------------------|---------|---------------------------|-------|--------------------------------------------|
| 1900 | 33             | 100   | 16.5                                             | 1904-5  | 33.2                      | 100   | 16                                         |
| 1905 | 35             | 106   | 17                                               | 1906-10 | 40.4                      | 121   | 18                                         |
| 1910 | 41             | 124   | 18                                               | 1911-15 | 45.6                      | 139   | 21                                         |
| 1915 | 47             | 142   | 21                                               | 1916-20 | 47.8                      | 145   | 23                                         |
| 1920 | 49             | 148   | 23                                               | 1921-5  | 46.8                      | 142   | 21                                         |
| 1925 | 48             | 145   | 22                                               | 1926-30 | 48.4                      | 145   | 21                                         |
| 1930 | 50             | 151   | 21                                               | —       | —                         | —     | —                                          |

cultivated area. Table 15 given above will show that between 1901 and 1930 the percentage of irrigated to total cultivated area improved from 16.5 to 21 per cent, though for the quinquennium 1916-20 this percentage was as much as 23. But the detailed figures given in this table will clearly show that the percentage of irrigated to total cultivated area has steadily improved. India being a tropical country, the vagaries of the seasons are very considerable. Hence for safety as well as progress a large portion of the cultivated area ought to be provided with irrigational facilities. At present a little more than one-fifth of the total area is thus provided and insured. As judged by the needs, therefore, of a secure and progressive agricultural economy the present percentage of irrigated area is very inadequate. It is, however, increasing at an appreciable rate, and if it has not increased faster in recent years the fact is due to the limited resources of public bodies and the falling demand for agricultural products.

6. The productivity of individual fields, the possibility of better cultivation, the prospect of

TABLE 16  
CULTIVATED AND IRRIGATED AREA PER HEAD OF POPULATION

| Period  | Average<br><i>per capita</i><br>cultivated<br>area<br>(Acres) | Percentage<br>irrigated | Average<br><i>per capita</i><br>irrigated<br>area<br>(Acres) | Index |
|---------|---------------------------------------------------------------|-------------------------|--------------------------------------------------------------|-------|
| 1901-5  | .87                                                           | 16                      | 14.0                                                         | 100   |
| 1906-10 | .90                                                           | 18                      | 16.2                                                         | 114   |
| 1911-15 | .91                                                           | 21                      | 19.1                                                         | 136   |
| 1916-20 | .83                                                           | 23                      | 19.1                                                         | 136   |
| 1921-5  | .89                                                           | 21                      | 18.7                                                         | 134   |
| 1926-30 | .85                                                           | 21                      | 17.9                                                         | 129   |

raising richer and adding subsidiary crops, and generally the progressiveness and security of agriculture are so closely connected with the existence of irrigational facilities that we feel justified in presenting the following interesting table showing the relation between population, total cultivated area, and the proportion of irrigated area to the latter.

It will be seen from figures in column 1 that the average *per capita* cultivated area has slightly fallen during the period taken as a whole. But the percentage of irrigated to total cultivated area has appreciably increased, so that the *per capita* irrigated area has gone on increasing, thus creating the probability of a higher *per capita* production. It will be observed that the *per capita* average both for cultivated and irrigated acreages is higher for the two middle quinquennia than for the last two. The course of our foreign trade which entailed a fall in the demand of foreign countries for our raw materials and foodstuffs must principally account for this fall, though the development of non-agricultural lines of economic activity is not perhaps without its significance in this respect. Still the fall in the last few years is marked and must be noted as a sign of probable shrinkage in agricultural production. Taking the period of thirty years as a whole, however, there is a perceptible though by no means a gratifying improvement.

7. The distribution of the total productive power of a people among the different industries is governed by comparative productivity which in turn depends upon relative social demand. Hence the mere enumeration of figures for a single branch of production is by itself no dependable guide to the general movement of national production. As, however,

agriculture is the chief industry of the people and most of the non-agricultural classes are intimately dependent on the fortunes of the agricultural industry for the profitable pursuit of their own vocations, the indices of agricultural activity might be taken to show the trend of national production in India. At a later stage in this study the progress of the principal non-agricultural lines of production has been reviewed. But here we are concerned to stress the special significance of agricultural activity for national economy in India as a whole. Interest is sometimes aroused in the further distribution of agricultural production among different crops. The first inquiry in this respect, which is very popular, is that regarding the area under food-grains. Information on this point for the period that we have selected will be found in Table 17.

TABLE 17  
AREA UNDER FOOD-GRAINS (MILLION ACRES)

| Year | Area | Index | Period  | Average Area | Index |
|------|------|-------|---------|--------------|-------|
| 1901 | 177  | 100   | 1901-5  | 183.4        | 100   |
| 1905 | 184  | 104   | 1906-10 | 197.2        | 108   |
| 1910 | 204  | 115   | 1911-15 | 199.4        | 109   |
| 1915 | 204  | 115   | 1916-20 | 196.2        | 108   |
| 1920 | 187  | 106   | 1921-5  | 200.6        | 109   |
| 1925 | 196  | 111   | 1926-30 | 199          | 109   |
| 1930 | 203  | 115   |         |              |       |

Here again figures are given for total area under food-grains for every fifth year from 1901, and for averages of each quinquennium. In the 1910-5 quinquennium, it will be observed, the acreage under food-grains had reached its maximum. This was, of course, principally in response to foreign demand,

which considerably fell off later. No account is here taken of the increase in yield due either to expansion of irrigational facilities or to agricultural improvements.

An attempt has been made by some writers to deduce conclusions regarding the population situation in India by working out the *per capita* food-grain area. At first sight and purely from *a priori* grounds it would now appear that this attempt is unsound for many reasons. In the first place, it may be remarked that the distribution of a nation's productive resources among different industrial pursuits is guided by the comparative profitableness of industries, which in its turn depends upon the relative intensity of demand. If a certain amount of labour and capital, instead of being employed in agriculture is being invested in other occupations, the obvious inference is that the demand for agricultural products is no longer as pressing as that for some other non-agricultural products. It might further be argued that even within the agricultural industry itself the production of the several crops is governed by the same principle of comparative intensity of marginal demand. It will be seen from Tables 14 and 17 that though the total cultivated area in the country has increased by 11 per cent during the last thirty years, the food-grain area has increased by a smaller percentage. Obviously the demand for non-food crops was more insistent than that for food-grains, and it paid the agricultural producer to concentrate on the non-food crops. It is open to reformers to argue that unless the elementary wants, granting that these can be defined, of the whole population are satisfied, the production of non-essential utilities should not go on. This is a good maxim for a socialistic or a communistic order

of society. It cannot be used as a basis of comparison between different stages of the progress of a capitalistic economy, such as India's doubtless is.

It must further be noted that during the period to which our inquiry extends the exports of food-grains, other than rice, which is chiefly exported from Burma, has considerably diminished. Table 18 will make this clear. Here is an obvious case of the replacement of external by internal demand. This increase in internal consumption is due to the growth of population and may in part indicate a rise in the standard of living. The fact is that at a given standard of life the quantity of retained food supplies has necessarily a rough parallelism with the growth of population, and no inferences about the general economic or vital conditions can be directly based on these figures. Not only food-grains, but all necessities of life, the demand for which is comparatively inelastic, are as a general rule unsuitable guides for comparison of economic conditions at different times. It must be further remembered that the figures here used are for British India alone. No figures for all the Indian States are available. And yet it is quite certain that many of the Indian States are important granaries, though some of the States have put an embargo on the export of staple food-grains. Thus the figure for the area under food-grains or for their production is by itself quite unsuitable as an index of general economic activity. It is the total agricultural production, or better still, the total wealth production that must be concentrated upon.

Thus in a comparative and historical study of the progress of production in the country as a whole no exclusive importance can be attached to any single item of production. But as an indication of the average standard of life the consumption of

necessaries such as food-grains has real significance, particularly in a country like India. Not only do food-grains form the most important item of the dietary of all classes of people, but most of the cultivation is in the nature of raising food-crops for immediate consumption. The rigid application of the laws of substitution and most productive employment of capital and labour is also open to very serious limitations in India, as conditions are peculiarly static, and in most cases for climatic and other reasons the agricultural producers are perforce led to depend upon some traditional form of agriculture. It must further be noted that there is such a large portion of the population living on and below the margin of subsistence that a more than proportionate increase in the total quantity of food-grains available to the population must be looked for as an indication of improved economic conditions. Figures in Table 17 clearly show that the area under food-crops has not increased proportionately with the growth of the population. Allowance must, however, be made for the extension of irrigation and for the introduction of better farming. Figures for the total food-grain production ranging over the whole period of our inquiry are not available for all the crops. Where they are available, as in the case of rice and wheat, the estimated figures of yield are open to serious doubt. Such figures as are to be had are used in Tables 36B and 37. From Table 36B it will be seen that during the first thirty years of this century the production of rice has increased by 50 per cent, and that of wheat by 14 per cent. Table 37 will demonstrate the fact that the total production of *jowar* and *bajra* has increased respectively by 40 and 80 per cent during the last two decades of our period. If the evidence of these

figures is at all representative of the general production of food-grains in India, there is no reason to believe that the situation in this respect has worsened since the beginning of this century. In any case there is no convincing proof for the view that the production of food-grains has not kept pace, and in fact more than kept pace, with the increase in population.

The figures for the import and export of food-grains in the following table will throw additional light on this aspect of this question.

TABLE 18  
EXPORTS AND IMPORTS OF GRAIN AND PULSE  
(Million Cwt.)

| Year | Total Exports | Exports of rice | Exports other than rice | Imports |
|------|---------------|-----------------|-------------------------|---------|
| 1901 | 43·7          | 34·0            | 9·7                     | ·6      |
| 1905 | 67·2          | 43·0            | 24·2                    | ·6      |
| 1910 | 78·6          | 48·0            | 30·6                    | ·2      |
| 1915 | 48·6          | 28·0            | 20·6                    | 1·1     |
| 1920 | 29·7          | 22·0            | 7·7                     | ·04     |
| 1925 | 61·2          | 52·0            | 9·2                     | ·8      |
| 1929 | 50·0          | 46·5            | 3·6                     | 7·6     |
| 1930 | 52·3          | 45·0            | 7·3                     | 5·6     |

A close observation of Table 18 and a comparison of its contents with Table 17 is very valuable. That much of the extension of the food-grain area between 1905 and 1915 was in response to foreign demand, and that this demand has slackened since the Great War is clear. It is further clear that the export of foodstuffs from India has now dwindled so that the prospects of a greater retained food supply are improved. Those who formerly raised their voice against the export of foodstuffs are now led to

criticize the import of such staples as wheat and rice. As a matter of national policy it is no doubt best to have in normal years an exportable surplus of food-grains. But so long as national production is not planned according to a particular policy but is guided by the exclusive consideration of private gain, no inferences regarding the general economic situation can be drawn from the produce of one crop or of one industry.

8. That the standard of life in India is very low and that there is a very large portion of the population living on and below the margin of minimum subsistence is well known. Hence the cheapening and abundance of such necessities as food-grains and salt is followed by a marked increase in consumption and the contrary process of a rise in price or restriction in supply is attended by a definite contraction of effective demand. This is clear from the following tables of *per capita* salt consumption, which still shows a definite tendency to increase when the price is low, and to contract when the price is high. This is a strong proof of the generally precarious condition of the resources of the Indian people.

TABLE 19  
SALT CONSUMPTION IN INDIA

| Period  | Rate of duty<br>per maund<br>(82½ lb.) | Average<br>annual<br>consumption<br>(Maunds) | Average<br>population<br>figure<br>(Millions) | Con-<br>sumption<br><i>per capita</i><br>(lb.) |
|---------|----------------------------------------|----------------------------------------------|-----------------------------------------------|------------------------------------------------|
| 1903-5  | 2 Rs.                                  | 38,967,276                                   | 303                                           | 10.6                                           |
| 1905-7  | 1 Re. 8 As.                            | 40,163,213                                   | 307                                           | 10.8                                           |
| 1907-16 | 1 Re.                                  | 46,263,472                                   | 320                                           | 11.9                                           |
| 1916-23 | 1 Re. 4 As.                            | 50,662,094                                   | 321                                           | 13.0                                           |
| 1923-4  | 2 Rs. 8 As.                            | 47,611,011                                   | 328                                           | 11.9                                           |
| 1924-9  | 1 Re. 4 As.                            | 51,331,224                                   | 336                                           | 12.6                                           |

The selling price of salt in India is so much under the influence of the salt-tax determined by the Government's fiscal needs that any general conclusions regarding the economic conditions of the people based solely on the consumption of salt are not likely to be accurate. It is, however, certain that the tendency of salt consumption to react so markedly to the burden of the salt-tax is a disquieting sign of the condition of the people. The average *per capita* expenditure on salt is so small and the need for salt is so vital, that a lesser elasticity in its consumption would have been anticipated on grounds of general theory and experience. With the exception of the period between 1916 and 1923, which coincides with the War and post-War boom, the significance of the figures given in the table is uniformly unfavourable. Even a slight rise in the duty on salt is followed by a definite contraction of consumption. Clearly a very large portion of the population finds it impossible to meet in full its want of salt whenever there is even a slight rise in the price. It is even more discouraging that this tendency is showing no sign of abatement.

9. While speaking about the *per capita* food-grain area, it is relevant to draw attention to the important factor of the yield. The yield is affected by irrigational facilities, by improved seed and generally by improvement in methods of cultivation. During the last three decades considerable progress in all these respects has taken place. The increased proportion of the irrigated area has already been pointed out in Tables 15 and 16. It is well known that in certain respects the methods of cultivation have improved, particularly in the irrigated areas and in areas producing for an export market. The area under rice and wheat sown with improved seed is steadily

on the increase. Exact figures extending over a long period and giving detailed information on all these points are not available. Such scattered figures as can be obtained in official publications are of very limited significance. The following table is given only with the purpose of drawing pointed attention to the need of more closely defining the factor of the yield in computing the exact figure for agricultural production in general, and for food production in particular.

TABLE 20  
YIELD PER ACRE (CWT.)

| Year | Crop |       |
|------|------|-------|
|      | Rice | Wheat |
| 1900 | 6.0  | 7.0   |
| 1905 | 6.0  | 8.2   |
| 1910 | 7.1  | 8.3   |
| 1915 | 8.3  | 7.5   |
| 1920 | 7.1  | 7.0   |
| 1925 | 7.8  | 7.5   |
| 1929 | 8.0  | 8.0   |

10. It will not be proper to ignore in the present connexion the cultivation of food crops other than food-grains, such as fruit, vegetables and spices. The importance of such cultivation is more qualitative than quantitative. Not only do these products pay the farmer better than the cultivation of grain, but they serve as an index to the consumption of non-essential foodstuffs, which are an important constituent of a growing standard of life. Table 21 gives the relevant figures in this respect.

These figures show a much steadier rise than the figures for food-grains. As an index of improving

TABLE 21  
FOOD-CROPS OTHER THAN FOOD-GRAINS  
(FRUIT, VEGETABLES, ETC.)

| Year | Area (Million Acres) | Index |
|------|----------------------|-------|
| 1901 | 6.2                  | 100   |
| 1905 | 7.0                  | 113   |
| 1910 | 7.5                  | 120   |
| 1915 | 8.3                  | 134   |
| 1920 | 7.6                  | 123   |
| 1925 | 7.7                  | 124   |
| 1929 | 7.8                  | 126   |
| 1930 | 8.2                  | 132   |

local demand for non-essential foodstuffs they are not without significance.

The increasing consumption of fruit, vegetables and spices is borne out by actual observation, and this circumstance must be read as a sign of improving dietetic conditions, though not for the whole community—the increase being too small to warrant such a conclusion—at any rate for a considerable section.

II. The most remarkable feature of the statistics for cultivated area is the improvement in the commercial crops. The expanding pursuit of cultivation as a business rather than a direct means of subsistence is indicated by this growth. So also the rise of commercial cultivation in the face of a comparatively lower rise in food area would show that less food is being produced because more is not economically necessary, at any rate not so necessary as some other crops are. The margin of maximum demand for food-grains, under the existing standard of life for the different classes, which is admittedly low, having been reached it naturally pays the

cultivator to raise such crops as fibres, cane and seeds. There are ups and downs in every business, but as a rule the commercial crops pay better than the subsistence or food-crops, as in the latter case the conditions both of demand and of supply are comparatively inelastic. The following table gives the relevant figures for cotton, seeds, cane and jute.

TABLE 22  
AREA UNDER COMMERCIAL CROPS

| Year | Cotton | Seeds | Cane | Jute | Total | Index |
|------|--------|-------|------|------|-------|-------|
| 1901 | 10.3   | 12.0  | 2.6  | 2.2  | 27.1  | 100   |
| 1905 | 13.0   | 12.5  | 2.4  | 3.1  | 31.0  | 115   |
| 1910 | 14.4   | 14.5  | 2.5  | 2.8  | 34.2  | 126   |
| 1915 | 11.4   | 14.2  | 2.6  | 2.3  | 30.5  | 115   |
| 1920 | 14.1   | 12.3  | 2.7  | 2.4  | 31.5  | 116   |
| 1925 | 18.1   | 15.1  | 2.8  | 2.9  | 38.9  | 144   |
| 1929 | 16.1   | 16.3  | 2.6  | 3.3  | 38.3  | 141   |
| 1930 | 14.2   | 16.5  | 2.9  | 3.4  | 37.0  | 137   |

It will be seen that there has been on the whole a steady rise in the area under commercial crops, and the extent of such rise during the last thirty years is nearly 40 per cent. If account is taken of the fact that the yield per acre has risen in the case of several commercial crops both on account of irrigational and other improvements, the actual significance of the extension in acreage will be appreciated at its proper worth. Here again the vicissitudes of a particular industry or of industries in general are reflected in the variations from year to year. All the same, taking the leading commercial crops together, there is no doubt that they have shown a most healthy and encouraging tendency towards expansion. When we note the rise in total cultivated area, which is 11 per cent, and that in commercial crops, which is

nearly 40 per cent, the real significance of the limited increase in food-grain area, which is less than either of these figures, will be obvious to us.

There is every reason to believe that even in the most progressive stages of Indian economy agriculture will remain the principal source of national production. As a permanent channel of the increase in national dividend, therefore, the rise in the area under commercial crops is to be welcomed. It is indeed true that a rise in population higher than the acreage under cultivation, if this development is unaccompanied by any considerable development of non-agricultural pursuits, is bound to affect prejudicially the prospects of useful employment for the agricultural population. Though the position of the nation as a whole may not become unsatisfactory, the condition of those who have little or no employment is precarious. The last word on this aspect of the case cannot indeed be said except at the end of this study. It is necessary, however, to state at this stage that our inquiry for the present is regarding the total production of national industry, in agriculture and other pursuits. So far as the former is concerned we find no reason to believe that it is increasing at a rate lower than that of population increase.

12. Fodder crops play an important part in agricultural economy. Both as a means of eking out a living and as an aid towards improving cattle the fodder crops are of great assistance to the farmer. The importance of this crop is well emphasized by the Agricultural Commission when it says that the real solution of the cattle problem in India can only be sought in the extension of fodder crops. In the light of these remarks the following table will be found of some interest.

TABLE 23  
FODDER CROPS

| Year | Area (Million Acres) | Index |
|------|----------------------|-------|
| 1901 | 2.9                  | 100   |
| 1905 | 3.9                  | 134   |
| 1910 | 4.8                  | 166   |
| 1915 | 7.1                  | 245   |
| 1920 | 8.1                  | 279   |
| 1925 | 8.9                  | 307   |
| 1929 | 9.3                  | 320   |
| 1930 | 9.3                  | 320   |

There is a steady and an almost uninterrupted increase in the fodder acreage. Though the direct and indirect significance of this rise is considerable, the actual increase in the index number must be read with great reserve as an accurate measure of the progress of agriculture in general. In fact the whole question of deducing definite conclusions as regards the tendencies of the economic situation from the data for production is beset with a number of difficulties. Some of these will be referred to when we have surveyed the progress in other branches of national production, viz. industries, trade and finance.

13. For assessing the agricultural production of India tolerably reliable basic data are available in the form of total area sown with crops, and to a lesser extent its sub-division into various classes as being irrigated or non-irrigated, or as being under one crop or another. We have used this set of figures in the last few sections to indicate the course of agricultural production in India during the last thirty years. When we come to other branches of national production, viz. industrial, commercial and financial, we have a curious difficulty to face. In many respects

the accuracy of individual items of statistical information is much greater in the case of these departments of our economic life than the agricultural. But the data, more accurate as they are, do not extend to the entire field of production in a given branch. Thus in regard to industries figures extending over the whole period of our inquiry are available only for a few organized branches. Hence the figures that follow should in the first instance be treated as illustrative rather than exhaustive. How far and in what way they might be used for more generalized conclusions will be discussed at a later stage.

14. As indicative of mining and manufacturing industries we propose to give below information regarding the following: (a) the Indian cotton textile industry; (b) the jute industry; (c) mineral production, and (d) total number of workers in several organized industries for which figures are available for the whole period of thirty years. Table 24 gives the relevant figures for the cotton textile industry.

TABLE 24  
COTTON TEXTILE INDUSTRY

| Year | No. of mills | Capital (Crores Rs.) | Workers (Lakhs) | Index Col. 3 | Index Col. 4 |
|------|--------------|----------------------|-----------------|--------------|--------------|
| 1    | 2            | 3                    | 4               | 5            | 6            |
| 1901 | 194          | 17                   | 1.6             | 100          | 100          |
| 1905 | 207          | 17                   | 2.1             | 100          | 131          |
| 1910 | 230          | 20                   | 2.1             | 118          | 131          |
| 1915 | 238          | 19                   | 2.6             | 112          | 163          |
| 1920 | 227          | 36                   | 3.0             | 212          | 188          |
| 1925 | 255          | 42                   | 3.3             | 247          | 206          |
| 1929 | 259          | 35                   | 5.6             | 206          | 350          |

TABLE 24A  
PRODUCTION OF COTTON MILLS

| Year | Total yarn and woven goods (Million lb.) | Quinquennial average | Quinquennial index |
|------|------------------------------------------|----------------------|--------------------|
| 1901 | 693                                      | 738                  | 100                |
| 1902 | 698                                      |                      |                    |
| 1903 | 717                                      |                      |                    |
| 1904 | 737                                      |                      |                    |
| 1905 | 845                                      |                      |                    |
| 1906 | 819                                      | 816                  | 111                |
| 1907 | 827                                      |                      |                    |
| 1908 | 814                                      |                      |                    |
| 1909 | 809                                      |                      |                    |
| 1910 | 808                                      |                      |                    |
| 1911 | 843                                      | 910                  | 123                |
| 1912 | 918                                      |                      |                    |
| 1913 | 901                                      |                      |                    |
| 1914 | 873                                      |                      |                    |
| 1915 | 1,014                                    |                      |                    |
| 1916 | 999                                      | 961                  | 130                |
| 1917 | 986                                      |                      |                    |
| 1918 | 906                                      |                      |                    |
| 1919 | 953                                      |                      |                    |
| 1920 | 961                                      |                      |                    |
| 1921 | 1,027                                    | 1,022                | 138                |
| 1922 | 1,034                                    |                      |                    |
| 1923 | 935                                      |                      |                    |
| 1924 | 1,075                                    |                      |                    |
| 1925 | 1,040                                    |                      |                    |
| 1926 | 1,221                                    | 1,151                | 156                |
| 1927 | 1,234                                    |                      |                    |
| 1928 | 934                                      |                      |                    |
| 1929 | 1,216                                    |                      |                    |

This table will show that the number of mills in India, excluding the States and foreign territory as we have all along done in this study, increased by about 30 per cent during the last thirty years. As units

of production, however, the number of mills have no significance whatsoever. More relevant to our purpose is the capital sunk in this industry. The table will show that this has increased by 106 per cent. The number of persons employed has increased by 250 per cent during the selected period. These facts will bear testimony to the steady and remarkable rise of the Indian cotton industry, particularly after the Great War. It is noteworthy that in spite of the substantial increase in the capital and workers employed in the cotton textile industry, the actual production of cotton mills has increased during the first thirty years of this century by only about 56 per cent.<sup>1</sup> It is, however, remarkable that a steady tendency towards increasing production has been maintained by this representative Indian industry.

15. Another industry in British India which has shown an almost continuous expansion during the last three decades is the jute industry. In its inception this industry had been financed principally

TABLE 25  
JUTE INDUSTRY

| Year<br>1 | No. of<br>mills<br>2 | Capital<br>(Crores)<br>3 | Workers<br>(Lakhs)<br>4 | Index of<br>Col. 3<br>5 | Index of<br>Col. 4<br>6 |
|-----------|----------------------|--------------------------|-------------------------|-------------------------|-------------------------|
| 1900      | 36                   | 7                        | 1.1                     | 100                     | 100                     |
| 1905      | 39                   | 9                        | 1.4                     | 129                     | 127                     |
| 1910      | 58                   | 11                       | 2.2                     | 157                     | 200                     |
| 1915      | 70                   | 12                       | 2.5                     | 171                     | 227                     |
| 1920      | 77                   | 17                       | 2.9                     | 243                     | 264                     |
| 1925      | 90                   | 24                       | 3.3                     | 343                     | 300                     |
| 1929      | 98                   | 26                       | 3.4                     | 371                     | 309                     |
| 1930      | 100                  | 28                       | 3.1                     | 400                     | 282                     |

<sup>1</sup> See Table 24A.

by foreign capital, but latterly the percentage of Indian-owned mills has increased. In the industrial, commercial, financial and agricultural economy of Bengal and, to a considerable extent, of the whole country, the jute industry plays a very important part. Table 25 gives the details of this industry.

It will be observed that though the jute industry is of smaller quantitative importance, both in respect of the capital and workers employed, its rise during the last 30 years has been even more rapid than that of the other textile industry, viz. cotton. The number of mills has increased from 36 to 100. Capital has increased from 7 crores to 28 crores, a 300 per cent rise. Labour employed by jute mills has increased from 1.1 lakhs to 3.1 lakhs, i.e. a 182 per cent increase.

16. After the two textile industries the next in importance are coal, manganese and petroleum, i.e. the mineral group. Here actual figures for production in the several years have been taken. These are set forth in Table 26.

TABLE 26 .  
MINERAL PRODUCTION

| Year | Coal<br>(Million Tons) |       | Manganese<br>(Thousand Tons) |       | Petroleum<br>(Million Gallons) |       |
|------|------------------------|-------|------------------------------|-------|--------------------------------|-------|
|      | Quantity               | Index | Quantity                     | Index | Quantity                       | Index |
| 1900 | 6                      | 100   | 139                          | 100   | 38                             | 100   |
| 1905 | 8.4                    | 133   | 247                          | 178   | 145                            | 382   |
| 1910 | 12                     | 200   | 801                          | 576   | 215                            | 566   |
| 1915 | 17                     | 283   | 450                          | 324   | 287                            | 755   |
| 1920 | 18                     | 300   | 736                          | 530   | 293                            | 771   |
| 1925 | 21                     | 350   | 839                          | 604   | 290                            | 763   |
| 1929 | 23                     | 383   | 994                          | 715   | 306                            | 805   |
| 1930 | 24                     | 400   | 830                          | 623   | 311                            | 818   |

The production of coal, it will be seen, has increased by 300 per cent, that of manganese by 523 per cent, and that of petroleum by 718 per cent. The conspicuous absence of iron and steel in this group will be noticed. This is due to the fact that the rise of this industry dates principally from the days of the Great War, and it was only since the iron and steel industry was protected in 1924 by means of a tariff that remarkable increases in its total production were registered. These facts are borne out by the following table.

TABLE 27  
IRON AND STEEL PRODUCTION  
(Thousand Tons)

| Year | Quantity | Index |
|------|----------|-------|
| 1914 | 442      | 100   |
| 1920 | 558      | 126   |
| 1923 | 804      | 182   |
| 1924 | 1,445    | 327   |
| 1925 | 1,544    | 349   |
| 1926 | 1,629    | 369   |
| 1927 | 1,846    | 418   |
| 1928 | 2,056    | 465   |
| 1929 | 2,429    | 550   |
| 1930 | 1,850    | 419   |

The rise in production of iron and steel between 1914 and 1929 is, as recorded in Table 27, 450 per cent. This industry is at present of great direct and indirect importance to the country. As its rise, however, dates from only the last twenty years, the figures have not been taken into account while constructing a production index for the whole period.

17. A very reliable indication of industrial, as distinguished from agricultural, trading or financial

TABLE 28  
WORKERS IN ORGANIZED INDUSTRIES

| Year | Cotton mills | Jute mills | Woollen mills | Paper mills | Cotton gins and presses | Jute presses |
|------|--------------|------------|---------------|-------------|-------------------------|--------------|
| 1901 | 174,038      | 114,795    | 2,984         | 4,978       | 47,080                  | 18,741       |
| 1905 | 212,720      | 144,879    | 3,491         | 4,012       | 84,664                  | 20,304       |
| 1911 | 221,076      | 201,324    | 3,468         | 4,632       | 89,890                  | 31,426       |
| 1915 | 255,624      | 254,143    | 6,074         | 4,665       | 106,167                 | 26,883       |
| 1922 | 326,439      | 320,115    | 6,381         | 5,904       | 122,248                 | 27,768       |
| 1925 | 330,225      | 331,326    | 7,314         | 5,164       | 131,000                 | 32,500       |
| 1929 | 337,903      | 346,765    | 6,324         | 6,730       | 139,987                 | 37,300       |

| Year | Lac factories | Petroleum refineries | Printing presses | Rice mills | Silk factories | Total     | Index |
|------|---------------|----------------------|------------------|------------|----------------|-----------|-------|
| 1901 | 5,225         | 2,269                | 11,994           | 12,618     | 10,720         | 405,442   | 100   |
| 1905 | 6,442         | 4,071                | 19,635           | 13,939     | 13,262         | 523,423   | 129   |
| 1911 | 8,308         | 9,389                | 23,084           | 21,010     | 5,812          | 619,419   | 153   |
| 1915 | 3,728         | 10,063               | 36,338           | 37,731     | 559            | 741,974   | 183   |
| 1922 | 1,791         | 12,891               | 31,323           | 54,910     | 1,429          | 911,199   | 225   |
| 1925 | 2,112         | 12,474               | 34,714           | 65,562     | 1,654          | 954,045   | 236   |
| 1929 | 2,434         | 12,057               | 38,104           | 76,214     | 1,980          | 1,005,798 | 248   |

activity, is given by the number of persons employed in industrial establishments. In Table 28 an attempt has been made to secure these figures for as many organized industries as have formed subjects of official record throughout this period. As many new industries, large and small, have latterly come into existence, this index gives an incomplete idea of the full industrial expansion. Nor will the figures for all registered factories help to set right the deficiency thus created, as the Factory Acts under which factories have to be registered have been gradually broadened since 1901. Hence the figures for the following industries, viz. cotton mills and presses, jute mills and presses, woollen mills, paper mills, lac factories, petroleum refineries, printing presses, rice mills and silk mills, are used as affording a sufficiently reliable index of industrial employment.

If the several industries mentioned above are grouped together, it will be seen that the total field of industrial employment has increased between 1901 and 1929 by 148 per cent. The figures for the growth of cotton, jute, and mineral production and those for industrial employment in general will give us a fairly significant indication of the increase in total industrial production. It is to be noted, however, that a large portion of the population described as industrial is employed in small handicrafts and as yet no data are available to show whether and to what extent the process of their decay noticed in the last century has now been arrested. Nor are any reliable and representative figures forthcoming with regard to the trend of production in these unorganized industries. We must, therefore, look upon the evidence of organized industry as only partially representative of Indian industry as a whole.

18. The next important section of national production is the trade of the country, internal, coastal and foreign. The internal trade is carried by road as well as by rail. Figures for the former are not available. The figures for total railway traffic in goods are given in the following table, which will serve as a good indicator of the general progress of internal trading activity. It must be remembered that increase in trade, internal and foreign, is not only significant in itself but is also indicative of a general widening of the market and a consequent toning up of the system of production.

TABLE 29  
RAILWAY TRAFFIC

| Year | Mileage | Index | Passengers<br>(Millions) | Index | Weight<br>of goods<br>(Million<br>Tons) | Index |
|------|---------|-------|--------------------------|-------|-----------------------------------------|-------|
| 1901 | 25,365  | 100   | 195                      | 100   | 43                                      | 100   |
| 1905 | 29,097  | 115   | 271                      | 139   | 59                                      | 137   |
| 1910 | 32,099  | 126   | 372                      | 191   | 66                                      | 153   |
| 1915 | 35,833  | 141   | 464                      | 238   | 82                                      | 191   |
| 1920 | 37,029  | 146   | 559                      | 287   | 88                                      | 205   |
| 1925 | 38,579  | 152   | 599                      | 307   | 80                                      | 186   |
| 1929 | 41,724  | 164   | 634                      | 321   | 87                                      | 202   |

From 1901 there has been an increase of 64 per cent in railway mileage and of 121 per cent in passenger traffic. The bulk of Indian passengers travel on business, and hence this increase in passenger traffic is of great economic and social significance. But the really significant figure, as a guide to increased business activity, is the figure for goods traffic. This has increased steadily excepting in one year, to 87 million tons in 1929. The percentage of increase

is 102. This is clearly indicative of an actual augmentation of trading activity.

19. A part of the internal trade of the country and of the redistribution of some of our imports is carried by the coastal traffic. This is an additional trading activity and is also significant as providing employment to indigenous shipping. Table 30 gives figures which will show the expansion of this trade during the last three decades.

TABLE 30  
TOTAL COASTAL TRADE

| Year | Total trade<br>(Crores Rs.) | Index | Index<br>No. of<br>prices | Index<br>adjusted<br>to price<br>variation |
|------|-----------------------------|-------|---------------------------|--------------------------------------------|
| 1901 | 87                          | 100   | 110                       | 100                                        |
| 1905 | 101                         | 116   | 110                       | 116                                        |
| 1910 | 113                         | 130   | 122                       | 117                                        |
| 1915 | 113                         | 130   | 152                       | 94                                         |
| 1920 | 217                         | 249   | 281                       | 97                                         |
| 1925 | 213                         | 245   | 227                       | 119                                        |
| 1929 | 198                         | 228   | 203                       | 124                                        |

The actual increase in India's coastal trade from 1901 to 1929 has been from 87 crores to 198 crores, the percentage of increase being 128. Excepting the year 1925, the uniform trend of these figures is towards a steady rise. If, however, allowance is made for the movement of prices during the several years, it will be seen from the last column of Table 30 that the actual quantitative increase during the period has been only 24 per cent and that there has been a long spell during which the quantities of coastal trade were below those reached in the first decade of the present century. As an index of

production the quantitative rather than the *ad valorem* expansion will be more serviceable.

20. Even more significant for the growth of general business activity are the figures for the foreign trade of the country. Not only is a large number of people employed in forwarding this trade at several stages, but a good deal of the expansion and improvement in our agriculture, industries, transport, finance and insurance is directly traceable to the influence of foreign commerce. It is of course a commonplace of Indian economic thought that the deterioration of our indigenous industries must be set partly to the account of unrestricted foreign imports in the past. The interrelation between the heavy external commitments of India and the conditions of our export trade is also to be duly allowed for. But taken as a whole our expanding exports and imports must be looked upon as an important feature of our present economic life. The figures for foreign trade are susceptible to numerous influences. The nature of the monsoon in India, the condition of crops abroad, variation of

TABLE 31  
FOREIGN TRADE (CRORES Rs.)

| Year | Imports | Exports | Total | Index | Index number of prices | Index of trade adjusted to prices |
|------|---------|---------|-------|-------|------------------------|-----------------------------------|
| 1900 | 77      | 104     | 181   | 100   | 116                    | 100                               |
| 1905 | 104     | 158     | 262   | 145   | 110                    | 153                               |
| 1910 | 129     | 206     | 335   | 185   | 122                    | 176                               |
| 1915 | 134     | 193     | 325   | 180   | 152                    | 137                               |
| 1920 | 336     | 240     | 576   | 318   | 281                    | 131                               |
| 1925 | 226     | 375     | 601   | 332   | 227                    | 170                               |
| 1929 | 241     | 311     | 532   | 294   | 203                    | 168                               |

exchange rates, movements of tariffs—all these affect the foreign trade very vitally. In Tables 31 and 32 figures are given both for individual years and for quinquennial averages.

TABLE 32  
FOREIGN TRADE (PRIVATE MERCHANDISE)  
(Quinquennial Averages)

| Period  | Average imports<br>(Crores Rs.) | Average exports<br>(Crores Rs.) | Average total<br>(Crores Rs.) | Index | Average index of prices | Adjusted Index |
|---------|---------------------------------|---------------------------------|-------------------------------|-------|-------------------------|----------------|
| 1901-5  | 84                              | 131                             | 215                           | 100   | 106                     | 100            |
| 1906-10 | 116                             | 168                             | 284                           | 132   | 127                     | 110            |
| 1911-15 | 150                             | 218                             | 368                           | 171   | 136                     | 104            |
| 1916-20 | 203                             | 252                             | 455                           | 212   | 207                     | 109            |
| 1921-5  | 240                             | 326                             | 566                           | 263   | 237                     | 118            |
| 1926-30 | 244                             | 315                             | 559                           | 260   | 210                     | 131            |

The post-war years were full of increased activity in our foreign trade, an activity far in excess of our pre-war standard measured in terms of the values involved. This period was indeed in the nature of a boom, followed by a comparative lull. Table 31, which is for figures of individual years, shows this variation markedly. Putting the imports and exports together, we find that the value of our foreign commerce was 85 per cent more in 1910 than in 1900, and in 1915 it was only 80 per cent more than in 1900. But the figure for 1920 was 218 per cent in excess of that in the base year and in 1925 the increase was actually 232 per cent. This high level was not kept up in later years, and the figure for 1929 is only 194 per cent in excess of that for 1900. Table 32 is based on averages for each quinquennial period and

smooths out the peculiarities of individual years. It will be found by reference to this table that there is a steady rise in the value of our total foreign trade, the figure for 1926-30 being 260, as against 100 for 1900-5, though the figure for 1921-5 is 263. It is clear that the figures given in this table measure with fair accuracy the expansion in the value of our business activity promoted by foreign trade. If allowance is made for the movements of prices during the period it is found that the actual expansion in the quantities involved in foreign trade is by no means sustained or striking. Thus it will be seen on the basis of figures for the quinquennial years that the figure for 1929 is only 68 per cent above that of 1900. This does not compare very favourably with the figures for 1905 and 1910 which are 153 and 176 respectively. The averages for the six five-yearly periods are even less striking. The average foreign trade in the last quinquennium is only 31 per cent above that in the first quinquennium. It is, however, to be noted that the averages, which are more reliable as indicators of tendencies, are definitely pointing towards an increase. This increase itself is not, however, very rapid or striking. If the adjusted figures for railway, coastal and foreign trade are combined to form a composite index, that would be a reliable indication of our total trading expansion.

21. As neither banking nor organized finance are sufficiently developed in India, it is very difficult to collect representative data for all the financial business of the nation. Even for organized banking and business reliable figures for the whole of our period are not available. It is therefore proposed to review three sets of figures which are presented in the following tables.

TABLE 33  
BALANCE OF DEPOSITS IN SAVINGS BANKS

| Year<br>1 | Total<br>deposits<br>(Crores Rs.)<br>2 | Amounts<br>per<br>depositor<br>3 | Index of<br>Col. 2<br>4 | Postal<br>cash cer-<br>tificates<br>(Crores Rs.)<br>5 | Index of<br>Cols.<br>2 + 5<br>6 |
|-----------|----------------------------------------|----------------------------------|-------------------------|-------------------------------------------------------|---------------------------------|
| 1900      | 10                                     | 122                              | 100                     | —                                                     | 100                             |
| 1905      | 14                                     | 125                              | 140                     | —                                                     | 140                             |
| 1910      | 17                                     | 119                              | 170                     | —                                                     | 170                             |
| 1915      | 15                                     | 90                               | 150                     | —                                                     | 150                             |
| 1920      | 23                                     | 122                              | 230                     | 4 (1921)                                              | 270                             |
| 1925      | 27                                     | 117                              | 270                     | 21                                                    | 480                             |
| 1929      | 37                                     | 160                              | 370                     | 35                                                    | 720                             |

Table 33 gives a detailed account of the progress of deposits in the Postal Savings Banks. These deposits have no direct influence on the finance of productive business. But they serve as a good guide to the growth of the banking habit and the expansion of capital. Since the introduction of the postal savings certificates the figures for mere deposits have suffered in significance. In the above-mentioned table figures for both these methods of postal investment are separately given, though in preparing an index of total financial activity only the figures for savings deposits are relied upon. Our choice of the year 1929 as the last year of comparison is specially justified in this case. It is a common experience of all periods of depression that for want of inviting opportunities of investment elsewhere deposits in banks, and especially in Government banks, go on increasing. The comparatively thrifty purpose of postal savings deposits and the fact that our figures refer to the last pre-crisis year will be sufficient to warrant the reliable and representative character of the figures here used. It will be seen

from Table 33 that with the exception of the year 1915, when there was a mild panic due to doubts regarding the stability of the Government, the deposits in the postal savings banks have shown a steady increase, the figure for 1929 being 270 per cent in excess of that for 1900. The amount per depositor has not, it is true, shown a steady upward tendency, though the figure for 1929 is 160 as against 122 for 1900. This, of course, is partly due to the nature of these deposits and partly to the development since 1921 of postal cash certificates. If the figures for this section are added to the postal deposits the increase on the 1900 figure is as much as 620 per cent. As, however, the element of investment is more prominent in the certificate section than in the deposit section, the figures for the two have not been combined for the final casting up of the expansion in deposits with postal savings banks.

22. In the financial section of business life there are many features such as bank deposits, bank clearings, and issues of capital which can be used to measure the progress of financial activity. As it is our purpose to measure the progress throughout the period of the first three decades of this century, and as figures for all these items are not available for the entire period, we rely, in addition to the postal savings deposits, on the private deposits in the Imperial Bank of India and in the three Presidency Banks which preceded it. These figures are given in Table 34.

Here also it will be noticed that though the figures for the year 1929 are lower than those for 1925 or 1920, which latter years were comparatively boom years, the general trend is towards a steady rise. The total of private deposits in 1929 was 454 per cent above that of 1900.

TABLE 34

PRIVATE DEPOSITS WITH THE PRESIDENCY BANKS AND THE  
IMPERIAL BANK OF INDIA

| Year | Deposits<br>(Crores Rs.) | Index |
|------|--------------------------|-------|
| 1900 | 13                       | 100   |
| 1905 | 22                       | 169   |
| 1910 | 32                       | 246   |
| 1915 | 39                       | 300   |
| 1920 | 78                       | 600   |
| 1925 | 78                       | 600   |
| 1929 | 72                       | 554   |

23. The last set of figures in this category of financial activity is the total paid up capital of joint-stock companies. There is a two-fold significance attaching to this figure. Firstly, it stands for a greater supply of investable capital which is an important constituent of economic progress. Secondly, as most joint-stock concerns are for organized large-scale business, an increase in their

TABLE 35

JOINT-STOCK COMPANIES

| Year | No. of<br>Companies | Paid up<br>capital<br>(Crores Rs.) | Index of<br>Col. 3 | Paid up<br>capital per<br>Registered<br>Company<br>(Thousand<br>Rs.) | Index |
|------|---------------------|------------------------------------|--------------------|----------------------------------------------------------------------|-------|
| 1900 | 1,366               | 36                                 | 100                | 263                                                                  | 100   |
| 1905 | 1,728               | 42                                 | 117                | 243                                                                  | 92    |
| 1910 | 2,251               | 63                                 | 175                | 280                                                                  | 106   |
| 1915 | 2,411               | 85                                 | 236                | 353                                                                  | 134   |
| 1920 | 4,283               | 158                                | 439                | 369                                                                  | 140   |
| 1925 | 4,926               | 268                                | 744                | 544                                                                  | 207   |
| 1929 | 6,317               | 276                                | 767                | 437                                                                  | 166   |

number and in their paid up capital is a definite index of increasing productive activity. The relevant figures are given in Table 35.

It will be seen that during the last three decades the number of joint-stock companies increased by more than 360 per cent and their paid up capital increased by 667 per cent, thus pointing towards a definite increase in the size of the productive unit itself. Deposits in the postal savings banks, private deposits with the Imperial Bank and the paid up capital of joint-stock companies taken together make by no means an unreliable index of the expansion in financial activity.

24. All the figures that we have hitherto presented have given a fairly clear indication as to the direction towards which national production is moving. Whether it is agriculture, industry, trade or finance a definite tendency towards expansion and improvement is traceable. For our purpose, namely that of discovering the tendency, and if possible the approximate extent of the economic improvement of the people, it is necessary first to ascertain the rate of productive expansion in each one of these four departments of production. Later on it will be necessary to deduce an approximate figure for the expansion of national production as a whole.

25. The following tables (36A and B) represent the results of an elaborate attempt made to ascertain the actual increase in the estimated agricultural production during the period. The information supplied by Government in their official publication on the estimates of area and yield of principal crops in India has been used for this purpose. Rice, wheat, sugar-cane, cotton, jute and linseed are the only important agricultural products for which full information regarding yield and prices is readily

available. Tables 36A and 36B contain an elaborate calculation and co-ordination of these figures. For every one of these crops quinquennial averages of yield are given in the first table. Before these could be combined to form a general index of agricultural production it was necessary to give the figure for the yield of each crop its proper proportionate importance. This is done in the table by ascertaining the proportion that the total value of the yield of a particular crop holds to the value of the entire production of the selected crops. On the basis of the quinquennial average proportions contained in this table the general weighted index of agricultural production is framed. This is given in the following table, 36B. It will be seen from this table that the total agricultural production of the country according to official estimates has gone on steadily increasing. The weighted index for the last quinquennium is 44 per cent above the basic figure of 100 for 1901-5. It is well known, in fact the authors of these reports have plainly admitted, that the figures estimated for the yield of the various crops are inaccurate. The nature of this inaccuracy is, however, a matter of controversy. The official view on the subject appears to be that the standard yield tends to be underestimated and hence the official forecasts err on the side of being too low rather than of being too high. Thus the introductory note to the *Estimates of the Area and Yield* for 1906 observes :

‘The estimates are not made for the whole of India and are necessarily, in the most favourable circumstances, only approximations to the truth. The very complete agricultural records in most of the provinces in connexion with the assessment of the land revenue render it possible in many cases to state with great exactness the area sown with each

crop ; but an equally important factor in determining the out-turn, namely the average yield per acre, has to be estimated, and exactness can be obtained only by the most careful analysis of the classes of soil, the methods of cultivation, and the climatic conditions which depend mainly on the quantity and timeliness of the rainfall in every part of the reporting areas. The quantitative estimates are thus often imperfect and they have generally been too low.'

Whatever might have been the particular experience that led to the insertion of the last statement in the official report, it is a common belief that the official estimates err on the other side. There are no reasons given for the view that the officers responsible for experiments regarding average yield incline towards an underestimate. On the other hand the close relation between the revenue collection and the figures for area and the anna estimate are clear grounds for expecting an inaccuracy on the side of over-estimation.

There is even a more widely acknowledged ground for the belief that the indication of later figures for yield should be taken with the greatest reservation. In the earlier estimates crop records were collected only for the principal crops in each area. Thus the figures for the basic and earlier years are shown as unduly low, and against them the figures for later years loom unjustifiably large. Both on account of the connexion between revenue assessment and collection on the one hand and the submission of estimates of area and anna fractions on the other, as also on account of the acknowledged understatement of early years, it is clear that the index of agricultural production based on the official figures for area and yield of principal crops represents the outside limit. In fact the 44 per cent increase

TABLE 36A  
AGRICULTURAL PRODUCTION

| Period  | Rice                         |                             |                                        |                 | Wheat                        |                             |                                        |                 |
|---------|------------------------------|-----------------------------|----------------------------------------|-----------------|------------------------------|-----------------------------|----------------------------------------|-----------------|
|         | Average yield (Million Tons) | Average price per ton (Rs.) | Total value of production (Crores Rs.) | Weight of Index | Average yield (Million Tons) | Average price per ton (Rs.) | Total value of production (Crores Rs.) | Weight of Index |
| 1901-5  | 21.6                         | 101                         | 218                                    | 54              | 7.8                          | 121                         | 94                                     | 24              |
| 1906-10 | 22.3                         | 145                         | 323                                    | 57              | 8.1                          | 150                         | 122                                    | 22              |
| 1911-15 | 28.4                         | 122                         | 406                                    | 57              | 9.7                          | 155                         | 150                                    | 21              |
| 1916-20 | 32.0                         | 173                         | 554                                    | 55              | 9.3                          | 225                         | 209                                    | 21              |
| 1921-5  | 30.8                         | 177                         | 545                                    | 54              | 9.0                          | 240                         | 216                                    | 21              |
| 1926-30 | 32.3                         | 183                         | 591                                    | 58              | 8.9                          | 198                         | 176                                    | 17              |

| Period  | Sugar-cane                   |                             |                                        |                 |                                              | Cotton                                  |                                        |                 |
|---------|------------------------------|-----------------------------|----------------------------------------|-----------------|----------------------------------------------|-----------------------------------------|----------------------------------------|-----------------|
|         | Average yield (Million Tons) | Average price per ton (Rs.) | Total value of production (Crores Rs.) | Weight of Index | Average yield (Millions of bales of 400 lb.) | Average price per bale of 400 lb. (Rs.) | Total value of production (Crores Rs.) | Weight of Index |
| 1901-5  | 2.1                          | 92                          | 19                                     | 5               | 3.2                                          | 110                                     | 35                                     | 9               |
| 1906-10 | 2.0                          | 100                         | 20                                     | 4               | 4.0                                          | 129                                     | 52                                     | 9               |
| 1911-15 | 2.4                          | 106                         | 25                                     | 3               | 4.4                                          | 143                                     | 63                                     | 9               |
| 1916-20 | 2.9                          | 202                         | 59                                     | 6               | 4.4                                          | 255                                     | 112                                    | 11              |
| 1921-5  | 2.8                          | 257                         | 72                                     | 7               | 4.9                                          | 238                                     | 117                                    | 11              |
| 1926-30 | 3.0                          | 265                         | 80                                     | 8               | 5.4                                          | 165                                     | 89                                     | 8               |

| Period  | Jute                                     |                                         |                                        |                 | Linseed                       |                             |                                        |                 | Grand total of value of agricultural production |
|---------|------------------------------------------|-----------------------------------------|----------------------------------------|-----------------|-------------------------------|-----------------------------|----------------------------------------|-----------------|-------------------------------------------------|
|         | Average yield (Million bales of 400 lb.) | Average price per bale of 400 lb. (Rs.) | Total value of production (Crores Rs.) | Weight of Index | Average yield (Thousand Tons) | Average price per ton (Rs.) | Total value of production (Crores Rs.) | Weight of Index |                                                 |
| 1901-5  | 7.0                                      | 35-2-0                                  | 25                                     | 6               | 416                           | 216                         | 9                                      | 2               | 400                                             |
| 1906-10 | 8.1                                      | 46-4-0                                  | 37                                     | 7               | 333                           | 239                         | 8                                      | 1               | 562                                             |
| 1911-15 | 9.1                                      | 62-11-0                                 | 56                                     | 8               | 508                           | 273                         | 14                                     | 2               | 704                                             |
| 1916-20 | 7.8                                      | 65-12-0                                 | 51                                     | 5               | 434                           | 337                         | 15                                     | 2               | 1,000                                           |
| 1921-5  | 6.4                                      | 80-14-0                                 | 51                                     | 5               | 441                           | 375                         | 17                                     | 2               | 1,018                                           |
| 1926-30 | 10.3                                     | 87-10-0                                 | 90                                     | 8               | 370                           | 300                         | 11                                     | 1               | 1,032                                           |

TABLE 36B  
INDEX OF AGRICULTURAL PRODUCTION

| Period  | Crop  |        |       |        |            |        |        |        |       |        |         |        | Total weighted Index   |
|---------|-------|--------|-------|--------|------------|--------|--------|--------|-------|--------|---------|--------|------------------------|
|         | Rice  |        | Wheat |        | Sugar-cane |        | Cotton |        | Jute  |        | Linseed |        |                        |
|         | Index | Weight | Index | Weight | Index      | Weight | Index  | Weight | Index | Weight | Index   | Weight |                        |
| 1901-5  | 100   | 54     | 100   | 24     | 100        | 5      | 100    | 9      | 100   | 6      | 100     | 2      | 10,000<br>100<br>= 100 |
| 1906-10 | 103   | 57     | 104   | 22     | 95         | 4      | 125    | 9      | 116   | 7      | 80      | 1      | 10,496<br>100<br>= 105 |
| 1911-15 | 131   | 57     | 124   | 21     | 114        | 3      | 138    | 9      | 130   | 8      | 122     | 2      | 12,936<br>100<br>= 129 |
| 1916-20 | 148   | 55     | 119   | 21     | 138        | 6      | 138    | 11     | 111   | 5      | 104     | 2      | 13,748<br>100<br>= 137 |
| 1921-5  | 143   | 54     | 115   | 21     | 133        | 7      | 153    | 11     | 91    | 5      | 90      | 1      | 13,296<br>100<br>= 133 |
| 1926-30 | 150   | 58     | 114   | 17     | 143        | 8      | 170    | 8      | 147   | 8      | 90      | 1      | 14,408<br>100<br>= 144 |

TABLE 37  
PRODUCTION OF *JOWAR* AND *BAJRA*  
(BRITISH INDIA)

| Period  | <i>Jowar</i>                              |       |                                   |       | <i>Bajra</i>                     |       |                             |       |
|---------|-------------------------------------------|-------|-----------------------------------|-------|----------------------------------|-------|-----------------------------|-------|
|         | Total<br>production<br>(Thousand<br>Tons) | Index | Total area<br>(Thousand<br>Acres) | Index | Production<br>(Thousand<br>Tons) | Index | Area<br>(Thousand<br>Acres) | Index |
| 1911-15 | 4,367                                     | 100   | 20,811                            | 100   | 2,086                            | 100   | 14,742                      | 100   |
| 1916-20 | 4,473                                     | 102   | 21,755                            | 104   | 2,248                            | 108   | 13,140                      | 91    |
| 1921-5  | 5,817                                     | 133   | 31,423                            | 151   | 2,296                            | 110   | 13,504                      | 93    |
| 1926-30 | 6,113                                     | 140   | 30,437                            | 146   | 2,251                            | 108   | 14,460                      | 100   |

recorded on this basis should be taken with the greatest reserve.

In these tables (36A and 36B) *jowar* and *bajra* which are important food crops in several provinces are not included, as the figures for their production in the earlier decade are not readily available. In the next table (37) the expansion in the produce of these two crops during the last two decades has been indicated. It will be found that there is no material difference between the figures for agricultural production as a whole and those for *jowar* and *bajra*.

26. It is very difficult to get quantitative information to serve as an index for industrial production throughout the chosen period. The cotton textile industry, and three constituents of the mineral industry, namely petroleum, coal and manganese, are the only items for which figures of total quantity produced are available for all the years. The combined index of the last three on the basis of the arithmetical mean yields 634 as the index number of mineral production for 1929. But the economic significance of these figures is hard to define, and in any case they can in no sense be taken as representative of industrial production taken as a whole. The same is true of production in the cotton textile industry for which figures are given in Table 24A. On the basis of the quinquennial average of yarn and cloth production in the Indian mills it is seen that for the last quinquennium the index number is 156 as against 100 for the years 1901 to 1905. The cotton industry has shown the steadiest progress among Indian industries, and its growth is in no small measure representative of the course of modern industrialization in India. There are, however, obvious objections to using the figures for a single industry as representing correctly the

measure of total industrial production. On balance we feel that the only course open to us under the circumstances is to take the figures for employment in eleven industries given in Table 28 as the most reasonable indication of industrial production in India. As in the course of greater familiarity and development of manufactures the efficiency of labour tends to increase, the course here followed is bound to result in a serious underestimate. Moreover, a large number of industries that have developed in India under the policy of high revenue and protective duties find no recognition in Table 28. As the only available means of gauging the progress in industrial production, however, we have to adopt it as an index of total industrial production. As our purpose in this study is not to measure the progress made but to ascertain the tendency of economic movement, the adoption of this course might be taken as substantially justified.

27. It is a comparatively easy matter to frame an index of trading activity in India. Figures for foreign trade, coastal trade and railway goods traffic

TABLE 38  
INDEX OF TRADE

| Year | Index for<br>total<br>foreign<br>trade | Index for<br>total<br>coasting<br>trade | Index for<br>goods<br>carried by<br>railway | Composite<br>Index |
|------|----------------------------------------|-----------------------------------------|---------------------------------------------|--------------------|
| 1900 | 100                                    | 100                                     | 100                                         | 100                |
| 1905 | 153                                    | 116                                     | 137                                         | 135                |
| 1910 | 176                                    | 117                                     | 153                                         | 149                |
| 1915 | 137                                    | 94                                      | 191                                         | 141                |
| 1920 | 131                                    | 97                                      | 205                                         | 144                |
| 1925 | 170                                    | 119                                     | 186                                         | 159                |
| 1929 | 168                                    | 124                                     | 202                                         | 165                |

have been combined to form the general index number of trade. This is given in Table 38.

It is seen that between 1900 and 1929 trading activity increased by 65 per cent. It is noteworthy that the increase has been comparatively steady, though the figure for 1910 is well in keeping with quantitative measures of later trading activity.

28. The next general index is for savings and capital, and here the representative character of all the constituent elements is sufficiently plain to warrant their combination into a composite index. It will be seen from the following table that capital and savings have steadily increased in our period from 100 to 652. This is by no means an unreliable measure of the expansion in financial activity.

TABLE 39  
INDEX OF DEPOSITS AND CAPITAL

| Year | Deposits in Govt. Savings Banks | Private Deposits in the three Presidency Banks (and later in the Imperial Bank of India) | Paid up capital of Registered Companies | Total | Index |
|------|---------------------------------|------------------------------------------------------------------------------------------|-----------------------------------------|-------|-------|
| 1900 | 10                              | 13                                                                                       | 36                                      | 59    | 100   |
| 1905 | 14                              | 22                                                                                       | 42                                      | 78    | 132   |
| 1910 | 17                              | 32                                                                                       | 63                                      | 112   | 190   |
| 1915 | 15                              | 39                                                                                       | 85                                      | 139   | 236   |
| 1920 | 23                              | 78                                                                                       | 158                                     | 259   | 439   |
| 1925 | 27                              | 78                                                                                       | 268                                     | 373   | 632   |
| 1929 | 37                              | 72                                                                                       | 276                                     | 385   | 652   |

29. We now come to the much more interesting and difficult task of preparing a combined index for the various business activities in India for which some authoritative information ranging over the last thirty years is available. Clearly the simple method of

TABLE 40  
WEIGHTED INDEX OF NATIONAL PRODUCTION

| Period  | Agriculture |        |                     | Industry |        |                     | Trade |        | Weighted Index of production |
|---------|-------------|--------|---------------------|----------|--------|---------------------|-------|--------|------------------------------|
|         | Index       | Weight | Weighted equivalent | Index    | Weight | Weighted equivalent | Index | Weight |                              |
| 1901-5  | 100         | 69     | 6,900               | 100      | 9      | 900                 | 100   | 6      | 8,400<br>— = 100<br>84       |
| 1906-10 | 105         | 72     | 7,560               | 129      | 10     | 1,290               | 135   | 7      | 9,795<br>— = 106<br>90       |
| 1911-15 | 129         | 74     | 9,546               | 153      | 11     | 1,530               | 149   | 7      | 12,119<br>— = 132<br>92      |
| 1916-20 | 137         | 74     | 10,138              | 183      | 10     | 1,830               | 141   | 6      | 12,814<br>— = 142<br>90      |
| 1921-5  | 133         | 72     | 9,576               | 225      | 10     | 2,250               | 144   | 7      | 12,834<br>— = 144<br>89      |
| 1926-30 | 144         | 69     | 9,936               | 236      | 10     | 2,360               | 159   | 7      | 15,107<br>— = 157<br>86      |

arithmetical average will be inapplicable to this inquiry. The rise in production of an item in which only 1 per cent of the population is employed cannot be treated as a comparable figure with that which employs over two-thirds of the population. For this reason we propose to have a weighted index of total production based on the three constituent indices of agriculture, industry and trade. In preparing the final index for general production the index figure for a particular industry is given only as much weight as is justified by the percentage of population that at the several years is estimated to have been employed in that occupation. How far by reducing the significance of the constituent indices to their proportionate position in the material welfare of the population, a rough indication of the real increase in productive activity will be secured cannot be confidently asserted. This method has been adopted in preparing the following table indicating the trend of combined productive activity.

TABLE 40A  
INDICES OF POPULATION AND PRODUCTION

| Period  | Index of<br>production | Index of<br>population | Index of<br>production<br>adjusted to that<br>of population |
|---------|------------------------|------------------------|-------------------------------------------------------------|
| 1901-5  | 100                    | 100                    | 100                                                         |
| 1906-10 | 106                    | 105                    | 101                                                         |
| 1911-15 | 132                    | 106                    | 125                                                         |
| 1916-20 | 142                    | 106                    | 135                                                         |
| 1921-5  | 144                    | 112                    | 129                                                         |
| 1926-30 | 157                    | 117                    | 134                                                         |

It may be seen from the tables given above that during the last thirty years the recorded *per capita*

production has increased by about 35 per cent. As we have said we are not prepared to rely upon these figures as exact measurements of the movements or tendencies involved. But they are in our opinion fairly reliable indications of the direction in which things are moving. During the years that have elapsed since the census of 1931 many things have changed, some for the better and some for the worse. Price fluctuations have played havoc with the money earnings of the people. The depression, which has hit many of our foreign customers, has affected the production of certain staples. But on the whole the actual results in terms of real production have not been as disastrous as might have been anticipated on general grounds. The comparative self-sufficiency of Indian economy has been in this particular phase a great asset. The high revenue duties, the imposition of several protective duties and the general sentiment in favour of national production have all combined to keep up the tone of our productive activity. At any rate there is no reason to believe that the figures for production here relied upon are at all unrepresentative or unduly optimistic as representing the conditions of the period covered by the first three decades of this century. Whether the figures in themselves are encouraging or otherwise is a matter the discussion of which must be relegated to the concluding chapter of our study.

## V

### CONCLUSION

1. In the last two chapters of this study enough material has been presented to support a few general conclusions. The growing numbers of the population of a country would give just cause for apprehension and concern if it were shown either that the population is increasing faster than wealth, or that with a smaller increase in population the prospects of the increase in wealth would be substantially improved. Whether we examine the facts and figures of the population growth, or whether we compare the rate of population increase with that of expansion in production, there is absolutely no case made out in support of the existence of a tendency towards the former type of maladjustment between population and wealth in India. The falling rate of infant mortality, the comparatively stationary and slightly falling birth-rate, the definitely falling death-rate, the slightly improving figure for expectation of life at birth—these factors point towards an improving, at any rate towards a by no means worsening, population situation. It is true that the ratio between the two sexes is not in favour of the female sex in India, as appears to be the case in many advanced countries, and in fact in so far as the published figures have any significance, the disproportion is slightly on the increase. But this is a very indirect and unsatisfactory test of the condition of a people. A number of factors in our social institutions and habits, having little or no

connexion with causes directly bearing on the population situation, must be held responsible for such disparity between the numbers of the two sexes as at present appears to be developing.

The comparative stationariness of the birth-rate, in spite of the fact that registration methods are improving, and the fall in the total and infant death-rates are to our mind the most reliable indications of an improving population situation. So also the slightly increasing urbanization of the population and the arresting of the process of growing dependence on agriculture are unmistakable signs of real economic improvement. This conclusion, which is induced by the facts of the movements of population, is further corroborated by the figures for production. Though it is only to be expected that critics will find fault with some of our methods of using figures, we trust that the conclusion sought to be established, namely that the increase in production is greater than the increase in population, will not be seriously challenged. The figures for all the departments of production herein referred to are too strong a proof for even a hypothetical contradiction of this thesis. We might therefore take it as proved, in so far as facts statistically ascertained can prove anything, that the population in India during the last thirty years has not grown and is not growing faster than the wealth or the production of the nation.

The contention that with a smaller population the chances of an increased *per capita* production would be improved is obviously true to a certain extent. There is reason to believe, as the Agricultural Commission has pointed out, that in many parts of the country, and generally in India as a whole, there are more hands than can be fully employed in agriculture. Much the same might be said about

other industries. In the light of the overstocking of agriculture and industry, such a conclusion is only too well justified. But the establishment of this conclusion by itself leads us nowhere near a practical solution of the problem. For equally, or almost equally true, is the other proposition that given a greater production of wealth, the chances of a greater *per capita* welfare will be improved. A number of positive reforms in our system of production still await a trial, and if these are accomplished the condition of the population is bound to improve. The whole question therefore turns on the methods by which the overstocking of industry, agricultural and non-agricultural, can be removed. Either by restriction of numbers or by increase in avenues of employment or by both can this be achieved.

Beyond a certain immediate easing of the situation, a reduction or steadying of numbers can have no beneficial influence on the welfare of the people. It must be remembered that the chances of any population, large or small, getting an increasing return from the available resources of nature depend principally upon their mental aptitudes and institutional equipment. It is an old saying that India is a rich country inhabited by a poor people. Except a few favoured areas and a few prosperous eras it does not appear historically certain that India has ever been anything but poor. Even if the population of the country is rendered stationary or is actually reduced, so long as our industrial efficiency and social organization are what they are no real relief can be secured. People who work out a figure for India's optimum population on the basis of some economic factor, such as the area under cultivation, forget this essential influence on economic progress. In a country like India, whose natural resources have

not been even fractionally commandeered by improved and scientific organization of production, it is wrong to lay down figures of an optimum, even granting that an optimum in this sense is a just objective of national policy in this matter, and that it is mathematically ascertainable.

What is wrong with the Indian population is not, therefore, that it is increasing faster than wealth—for it is not so increasing—nor that it is increasing so fast that there are reasons to believe that with a smaller growth a substantial improvement in the economic situation is probable—because this is principally a matter of progressiveness and organization—but that both the conditions of health and the welfare of the people are extremely unsatisfactory. In a sense this is a vicious circle: the people are unhealthy and miserable because they are alleged to be too many and they are too many because in their poverty of physique, mind and resources they know no better than to drift along the path of easy births and easier deaths. Both ill-health and poverty are the symptoms of a deeper degradation. In spite of the fact that things have been slightly better latterly in both these respects, we are still nowhere near the goal of a healthy and prosperous nation which we all cherish and which has been attained by a number of other countries, some amongst them being our own fellow-members of the British Empire.

The only way to break this vicious circle is to realize that the desired reduction of the birth- and death-rates, as also the cherished augmentation of our industrial productivity, require principally a widespread social and cultural reform. It cannot be too often asserted that the significance of the restriction of births does not lie merely, nor yet principally in the use of a particular method of birth

control. The really significant and effective part of the process is the mental aptitude of self-regulation and self-improvement that lies behind the acquisition and use of particular remedies. Now if this mentality is created for one purpose it ought to have a much wider application than the immediate field of regulation of births. The same openness of mind and readiness for adaptation which are necessary for the successful practice of artificial restriction of births will go a long way in improving the productivity of the nation and generally in giving a progressive and self-reliant tone to the cultural life of the people.

A restriction of effective births which is the result of a mere mechanical act, which is not accompanied by a suitable mental transformation, can produce no lasting and favourable effect on the economic situation. Birth restriction devoid of the rational feeling of self-reliance and self-regulation is not a sign of growing civilization, but one of barbarity. All nations of antiquity before they entered upon a life of peaceful industry and progress had some methods of artificial restriction of population. Whether the method used was prevention of widow marriage, or abortion or infanticide or contraception or promiscuity, the fact remains that such an artificial restriction of births is no new thing. And still the nations of antiquity were, and the primitive tribes of to-day are, none the better economically, culturally or socially for these practices. The reason for this is obvious. Beyond the limits of a minimum of subsistence what we get out of natural resources is more the result of our scientific knowledge, ingenuity, organization and vigour than a mere matter of numbers. And if it is to be mere subsistence any country, and most of all India, can hope

to maintain a much larger population than its present one. In its culturable waste and forest land there lies an almost unlimited field for the industry of men who would be starving for the want of an elementary resource such as land.

Strange as it may seem, we must observe that even the increase in production by itself will not materially affect the situation with regard to the numbers of the population. Increase in material production is relative to the standard of life and expectations of the people. Economic, political and educational reforms might result in a considerable augmentation of wealth which might, however, leave the social customs bearing on the growth of population substantially unaffected. Thus during the last two generations, and particularly since 1905, a great, almost startling, change for the better has come over the economic and political life of Japan. Politically Japan today is one of the leading nations of the world having a number of very promising dependencies. Economically and industrially Japan has made phenomenal progress during the last generation. These changes are not without their counterpart in the health and sanitation services of the nation. But with all these the birth-rate in Japan continues to be high, and the population continues to grow rapidly. The reason, as is well known, is that the Japanese as a people are unsympathetic towards the propagation and adoption of artificial methods of birth restriction. When wise doctors both of medicine and divinity differ among themselves as regards the merits of modern methods of birth control, and when as yet the experience of these new editions of old condemned practices is too short to warrant a reliable conclusion, who can be so rash as to condemn the otherwise progressive and highly

adaptable Japanese nation for this attitude of reserve on their part? We need say here, only, that beyond the satisfaction of the elementary needs of human life the factor of numbers of the population is not vitally connected with resources, and that both numbers and resources depend in a large measure on the cultural traits and social institutions of a people.

We are far from belittling the numerous defects in our health organization and the serious deficiencies in our economic structure revealed by the facts presented in the last two chapters. In fact much of what has been said there ought to lead to an urgent support of a wide variety of detailed sanitary, medical and economic reforms. But what has been stated throughout this study in criticism of the prevailing views in certain quarters about the real evil of the population situation in India ought to convince readers of the great and vital need of a more fundamental social and psychological reformation of the people.

In the sphere of health as well as of economic production a number of pressing reforms appear to be necessary. As has been already pointed out, the fact that India, which has by no means an abnormally high birth-rate, has still the highest death-rate in the civilized world proves that our preventive and curative medical services leave much to be desired. In fact this is an accepted weakness of the situation in India and efforts are being made by the State and by semi-public bodies to improve the facilities. The vital importance of the problem is not, however, realized as yet to the necessary extent, and latterly, since the great increase at the last census was recorded, there appears to have emerged in certain high quarters a prejudice even against this rate of reform. Baby-week exhibitions are talked of as

luxuries and improvement of medical facilities is made to appear as a veritable accentuation of the so-called evil of overpopulation. No more short-sighted and unscientific way of looking at the problem can be conceived. If we deny to the population the benefit of better medical knowledge and facilities we shall not be preventing the increase in population. We would be ensuring a greater crop of births and deaths and the only change in the situation would be that these would be attended by greater suffering and misery than what would occur if the health services were satisfactory. It is good social policy to give a child a better start, to help the ignorant and resourceless mother in the great crisis in her life and to enhance generally the health of the people. The indirect benefits of such improvement are great; and at any rate these measures reduce human suffering and make a large part of the population more efficient producers of wealth than they would be in the absence of these facilities.

It will not be relevant to the purpose of this study to go into details of medical reform, nor do we feel ourselves qualified and competent to do so. There is, however, one aspect of the detailed programme of health betterment to which pointed attention must be drawn while indicating the relation between population and welfare. In all conscience there is a good deal of poverty and even starvation in India. But more important still is the malnutrition that results from unsuitable dietary. No systematic research on this side of the improvement of the standard of living has yet been made in spite of the recommendations of competent authorities such as the Agricultural and Labour Commissions. Attention was drawn to this feature by Sir John Megaw, former Public Health Commissioner with the

Government of India, and now President of the Medical Board at the India Office, in a paper read before the East India Association. An inquiry that Sir John Megaw, when he was in India, had conducted through his medical subordinates in rural areas resulted in the finding that malnutrition was, even apart from actual starvation, an important factor in the ill-health and low efficiency of the people. Not only the Government departments concerned but the local bodies, non-official organizations and private practitioners have an important responsibility in this matter. We might note only one point. It is generally agreed that a number of diseases in India, perhaps the majority of them, are directly due to the pollution of the water supply. It cannot be certainly beyond the financial, technical or administrative resources even of the Government of India and the provincial Governments to ensure that every person in India has an adequate supply of potable water. No expenditure incurred for the attainment of this end can be an extravagance. It will more than repay itself by the savings in medical charges and by the product of increased efficiency. This is an instance of a worthy object of productive human investment by a State which till now has been too exclusively thinking of railways and canals as the only productive investments.

The positive measures of improvement in agriculture and industry are too well known and too often referred to in such standard productions as the Report of the Royal Commission on Agriculture and the Reports of the Industrial and Fiscal Commissions to need a reference in this place. It is clear that by providing for the agriculturist a full-time job in farming, by modernizing the methods of cultivation and by developing in India an intensive scheme of

industrialization the final solution, in so far as there is such a solution, for the problem of Indian poverty must be found. But the chances of such a policy, even if accepted by the State and by a few enlightened individuals, bearing good fruit depend almost entirely on a veritable social and intellectual reformation in India. Without wishing to belittle the pressing importance of detailed medical and economic measures, we feel convinced that for the greater effectiveness of these very measures and for the permanent building up of a positive power of resistance to such degenerating influences as physical and moral decrepitude, a more fundamental and widespread remedy must be sought.

This remedy is no other than the pushing forward of the cause of intellectual and social reformation that has been going on with varying intensity of enthusiasm and unequal success since the days of Raja Ram Mohan Roy and Mahadeo Govind Ranade. The objects of this reform must be, it appears to us, threefold. Every Indian must be made to realize the essential dignity of a human being. Barriers of caste, colour, creed and sex must be removed from all social and economic intercourse for the betterment of the individual and the society. The mobility of labour as between different areas and among different occupations cannot be established unless these barriers are removed. A greater freedom of choice and a closer adjustment between aptitudes and jobs is essential to the success of modern industry. Some progress along these lines has already been made. But it is the outcome principally of slow-moving social, economic and political causes. If we would desire a more intensified economic progress, a much more deliberate and organized reform along these lines will be needed.

The second object of intellectual reformation, and by far the most important item in a scheme of national progress, is the inculcation in the minds of the large mass of Indian people of the supremacy of reason. Indeed it is true that human reason is an imperfect instrument of guidance, but to argue that because reason is imperfect, therefore we prefer to follow tradition is to choose to walk in darkness because the light given by the only available lamp is not as bright as we would desire. In the absence of a rational mentality, it has been found, not only that the people cannot liberate and improve themselves, but they cannot even benefit by what others are doing for them. Provision might be made for dispensaries, birth control clinics, demonstration farms, technical schools for workers and a number of other centres for the spread of recognized means of human improvement. But unless the people for whom these facilities are meant have learnt to have faith in themselves and in human agencies for human welfare these institutions will not be availed of to the fullest extent. At the bottom of the creation of modern civilization is a faith in reason. Unless this is spread far and wide among our people, no amount of external piecemeal reform, either medical or economic, will give the much desired health to our social and economic structure.

All human progress consists in man getting, or trying to get, the most out of the resources offered to him by nature and by his social surroundings. This close touch with the surroundings and this purposeful adaptation of external factors to one's own ends has ceased to characterize the lives of our people for a long while. Self-reliance, vigorous efforts to better oneself and a systematic planning of one's physical and moral resources so as to achieve

to the maximum extent the ends that we have in view—these virtues once characterized our people. But that was in the old days of early Aryan colonization in India. Since then human freedom, rationalism and life-planning have ceased to be objects of general appreciation. It is indeed very remarkable that though the Indian mind has now become considerably apathetic towards such stimuli, still the inherent adaptability of our people has by no means vanished. This is the most encouraging sign in the present situation. Given the opportunities and given a reasonable assurance of success, our people have been known to change their ways of thought and action. Responsibility in this matter lies principally on the more enlightened Indians. Their task is twofold : firstly to spread among the people the fundamental notions of rationalism, human dignity and life-planning ; and secondly, to press upon the attention of the State and other public bodies the desirability not only of promoting the large number of detailed reforms that are overdue, but also to help the cause of general enlightenment. Whether the people of this country, whatever their number might be, will enjoy the blessings of a progressive and prosperous life will depend upon the prospects of a nation-wide reformation in our religious, social, cultural and psychological ideas. Both the progress of industry and the more conscious limitation of families will follow in strict measure the realization of progressiveness and purposeful action in our conduct.



## INDEX

- Age-groups, 34, 45-6, 56.  
 Agricultural Commission, 82, 119, 120.  
 Agricultural Production, 99, 102, 113.  
     Index of, 104.  
 Agriculture, 51.  
 Area, cultivated, 67, 70.  
     irrigated, 68, 69, 70.  
     under commercial crops, 81.  
 Aryan colonization, 123.  
 Australia, 34, 56.  
  
 Baby-weeks, 34.  
*Bajra*, 75, 105, 106.  
 Banerji, Sir Albion, 36.  
 Banking, 95.  
 Bengal, 87.  
 Birth-rates, 35-8, 41.  
 Bowley, A. L., 64.  
 Bulgaria, 34.  
 Burma, 74.  
  
 Carr-Saunders, A. M., 22n.  
 Census reports, 25.  
 Ceylon, 31.  
 China, 31.  
 Coal, 87, 106.  
 Coastal trade, 91, 92.  
 Cochin, 52.  
 Commercial crops, 80, 81.  
 Companies registered, 108.  
 Congress, 25.  
 Cotton, 89-90, 99, 103, 104, 106.  
 Cotton textile, 84.  
  
 Cultural reform, 115, 118, 121.  
 Curzon, Lord, 14, 65, 66.  
  
 Dadabhoy Naoroji, 66.  
 Death rate, 35, 38-41.  
 Deposits, 97, 98, 108.  
 Depression, 16, 55, 111.  
 Dietary, 119.  
 Doubleday, 18.  
 Egypt, 34, 41-2, 56.  
 England and Wales, 30, 31, 42-3, 44, 56, 58.  
 Expectation of life, 43.  
 Europe, 33.  
  
 Factory acts, 90.  
 Famine, 15, 21, 28.  
 Finance, 95, 108.  
 Fiscal Commission, 120.  
 Fodder crops, 82-3.  
 Food-grains, 72.  
 Foodstuffs, 68.  
 Foreign trade, 91, 93.  
 France, 31, 34, 42, 43, 44, 48, 56.  
 Fruit, 79.  
  
 Germany, 34, 42, 43, 44, 48, 56.  
 Grain and pulse, 76.  
 Great War, 30, 42, 76, 86, 88.  
  
 Hindus, 60.  
 Holland, 34.  
 Hungary, 34.  
 Hutton, J. H., 5, 30.

- Imperial Bank of India, 98, 108.  
 Indian States, 17, 29, 54, 61, 74, 85.  
 Industrial Commission, 120.  
 Infant mortality, 32, 33.  
 Intellectual reform, 121.  
 Iron and steel, 88.  
 Irrigated area, 68.  
 Italy, 31, 34, 41, 42-4, 56.  
 Jains, 60.  
 Japan, 34, 41, 42, 44, 47, 56, 117.  
 Java, 31.  
 Joint-stock companies, 98-9.  
*Jowar*, 75, 105, 106.  
 Jute, 84, 86, 99, 103-4.  
 Kale, V. G., 66.  
 Labour Commission, 119.  
 Life-planning, 5, 123.  
 Lindsay, H. A. F., 14n.  
 Linseed, 99, 103-4.  
 London, 34.  
 Longevity, 35.  
 Madras, 36.  
 Malthus, 18, 20-2.  
 Manganese, 87, 106.  
 Medical services, 118.  
 Megaw, Sir John, 5, 34n., 41n., 119, 120.  
 Mineral production, 84, 87, 106.  
 National production, 98.  
   Index of, 108.  
 Nazism, 48.  
 Netherlands Indies, 31.  
 New Zealand, 41, 42.  
 Norway, 34.  
 Occupational distribution, 53.  
 Optimum, 18, 23, 114.  
 Parsis, 60.  
 Petroleum, 87, 106.  
 Poland, 31.  
 Population, growth of, 26  
   *et seq.*  
   theories of, 18 *et seq.*  
   and production, 110, 112, 113.  
   restriction of, 114, 116.  
 Poverty, 5, 19, 20, 115, 121.  
 Production, agricultural, 99, 102.  
   index of, 104.  
   national, 99.  
   index of, 109.  
   and population, 110, 112, 113.  
 Railway traffic, 91.  
 Ram Mohan Roy, 121.  
 Ranade, Justice M. G., 5, 121.  
 Rationalism, 122, 123.  
 Rice, 79, 99, 102, 104.  
 Robertson, D. H., 64.  
 Roumania, 41, 42.  
 Rural population, 57.  
 Russia, 43, 44.  
 Salt consumption, 77.  
 Savings banks, 96.  
 Seligman, E. R. A., 49n.  
 Sex ratio, 48, 112.  
 Shah, K. T. and Khambatta, K. J., 66.  
 Shirras, Findlay, 66.

- Social reform, 115, 118, 121.  
Spain, 31, 43, 44.  
Spices, 79.  
Stamp, Sir Josiah, 64n.  
Sugar-cane, 99, 103-4.  
Sundbärg, 47n.  
Sweden, 41-4.  
  
Tanjore, 36.  
Towns, 59.  
Trade, 91.  
    Coastal, 91, 92, 107.  
    Foreign, 91, 93.  
    Index of, 107.  
  
United Kingdom, 34, 41-2,  
    56.  
  
United States, 31, 34, 41, 42,  
    56.  
Urban population, 57.  
  
Vegetables, 79.  
  
Wadia, P. A. and Joshi, G. N.,  
    66.  
Wars, 21.  
Water supply, 120.  
Wattal, P. K., 41n.  
Wheat, 79, 99, 102, 104.  
Workers in organized indus-  
    tries, 84, 89, 107.  
Wright, Harold, 49n.  
  
Yield, 78, 100.











