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INDIAN STATISTICS

By

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PREFACE

The Science of Statistics has assumed a great importance in recent years. It was once known as the 'Science of Kings' and its scope was extremely limited, but now statistics has become all pervading and all sciences, whether physical or social, are connected with it in some form or the other. The relationship between Statistics and Economics, though not very old, is very close and today we cannot think of Economics without first thinking of Statistics. The economic progress of a country is today measured by the extent to which its statistical organization has developed. All economically advanced countries have efficient statistical machinery to aid their development.

Unfortunately, the importance of statistics has not been fully realized in our country and the absence of proper statistical organization is one of the important factors responsible for our economic backwardness. If we wish to improve the economic condition of our masses, we will have to plan for future and all our plans will have to be based on adequate statistical data.

This book is an attempt to briefly survey the available statistical material in India and to suggest ways and means to improve the same. We have generally confined ourselves to economic statistics only, although at certain places, we have examined other statistical material as well. We have touched only the important points, as in a small work like this, a detailed study of every problem is not possible. We hope that this book will serve as a useful guide to M.A., M.Com., and B.Com., students, who read the subject of statistics, as also to general readers who are interested in the economic problems of India.

We are thankful to the Office of the Economic Adviser, Government of India, and the Economic Adviser's Office, United Provinces Government, for the help they have given us by supplying important information about various official schemes. We are also thankful to the Indian Press Ltd., Allahabad, for their speedy publication of this book.

Allahabad,
15th August 1948.

Mohit Kumar Ghosh.
Deoki Nandan Elhance.

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CHAPTER I

STATISTICS AND ECONOMICS

Retrospect

Though statistics is a very old science yet it appeared effectively in the field of economics rather late. The primitive beginnings were made quite early in 1690, when Sir William Petty's Political Arithmetic was published, but the field of economics was not successfully invaded until the last quarter of the 19th century. The reasons are obvious. Economics as a science was first started by Adam Smith and he and his followers of the classical school, which dominated the field for a pretty long time were believers in the Deductive Method of reasoning. For them, facts and figures were not as important as the abstract logic. Although classical economists like J. S. Mill had advocated verification of conclusions by Inductive Methods, their sympathy was merely lip sympathy and they never gave a serious thought to the development of the factual side of the logic, in right earnest. W. S. Jevons may be said to be the first man to introduce statistics effectively in the field of economics. It was he, who pleaded for the development of inductive science in the following words. "The deductive science of economy must be verified and rendered useful by the purely inductive science of statistics. Theory must be invested with the reality and life of fact. Political economy might gradually be erected into an exact science if only commercial statistics were far more complete and accurate than they are at present, so that the formulas could be ensured with exact meaning by the aid of numerical datas."

The greatest credit, of bringing statistics and economics together, goes, however, to the Historical School (1843-1883). Founded in Germany, this school attracted the attention of eminent economists from all over the continent and Great Britain. Roscher, Knies and Hilderbrand in Germany, and Leslie in England, belonged to this school and were of the opinion that principles of economics should not be argued merely in abstract form, without the support of any statistical data or historical facts. Their contention

was, that economic doctrines should be studied primarily by the method of Induction or Historic method, as some call it. They believed that past statistics and facts were a better guide to formulate an economic policy than the cold and abstract logic unconceived and unsupported by actual facts and figures. By the end of the last century the attitude of the leading economists had become quite friendly towards statistics and in 1907 Alfred Marshall could declare that " .... higher and more difficult task must wait upon the slow growth of thorough realistic statistics." At about the same time Parito wrote, "The progress of Political Economy in the future will depend on, in great part upon the investigation of empirical laws, derived from statistics, which will then be compared with known theoretical laws, or will suggest derivation from them, of new laws."

Yet another reason why economics and statistics could not be brought together, till recently, was the fact that statistical data in earlier days were extremely scanty, and that too unreliable. Statistical methods were not developed and statistical material was not collected in right earnest. Since 1890 however, we find that not only attempts have been very frequently made to do research work in the field of statistical methods but the collection of data has also been undertaken in right spirit and various international and national bodies have been founded to undertake the work. These two important factors i.e. development of statistical methods—of probability, sampling, correlations, index numbers etc. and the enlargement of figurative data, made possible by the establishment of statistical bureaus have gone a very long way in bringing about a fundamental change in the place of statistics in economics.

Today we find that the ties between economics, statistics and mathematics have become very close and almost inseparable. Statistics and mathematics now occupy a very important place in economics. In recent years most of the great economists have shown a mathematical bent of mind and it cannot be a pure coincidence. The introduction of the word "Econometrics" (which is a combination of Economics, Mathematics and Statistics) and the estab-

lishment of Econometric Societies has finally given an explicit recognition to the century old relation between economics, mathematics and statistics.

Importance of Statistics in Economics

The steady increase in the density of relationship between statistics and economics, described above cannot be attributed merely to chance. There are concrete reasons for this welcome mixture of these two sciences. Economics has benefitted very greatly by this assimilation of statistics and it would not be wrong to say that today economics cannot be imagined without statistics.

In order to have an idea about man's economic life we must have some method of *describing* the economic organisation and *measuring* the results of economic actions. We cannot describe the economic organisation of any country without the use of statistics. It is impossible to measure the results of economic actions without an active and profuse utilization of statistical data. If, for example, we have to describe and contrast the economic organizations of U. S. A. and U. S. S. R., we cannot do it without the help of statistics. The purely historical-descriptive method cannot give us that precise picture of the two countries that we would like to have. Further if we wish to describe the role of labour in the economic system of U. S. A and U. S. S. R., we can have a clear picture of the two countries in this respect only with the use of figures. A simple figureless description of Trade Unions, their origin or objects etc. cannot give us any precise idea of the labour movement in the two countries; but figures of number of trade unions, their memberships, number of strikes, number of man-hours lost, levels of wages etc. can give us the desired picture.

Statistics thus help in the description of the economic organisation but a greater importance of statistics is realised when we are measuring the results of economic conduct of man. In the measurement of the result of economic action we are concerned with the *comparison* of economic phenomenon and comparison without statistics can never be satisfactory. No doubt it is difficult to say whether man is, in reality, any happier than he was before

Industrial Revolution, but we can say whether the wealth at the command of an individual is more, or less than, or equal to, what it was formerly. This can give us an idea of whether the opportunities for well-being and betterment have increased, decreased or remained constant. Labourer may feel discontented with his lot, but if we can show that wages have gone up and cost of living has gone down, he can be convinced that materially he is better off.

Yet another reason for the indispensibility of statistics to economics lies in the fact, that *correlation* which is very important in economics is not possible without the help of statistics. What is the relationship between price and demand, how is the supply of money related to price; whether there is any correlation between industrial development and employment; are the savings related to rate of interest; all these are very important questions and they can be answered accurately only with the help of statistics. Correlation of various economic phenomenon can be discovered with the analysis of quantitative data and hence the importance of statistics in the field of economics is very great.

Description, comparison and correlation of economic data are thus the three most important things which the use of statistics makes easy, accurate and convenient. Important phenomenon in all branches of economics,—Consumption, Production, Exchange and Distribution can be described, compared and correlated precisely with the help of statistics. *Statistics of Consumption* can tell us the relative strength and its variation from time to time of the desires of a certain section of people. By statistical analysis we can know the way in which people spend their income on food, clothing, house rent, and articles of luxuries etc. We can also throw light on the variations in consumption, by having comparative figures for different periods. Statistics of consumption are also the complementary side of production statistics i.e. they measure the supply of wealth as well as the demand.

Statistics of Production not only describe the wealth of a nation but also compare it year after year. They tell us

whether the results of economic policies, in as far as production of goods in the country is concerned, have been successful or not. Economic strength of various nations is also compared with the help of production statistics. These statistics also indicate whether changes in methods of production, have yielded desirable results or not. Further analysis can also disclose various sets of relationships in economic phenomena in the field of production.

Exchange Statistics throw light on the commercial development of a nation. Today most nations are not only industrial but commercial also. Inspite of the recent wave of economic self-sufficiency, no nation can afford to remain aloof from international trade. There is a division of labour and localization of industries on a world wide scale and foreign trade of various countries has also gone up by leaps and bounds. Statistics of Exchange indicate the level of commercial development of a nation. Statistics of imports and exports, of internal sale and purchase, of stock exchange, of company floatations etc. are very useful in judging the volume of business done in a country. Statistics of money in circulation, of loans, discounts, credit instruments and institutions also help in describing the mechanism of commerce. Correlation between statistics of production consumption and exchange is also very useful and important. Effects of imports on production, of prices on consumption, of production on consumption and of consumption on production are also examined with the help of statistics, and economic policies are framed on the basis of conclusions drawn in this fashion.

Distribution Statistics are in a way most important of all as they disclose the economic condition of various classes of people. Statistics of production may indicate the economic position of a country but they fail to throw light on a more important problem viz whether national income is equitably distributed amongst the entire population. The national income of a country may have doubled in a certain number of years and yet the economic condition of her people worsend if its distribution is inequitable.

Distribution Statistics tell us whether the common man is economically better off than what he was formerly, and

this information is by far the most important that economists and sociologists wish to have. They tell us about the proportionate reward of Land, Labour, Capital and Organisation in various economic activities. Rent, Wages, Interest, and Profit are measured not only in monetary units but are correlated with statistics of prices and cost of living and we can know whether a particular class of people have at their command more or less goods and services than before.

Distribution statistics can be useful in another way also. Society may be classified according to the income or, in other words, the rich may be separated from the poor. By having these statistics for a number of years we can tell whether there is a tendency for the rich to become richer and the poor poorer. This study of the social distribution of the population of a nation is very important as it throws light on the distribution of population according to economic conditions.

We have seen above, that in all branches of economics, the science of statistics has a definite role to play and that without it, today, the sudy of economics will become more or less useless. Modern days are days of planning, and planning without statistics cannot be conceived. If we study the economic plans implemeted in various countries in recent times, we shall find that they are a statistical study of the economic resources, their potentialities and ways and means of marshalling them. Statistics are the scientific apparatus for measuring the success of a particular plan or policy.

A *businessman* today, succeeds or fails according as his forecasts prove to be accurate or otherwise; and it is a well admitted fact that business forecasting is entirely based on statistical information of past and present. The Economic Barometers are the modern statistical device to make business forecasts, and businessmen all over the world make extensive use of them. A producer estimates the probable demand of his goods, he analyses the effects of cyclical and seasonal changes in demand, of changes in customs, habits and tastes of people and after taking all these factors into consideration decides the amount of goods to be produced.

If he does not take into account all these factors, he is most likely to commit a mistake, either in the direction of over-production or under-production. A businessman who has some idea about the business cycle and who can contemplate a boom or a depression, or who can know of a currency inflation or deflation is always in better position than one who is ignorant about these facts. A study of all these factors, is, in reality, a study of statistics and hence we find that big businessmen and industrialists often have a separate statistical department with experts to advise them. Various branches of commerce utilize the services of statistics. Cost accounting makes use of this science and all new business schemes, whether in connection with production of a new commodity, or expansion of the market of an old one, depend to a very great extent on the collection, and interpretation of various statistics.

A *banker*, much in the same way as a businessman, depends for his success on the accurate interpretation of statistics. He has to make a statistical study of business cycles to forecast a probable boom or depression and the intensity of the same. He has to study in detail the seasonal variations in the calls for money from its constituents and clients. On the study of these factors depends the amount of reserve that the banker keeps and how important this figure of reserve is we all know. A small mistake in this connection may lead to a bank failure. The business of the banks depends on confidence and the moment the public loses confidence in the bank it is extremely difficult for the bank to face a run and to save the situation. A wise banker keeps a small reserve consistent with safety and, if at all, he commits a mistake he commits it on the side of safety. He has to be very cautious and without the help of statistics he can never take a satisfactory decision.

Investors and Stock Exchange Speculators have an equal importance of statistics. They have to be conversant with money rates and their tendencies for future. Speculators have not only to collect information with regard to money rates ruling in various markets inside the country as well as outside, but an additional factor and a more important one, is, that they have to be most uptodate, and their

success depends to a large extent on the timely knowledge of the various rates of the investment market. Their profession, as a matter of fact, is one which makes a copious use of figures.

Insurance Companies' business rests entirely on statistics. They compile Life Tables to calculate premium rates. Actuaries compile Life Tables after assimilating a huge mass of statistical data. Expectation of Life has also to be calculated by insurance companies and this is also a problem the solution of which, requires lot of figurative data. Companies dealing in Accident Insurance, Fire Insurance, Marine Insurance, Unemployment Insurance, Sickness Insurance etc. depend for their working on statistical facts. The Theory of Probability works itself out fully in the field of insurance and the success of a company depends on the accuracy, of the basic data that it uses.

Public utility concerns like Railways, Electric Supply Companies, Waterworks etc. also make extensive use of statistics. As a matter of fact, it is hard to imagine any business concern industrial or commercial, large or small, private or public, that does not depend for its success to a very great extent on the use of statistics.

We have thus seen how important a place do statistics occupy, in a study, of not only, theoretical economics but also practical business and commerce. It is the back-bone of all economic theories and the life blood of successful commerce.

CHAPTER II

ECONOMIC STATISTICS IN INDIA

Indian Economy

India is an agricultural country, and that too a backward one. The average income and the standard of living are so inadequate that a very large proportion of the population is always facing acute poverty and is living in constant misery. The average expectation of life is very low and death rates very high. The industrial and agricultural standards of the country are so low that they fail to cope with the requirements of the ever increasing population. The average production per acre of land is very low as compared to other countries and the level of industrial efficiency is also unsatisfactory. The peasants who are by far the greatest in number, are in a state of chronic indebtedness and most of their debt is unproductive, being incurred for marriage or litigation purposes. Labourers are faced with the problem of unemployment and high cost of living as compared with the wages they get. Majority of the people are illiterate and are not in a position to judge for themselves the right path.

No civilised country of the world can allow such a deplorable state of affairs to continue. The situation requires a concerted and planned action. The policy of *laissez-faire* has done us no good and we require a thoroughly planned economy; but we know already, that planning cannot be imagined without statistics. It is futile to suggest any plan without first emphasising the necessity of having accurate and reliable statistics. Organised effort is necessary to combat the situation and statistics are the corner stone, the basic organisation without which any attempt at economic progress is bound to fail.

Unfortunately, we in India have not appreciated the necessity and urgency of having reliable statistics and this is one of the most important causes of our backwardness. Other countries of the world have given statistics the high place of honour they deserve, and this fact has contributed

a lot towards their success in economic planning and the consequent betterment of the standard of living. Speaking of the Empire Statistics Conference which sat in January and February 1921 the "London Times" wrote:

"In Germany, before the war the Statistical Bureaux were ceaselessly employed in working on every thing that illuminates the future of the German people; and in the era which is now opening there can be little doubt that the nation which studies the drift of events as it is revealed by the statistical analysis will be infinitely better equipped to take advantage of opportunities than another which perhaps trusts only to the methods of empiricism."

The above quotation amply makes it clear that the importance of statistics was fully realized even before the first World War, in economically advanced countries like Germany. A similar quotation can be given about Canada from its Official Year Book for 1922-23. It states: "Statistics are not merely a record of what has been but are for use in planning what shall be; it is the duty of a Statistical Bureau to assist directly in the day to day problems of administration as well as to provide their theoretic background. One of the most significant of the recent development in administration is the extent to which statistical organisation has been increased as a guide to national policy."

India did not recognise the high status of statistics, and inspite of this fact being pointed out, by various committees and commissions, the government continued to sidetrack the issue. The Industrial Commission and the various Tariff Boards appointed by the government repeatedly emphasised the necessity of having adequate economic statistics and went to the length of saying that in the absence of reliable statistics it would be futile to proceed with any plan of industrial development of the country; but no useful purpose was served by these constant warnings. The Indian Economic Enquiry Committee in 1925 and the Bowley Robertson Committee in 1934 again very strongly pleaded for having an organised statistical machinery in the country. The absence of reliable economic statistics was highly de-

plored by these committee and the Bowley Robertson Committee plainly said that the situation cried out for overhaul. The National Planning Committee appointed by the Indian National Congress was also greatly hindered in its work on account of lack of statistics in the country. During the second World War, the Bombay Plan, People's Plan and Gandhian Plan all voiced their feeling very strongly on this point; and then there was the Bengal tragedy in which millions died of hunger and starvation and the absence of reliable statistics with regard to food production was quite an important factor responsible for the unfortunate happening. Floud Commission once again emphasised the necessity and importance of having reliable and accurate statistics in this country. Thus we see that from time to time various official and unofficial committees and commissions have strongly pleaded for the establishment of a Centralized Statistical Organisation in the country, and for the collection of statistics on various economic problems. The necessity, in reality, is very great and reforms are overdue. It goes without saying that if we wish to implement any plan for the economic betterment of Indian masses we can, under no circumstances, afford to treat this problem with the indifference with which it has been treated till now. Statistics are the foundations on which alone can the pyramids of economic plans and policies be created.

Historical Development of Statistical Machinery and Sources of Economic Statistics

(i) *Official*—India, in the real sense of the term has never had any statistical machinery in the past, and even today we cannot claim to have one. Most of the statistics, in the words of Bowley Robertson Committee have originated as a bye-product of administrative activities such as collection of land revenue etc. This statement holds good not only for the British period of Indian history but also for pre-British period. In Moghul times, particularly in times of Akbar, statistical information was not collected for the sake of analysis and interpretation or to serve as a guide for economic policies, but it was mostly the outcome of administrative activity. There was no statistical machinery in the country. India, was, as it is today, primarily an agricultural country and land revenue formed a very im-

portant part of the state revenues and hence we find that in *Ain-i-Akbari* most of the figures quoted are those that arose out of the collection of land revenue.

In the times of East India Company also no need was felt for the collection of statistics and during that period economic statistics of India related mainly to the accounts of exports and imports maintained by the company. Later on, on account of the introduction of Ryotwari system of land tenure at the close of 18th century, in some parts of the country, figures of land revenue, cost of cultivation, price of produce etc. began to be collected by Land Revenue Officers. These figures were collected purely for revenue purposes. In the 19th century it was on account of many famines, particularly that of 1860, that some attention was paid to the collection of statistics; yet even at this period no statistical organisation existed in the country, though Revenue and Administration Reports of various provinces contained some statistical information. It was in the year 1874 that Sir John Strachey, the then Governor of North Western Province, (now called United Provinces) wrote to the Secretary of State for India, suggesting him the creation of a department for collecting statistical information regarding trade and agriculture and the appointment of a Director of Agriculture and Commerce. It was in accordance with these suggestions that the Department of Agriculture and Commerce was created in 1875 in the United Provinces, with the specific aim of collection of trade statistics, improvement of agricultural statistics and improvement in the system of agriculture. Though, not a purely statistical department, yet it may be said to be the first government department in which statistics had a definite role to play.

A little later the Indian Famine Commission recommended the appointment of a Director of Agriculture in each province and the appointment of Statistical Officers to assist him in his work. Accordingly, Agricultural Departments were opened in each province and the Central Agricultural Department, which was created in 1871 but was closed due to financial stringency in 1879, was also revived to co-ordinate the work of various provincial Agricultural

Departments. Though these Agricultural Departments were primarily concerned with the improvement of agriculture, yet they collected valuable statistical information on various agricultural problems.

It was in the year 1881 that the first Population Census was conducted in this country. In 1872 also, a census was taken but it was not country-wide and as such is usually left out of account. Census, at that time, as even as late as 1941, did not need any permanent staff or department and as such no statistical machinery was established for the purpose. Figures of Indian foreign trade, though they are available for the British period yet they also did not require any separate statistical organisation as most of the figures were, and even today are, taken from the records of Customs Department. Similarly Financial Statistics particularly relating to Government Budgets are available for the entire British period inspite of the absence of statistical machinery in the country.

The advent of the present century brought about some improvement in the statistical machinery of the country. It was in the year 1905 that the Department of Commercial Intelligence and Statistics was created. It was located in Calcutta. The Department of Statistics which used to collect some commercial statistics was merged in the new Department in 1922. This Department forms a convenient link between the commercial public and the Government of India. It also collects and disseminates commercial statistics with a view to promote and develop Indian trade. It also acts as an intermediary between the Indian and foreign commercial interests and facilitates trade and business contacts between Indian and foreign businessmen. However the most important function of the department is the publication of many journals giving statistical information on various economic and other questions. This department is responsible for the compilation and publication of all the statistical volumes issued by the Government of India, covering not only commercial but judicial, administrative and agricultural subjects. The following are the important

journals in connection with economic statistics issued by the department:—

Annual

(i) Review of the Trade of India
(ii) Statement of the Foreign Seaborne Trade and Navigation of British India.
(iii) Statistical Abstract for British India.
(iv) Agricultural Statistics of British India.
(v) Estimate of area and yield of principal crops in India.

Quinquennial

(i) Index Number of Indian prices.

Quarterly

Wholesale price of certain staple articles of trade at selected stations in India.

Monthly

(i) Monthly statistics of the production of certain selected Industries of India.

(ii) Monthly statistics of cotton spinning and weaving in Indian mills.

(iii) Monthly Survey of Business Conditions in India.

(iv) Monthly Accounts relating to the Sea Borne Trade and Navigation of British India.

(v) Accounts relating to the Coasting Trade and Navigation of British India.

(vi) Kathiawar and Travancore Trade Statistics.

(vii) Indian custom's revenue statement.

(viii) Trade at stations adjacent to land frontier routes.

(ix) Raw Cotton Trade Statistics.

(x) Monthly Account relating to the Inland (Rail and River-borne) Trade of India.

Weekly

(i) The Indian Trade Journal.

During the first world war the folly of not industrialising the country and not keeping adequate records about various economic problems was realized by the British

Government. India got an impetus for industrial development and consequently the question of collection of statistics also came to the forefront. The Indian Economic Enquiry Committee was appointed in 1924 to survey the then existing statistical material in the country and to make recommendations for improvements. The Committee made valuable suggestions for improving the statistical machinery of the country, but all its recommendations could not be implemented. Later on in 1934 Bowley Robertson Committee was appointed and it also made various recommendations for collection and compilation of statistical information. Both these committees strongly criticised the then existing statistical organization in the country and the Bowley Robertson Committee pointed out in unequivocal language that the situation cried out for overhaul.

Royal Commission on Agriculture in Chapter III of their report suggested the creation of an Imperial Council of Agricultural Research. Its primary duty was to be to promote, guide and co-ordinate agricultural research and to acts as a clearing house for information, in regard, not only to research, but other general mattters also, connected with agriculture and animal husbandry. It was also to take over the publication work done by the Imperial Agriculture Department. Though the government of India did not accept all the recommendations of the commission in this connection yet by a resolution on 4th August, 1930, the Secretariat of the Council of Agricultural Research was constituted as a Department of Government of India. This Department though primarily concerned with agricultural research has a statistical establishment also, and it coordinates agricultural researches carried on in different places.

In some provinces, Boards of Economic Enquiry with Bureau of Statistics and Economics were established in early thirties, to collect economic statistics. In U. P. such a Board was established in 1931. Till 1937 the work done by them was almost nil and most of them met hardly three or four times during their lives. In United Provinces after the coming in of Congress, its work was entrusted, to a newly organized Bureau of Economic Intelligence. The

underlying idea was to create a central organisation for statistics and economic survey, which would co-ordinate similar work done by Labour Officers, Industries Department and Rural Development Department etc. At present this work is done by a separate department called the Economics and Statistics Department which is in charge of the Economic Advisor to the Government of U. P. The statistical work is done under the supervision of the Statistician to the U. P. Government and industrial statistics are supervised by another officer known as the Industrial Statistics Officer.

At present, the Central Government has separate departments of Industry, of Commerce, of Commercial Intelligence and Statistics etc. In the Department of Industries there is a special officer for dealing with industrial statistics. His designation is Director, Industrial Statistics. Industrial Statistics have assumed very great importance in recent times due to changed outlook of people about the place of industries in the economy of the country. Industrial Statistics act was passed in 1942 and most of the provinces at present are collecting important statistics relating to industries. In various provinces also, Industrial Statistics Officers have been appointed to collect and compile industrial statistics. There is now a special post of the Economic Advisor to the Government of India, and there is an Assistant Economic Adviser also. The Economic Advisor's office now collects and compiles economic statistics and publishes various journals like the Monthly Survey of Business Conditions in India which contain useful statistical informations. Besides this, each important department has its own Economic Adviser. In various provinces also, Economic Advisers are in charge of Economic and Statistics Departments. The Department of Commercial Intelligence and Statistics, which is by far the most important statistical department of the government has undergone some changes recently. Near about the beginning of the second world war, a new section known as the Statistical Research Branch was established under the Director General of Commercial Intelligence and Statistics. The main function of the new branch was to carry on research work on economic problems in which the Government of India was interested and to collect, compile and analyse statistical material for proper

appreciation of economic phenomenon. Most of this work is now done by the newly created Economic Adviser's office. Recently the posts of the Director General of Commercial Intelligence and Statistics and two Deputy Directors under him have been abolished. Now there are two directors,—one designated Director of Commercial Intelligence and the other Director of Statistics. There is an Assistant Director also to assist both. The Director of Commercial Intelligence is now concerned with the collection and dissemination of information connected with overseas trade which may be of use to Indian firms and the Director of Statistics is now responsible for the compilation and publication of all-India statistics. At present, most of the Central Government departments have Statistical Bureau and their work is co-ordinated by the Director of Statistics.

The above survey clearly indicates that even today our country lacks a centrally organised statistical bureau, with branches in various provinces and States to collect, analyse and interpret economic statistics. No doubt, various government departments collect statistics but they are never properly analysed nor are they co-ordinated. What we badly need today is an agency which may examine and analyse the statistics collected by government offices and co-ordinate them with other statistical data available, and which may draw inferences from them for guiding the economic policies of our nation.

(ii) *Unofficial*—In other countries, not only the government has a well co-ordinated statistical organisation but there are non-official agencies as well, which collect, analyse and interpret commercial and economic statistics. Economists, Businessmen, Universities, Chambers of Commerce, Economic and Statistical Institutes, Bankers etc. collect valuable statistical information and make it available to the public either for payment or in some cases gratis. Unfortunately, we in our country, have very few such agencies and they are yet in their infancy. There are many difficulties in the establishment and growth of such institutions in our country. These institutions flourish in economically advanced countries where businessmen, industrialists and agriculturists etc. take advantage of economic statistics and

decide their future plans and policies on their basis. In our country, which is yet economically backward, the importance of economic statistics is not fully realized and no necessity of such institutions is felt. Besides this, there is considerable difficulty in collecting statistical material in this country, on account of conservatism of people and the reluctance with which they give any information. People give out information only if they are compelled to do so and this statement unfortunately holds good even for educated people. It has to be admitted, however, that this attitude of indifference towards economic statistics in some cases is also on account of economic inability to have them e.g. as far as the agriculturists are concerned they cannot afford to have statistical information for themselves. But as far as industrialists are concerned this statement cannot hold good for them and their indifference is purely a result of their narrow minded attitude towards statistics. Bankers' Institutes, Chambers of Commerce, Trade Associations etc. flourish along with the economic development of the nation and the dearth of such institutions in our country, is due to our economic backwardness. Even modern universities are very few and they too are not well equipped to conduct economic surveys. Under such circumstances it is no wonder that like the official machinery for collection of statistics, the unofficial one is also not only most inadequate, but un-co-ordinated as well.

Dadabhai Naoroji made the first independent and unofficial collection of some economic statistics of our country. Credit goes to him for cutting the ice in the last quarter of the 19th century, when his well known book "Poverty and un-British Rule in India" was first published. He estimated the National Income of India and his estimates are based on the official figures relating to years 1867-70. Though official statistics had been used by Mr. Dadabhai yet he had supplemented his work with many facts and figures which he himself collected. It was he who set the ball rolling. Later on, some other economists also tried to collect and analyse certain economic statistics but unfortunately these collections were made for selfish ends and were utilised for propaganda and counter propaganda purposes. At the close of the last and the beginning of the

present century some universities were also set up in this country but they did not conduct economic surveys partly on account of poor finances and partly also on account of lack of initiative and proper guidance.

Though some Trade Associations and Chambers of Commerce existed in India even in the 19th century, the real development of such non-official bodies took place after the first world war of 1914-18. War had given an impetus to Indian industries and commerce and the necessity of traders' associations and chambers of commerce began to be felt. The Associated Chamber of Commerce of India was established in 1920. It represented mainly the European business interests. Federation of India Chamber of Commerce and Industry, representing Indian industrial and commercial interests in India was founded in 1926, and one of its main objects was to collect and disseminate statistical and commercial information. Besides these central bodies there are at present provincial chambers of commerce in most of the provinces and many districts and towns have their own chambers.

Besides these chambers of commerce there are many central, provincial and local trade associations which collect and disseminate useful commercial information. The Indian Jute Mills Association (formerly known as Indian Jute Manufacturing Association) was established in 1884. In 1902 when its name was changed, and rules and regulations were framed, one of the important items included in its objects was the collection and classifications of facts and statistics relating to jute business in the country. The East India Cotton Association Ltd., Bombay, was founded in 1921 and the Indian Central Cotton Committee was also constituted in the same year. They also collect and publish statistical information with regard to cotton trade and industry. Similarly Indian Mining Association founded in 1892, Indian Mining Federation founded in 1913 and the Mining and Geological Institute of India founded in 1906 also collect useful information about mining resources of the country.

Various labour organisations in India collect and publish statistical informations with regard to problems con-

nected with labour. Though trade unions existed in India even in the 19th century yet real development in the field took place after the first world war. The All India Trade Union Congress was formed in 1920 and two years after, the All India Railwaymen's Federation was constituted. It was followed by an All India Postal and Telegraph Union. At present, besides these central organisations provinces have their own associations of these types, and smaller unions have now been formed in important cities and towns. All these associations though primarily concerned with the organisation of their respective members, also collect valuable information which, if properly analysed, can be of much use.

Stock Exchanges are other unofficial institutions which publish useful economic statistics. It was in the year 1887 that Native Shares and Stock Brokers Association of Bombay was formally constituted. This is the premier share market of the country where forward business is done. In 1917 Bombay Stock Exchange Ltd. was registered but it ceased to function after a brief period. A new stock market was opened in Bombay in 1938 under the name of Indian Stock Exchange Ltd. The Calcutta Stock Exchange Association was founded in 1908. In South, the only registered institution of brokers dealing in shares and securities is Madras Stock Exchonge Association Ltd. It was registered in 1937. Recently stock markets have been opened at Delhi, Kanpur etc.

Besides these share markets there are many Bullion Exchanges, Cotton Exchanges and other exchanges for wheat etc. where forward business is conducted. These exchanges also issue bulletins giving the present and probable future prices of various commodities.

Various railways, joint stock banks, insurance companies and co-operative societies also collect and publish statistics in their own way.

Over and above all this, there are some technical magazines giving certain statistical material. Important among these are "Capital" of Calcutta, and "Commerce" of

Bombay. The Indian Statistical Institute which also collects and analyses statistical information also issues a journal known as 'Sankhya' which is a purely statistical magazine. The Indian Economic Association founded in 1920 has also a leading economic journal known as the 'Indian Journal of Economics.' Last, though not the least, is the recently constituted Indian Commerce Association which seeks to bring businessmen, economists and other persons and institutions engaged in commerce at a common platform, and has a journal of its own.

Shortcomings of Indian Economic Statistics

The above survey of the historical development of the official and unofficial statistical machinery in the country and of the sources of economic statistics clearly indicates that even at present we do not possess a well co-ordinated and centrally constituted organisation for the collection, analysis and interpretation of economic statistics. In the absence of proper statistical organisation it is no wonder that economic statistics in our country are altogether un-co-ordinated. Many foreign countries have a central Bureau of Statistics which collects, edits and analyses statistical material. Our country also needs one. The Indian Economic Enquiry Committee, in 1925, recommended the establishment of a Central Statistical Bureau under a qualified statistician with branches in each province. Bowley Robertson Committee in 1934 recommended the establishment of permanent Economic Staff for the same purpose. Unfortunately none of these recommendations has been fully carried out, though, at present, we have a Director of Statistics at the centre and Statisticians in most of the provinces. It is high time that we should have a centrally organised statistical organisation in the country with branches in each province. Indian states should also be asked to have such organisations and they should also work in co-operation with the Central Statistical Department. Various unofficial organisations which are collecting economic statistics should also be co-ordinated. The state should assist and encourage such organisations and facilities should be given to them for publication of their research work and statistical data. Attempts should also be made to co-ordinate official statistics with those which are col-

lected privately either by commercial and economic organisations or by individuals and research agencies. Statistical data in our country is not only un-co-ordinated but very inadequate as well. In this respect we cannot do better than quote what the Indian Economic Enquiry Committee said in 1925 and which still holds good.

"For the purpose of determining in what respect the statistical data available are deficient from economic point of view, the subject may be considered under the following three main classes:—

(i) *General Statistics* other than production, comprising Finances, Population, Trade, Transport and Communications, Education, Vital Statistics and Migration.

(ii) *Statistics of Production* including Agriculture, Pasture and Dairy Farming, Forest, Fisheries, Minerals, Large Scale Industries and Small Scale Industries.

(iii) *Estimates of Income Wealth* etc: Income, Wealth, Cost of living, Indebtedness, Wages and Prices.

The statistics falling under class (i) are more or less complete: those under class (ii) are satisfactory in some respects but incomplete or totally wanting in others; while as regards estimates of income, wealth etc. under class (iii) no satisfactory attempt has been made in British India to collect the necessary material on a comprehensive scale."

We have amply emphasised the importance of having adequate economic statistics and if we are to build up our nation's economy on sound lines we must collect statistical information on various economic matters. Not only should the government itself collect more statistical data but it should encourage unofficial agencies also to do the work. An all-out effort is necessary in this direction, as the present statistical data in our country is extremely meagre and insufficient for proper analysis.

Yet another serious drawback of our economic statistics is that whatever meagre data are available, they are not

always accurate. The agency for collection of official data is hardly trustworthy. We shall see, later on, in the course of our discussion that primary data, in India, are collected by least qualified men, e.g. agricultural statistics are collected by members of the revenue department—Patwaris, Kanungos etc. who are not only incapable of properly collecting statistics but who hardly take up this work, seriously on account of their preoccupations and extremely low emoluments. If we wish to have accurate statistics it is necessary to have properly trained staff. We cannot afford to side-track the issue on grounds of cost.

Our economic statistics, besides being inadequate and inaccurate are also not properly analysed. Scientific methods are rarely applied to analyse the statistical data. Most of our statistics result from the administrative activity of the government. Statistical analysis suitable for administrative purposes is not necessarily suitable for economic interpretations also; in many cases it is conflicting. Official statistics, before being used for other purposes should be properly analysed, otherwise conclusion drawn from them will be misleading. Statistics collected by unofficial agencies also suffer from this defect. The dearth of qualified statisticians, is, to a very great extent, responsible for this state of affairs. In many cases such statistics are collected by selfish people to achieve desired ends. Some economists, businessmen and capitalists, purposely try to draw biased and prejudiced conclusions to prove and popularise particular views. If unofficial statistics are also properly analysed by impartial and unbiased agencies and if people are properly trained to correctly analyse economic statistics a great service would be done to the cause of economic progress.

Besides these drawbacks, another shortcoming of our economic statistics is that their scope, significance and methods of compilation are not always fully known. Recently the Economic Adviser's office of the Central Government has published 2 volumes of "Guide to Current Official Statistics" which give some useful information about the scope and methods of collection of some official statis-

tics. The first volume deals with statistics of Production and Prices and the second one with statistics of Trade, Transport, Communication, Finance and Social Welfare. A third volume is expected to come out shortly and it will deal with statistics of Income. These guides are valuable documents which throw light on the work that the government is doing in connection with the collection of economic statistics. As far as unofficial statistics are concerned there is no such co-ordinated publication and there are little chances of such an issue in the absence of an organisation co-ordinating all important statistics collected by agencies other than the state. The state should grant financial and other facilities for the establishment of such an organisation and one of its functions should be to publish a statistical volume wherein the scope, significance and methods of compilation of unofficial data be given in details.

Last though not the least, comes the fact that there is undue delay in the publication of both official as well as unofficial statistics. The utility of the statistical data is altogether lost if they are not available in time, and in our country most of the government publications see the light of day when it is too late to utilize them. They have only an academic value and the businessmen economists and other persons usually treat them as things of the past. Even our crop-forecasts rarely come in time. Many times they are published after the crop has been harvested and is actually in the market. It is suggested that unimportant statistics be deleted from official publications and this will enable the government to save a lot of time. Further the data collected should be quickly tabulated and published in parts as the compilation of a full and big volume like the Statistical Abstract is likely to take a long time.

The above survey clearly indicates that even at present there are many drawbacks in our economic statistics which require an improvement on all fronts. The Bowley Robertson Committee had said as early as 1934: "The statistics of India have largely originated as a bye-product of administrative activities, such as the collection of land revenue, or from the need of information relating to emergencies such as famines. Only in case of the population census and to

some extent of foreign trade has there been an organisation whose primary duty is the collection of information. As a result, the statistics are un-co-ordinated and issued in various forms by separate departments. Though in some branches careful work is being done and determined efforts made to improve the accuracy and scope of the information, in others they are unnecessarily diffuse, gravely inexact, incomplete or misleading, while in important fields general information is almost completely absent. The only co-ordinated general publication is the Statistical Abstract, which omits some important statistics which must be searched for in other documents. The situation cries out for overhaul under the control of a well qualified statistician." Unfortunately this statement holds good even today. Bowley Robertson Committee made valuable recommendations to improve economic statistics in India and a summary of the same is given in Appendix C.

Some Post War Problems

Now that the war is over, we have to face immense problems of transition. "From war economy with its controls, its emphasis on the production of military goods, its diversion of the resources from civilian to defence purposes, its mobilization of the man power of the country for war purposes and the manifold reactions that such measures produce in the nation's economic life to a peace economy cannot be brought about by one sudden single stroke; the problem becomes even more difficult when one's objective is, as in the case of India, not a mere return to the pre-war peace economy, but the attainment of new peace economy, which would also be a planned economy intended to bring about a substantial rise in the pre-war standard of living of the people." The above language of Dr. V. K. R. V. Rao cannot be improved upon. It puts in a nutshell the big problems that face our country in the period of transition.

None of these problems of transition can be solved without extensive use of economic statistics. In war time many such industries were started which produced materials needed for the waging of war e.g. bullets, rifles, tents, para-

chutes, military boots, hats, helmets etc. Some of these war industries have to be closed altogether, others have to be curtailed and still others have to be converted into peace industries. This gigantic task cannot be completed in the absence of proper statistics. This change will create many new problems which have also to be solved. There will be some unemployment in the country and huge stocks of war materials will have to be disposed of. In order that the transition may not upset the economy of the country we urgently need relevant statistics to study the repurcussion of the change.

Further, we have to build up a new economy and it is definite that it will be a planned economy. We have already emphasised the importance of statistics in the field of planning, and we need not once again take up the point. Suffice it to say that unless we have a thoroughly organised statistical machinery in our country we cannot proceed with our plans. We must take a lesson from the various economic plans of Germany and Russia. The success that these plans achieved and the splendid results that were obtained therefrom were to a great extent due to the accuracy and foresight in planning which could be made possible with the help of proper statistics.

The Independence of the country has brought in its train a fresh series of important economic problems. The country has been partitioned and this has further complicated the position. Now there are no political hinderances to the economic development of India and the responsibilities of the state have greatly increased. The popular government can justify their existence and the people, their independence, only if the standard of living of the masses is improved and economic conditions are better than what they were formerly. The partition of the country has created immense problems, particularly in the field of economic statistics. Our past statistics have to be revised if their comparative value is to be retained. Henceforth we shall be collecting statistics only for the Indian Union and unless we revise our past figures they cannot be compared with those which we shall collect in future. This is a mighty

task and the government shall have to give its earnest attention to it. Our figures of agricultural and industrial production, of national income and national wealth, of unemployment, and indebtedness, of prices, cost of living etc. have all to be freshly calculated. We have to calculate the loss of economic resources on account of the creation of Pakistan and the effect of the same on our economy. e.g. most of the jute producing areas are in Pakistan but most of the jute mills are in India and if the relations between India and Pakistan are not cordial we may have to take steps to increase jute production in our country. These are big problems and can be solved only on the basis of accurate statistics.

Then there is the problem of refugees and their rehabilitation. More than 50 lacs of people have come here from Pakistan and an equal number has gone from this country. Most of them are poor and the state has to provide employment for them. This problem of their hehabilitation is again a problem which can be solved permanently only with the help of statistics. We have to find out how many of them are literate and how many are skilled in technical works, and then only we can proceed to absorb them in suitable jobs and professions. This work is to be completed as soon as possible as otherwise we cannot have peace and tranquility in the country.

There are many other equally important problems like the abolition of the zamindari system and the relaxation of economic controls which cropped up in war times that can be solved satisfactorily with the help of proper statistics. In fact, it is impossible to overemphasise the importance of the role that statistics have to play in the modern independent Indian Union, which has not only to convert her war economy to a peace economy and to develop an entirely new economic system to improve the standard of living of the masses, but has also to face mighty problems created by the partition of the country.

CHAPTER III

POPULATION STATISTICS

Broadly speaking the population of any country can be found out either by counting the number of persons alive on any particular day or by maintaining accurate records of births and deaths. The founder of population statistics, John Graunt used vital statistics (figures of births and deaths) exclusively because in his times (1662) no census was taken in England. American statisticians, in the 19th century, had to resort to census data because births and deaths were not properly registered. At present, in most countries, both the methods are adopted simultaneously and the results of one verified with those of the other.

In our country also, both these methods are used and we not only have periodical census of population but also some statistics of births and deaths. Population statistics, particularly of birth and deaths are very defective in our country, and we shall now examine the data collected at the time of the census and also the vital statistics.

(A) Population Census

The figures of population of India are given in various classes and sub-classes in the "Census of India" which is published every 10th year. The last census was taken in the year 1941, and was the 7th census, the first being conducted in the year 1881. In 1872 also, a census was conducted but it was not uniform all over the country and as such is usually left out of account.

In a small work like this, it is impossible to review and criticise that huge mass of information which usually finds place in a census report. We would, however, try to give the main headings under which a census report contains information and also try to give our criticism of the same.

Before dealing with the actual contents of the census reports it is necessary to give, in brief, the method by which

census figures are collected in this country. Like many other things we have copied the English system of taking the census, with minor changes. In England, the census is taken once in ten years usually in the spring when it is expected that few persons would be out. The responsibility for conducting the census and for the systematic registration of births and deaths is that of the Registrar General, who works under the Minister of Health. The whole country is divided into districts and sub-districts and each division is in charge of an official. A staff of enumerators, numbering about 40 thousand is appointed before the census. They distribute the schedules and collect an exhaustive information about the occupants in every building. A schedule is given to each householder who is to fill it, and a penalty of £10 is fixed for non-compliance of this rule, or for giving wrong information. The information usually required relates to names of persons alive on midnight of census day, sex, age, civil conditions, birthplace, nationality, personal occupation etc. The enumerator is also to fill in some information by himself, and this usually relates to the number of rooms occupied by a family, number of males, females and total number of persons. When the forms are filled in by the persons, then shortly after the census night the enumerator comes, assists in filling up any difficult details and collects the schedule. Afterwards he prepares a summary and a consolidated statement and sends all the papers to the local census officer. The schedules of the whole country are assembled in London where they are analysed, tabulated and finally published. Preliminary results are published a few days after the census and the final report comes out gradually.

Census Act. In India, shortly before the census is to take place an Act is passed in the legislature and it duly receives the assent of the Governor General in Council. The last Census Act was passed in September 1939, for the census which was due early in 1941. The Act extended to the whole of British India and empowered the central government to appoint a Census Commissioner to supervise the taking of the census throughout British India and Superintendents of the Census Operations to supervise the taking of the census within the several provinces. The provincial

governments were empowered to appoint persons as Census Officers to take, or aid in, or supervise the taking of the census within any specified local area. By this very Act every military officer, every person in charge of lunatic asylum, hospital, workhouse, prison, reformatory, a lock up, or of any public, charitable, religious or educational institution, every keeper, secretary or manager of a serai, boarding house, lodging house emigration depot or club, every manager or officer of a railway or any commercial or industrial establishment and every occupant of immovable property where at the time of census, persons were living, was, if required by district magistrate or provincial government, under legal obligation to perform the duties of a census officer in relation to the persons, who at the time of the census were under his command or charge or inmates of his house or were employed under him. Similarly all owners and occupiers of land, tenure holders, farmers, and assignees of land revenue and all members of district, municipal, panchayat and other local authorities were legally bound to give assistance in the taking of the census of persons in their area or jurisdiction. Besides this, every person was bound to give answers to the best of his knowledge, of all the questions put to him by the census officer or enumerator. Occupiers of houses or buildings etc. were to permit the access of the census officer to the extent to which it was necessary for the purposes of the census and were to allow them to paint on, or affix to the place such letters, marks or numbers, as may be necessary for the purposes of the census. Then there was a punitive section also. According to it any person who gave false answer or refused to give an answer, or who did not give access to census officer in his building or removed or obliterated any census numbers, and any census officer who did not discharge his duties properly or put improper question was punishable with a fine extending upto Rs. 200. The census act contained some more provisions with regard to making of rules, sanctions required for prosecution, operation of other laws, jurisdiction of courts expenses of census etc.

Staff: After the passing of the census act the central government appoints a Census Commissioner to conduct

the census. Provincial Superintendents are also appointed immediately after that. The Indian States have their own officers. Each district is under the District Census Officer He is a man of the rank of Deputy Collector. Usually in selecting such a person the criterion is whether he can tour all over the district without much detriment to his ordinary duties. His duties are generally so defined as to relieve the Collector, as far as possible, of any connection with census operations, save that of general control. One difficulty with district officers is their transfer. Many a time the district officer is transferred and this means a dislocation of two districts one from where he goes and the other to where he is posted. The government tries to see that such transfers are as few as possible. The district is then divided into Charges which are under Charge Superintendents. Usually no charge lies in more than one Tehsil. In rural areas a charge is usually the circle of the Kanungo. Municipalities form a separate charge or charges. Charges are divided further in Circles under Circle Supervisors and Circles in Blocks under Enumerators. The backbone of the census staff, outside urban areas, is the revenue official. Supervisor Kanungo is the Charge Superintendent and patwari the Circle Supervisor. These persons are really very useful and are best fitted for this work. The Supervisor kanungo knows every patwari intimately; he is his immediate supervisor at all times. The patwari similarly, knows every soul in his circle, and it is no exaggeration to say that he can fill up all the census schedules for almost everybody of his area from his own knowledge. Moreover, both these officers are, as part of their ordinary days work, well accustomed to handle forms, far more complicated than census schedules. Actual enumeration is done by village headman, village school masters and also patwaris.

In urban areas, the procedure in various respects differs according as the town is a city, a municipality but not a city, and any other kind of town. All municipalities whether cities or not are usually formed into one or more charges. Normally cities only form more than one charge, except that an attempt is always made to distinguish between urban and suburban areas. Charges, Circles and Blocks are on the whole larger than rural areas for the

obvious reasons that they are more compact. Charges, if more than one, correspond to some existing administrative unit or units, usually wards or thanas. Circles are usually within a ward or a thana. Simliarly blocks are within a circle and usually represent Muhallas.

The Charge Superintendent in municipalities is an officer of the board, usually the secretary. Other members are frequently Circle Supervisors. The actual enumerators are school masters, people of the police department, ministerial staff of the government etc. In towns the Bakshi is frequently the Charge Superintendent.

Training of the Staff: India which is a subcontinent, requires an army of about two million people to carry on the census. Of these, a vast majority is totally unacquainted with census, a large majority are non-officials, totally unused to "Naqshas" or official routine, and a fair proportion can do no more than read and write. To these men, are handed over complicated schedules or slips and they are to fill them up. It is obvious that training is essential if the census is to be a success.

Training is done usually in two ways. The staff above enumerators is first of all supplies with 'Manuals.' The Census Manual gives detailed information and instructions as regards the census procedure, the duties of various ranks of officials and an exhaustive explanation of various terms and phrases. Apart from this the staff is also trained orally. Some enumerators and supervisors are asked to fill up sample schedules which are corrected by Charge Superintendents and sent to District Census Officers who further examine them and send them to the Provincial Superintendent. Sometimes enumerators or supervisors are required to fill the returns for real or imaginary persons in the presence of the District Census Officer. This training is based on the principle that an ounce of practice is worth pounds of theory.

Census Procedure (upto 1931) The actual census work begins with the numbering of houses. It is a very important work. The definition of the word 'house' for purposes

of census is different from its ordinary meaning. In the census of 1881 the house was taken as a building i.e. enclosure or residence of one or more families having a separate entrance from the common way. This was found to have no statistical value. Therefore in later censuses the word 'house' had to be defined in a different way. Now the house is decided on the basis of *"Chulha"*. It is easily intelligible and is based on a well known and deep rooted custom of the people—that the members of a joint family eat food cooked from the same *Chulha* or cooking place. To count the houses, therefore, amounts to counting the families which eat from the one and the same *Chulha*, not to counting the actual *Chulhas*, for naturally, a commensal family of large dimensions would require more than one cooking place, though still theoretically eating from the one and the same *Chulha*.

After this, the preliminary census takes place. Usually this is done a few weeks before the actual census date. The enumerator goes with the schedule to the various houses in his block and fills in the form himself, as most of the persons in India are not literate. This is carefully checked by supervisors and other officers.

The actual census usually relates to a particular night. On the night of the census the preliminary record is made up-to-date. Name of persons who have left their houses or died are struck off from the list and those who have come from outside or are born are entered in the list.

Some difficulty arises in connection with those persons who, on the census night are travelling in trains or boats or are working in forests or have assembled in pilgrimage etc. Special arrangements are made for these and similar other cases. It will be difficult to describe all the special arrangements which are usually made in such cases; we will only give a brief outline of the measures taken on the railways. All persons travelling by rail who take tickets after 7 p.m. on the night of the census are enumerated on the platform if there is time, and if not, in the trains. Those alighting at any station during the night are enumerated there, unless they can produce a pass showing that they

have already been counted. All trains are stopped and every carriage visited at about 6 a.m. on the following morning in order to include travellers who have escaped notice till that time. Similarly other special arrangements are made for other cases, including census of cantonments and troops on march.

On the following morning each enumerator prepares a statement showing the population of the block and hands it to his supervisor, who after checking it, prepares a total for his circle and takes it to his Charge Superintendent. The Charge Superintendent similarly prepares a total for his Charge and sends it to the District Officer who adds up the Charge figures and reports the district total to Provincial Superintendent. The district figures are soon totalled up and the Provincial totals for various provinces and states are published.

The actual figures, take time to come out as the schedules have to be tabulated. Slips are prepared for each person and various details are copied from the schedules. To save time and writing work, various symbols and marks are used to denote religion, sex, infirmity, occupation etc.

After the various details are worked out, the census report is published. Usually there are two volumes one containing the abstract tables and the other the actual report. After the publication of the report the entire affair is wound up,and office staff dispersed and the census comes to an end.

Changes in 1941:—The census of 1941 saw some changes in the method followed till then. The first, and by far the most important change was the abolition of the old one night theory of enumeration. It was experienced on previous censuses that under the one night enumeration there were certain drawbacks and difficulties which could be removed if the period of verification was extended to a few days. In the census of 1941 this was achieved. The record was compiled over a period of days and there was full opportunity of verification and check. Under one night enumeration it was possible to falsify the figures if there was a corrupt will because verification period was very

small, a night only; but under the system of 1941 where the period was extended to a few days this difficulty was no more. Obviously under this system every visitor of the day could not be provided for, and hence, as far as possible, the census was related to ordinary residence basis. Under this system a person belonging to Allahabad would be counted at Allahabad with other members of his families even though he happens to be in Bombay on the census day. The basis of census was the normal residence, not the place at which the person is at the time of census. This system besides facilitating the verification proved to be very convenient also. Under it, the number of enumerators needed was reduced as the work was spread over a period of time. The number of enumerators for the whole of India in 1931 census was two millions and in 1941 census it was about one million only. The figures for British India for 1931 and 1941 were 1½ million and 2/3 million respectively. Besides this, the period of enumeration removed the difficulty of the selection of the census night. The census night had usually to be one which was a moonlit night and in which there were no fares or festivals etc. The difficulty was removed by the period enumeration.

Another important change in the census of 1941 was that the old schedules were abolished and the enumeration was conducted straight on the slips which were later sorted to produce the tables. The old schedules were very inconvenient to handle, and from them information had to be copied on individual slips which meant duplication of work. Thus the slip system was responsible for reducing a lot of copying work and in the reduction of printing cost too.

In the census of 1941, 1/50 sample of the entire slips was taken. This was another innovation of the census. The idea was, that these selected slips should be brought together and should be handled quite separately to find out whether it was possible to have accurate results with sampling in census conditions. For various reasons the operations could not go their full course but all these selected slips have been stored and kept safely to be used, if possible, in future. The sorting was not uniform throughout India e.g. in Kashmir and Gwalior the sample taken was 1/20. In Sind, Punjab and

Madras the operations were contracted as sorting in these places was on the basis of Tehsil and the sample could not run continuously through the large aggregations which otherwise would have been possible. But these variations are also of value because 'they will provide material for estimating the advantages of different bases for the random application.'

Yet another change in 1941 census was the extension of the house list, which gave distribution of persons in each house by age and sex. It was a very useful extension as it gave an idea of the number of slips needed. Moreover, if, for some reason or the other the census could not have been taken, the house list would have given a fair idea about India's population. One more advantage of this, was that it afforded a possibility of verification in case of a wrong enumeration. In those areas where doubt or suspicion arose it was by a study of the house list that the suspected zones were located and purification was carried out.

In the census of 1941, there was a complete centralization of printing and mechanical tabulation was also done. All tabulation work was not done on machines on account of their scarcity and preoccupation in other Government work, civil and military, but an experiment was made in this direction by using government machines in spare times and the experiment was a success.

Besides the above mentioned changes in the procedure of the census of 1941, there were other changes also, in the nature of the information collected and we shall deal with these when we examine the material published in the census report.

Future: Before dealing with the information contained in the census report we would like to make a few suggestions for improvement of the census procedure in future. At present the Indian census in the words of a writer is like a comet that appears on the Indian horizon once in 10 years, attracts much attention but passes away unnoticed. Last time also there was a hue and cry about the census in 1940 and after two years in 1942, people forgot

all about it and except a few, were not interested even to find out the total population of the country. There is no between-census-activity in the country to make people census minded. It should not be forgotten that it takes two to make a census—the enumerator and the citizen, and the role of the latter is more important of the two. After all, the accuracy of the census depends more on the replies of the citizen rather than on the efficiency of the enumerator. An enumerator may be efficient but his returns will not be correct if the citizens do not take the census seriously and give indifferent replies. Therefore it is necessary to have a sort of continuity in census and to keep people constantly in touch with census work.

To begin with,the census affair should not be a temporary one. We should have a permanent Census Department which should, from time to time, take the census and also complete the between-census records, by controlling the vital statistics. In England, we have seen that the census work is under the Registrar General who is also to keep the record of births and deaths. We, in this country do not have a proper record of birth and deaths and our vital statistics are hopelessly unreliable, and inadequate. It is necessary that this long felt lacuna in the statistical organisation should be filled in and our vital statistics and population census should be under a high placed official who should be a permanent hand of the government. Further, our census work should be linked with other statistical investigations of the government of India. It is not difficult to do it. "How this should be done is primarily an administrative matter. Various association possibilities present themselves but the main point is the end not the means. If the end is recognised and pursued, the means to a large extent will suggest themselves. The aim is not to keep an officer or office in existence but to keep this integration of census with the main administrative and informational system of the country a live issue."[1]

The Census Act should be made permanent. At present, it is passed afresh after every 10 years, before the census takes place. If the various acts passed from time to time are examined one will find that they are not uniform.

[1] Census of India 1941 p. 18.

Uniformity is highly essential in statistics, because without it much of the value of a statistical enquiry is lost. Every time there is a new Census Commissioner who frames the rules and procedure of the census work, and obviously under such circumstances there cannot be any uniformity in census operations. In the absence of permanent Census Act and permanent Census Department and on account of new Commissioner being appointed every time, the experience gained in the previous census is lost, and there is a lot of additional work to be done which in case of a continuous census work would not be necessary.

The house list should be made permanent and should be corrected annually and made up-to-date. House numbering should also be made permanent. If this is done and if the census affair is not wound up immediately after the publication of the report, and the government achieves continuity in the census work, it will be easy to improve the census system year after year and to make it thorough and exhaustive. The Census Department should also conduct experiments and find out how far the existing system can be improved upon.

When once we have left the system of one night enumeration and taken to period enumeration we can make a further advance. By taking the census on a normal residence basis and by keeping the house list up-to-date it will not be necessary for us to conduct the census simultaneously all over the country. We can imagine India as Europe and the various provinces as the various countries of that continent. The moment we do so, we will find our task much easy and the idea of census as a very big task on an all-India basis will vanish. Provinces can have their census at their own convenience. From the point of view of uniformity, however, various provinces should be required to conduct the census near about the same period.

A word about the enumerators. In England, United States of America and other countries, trained enumerators are appointed and are paid a fixed amount per head counted. In India which is, no less than a continent, the vast army of enumerators appointed, gets only paper certificates in lieu

of the service rendered. Indian census is unpaid. The census reports may continue to pay glowing tributes for the efficient work done by the enumerators, but the fact remains, that the majority of the enumerators take census as a burden forced upon them against their wishes. Under such circumstances they cannot take census as something vital and serious, and as such try to finish the job very indifferently. If we really wish to have correct records, our enumerators must be paid. We are conscious of the fact that this would mean very heavy burden on the government, but we cannot also ignore the fact that in the absence of any remuneration the enumerator cannot be expected to put his heart to the work. Besides the question of payment, the next question that arises in this connection is that of training. Our enumerators are not trained and there is need for having better enumerators. It is possible to employ the services of the Economic and Commerce Departments of the various universities and colleges in this connection. In university or college towns the economics and commerce students can work as enumerators under the guidance of their teachers. There is a great necessity of giving more training to village enumerators and to bring home to them, the implications of the various questions and their significance from the country's point of view. At present we have only male enumerators. There is need of having female enumerators to verify the number of women in families and to get information on various other questions on which it is difficult for the male enumerator to collect facts.

Besides this, we should have our census units on a natural basis. The village can be made the original census unit and can be linked with Tehsil through Pargana and other intermediary groups. In this way not only will there be a better division of work and greater facility in the actual census operations, but we would be abolishing the artificial blocks which give people an idea that census is something beyond their natural unit and as such something foreign. There is also a need of making census questions simple and easily answerable. It is not necessary to collect all the information which is collected at present. Some informa-

tion can be collected through special staffs, by random sampling on an area basis.

Information: We now propose to examine the material usually collected at the time of Indian census. As we have already pointed out, the mass of material usually contained in a census report (census of 1941 was an exception) is so huge and varied, that it is impossible to give even a brief idea about it in a few pages. We shall simply touch the important topics on which a census furnishes us information.

(I) Distribution and Movement of Population

The population of India is given sex-wise, for various Provinces and States. The area covered by the census is also given and the density of the population is also calculated. Figures are given from previous census reports to make a comparative study possible. The extent of increase in population in various provinces and states is also worked out and a comparative study of increase in population in various parts of the country is made. The reasons for the increase in population are also critically examined in the report. Figures of migration and immigration are also given to calculate the increase, on account of movement of population. Total births and deaths in the country according to figures collected during the decade are given and the population figures are calculated from vital statistics also and compared with the actual figures. Deaths due to famine, epidemics, wars etc. are also given. A study of the increase in population in relation to the economic conditions of the people is also made and this problem of population is critically examined. In Volume II of the report which contains tables, detailed statistical information is given on all the above points. Number of houses, persons per house and houses per square mile are also given.

In making use of these figures it should not be forgotten that they are not perfectly comparable because the area covered in various censuses differs. In the year 1881 the census covered an area of 1,382,624 sq. miles and in 1931 of 1,808,679 sq. miles and in 1941 of 1,581,410 sq. miles only

(due to separation of Burma). Moreover the definitions of the various terms used, is not the same in all censuses. They have been changing at the time of every census.

(II) Urban and Rural Population

The population figures of various provinces and states are further subdivided in Urban and Rural. Detailed definition of the words Urban and Rural, Cities, Towns and Villages are given.

The following details are available.

(i) Territorial distribution of towns and villages and the figures of occupied houses and of population, separately for towns and villages.

(ii) Population as distributed between villages and towns of different sizes. Separate figures are given for males and females.

(iii) Population of towns with variations, for the previous censuses. Urban Sex proportions are also worked out.

(iv) Territorial distribution of towns and their composition by communities of different religions.

(v) Floating population which cannot be distributed between Urban and Rural is given in a separate table.

It should be remembered that the classification of population between Cities, Towns and Villages is not uniform in all the censuses because the concept, meaning and definition of these terms have been constantly changing. However a table is given, sometimes, which shows the difference on account of a change in classification.

Besides the above information a brief history of important cities is given in Vol. I (i.e. the report) and a comparative study of population figures and numbers of houses is also made. The pressure of population on housing in Urban areas particularly, is also discussed.

(III) Birth Place and Migration

With a view to find out the extent of emigration and immigration the population figures are studied on the basis of birth place and place of enumeration. The following details are available:

General Distribution by Birth Place and Enumeration Sex-wise figures of persons enumerated in various parts of India and born in:

(a) (British) India
(b) Indian States
(c) India unspecified
(d) Other Asiatic countries
(e) Europe
(f) Africa
(g) America
(h) Australia

or born at sea, and of persons whose birth places are not returned, are given in great details. Not only the name of the country in which persons are born, is given but the place where they have been enumerated in India is also noted. Persons born in India are further classified on the basis of various provinces and states where they are born and where they are counted. In this way migration between various provinces and states during the decade to which a census relates is studied.

Besides this, a table shows the number of Indians born in India but enumerated in Great Britain and the colonies during a particular period.

Number of Emigrants and Immigrants: Number of emigrants to colonies etc. who are registered at the various port towns during the decade of census, is given.

Detailed figures of emigrants and immigrants, the net loss or gain due to movement of population and variation in the volume of migration, as compared with the last census

are also given. The provinces to which or from which the persons move and the share of each province or state in the migration or immigration is also recorded. In the Report, the nature of migration and its causes are also critically examined.

Actual and Natural Population: An abstract table gives state and province wise figures of the Actual Population at census, Immigrants (persons born elsewhere but enumerated in a province or state), persons born in a province or state but enumerated in other parts of India, persons born in a province or state but enumerated outside India, and the Natural Population (persons born in a province or state irrespective of the place of migration).

A statement showing available details of the persons born in French and Portuguese Settlements in India is also given.

(IV) Age

Age returns are usually tabulated along with sex and civil conditions. The particulars of the whole population are given in various age groups. Upto 5 years the age groups advance by one year but after 5 years the groups are quinquennial. A table gives the age of some selected castes classified in alternate three yearly and seven yearly groups. A table usually gives the complete expectation of life, in years, of females, in various countries of the world. In 1931 census Life Tables, both for males and females were calculated separately for various parts of the country. Age distribution of some persons in various religions and castes is also studied separately. Variation in population at certain age periods is also given in a subsidiary table. Besides this, the reports contain other miscellaneous informations regarding age in various tables.

Upto the census of 1921 the age was counted as number of years completed, but in the census of 1931 the enumerators were instructed to record the age as at the nearest birthday. Obviously this means that the figures of 1931 are not strictly comparable with those of previous censuses;

but the discrepancy on this account, is not much because "ignorance of precise age is almost universal in India and the probability is that the returns of age given at the 1921 and the previous censuses were just as nearly the returns of age nearest birthday as the return of completed years." In the census of 1931, the age of children under 6 months was recorded as nil, though it appears to be absurd but was better than the practice followed in previous censuses, under which all children under one year were returned as infants and also all children whose names could not be stated were likewise recorded as infants. A taboo on child's name, in India, is as common for a child below a year in age as above it and the result of it was that in the census of 1921 and those before, the number of children below one year of age was greatly swelled at the expense of those above one year. Not only the name and the age of children are not frequently given but it is thought to be unlucky for infants to be shown to a stranger enumerator and therefore the only guide about the child's age is the mother's statement which is usually very vague.

Indian age returns are admittedly unsound. One very important cause of it, as we have seen, is the ignorance of age. Ignorance is something quite natural in a population which is illiterate and which does not keep any systematic record of age. No doubt the Hindus have the custom of keeping horoscopes but they are never produced before the enumerator. Moreover the horoscope may not show the true age. It is common experience that false horoscopes containing wrong ages are frequently prepared to suit marriages or eligibility to government services or schools or colleges.

Illiteracy and consequent ignorance are responsible for various curious and crude methods of counting the age; thus a common method in Assam hills is to reckon age by the number of harvests. This means wrong counting. A child born in September is one year old in the same November when the harvest is due and two years in the next November.

Besides ignorance, indifference is also responsible for

the unreliability of age statistics in India. As the Census Superintendent of Central India pointed out in 1931 "Indifference arises from the outlook on life. The average man or woman in India matures early and is shortlived. Life presses heavily on them and fatalism overpowers them. Childhood, adolescence, middle life and old age are well-marked stages in life and the Hindu social system has laid down conduct of life and presented rules for the observance of customs and practices. It matters not if the present age is not known". Similarly the Madras Census Superintendent wrote (in 1931) of—"the peculiarly practical and realist outlook on life of the average Indian, who yet is often thought to be unpractical and visionary. After all, years are a mere convenience for reckoning; to exalt them into absolute standard as is done in Western countries, is to give them an undue importance. Capacity is what matters. Thus to the Indian our application of age limits to govern retirements and general insistance on birth certificates seems probably to show a defective and—to use a popular word in India—bureaucratic attitude towards life."

There are some reasons which operate towards a deliberate misstatement of age in the census returns. In case of unmarried girls who have reached puberty, the age returns are definitely wrong. The reason of it lies in the fact that high class Hindus, particularly Brahmins feel shy to admit that they have unmarried daughters, already pubescent, who should have been married by that time, according to the custom of the community or the injunctions of the *Smiritis*. It may also be due to short enumeration at that age. Enumeration may be short at that age on account of the practice, found in several parts in India, of secluding girls at the age of puberty. Certain castes consider it necessary to shut up and conceal girls who have attained puberty, independently of any shame at their being unmarried. The age of males at this age is also wrong, and its cause may lie in the desire of appearing definitely either as a boy or a man. Early marriage is also responsible for the wrong returns at this age because there is a tendency to exaggerate the age of boys just married and to understate that of boys not married. Widowers and bachelors

who have advanced in age, and who wish to marry generally understate their ages. In case of elderly women the age returns are usually correct, but recently married girls and particularly those who have become mothers tend to overstate their ages, because motherhood implies some elderliness and so ages are overstated because women are married in India when exceptionally young. Old persons of both sexes generally overstate their ages as it gives them a sort of elderliness and pride. As average life in India is shorter than in west any person who crosses 70 years feels some pride and wishes to have an air of superiority and a sense of prestige by saying that he is nearing a century. Sometimes very funny and unbelieveable statements of ages are given by some old persons particularly women who are very ignorant of the periods which mark the passage of time. In fact the Census Commissioner of 1931 pointed out the case of a woman of 35 or 40 years who gave her age at 100 years and when it caused a titter she hurriedly tried to correct herself by saying that she was 200.

Superstition is yet another cause of the misstatement of age. Many people believe that by telling the age correctly the length of life is reduced. Probably the Niti Shastra says that age is one of those nine things which should be kept secret. Such beliefs are no doubt, dying out but it takes a long time to remove such wrong ideas particularly when they are connected with religion. Sometimes wrong figures are given for fear that they might be used in court of law as evidence of age. Another point which affects all age returns is the practice (though not common) of reckoning the age from the time of conception and not from that of birth.

Besides this, there is a tendency to quote the age in round figures. The most popular digits are 0 and 5. A person 26 years of age naturally calls himself 25 and a person of 49 thinks that he is 50. This defect can be removed by grouping the age returns in such a way that the popular digits form the mid-points of the group. In this way the effects of the bias can be lessened, if not actually removed. There can be alternate 3 yearly and 7 yearly

classes so that the midpoints are 0 and 5 (3½.-6½, 6½-13½, 13½-16½, 16½-23½). This was done in 1931 census. A scheme was recommended by the actuary of 1921 and was adopted.

Deliberate misstatement of age can be reduced if the persons are made to understand and appreciate the fact that all ages are merged in groups, and that their names disappear from the age records. People should also be convinced that the census returns are to be kept absolutely secret and are not to be produced in any court of law.

If there is any doubt about the age of any person it can be verified by hastily asking him his age on the happening of a particular important event e.g. a question can be asked as to what was his age at the Coronation of George VI or beginning of the first World War or the Great Plague of the twenties. The appointment of female enumerators can also be helpful to a certain extent, as they can see the female members themselves and can verify certain facts.

(v) Sex

As we have already pointed out, the main table showing the age returns also shows the sex and civil conditions, Vol. I of the census of India contains certain subsidiary tables which show the general proportion of sexes by provinces and states and the number of females per 1000 males at different age periods by main religions, selected castes and tribes.

The report contains an informative discussion on sex ratio, reproductive period, fertility, sex of first born, size of family and duration of marriage etc. Various charts. diagrams, graph and statements are given to elucidate the information and make it easily intelligible. Comparative figures for other countries are also given.

(vi) Civil Conditions

The information collected on civil conditions is whether a person is unmarried, married or widowed. It may appear at first sight that no complication or difficulty should arise

in classifying this information but this impression is shaken when the problem of classifying, divorced persons, prostitues, concubines etc. comes up. In the census returns divorced persons who have not married again, are treated as widowed. Any woman who has never been married is to be shown as unmarried, even though she be a prostitute or a concubine. But persons who are recognised by customs as married, are to be shown as married even though no ceremony has been performed. Similarly persons living together whose religious tenets allow cohabitation without any formalities are also treated as married. Persons whether legally married or not, if they are living in such a way as to beget children and form a family are treated as married. It is held that statistics of civil conditions have nothing to do with legality or illegality of marriage; they are only concerned with the point whether a person is leading a married life or not. "Prostitutes who may be married to a god are rightly excluded, as far as conditions of enumeration permit, from the census return of married since though they may have children occasionally, no family unit is constituted".

It should be remembered that the conception of the word marriage as used in the Indian census reports is not the same as in European countries, in which effective cohabitation of husband and wife is the assumption. In India till recently (and to some extent even at present) the system of child marriage existed and it necessarily meant the postponement of the period of effective marriage.

The census report deals exhaustively with the marriage ratios in various communities at various ages, and in various castes, the problems of widow marriage, intercaste marriage and Devdasis etc. The problem of infant marriage is also discussed. In 1931 census report figures of infant marriages are inaccurate because the Child Marriage Restraint Act (popularly known as Sarda Act) was passed in 1930 and it provided penalties for solemnization of marriages of male children under 18 years and of female children under 14 years of age. The Act was to come in force six month after its passing, and during this period many infant marriages

were performed to evade the penalty. As a writer described "....bride in embryo is being mated to groom in the cradle....poor girl just learning to suck the feeding bottle is being carried over to the wedding bower. Urchins are being snatched from the arms of their playmates to don the garb of the groom.... We are sure before the 1st of April comes in there will hardly be left a single unmarried, man or woman in India."

In the 1941 census the question of Reproduction was given an importance and the census slips contained two new questions with regard to every married women in India viz. (i) The number of children born and (ii) Age at the birth of the first child. Had the census of 1941 been as exhaustive as that of 1931, these questions would have been very useful for studying the problem of reproduction. In the words of the Census Commissioner, 'had the operations gone their full course these questions would have made the starting point for elaborate tests and researches.' Till 1941 it was thought that these questions would arouse provocation and would not be answered, but the ice was successfully broken and there was no difficulty with regard to the answers of these questions. The government can now go ahead and collect further information through vital statistics, but as we shall see later on, the vital statistics even at present, are very inadequate and inaccurate.

(vii) Infirmities

The Census Report gives the general distribution, by provinces and states of the total number of persons recorded as suffering from Insanity, Deafmuteness, Blindness and Leprosy. The corresponding details agewise, for India as a whole, and for various provinces and states are also given in another table. In arriving at the total number of persons suffering from all these four infirmities, the persons who suffer from more than one infirmity are counted only once, but entries are reiterated, as if for separate individuals, when the individual infirmity figures are given. A separate statement shows the number of persons province and state wise, who suffer from more than one infirmity.

It can be easily asserted that the figures of infirmity in the census report cannot be correct because the terms Insane, Deaf and Dumb, Blind or Leper are very vague. It is difficult to lay down the extent to which these attributes must be present in a person to entitle him to a particular category. A person whose behaviour is a bit unusual cannot be classed as Insane though he is not sane either. Similarly a person who cannot read in night or who cannot see well in the day light, is not blind though there is nothing to check the enumerator to count him as such. If an attempt is made to make the definitions of these terms exhaustive the matters will become still worse because the definitions will become too complicated for the enumerator to understand properly and there will be confusion worse confounded. Probably for this reason, the definitions of these terms for purposes of census are very simple and cover a wide range. For purposes of census a blind person is one who suffers from loss of the sight in both the eyes; but loss of sight again is a very elastic term and in Bengal, in 1931, it was defined as "unable to count the fingers of hand held up at one yard distance." Leprosy, in census terminology refers to corrosive leprosy and not leucoderma. The tendency is to make the definitions as wide as possible. In censuses prior to that of 1921 Deafmutes were taken to mean persons Deaf and Dumb "from birth". But in 1921 and onwards the words "from birth" have been deleted. The term insane is extremely confusing because the use of the word insanity is a matter of personal temperament, and very different values can be associated with this term. For census purposes feeble minded persons are not insane.

The figures of infirmities in census reports have been put to various criticisms. One criticism is that while insanity, blindness or deaf mutism, are defects which an enumerator can see, leprosy is a disease which requires a doctor's eye for detection. An ordinary man can simply detect burnt out cases which are no more infectious. The disease in early stages is infectious and it is a comparison of such cases with those in which the disease has run its full course, that the increase or decrease of the disease can be studied; but the disease in early stages cannot be detected by enu-

merators. Moreover there is a wilful concealment of this disease and particularly amongst females. The census returns show that the number of males affected by the disease is more than two and a half times that of females. This graet disparity cannot be explained by the reason that females are less susceptible to attack of leprosy than males, and is naturally the result of concealment of the disease. Similarly insanity is also concealed particularly in case of females and deaf mutism in case of children. As we have already said the use of the word insanity is a matter of personal temperament and "in fact a young lady in Lucknow Cantonment, filling in the schedule for her husband who was out at his work, but had doubtless had the misfortune to offend her, described him as insane, deaf mute, blind and leprous—an extreme case no doubt, but illuminating."

The various surveys occasionally made by non-official committees show that the figures of infirmities as shown in census reports are huge under-estimates. It is estimated that the actual figures of leprosy in India are about ten times of those shown in census reports. Besides incompleteness of figures, we have already seen that these terms indicating infirmities, are so loose that the enumerators' bias has a great chance to play. However, we can safely assume that the bias in one direction is offset by a similar bias in another direction and the figures retain their comparative value.

(viii) Occupation

Of all the subjects with which a census is concerned probably the most difficult and complicated is that of 'occupation'. In India, as in other countries also, the information collected and the manner in which it is tabulated has differed from census to census, and we propose to have a brief historical view of the same.

For the first time, occupation of people in India, was recorded in 1881. Only one column was devoted to it and its heading was as follows: "Occupation of men, also of boys and females who may do work. N. B. Boys at school, girls small children and women who perform no regular

work should not be shown in this column." The instructions issued to the enumerators were as follows:

"Only such persons are to be shown in this column as actually do work contributing to the family income. Mere employment in such domestic occupations as spinning will not entitle women to be shown in this column, unless the produce of their labour is regularly brought to the market. When a person has two or more occupations he should be entered as following the occupation whence his income is chiefly derived but if he combines agriculture with any other profession or trade such as that of vakil, money-lender, carpenter or smith, both occupations should be shown".

Thus we see that in 1881 only the occupation of the earning members of the family was recorded. Later on, it was thought that this information was not sufficient because it did not throw light on the question of number of persons who were actually dependent on a particular occupation, as the number of dependents was not counted in 1881. Therefore, at a conference which was held to consider the arrangement of the census of 1891 it was decided to find out the number of persons living by an occupation and not merely the number of persons exercising an occupation. In the census of 1891, therefore, the means of subsistence of the whole population—whether worker or dependent were examined. Workers and Dependents were not distinguished and the heading of the column relating to occupation was "Occupation or Means of Subsistence." The instructions given to the enumerators were as follows:

"Enter here the exact occupation or means of livelihood of all males and females who do work or live on private property, such as house rent, pension etc. In the case of children and women who do no work, enter the occupation of the head of their family or of the person who supports them, adding the word dependent, but do not leave this column unfilled for anyone even an infant. If a person has two or more occupations, enter only the chief one, except when a person owns or cultivates land in addition to another occupation when both should be entered."

In the census of 1901, and also of 1911, there were 3 columns allotted to occupation. They were as follows:

Occupation or means of subsistence of actual worker.		Means of subsistence of dependents on actual worker.
Principal	Subsidiary	
9	10	11

For the first time the actual workers were distinguished from the dependents. The instructions for filling in these columns were as follows:

"Column 9 (Principal occupation of actual workers): Enter the principal occupation or means of livelihood of all persons who actually do work or carry on business, whether personally or by means of servants or who live on private property such as house rent, pensions etc. The column will be blank for dependents.

"Column 10 (Subsidiary occupation of actual workers): Enter here any occupation which actual workers pursue in addition to their principal occupation. If they have no such additional occupation enter in this column the word 'none'. The column will be blank for dependents.

"Column 11 (Means of subsistence of dependents): For those who do not work or carry on business either personally or by means of servants and who own no private property, enter the principal occupation of the head of the family or of the person who supports them. The column will be blank for actual workers".

In the census of 1901 though a distinction was made between a Worker and a Dependent, it was not easy to differentiate between the two. The line of demarcation between a worker and a dependent was very vague, and

though the instructions given in 1901 and 1911 were very detailed yet the confusion between the two terms remained. A part of instructions in the census Instructions of 1911 ran as follows.

"The entry of occupation is another matter requiring special care. Only those women and children will be shown as workers who help to augment the family income. A woman who looks after her house and cooks the food is not a worker but a dependent. But a woman who collects and sells firewood or cowdung is thereby adding to the family income and should be shown as a worker.....A boy who looks after his father's cattle is a dependent but one who is a regular cowherd should be recorded as such in column 9. Where a man has two occupations, the principal one is that on which he relies mainly for his support and from which he gets the major part of his income. A subsidiary occupation should be entered if followed at any time of the year. Only one subsidiary occupation (the most important one) should be entered in column 10".

Apart from the arrangement of the columns, a very important difference between the method of collecting information adopted in 1891 and that adopted in 1901 and 1911 was that in 1891 dual occupation was entered only when one of them was connected with agriculture, whereas in 1901 and 1911 the entry of all dual occupation was prescribed.

The census of 1921 did not mark any change in the method of enumeration, so far as occupation was concerned. The workers and dependents were distinguished in the same fashion which was adopted in the censuses of 1901 and 1911. We have already pointed out that the distinction between worker and dependent and between primary and subsidiary occupations involves subtleties of interpretation. Similarly the extent to which women and children augment the income of the family is always a question of opinion. Obviously many inconsistencies creep in the census figures of occupation due to these causes. Moreover the tabulation and classification of such varied returns has always been a problem by itself.

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Some changes were made in the census of 1931. Instead of 3 columns, 4 columns were devoted to this return and the enumerator was to note whether a person was an "earner" or a "dependent". In case of 'earner' three things were to be noted (1) His principal occupation, (ii) His most important subsidiary occupation, if any and (iii) Industry in which employed. A complete compilation of the figures of subsidiary occupations was attempted, for the first time in the census of 1931. A dependent was not regarded as having any principal occupation but was recorded in the column of subsidiary occupation, as following any occupation which added to the family income. Such dependents who were doing some work, were designated as "Working Dependents" as distinguished from Non-Working Dependents who had no occupation.

Before proceeding further, we would like to give an idea of the meaning of the words 'Earner', 'Worker' 'Actual Worker' and 'Industry' because these words have most frequently occured in the census of 1931. Earner according to the census of 1931 means a person who receives the wage, or subsistence obtained either in principal or subsidiary occupation. The term 'worker' is used for all persons classed as earners plus those following an occupation as working dependents i.e. not themselves receiving the wages or controlling the means of subsistence. The term 'actual worker' is used with reference to all workers in principal and dependent occupations "excluding the number of individuals duplicated by their appearing also as earners by means of subsidiary occupations." "The definition of industries was, employment on wages in company with any other person, by a third person." This wide definition of 'Industry' covered many non-industrial type of employment also and the idea was to eliminate them in tabulation and classification.

Upto the census of 1921 it was possible to find out the number of persons dependent on a particular occupation but with the change in the method of enumeration in 1931. it was not easy to find out dependency on an occupation by the census returns as it required the addition of the figures

of earners and working dependents. Upto 1921, a worker was a person who contributed to the family maintenance and these persons have been divided into Earners and Working dependents in the census of 1931; the earners and working dependents of 1931 census combined together are equivalent to workers of 1921 and previous censuses.

The census of 1941 is silent on the problem of occupation.

Occupational Classification: The system of classifying the occupations for the purposes of census has been changing from time to time. In 1881, India followed the English system of classification with minor changes. Experience showed that the classification did not suit the needs of the country and therefore in 1891 Mr. Bains devised a new scheme of classification under which occupations were divided into 7 main classes as follows:

A. Government.
B. Pasture and Agriculture.
C. Personal Services.
D. The preparation and supply of material substance.
E. Commerce, Transport and Storage.
F. Professions.
G. Indefinite occupations and means of subsistance independent of occupation.

The above mentioned 7 classes were divided in 24 "orders" which were further subdivided into 77 "sub-orders" and 478 "groups."

In 1901 the classification was based on the same line as adopted in 1891. However, some minor changes were made and the number of classes, orders, sub-classes and groups were 7,24,79 and 520 respectively.

It was in the census of 1911 that the system of classification was completely overhauled. In the beginning of the present century the question of classification of occu-

pation was receiving serious attention of the statisticians all over the world, as no country was satisfied with its occupational classifications; moreover the classifications followed in different countries were not uniform and international comparisons were not possible. The famous French statistician Dr. Jacques Bertillon, after a careful study of the various systems of classification followed in different countries of the world, drew up a scheme, which, he claimed, would suit every country, with minor changes here and there. He consulted twenty directors of Statistical Bureaux and after revising this scheme in the light of their suggestions, placed it before the International Statistical Institute which approved it and recommended it for general adoption.

Bertillon divided the occupations in four main classes, twelve sub-classes with three series of minor divisions numbering respectively 66,206 and 499. He pointed out that the main classes or principal heads should not be changed for the sake of international comparison though minor divisions could be increased or decreased according to local requirements.

Since 1911, India, like many other countries, has been following the Bertillon Scheme with minor changes here and there. The following are the main classes and sub-classes of the Bertillon Scheme:—

Class A.—*Production of Raw Materials.*

(i) Exploitation of the surface of the earth.

(ii) Extraction of minerals.

Class B.—*Preparations and Supply of Materials Substances.*

(iii) Industry.

(iv) Transport.

(v) Trade.

Class C.—*Public Administration and Liberal Arts.*

(vi) Public force.

(vii) Public Administration.

(viii) Professions and Liberal Arts.

(ix) Persons living on their income.

Class D.—*Miscellaneous.*

(x) Domestic services.

(xi) Insufficiently described occupations.

(xii) Unproductive.

The number of minor divisions in 1911 was 55 orders and 169 groups.

The system followed in the census of 1921 was the same as that of 1911, but opportunity was taken to introduce changes and modifications where the old classification was found to be defective or ambiguous. The number of orders and groups was 56 and 191 respectively. The census of 1931 also followed the same plan with minor changes. Some minor divisions were amalgamated while others were subdivided. The total number of orders was 55 and of groups was 195.

The Bertillon Scheme has come in, for a good deal of criticism. It has been pointed out that it is very complex and the details of grouping are so excessive that it results in confusion. The above criticism cannot be challenged but uptil now no person has been able to put forth a scheme better and simpler than this. Various suggestions that come forth take the form of requiring more details which mean a further subdivision of the existing groups. It should not be lost sight of, that a census report does not seek to supply data which is suitable for detailed discussions, it only gives broad information, and naturally, minute details have no place in a census report. The problem of sorting each of the 400 million individuals in his proper category, is too intricate to be solved and frequently difficulties arise in this connection. "Charity receiver on burial ground suggests mendicancy at first sight but probably represents a Mahabrahman and would be rightly classified in group 166—Servants in religious edifices, burial grounds etc. together

with the pourer of water on gods, but one is little puzzled whether 'driving away epidemics by charms' should go with 'averters of hail storm' into group 181—Astrologers, fortune tellers, horoscope casters, wizards, witches, and mediums, or into group 170,—Persons (unregistered) practising the healing art...." Numerous examples which present such difficulties can be cited and one has to conclude that it is impossible to satisfy every body whatever the number of classes be.

In the census of 1931, the table containing information on occupation has been divided in 3 parts. Part I contains a 'general summary', by occupation, for the whole of India. For each of the 195 groups, number of persons (sex-wise) following an occupation as principal occupation, or as working dependent or as subsidiary occupation is given separately. Part II of the table gives a detailed distribution on occupational basis, of the total enumerated population of each province and state. Total number of earners (Principal Occupation), total number of working dependents, and total number of persons following an occupation as subsidiary to other, are given separately in 3 columns. Part III of the table gives corresponding details for selected cities.

In making use of these figures, it should not be forgotten that they refer to one particular date only. On any day other than the census day, the number of persons in any occupation can show a wide variation. Many occupations are seasonal only, and the number of persons in them may be almost nil at the off season period. Secondly it is not necessary that a person can follow only two occupations, and not more. Division of Labour has not proceeded very far in India and a person can have may pursuits. Upto 1921, only the principal occupation was entered and dual occupation was entered only if one of the two was agriculture. In 1931, no doubt, dual occupation was entered for all, yet many persons in India have more than two occupations and to that extent census figures of occupation are wrong. A cultivator may be day labourer, a chowkidar, a repairer of tools, sometimes a boatman and a fisherman too. No doubt it is not possible to adjust all such cases but all the

same, this fact cannot be challenged that a person may have an occupation which is not recorded at the census. Sometimes it is difficult to say which is the main occupation and which is the subsidiary one. A chaukidar may get Rs. 6 p.m. as pay and may earn Rs. 6/- p.m. or more from spinning. It is difficult to say which is his main occupation. Confusion is also created by a man's caste which denotes his traditional occupation which is not necessarily the means of livelihood by which he actually exists. A man of the barber caste calls himself a barber though his income is mainly derived from land, a Brahmin even if he is a mendicant, calls himself a priest. Again, there has always been an uncertainty regarding makers and sellers and factory workers and other workers though at every census special instructions are issued for these occupations. Last, though not the least is the fact that there are many chances of mistakes being committed in the course of compilation of such varied details.

We are of opinion that the occupational classification should be simplified and the number of classes reduced. It is too much to expect, from the census report, detailed information on minor points. "A census .... does not supply datas which are suitable for minute classification or admit of profitable examination in detail. The most that is reasonable to expect from datas so collected is that they shall give the means of drawing such a picture of the occupational distribution of the people as shall be fairly true in its main lines, though little value can be attached to the detailed features. It is not wise to demand from a material, a result, for the production of which, it is unsuited." [1] In some of the countries of Europe this subject is altogether excluded from enumeration, and it has been decided to collect the information through comprehensive industrial surveys. The 1941 census, in India also did not publish any figures of occupation, but probably, it was so because the census operations could not go their full way. We can also do away with this information, as far as census is concerned but in that case it should be collected through industrial surveys which we have recommended elsewhere.

[1] Census of England and Wales 1891, p. 35.

(ix) Literacy

The Indian census report throws light on the problem of education in the country. Figures of literacy are found in all census reports since 1881. Literacy, however is a very vague term. "Literacy is a concept, by no means, so simple as its one word title would imply and all that a census can do is to indicate very generally the position. It cannot and never could throw any light on quality." Upto 1891 the population was divided into 3 catagories viz literate, learning and illiterate. The instructions then issued were as follows:

"Enter against each person, whether grown up, child or infant, either learning, literate or illiterate. Enter all those as 'learning' who are under instructions, either at home, at school or college. Enter as 'literate' those who are able both to read and write any language, but who are not under instruction as above. Enter as 'illiterate' those who are not under instructions, and who do not know how to both read and write, or who can read but not write, or who can sign their name but not read."

Obviously the above classification was not sound. Many students of colleges and universities found it, rather derogatory, to be classed among those 'learning' when many who could simply read and write were recorded as literate, and so they also returned themselves as literate. There was a great discrepency between the census figures of 'learning' and similar figures of the education department, partly due to the above reason, and partly due to an exaggeration in the departmental returns of the number of children reading in village schools. In the census of 1901, therefore, it was decided to have only two classes—literate and illiterate. This practice has been continued since then.

For purposes of census, literacy means the ability to both read and write or, to use the census phrase 'to write a letter and read the answer to it'. Persons who can read but not write or who can sign their names but cannot read are not literates according to the census report. Alleged literates under the age of five years are taken as illiterates.

There are a considerable number of persons in India, particularly Muslims, who can read but not write and in Barod State where such persons are in large number, separate figures regarding them used to be kept in the past. For the first time the census of 1941, recorded on an all-India basis, the number of such persons. It is more than what is generally believed. Literacy in English has always been recorded in a separate column.

The census tables on literacy give the following information.

(i) *Literacy by Religion and Age*: Figures are given separately for males and females. Province and state wise distribution of the literacy along with an all-India abstract is also given. Figures of important cities are given separately.

(ii) *Literacy by selected castes*: The census of 1931 threw some light on the problem of educated unemployed. It is necessary that the census reports should contain some tables to show the relation between literacy and means of livelihood. It will not only be an interesting study, but useful also.

The accuracy of the figures of literacy, like other figures, depends primarily on the attitude of the people. It is their answers, that are tabulated in a census report. The enumerator can check the answers given for males but in the absence of female enumerators the record about ladies is difficult to be verified. There is a great need of checking figures about ladies because generally people feel shy to get the female members of their family recorded as illiterate.

(x) Language

The census report devotes a chapter to the question of language in India. Number of persons speaking various languages is estimated province and state wise and an abstract for the whole of India is also given. However, the figures are not comparable census after census because the area covered, and classification of languages have not

been uniform. In the year 1901 the languages returned were 147, in 1911, 220, in 1921, 222 and in 1931, 225. Upto the census of 1921, only the mother tongue was recorded. The instructions to the enumerators were 'Enter the language which each person ordinarily uses in his own home. In the case of infants and deaf mutes the language of their mother should be entered'. It was later on realised that this information was insufficient because, though the vast majority of people in India speak alike in their homes and in their general conversation, one of the major languages of the country, on the other hand quite a good number of them are practically bilingual.

In the census of 1931, therefore two columns were provided, one for the mother-tongue and the other for any language or languages habitually spoken, in addition to the mother-tongue in daily and domestic life.

The returns of language are not very accurate, not only because of changing classification but also on account of ignorance and bias. The ordinary individual does not know anything about the scholastic distinctions such as Eastern and Western Hindi, Rajasthanis and Lahnda etc. Yet another difficulty is that of, mixed language. Between two major language areas very often their is a 'no-man's land' where mixed dialect is spoken. It can be entered in either of the two languages. In many cases the enumerator enters the language in which replies to his question are given, though further enquiry would have made it clear that it was not the language of the home.

The question of script is equally problematical, particularly where Hindi or Urdu is in question. The United Provinces has always been a stumbling block to the returns of script. Hindi-Urdu question has assumed a communal and political shape, and the difficulty is all the more enhanced, on account of the fact, that as far as speaking is concerned, it is impossible to demarcate any boundary line between the two languages. The concept of Hindustani is another problem which has come to the forefront in recent years.

The Census Commissioner of 1941 was of opinion that the questions of language and script should be dropped from the census report. He said, "I suggest further, that language and script questions be dropped from any future censuses until such time, as the population of India is able to respond properly to a factual enquiry on them. The census can collect and deal only with facts not with pre-conceptions."

(xi) Religion

Population of India classified according to various religions is also shown in the census reports. Upto 1911, the record of religion was optional and some provinces did not collect this information. In 1921 the information was collected for the whole country, though the classifications for individual provinces were changed according to local needs and requirements. The census of 1931 gave more comprehensive information and classified the population of India under the following religions:—

Hindu		
Jain	Zoroastrian	Jews
Buddhist	Muslim	Tribal
Sikh	Christian	Others.

It should be remembered that religion is also a very vague term and it is not easy to say whether a person is a Hindu or a Jain or Sikh. It is comparatively easy to classify a person as a Muslim or a Christian but it is not so with a Hindu. The word Hindu is a very wide term and according to some, all non-muslims and non-christians are Hindus. The border line between Hinduism and Jainism or Hinduism and Sikhism or Buddhism, and at many places between Hinduism and Mohammadanism even, is difficult to be laid down.

As in our country, seats in the legislature depend on the relative strength of the communities, the returns of religion are grossly mischievious. It is particularly so where the strength of Hindus and Muslims is almost equal. The returns for Bengal have always been inaccurate, and even at

the last census of 1941, communalism played a very dominating part, particularly in connection with returns of community.

In the past, there was one very great drawback in the returns of religion. The returns were based on religions but the results were interpreted as if, the classification was on the basis of community. Though in India religion and community go together yet it is not necessary that a person believing in one religion may also belong to the community, which in general believes in that religion. It is easy to define the various communities but it is not so easy to define the various religions. As such, in the census of 1941 the returns were based not on religion, as in all previous censuses but on community. Upto the census of 1931 the returns of various persons of tribal zones, who could not tell their religions were worthless because in place of their religion their tribe was entered. Tribal religion and Hinduism could never be satisfactorily distinguished. It was, therefore, considered better, in 1941, to find out the total number of persons of tribal origin, and 'leave to administrative decisions, the always difficult question of how far these should be classed under other heads for other purposes.' The population in 1941 was classified under the following communities.

1. Hindu.
   (a) Scheduled castes.
   (b) Others.
2. Muslims.
3. Christians.
   (a) Indian Christians.
   (b) Anglo-Indians.
   (c) Others.
4. Sikhs.
5. Jains.
6. Parsees.
7. Buddhists.
8. Jews.
9. Tribes.
10. Others.

(xii) Caste, Tribes and Race

The census reports also deal with the question of caste, tribe and race. Figures are given sex-wise for persons belonging to the various castes in India. A separate table gives the figures of race, tribe or caste of Hindus. Variation

in population of selected castes and tribes is also worked out right up from 1881. One table is devoted to classification of European and allied races and Anglo-Indians.

It should, however, be noted that the terms caste, tribe and race are always ill defined and the census report does not give any clear-cut definitions of these words. Very often the meanings of the terms overlap each other. Various objections have been raised against the return of caste. It has been argued that this return should be deleted because it perpetuates the system of caste differentiations, and also because the returns are worthless, as the people of lower caste always return themselves as belonging to higer caste, which they think automatically gives them a higher social status in the eyes of government. Probably they do not know that these returns are simply meant to find out the number of persons in a particular caste and nothing more. But these reasons are not tenable and it is necessary to have the information because caste is still 'the foundation of Indian social fabric,' and the record of caste is still 'the best guide to changes in the various social starta in the Indian society. Moreover we cannot hide our face like the proverbial ostrich and we, as students of statistics have to face facts as they are. We should try our best to remove the defects of the caste system but this aim can not be achieved by not collecting statistics of various castes. Statistics of caste are needed even to measure the success that is achieved in the attempts to improve or abolish the caste system. It is, therefore, necessary to continue the collection of these figures and further to improve them wherever necessary.

B.—VITAL STATISTICS

We have examined above the data contained in the Indian Census Reports and have pointed out its drawbacks and inaccuracies. The condition of vital statistics in India is extremely hopeless and the figures of births and deaths are grossly inaccurate, misleading and unfit for statistical analysis. These figures are published in the Statistical Abstract and while making use of them we should always allow a very great margin for inaccuracy of these statistics.

The system of the registration of births and deaths is very defective in our country. Firstly, there is no uniformity in the procedure of registration in various provinces. Different provinces have different methods, and this lack of uniformity, is responsible for many inaccuracies. It is necessary to collect these statistics in a well-organised and uniform fashion throughout the country. In England the Ministry of Health is responsible for the collection of these figures. In our country generally speaking, the Municipalities undertake the work in Urban areas and the Village Officials in rural tracts. The village headman has to run to Tehsil for reporting births or deaths and this is an irksome duty which he generally neglects. In case of a birth, he generally waits for sometime to see whether the child would survive, and thus saves himself of the worry of running once again to the Tehsil to report the death should it occur soon. It is a general practice that the village headman holds the reports of births and deaths for sometime and goes to Tehsil either once a week or even once a fortnight. Besides this, many times he hesitates to report deaths as it may result in the unwelcome visits of suspicious police officers.

In urban areas the condition is no better. Births or deaths are to be reported to the municipal office, and failure to do so within a certain period involves a small fine. Such a passive role on the part of the Municipal Boards has been responsible for inaccuracies, in vital statistics of urban areas. At many places the municipal office is far away from the residence of certain people and as the importance of statistics is not realized by the citizens in our country, attempts are made to avoid the trouble of going long distances for reporting a birth or a death. Under such circumstances the government should take active steps to improve the situation. The system of free postcards can be introduced, at least in urban areas. The places where registration can be done should be more in number and well distributed over the town. It is extremely necessary to have accurate vital statistics, as in their absence it is difficult to study the growth of population. An attempt was made in the census of 1941 to collect data for calculation of Net

Reproduction Rate. It is suggested, that in the coming census, for which preparations are already a foot, some further progress should be made in this direction.

The importance of vital statistics is not realized by people in this country. Probably, this is the largest single factor responsible for the present state of affair when we do not know the Birth Rates, Death Rates, Reproduction Rates, and Fertility and Fecundity Rates in our country. It is high time that attempts are made to improve the situation and to bring our vital statistics to the high level reached in other civilized countries of the world.

CHAPTER IV

Agricultural Statistics

(Crop Estimation)

Past History: The collection of agricultural statistics is not something new to this country. In ancient days the kings and chiefs who ruled the country used to collect figures of yields of various crops and the areas under cultivation. The reason for this interest in agricultural statistics, was, that most of the public revenue in those days was derived from land and as such it was necessary to have records of the area and yield of various crops to find out the amount of land revenue. The Ain-i-Akbari and some other documents of Moghul period clearly indicate the manner in which such statistics were collected. The British people also realized the importance of having accurate record of agricultural figures, as India was, and is even today primarily an agricultural country. From the government point of view, the statistics of agriculture are not so necessary for those areas where there is permanent settlement but in Ryotwari areas where the amount of land revenue depends upon the net produce, agricultural statistics become a necessity.

Ryotwari system was introduced in some parts of India as early as 1792-1800, and for this purpose statistics of land values, costs of cultivation, prices of produce and crop yields had to be collected. Later on, when Ryotwari system was introduced in Bombay and other places, in the first quarter of the 19th century, agricultural statistics began to be collected more exhaustively, though on the same lines. No doubt there were many drawbacks and defects in the statistics of those periods, yet it is an unchallengable fact that the entire superstructure of modern Indian agricultural statistics is based on them and they form an invaluable storehouse for economic research and study.

These statistics, however, were not much useful for purposes other than revenue calculation. Crop forecasts which are so essential and common today but which were

not known in those days require a different type of statistics.

The history of the present crop forecasts dates back to the year 1861. Famines and droughts in India were becoming very common phenomenon and their recurrence compelled the government to collect such figures as would be necessary to foresee a famine. The policy of *laissez faire* followed by the government till then was abandoned and agricultural experiments were started in many provinces. The severe famine of 1861 had opened the eyes of the government and statistics of crops and prices began to be collected from 1866 and published in the revenue returns and administration reports of the various provinces. Upto 1874 the progress was meagre. In that year in reply to a questionnaire from the Secretary of State, the North Western Province (Now U.P.) had frankly to admit its incapability of furnishing any information on area and outturn per acre of each kind of crop. After that, the Secretary of State had to press for the importance of collection of agricultural statistics. In the same year Sir J. Strachey, the then governor of N. W. Province, wrote a minute proposing the formation of a department to collect statistics of trade and agriculture and the appointment of a Director of Agriculture and Commerce. The minute was read with "great interest" by government of India and with "great pleasure" by the Secretary of State and accordingly a Department of Agriculture and Commerce was established in U.P. in 1875. Its main duties were.

(1) Improvement of agricultural statistics.

(2) Collection of trade statistics.

(3) Introduction of new staples and improvement in the system of agriculture.

Besides this lead given by Sir J. Strachey and the Secretary of State, a further fillip to the collection of agricultural statistics was given by the Indian Famine Commission. It recommended the appointment of a Director of Agriculture in each province and the appointment of Statistical Officers under his control. Its recommendation was accepted and Departments of Agriculture were opened

in all provinces. The Central Department of Agriculture which was opened by the Government of India in 1871 on the recommendation of Lord Mayo, but which was abolished in 1879, on account of financial stringency, due to the Afgan war, was also revived to co-ordinate the activities of the various Provincial Agricultural Departments.

The agricultural statistics collected from 1867 onwards, by various provinces, were not uniform and accurate and were published very late. The traders needed a forecast in advance of the harvest and on March 26th 1884, Mr. Edward Paul, a Liverpool merchant suggested that crop forecasts on the lines of Agriculture Bureau of U. S. A. would be very useful for the traders and business community. In the meantime the Secretary of State had already suggested to the Government of India that the form used for collecting statistics should be improved and crop forecasts should be published in India and England before the harvest. The Statistical Conference which met in Calcutta in 1883 appreciated and strongly recommended the proposal of early publication of crop forecasts. In 1884 the Government of India issued instruction to the Provincial Governments to make an experiment in the line and to start with wheat. Detailed instructions, as to how the estimates of area and yield should be obtained, were also given. The forecasts were to be monthly commencing in December and ending in May.

After that, from time to time both the Central as well as the Provincial Governments have been taking keen interest in the matter of crop forecasts. In the year 1896 many other commodities were added to wheat, and crop forecasts of important commodities began to be made. Besides this, new printed forms for final forecasts were also supplied by the Central Government to various provinces.

At present, when business and trade have become international in character and agriculture has been commercialised and prices in any country are affected by changes in the economic factors in the home as well as other countries, the importance of crop forecasts has increased tremendously.

It is simply painful to note that the government is moving very slow in this matter and is not taking adequate steps to improve the forecasts and to make their record accurate and useful.

The purpose of the crop forecasts is to give an idea of the probable size of the crop before it is actually harvested, therefore if they are to serve the purpose for which they are meant they should be published at quite an early date. Usually there are 3 forecasts for each crop but there is no hard and fast rule as some crops have only two or even one forecast and others more than three. These forecasts are published on different dates of the year, taking into consideration the harvesting time of each crop. The first forecast is meant to have an idea of the state of the crop, the probable area sown and the weather conditions at the time of sowing. The second forecast is to include the area of, late sowings and indicate the probable character of the crop and the percentage yield. The final forecast gives the total area sown, final estimates of the crop and its prices and exports etc.

There is one serious drawback in this system of forecasting and it is that each forecast gives the estimated area under a crop at the time of harvest but does not give any idea as to the total area expected to be under that crop at the time of the successive forecast. The first forecast does not give figures of the expected area under any crop by the time of the second forecast and similarly the second forecast fails to give the expected total area at the time of the final forecast. The result is, that under such circumstances, future estimate become usually very misleading and wrong. Therefore it is suggested that at the time of a forecast, besides the estimated area at that time, a probable figure of the total area under the crop should also be given.

Another general defect of crop forecasting is that the forms are not printed in all the languages of a province e.g. in U.P. the forms were, till recently, printed only in Urdu. In order to have more accurate records it is essential that these forms should be printed in all the languages and scripts of a province, till the time one common language for the whole of the province has not been fully developed.

Method of Forecasting

The present system of crop forecasting in India is based on the concept of "Normal Yield" and the "Anna Condition." The yield of a crop in any particular year is calculated from the normal yield, as modified by the actual crop condition, and as applied to the area sown under that crop in that year. If we know the area, the normal yield and the condition figure representing the relation of the crop reported to the normal crop, we can find out the yield of a crop in the following way:—

$$\text{Yield} = \text{Area} \times \text{Normal Yield} \times \frac{\text{Anna Condition or Condition Figure}}{\text{Normal Figure}}$$

Therefore to find out the yield of a crop during a year we should know 3 things viz.

(1) Area (ii) Normal Yield and (iii) Anna Condition or Condition Figure.

We shall now examine each of these three factors in detail one by one.

Area

In the temporarily settled areas the figures of area are collected by the village accountant or the Patwari and are recorded by him in his *Khasra*. His work is supervised by the Kanungo who is expected to check at least 7% of the Khasra number. The Kanungo is to select those fields for his checking where numerous changes appear to have occured during the year.

Generally it is believed that the area figures in the temporarily settled areas are correct to quite a good extent. However, absolute reliance cannot be placed on them, because the reports from many villages are not received in time and the area figure thus becomes wrong. Another defect in the figures of area arises from the fact that there is a general tendency in the village accountant and suprvisor to avoid a change. Many a time the area figure is given by the Patwari, only by taking into account the amount of seed sown. It was suggested by Dr. Bowley and Mr. Robertson in their report that this can be avoided if the supervisor and higher officials give more detailed instructions and keep a better supervision. The sugges-

tion seems to be untenable because already the Land Reords Manual gives very detailed instructions both to the Patwari and the Kanungo with regard to the manner in which the area should be measured or recorded. Further, no amount of supervision can remove this mistake so long as the Patwari is unavoidably careless about these measurements. As a matter of fact, the village Patwari and the Kanungo are so much preoccupied with other miscellaneous works and are so over burdened, that it is wrong to expect more than a passing interest from them, in this work. Their remuneration is also so low that it becomes more or less necessary for them to resort to other private work to make up their living. Therefore it is suggested that well paid and educated staff should be maintained to execute the work of village accountant and supervisor. One more thing that should be done in this respect is that the sample for Kanungo's checking should be found out on a random sampling basis. This will at least give an idea of the probable degree of inaccuracy in the Patwari's entries.

Another source of error in the estimates of area, is the one that relates to the problem of mixed crops. At present 'the area covered by the several crops in a mixed field are estimated in various ways in different provinces and the estimates are based on formulae prescribed by the provincial authority in individual cases as it is impracticable to prescribe a general method of calculation.' A formula was evolved in 1895 to separate the areas of mixed crops in various provinces and the same basis continues to this day. It is fundamentally wrong to have as old a basis of separation as that of 1895. The composition of crops must have undergone a change many a time since then. The government was moved on this point repeatedly and it was suggested that the ratios of these formulae should be checked, but the suggestion was turned down by the government on grounds of cost. Another very good suggestion, made in this connection, by the Director of Agriculture in 1942 to the government was that 'quantitative methods of crop cutting experiments should be followed. It was recommended that a beginning should be made by carrying out crop cutting experiments for mixed crops side by side with those for pure crops. This proposal also did not attract the

attention of the government. We are strongly of opinion that it is absolutely necessary to revise the formulae of 1895. No doubt it will mean a huge expenditure as a special staff will have to be appointed but nevertheless the importance and the utility of the change fully warrants and justifies the cost. There is one more method of overcoming the difficulty, and that is to take the whole area as under each crop and at the time of calculation of the yield, to make a due reduction. But this method has a serious drawback and risk of double counting at the time of compilation of total area under different crops. As such this cannot be recommended.

Yet another factor responsible for inaccuracies in the figures of areas is the uncertainty whether the area under a crop means the area sown or the area successfully cropped. The present rule is that it is the area sown. The contention of the government is that if the sowing is not successful it is the yield that is affected and not the area. However, if the first sowings fail and the area is given to another crop, then in the subsequent forecasts, such areas are to be deducted from the area of the original crop and added to that of the subsequent crop sown. We have to make one suggestion in this connection, and that is, that if on the first sowing there is no germination, then such area should not be counted at all, irrespective of the fact whether a second crop is sown or not. If there is germination and the crop is extremely bad we should include such areas in our figures but when there is no germination at all, there is no point in not excluding such areas, more so, when such areas are excluded if another crop is sown on them.

Lastly, the inaccuracy in area figures also results from the inclusion of field ridges in the measurements though they are neither sown nor cropped. Their magnitude is considerable in hills, and in plains also they do affect the estimation of crop. Hence it is necessary that if it is not possible to have actual magnitude of the ridges at least 2% of the area should be considered as occupied by the ridges and proper adjustment should be made for this at the time of crop estimation.

In those areas which are under the permanent settlement there is no detailed survey of land nor is there a permanent village staff and as such the figures of area under different crops cannot be calculated accurately. There is no uniform system of measuring the area under each crop and different practices are followed in Madras, Bengal, Bihar and Orissa. Most of the estimates are mere guess work and are made by the village headman. There is no efficient system of checking these estimates. There has been some improvement in the figures of areas under jute. Now, printed schedules are supplied to the head of the village panchayat and he is expected to fill these forms. If necessary, they are checked by the sub-divisional officers. This is a very commendable change and even temporarily settled areas can profitably make use of it.

Recently fresh attempts have been made to improve the statistics of area under various crops in the permanently settled areas. As it was not possible to have a full staff like those of temporary settled areas, it was decided to appoint *ad hoc* investigators for groups of villages to carry out a field to field investigation. This method was first adopted in the year 1944 in Orissa. The Central government gave assistance to the scheme. Few *amins* were appointed whose work was supervised by some inspectors. Statistical officers were appointed for all districts and a provincial statistical officer supervised their work. Since June 1945 Bihar is also running a similar scheme to have complete enumeration of all crops by *ad hoc* investigators. The intention of the government is to develop these agencies in due course of time into an organisation parallel to that of temporarily settled areas. Bengal is also having a similar scheme.

For some time past Bihar and Bengal are having experiments in the random sampling system of finding the area. The method consists of inspecting a large number of sample areas located at random throughout the province. Experience has shown that this method has large sampling errors. Recently the Bengal Famine Enquiry Committee also gave a verdict against this system and said that "if full and detailed information as regards acreage under all

crops is the objective, as it certainly should be, such information can only be obtained by means of complete field to field enumeration and not by the random sampling method."

Indian States present another problem in this respect. A large part of their area has not been surveyed as yet, and it is high time that steps should be taken in this direction.

It is gratifying to note that inspite of the above mentioned drawbacks our system of compilation of area figures is better than that of many other countries. This is due to the fact that whereas in other countries the area figures are mere estimates our records are based on figures derived from field to field inspection. England, Scotland, Denmark and Hungary take an annual census of acreage and complete it in time for use during the current session. In U.S.A. and Canada estimates are made, only of changes in the acreage from previous years, and this is done on the basis of judgment reports by farmers and local officers, and the correctness of these estimates is verified periodically by census of crops. These estimates are not as correct as Indian figures. However, U.S.A. and England have successfully adopted the method of aeroplane photography. It was tried in Lahore also. In permanently settled areas where no land records are available this system may prove to be satisfactory.

Normal Yield Factor

The second and by far the most important factor in crop forecasting is that of normal yield. Before discussing the method by which normal yield of a crop is found out it would be better to give an idea of what this term normal yield means. According to the foot note of the form in which the quinquennial statement is at present submitted to the Government of India (and this form is the same as was determined in 1893) the normal yield figures should be those of "Average outturn, on average soil, in a year of average character as deduced from a consideration of the information obtained on experiments made during the year under review". There is a lot of confusion with regard to

the actual sense in which the word normal is used by the Government of India. The government has confused the word normal with the word average. At many places the word average has been used to denote the meaning of the word normal. As a matter of fact there is a great difference between these two words. Average generally signifies a mean of the past figures. It may not necessarily be the Arithmetic Average. It can be a Mode or even a Median. The word normal in connection with crop forecasts on the other hand is intended to mean a crop, which ordinarily a cultivator expects. It does not mean a very good or a bumper crop; it also does not mean an 'ordinary crop'. To be more precise, a normal crop is a crop somewhere between ordinary crop and a bumper crop. It is not necessary that the normal crop should be an average crop also. It can be better than the average or it can be worse as well. As a matter of fact generally Indian crops are subnormal. The average crop is below the normal crop. It was probably the realization of this fact of our agricultural economy which induced the Agricultural Conference of 1883, to suggest that a good crop should be taken to mean 3/4th of a bumper crop. A similar reason was responsible for recommendation made in 1894 by Mr. J. B. Fuller, Commissioner of Settlement and Agriculture C. P. that 13 annas should be considered the measure of average crop in C. P. (16 annas to represent normal crop).

The concept of the normal yield in the government mind is very vague, and very often government has issued contradictory statements with regard to its meaning. The Manual of Crop Forecast lays down that "this normal or average yield will not necessarily correspond with the average of a series of years' figures which is indeed an arithmetical abstraction and may possibly never occur." This quotation clearly shows that the normal yield is not the arithmetic average of the yield of previous years. Generally it is believed that the average in the mind of the government is mode. But whether the government has in mind the arithmetic average or the mode, the fact remains that in India both these averages are considerably below normal.

It will be interesting to compare our definition of the

'normal yield' with the official instruction of the Bureau of Statistics U. S. Department of Agriculture. According to it "a normal condition is not an average condition but a condition above the average, giving promise of more than an average crop. Furthermore a normal condition does not indicate a perfect crop or a crop that is, or promises to be the very largest in quantity and the very best in quality that the region reported upon may be considered capable of producing. The normal indicates something less than this and this comes between the average and the possible maximum. The normal may be described as the condition of perfect healthfulness, unimpaired by drought, hail, insects or other injurious agency and with such growth and development as may reasonably be looked for under these favourable conditions. It does not represent a crop of extraordinary character, such as may be produced here and there by the efforts of highly skilled farmers with abundant means or such as may be grown on a bit of land of extraordinary fertility or even such as may be grown quite extensively once in a dozen years, in a season that is extraordinarily favourable to the crop to be raised....sometimes a favourable season for planting is followed by a favourable growing season, with no blight and no depredations by insects, the result being a normal condition. At other times the normal may be maintained by conditions that are exceptionally favourable in one or more particulars counter balancing conditions that are unfavourable in other particulars."

The definition gives a fairly clear idea of what the word 'normal' should mean but all the same it is a hypothetical concept and leaves much room for personal bias. A condition which is normal according to one person may be sub-normal according to another and abnormal according to still another. Obviously, the concept of the word normal in the mind of the Government of India is not the same as that of U. S. Bureau. The Government of India's opinion on "American Normal" is that it is a "full normal condition" and further that a normal condition is below the full normal. So we can say, that the concept of the term normal crop in India is a crop between the average crop and the American Bureau's normal crop.

It has been suggested that the system of 'Normal Yield' should be replaced by a system of 'Average Yield'. Many countries follow the system of average yield though U. S. A. has adopted a system of normal yield. The average to be used may be arithmetic average. But there are two main difficulties in its introduction. Firstly, it will require very efficient crop cutting experiments and at present it is not possible without a complete overhaul of the system of crop cutting experiments. Even if this difficulty is surmounted yet another difficulty remains and that is that it will involve a change in the standard against which annual anna condition reports are to be made. It is highly doubtful how far a change in the conception of normal yield could be affected without serious risk of doing more harm than good. This risk no doubt is great but nevertheless it is worth undertaking. A drawback in our statistical concept of normal yield cannot be allowed to continue merely on the ground that a change will mean great maladjustments.

At present the Department of Agriculture in each province is responsible for fixing the normal yield per acre for several crops in each district. The estimate of the normal crop is based on the system of crop cutting experiments. These experiments are conducted according to certain rules laid down by provincial authorities. According to these rules average plots of lands are to be selected by the officers of the agriculture or revenue departments and on these fields the crop is to be sown and cropped before them. The figures arrived at are to be forwarded to the Director of Agriculture who after taking into consideration various other facts and figures is to finally fix the normal yield. The aim of the crop cutting experiments annually made is to furnish tests of the accuracy of the original figures and to enable the head of the agricultural department to revise these estimates if necessary. At the expiry of 5 years each agriculture department is to submit the estimates which the experience and the information of the period lead it to substitute for the figure previously used.

The system of calculating the normal yield and conducting the crop cutting experiment has come to a great deal of criticism not only from the general public but also

from those who are themselves responsible for these calculations. In the year 1893 when this system originated and when the first set of instructions was being approved by the provincial government, His Honour the Lt. Governor of U. P. (then N. W. Province) remarked, "I believe these crop experiments are of very little value." In the year 1919 Mr. Stuart, the then Agriculture Adviser to the Government of India stated, "Every one will admit that our figures of normal yield per acre will not bear a very critical examination. We have been working from the particular to the general—we have expected to obtain from a comparatively few scattered crop cuttings of some small plots an accurate average of the yield per acre of very large areas". Mr. Allan, Director of Agriculture, criticising the existing system of crop tests as "in itself inaccurate and unscientific" said in 1932, "examining the crop tests which I have had to do since taking over charge I have been struck with the very flimsy and unreliable evidence on which such district averages are based. In my opinion at present the probable error is in the neighbourhood of 20% and the so called average yield on which the estimates of the total yield is based is far from reliable."

The most glaring defect of the system of calculation of the normal yield, and the one which has been criticised very vehemently from time to time by various officials, as well as committees and commissions, is the method of selection of the typical field for crop cutting experiments. At present, it is left to the local experimenting officer to select any field that he chooses and to carry on the experiment on it. This 'purposive selection' is really a very undesirable thing from the statistical point of view. It leaves a very great scope for the personal prejudice and the bias of the experimenting officer. Besides, it is very difficult to select a field which may be characterised as a 'typical' field in the true sense of the term. The difficulty was foreseen in the United Provinces as early as 1893 and the chief secretary had remarked, that the difficulty in the selection of the typical field is so great that 'these crop cutting experiments are seldom of any real value.' It was for this very reason that in 1932, Sir Malcom Hailey remarked that "my own feeling is that these figures are valuless". Usually the figures

of normal yield are over-estimations because "it is very difficult to give proper weight to the fields which will give little or no yield at all and even in a normal year such fields are by no means rare."

It will be very easily appreciated that it is almost impossible to improve the state of affairs by giving more time to the experimenting officer, because the nature of the defect has not much to do with amount of time at the disposal of the persons concerned. Therefore, the only solution of the problem lies in a change of the system itself. This system of 'purposive selection' should be replaced by the system of Random Sampling. This will remove the defects of the existing system because the difficulty about the selection of the average field would be no more. But one thing should not be forgotten in this connection and it is that the system of random sampling can give reliable results only when the crop cutting experiments are many in number. A very insignificant sample is liable to give misleading conclusions and that is why the Royal Conference on Agriculture in India while denouncing the system of selection by eye, of the average fields, as 'statistically indefensible' also pointed out "that before random selection of village and fields for crop-cutting experiment is introduced the means to carry out far more numerous experiments must be provided." The first experiment of the random sampling method was made in Bihar and Orissa in (1923-25) and later in C. P. in (1928-30) but these experiments failed to give any good result. It has to be admitted that the reasons for this was that these experiments were not made on scientific lines. The first random sampling scheme on scientific lines, as recommended by Imperial Council of Agricultural Research, was carried out by Indian Central Cotton Committee in 1942 in Akola district of C. P. In 1943-44 it was extended to Buldhana district also. In the year 1944-45 it covered the whole cotton belt of C. P. and the result of the survey was about 10% higher than the official estimate. The first sample survey in food-grains crop was carried by the Imperial Council of Agricultural Research in Punjab and C. P. in the year 1943-44. The area covered was more than 150 m. acres. There was a resemblance in the figures of sample and official figures in

some cases and wide variation in others. In 1944-45 a sample survey covering the whole wheat belt of 5 provinces of India comprisong about 220 m. acreas was conducted by the joint efforts of the staff of Agriculture and Revenue Departments and the result in C. P. and Sind showed a fair degree of proximity with official figures but in the Punjab, U. P. and N.W.F.P. the difference was significant. Similar experiments have been made for paddy also. In jute, experiments have been made on full provincial scale, under the direction of Indian Statistical Institute. It will be highly desirable if efforts are made to popularise such surveys and to find out where the actual mistakes lie.

A second reason of inaccuracy of the normal yield figure is, that it is arrived at by such a group of persons who are already so over-burdened and preoccupied with their routine jobs that they do not pay any attention to the work entrusted to them. It is expected that the whole of the Revenue Department right up from the Deputy Commissioner upto the Kanungo and Patwari will take interest in this work, and they are also relieved of a part of their normal work when they are conducting these experiments but experience of various provinces clearly indicates that this work is not taken up by the revenue officers seriously. Very often the work is left to the Kanungo who either selects a field near the camp of his officer to suit his convenience or any other field which he thinks fit, only by the way, without keeping in mind the complex implications of the terms normal and average. In this connection the suggestion of Mr. J. K. Pande, Economic Adviser, U. P. Government to utilise the services of the Economic Intelligence Inspectors is highly commendable. This staff consists mostly of young persons possessing a good degree in economics and a sufficient background of statistics. If these inspectors are to carry on the experiments under the guidance of the revenue department, many of the defects of the existing system will be remedied.

Another defect of the present system is that the districts in which the crop cutting experiments are carried on, are more or less selected once for all. As has already been stated, the rules for carrying on these experiments

were approved at the close of the last century, and the list of the districts in which the experiments are to be made was also made at that time. This list has remained almost unchanged since then. It is highly doubtful whether the crops are distributed over the provinces and their various divisions and subdivision exactly in the same way as were about 50 years ago. It is wrong to assume this because during the last 15 years the crop economy has considerably changed in various provinces and it definitely warrants the elemination of many districts from the old list for certain crops and the inclusion of new ones. It is suggested that the limits of the districts in which a particular crop cutting experiment is to be made should not necessarily be the same as its political boundary. The boundary of a district for the purpose of crop cutting experiments should be determined by the production of a particular crop. These boundaries should also not be fixed once for all. They should be examined periodically and at least once in 10 or 12 years their reconsideration is necessary.

Yet another drawback of the existing system is the scanty number of experiments. At present the rules lay down that not less than 4 experiments should be made in each crop. No doubt this is the minimum under the government rules but for all practical purposes it is the maximum also, and in some cases more than maximum as well. This number is so small that any conclusion based on this is statistically unsound. We have already pointed out that if we are to introduce 'Random Sampling' method the number of experiments would have to be considerably increased. But even if, for the present, random sampling is not possible an increase in the number of such experiments is highly desirable. The contention of the government is that by increasing the number of the experiment the quality of the work will go down. The argument is futile. If for additional work more hands are employed there is no reason why the quality should suffer. Moreover the quality of work at present when the experiments are only four is also extraordinarily unsatisfactory and as such we can say that quality has nothing to do with number if qualified hands are entrusted the work of carrying on experiments.

One more question that arises in this connection is that of the area of the crop cut. According to the present rules it is, generally 1/10 of an acre though in some cases it is still less e.g, in case of sugarcane it is 1/40 of an acre only. Whether the area of the crop cut for the various crops should be uniform is a question very difficult to answer . There are some persons who are of opinion that the area of the crop cut should be less than even 1/10th of an acre and the reason given for this is the same as in the case of number of experiments i.e. of accuracy . Such arguments are untenable because they presume that additional work means a deterioration in quality. When there are more and better hands to do a big work there is no reason why its quality should necessarily go down. The size of the fields on which crop-cutting experiments are conducted should be the average size on which any ordinary cultivator sows a particular crop. If this average is above 1/10th of an acre then certainly crop cutting experiments should be conducted on fields of a size bigger than 1/10th of an acre and if the actual average is below 1/10th in that case the size of the crop-cutting experiment fields should be reduced. What we mean to emphasise is that the size of the fields on which these experiments are conducted should be identical with the ordinary size of a field on which the cultivator does his sowings of a particular crop. A size bigger or less than this cannot give accurate results.

At present the annual figures of the crop cutting experiments which are received by the Director of Agriculture are kept in safe custody for a period of five years till the question of revision of the normal yield figures comes up. In this connection the recommendation of the present Economic Adviser to the government of U. P. seems to be highly commendable. In his opinion, ".... the figures received from crop cutting experiments should be carefully examined as and when received and after all the figures for a year have been received, a consolidated review of all the districts and for all the crops should be prepared each year and circulated to the District Officers of the districts in which crop cutting experiments were made. Such a review should point out the mistakes made in conducting of crop cutting

experiments." The suggestion is praiseworthy because every year when a close scrutiny of the figures will be made and the District officers will be kept informed of their mistakes the likelihood of similar mistakes in future will be considerably reduced.

When the results of the crop cutting experiments are scrutinised annually it may not even be necessary to revise the normal yield figures rigidly after every five years only. Under these circumstances the figures can be revised as and when necessary and the annual scrutiny will be a guide for the time of revision. Even if this is not to be followed and the revision is to be made periodically five years is too small a period for such revision. Agricultural cycle does not complete itself in less than 7 years in any case. It usually takes 7 to 11 years in repeating itself. Therefore it is suggested that the period of revision of the normal yield figures should be raised from five years to nine years. This question has already been discussed much in some meetings of the government departments and the arguments against it do not seem to carry much weight.

Crop Condition Factor

The third factor in crop forecasting is the condition factor or the seasonal factor which denotes the condition of the crop of a particular year as compared to normal crop. This factor is most difficult to be calculated because it is purely subjective. It is not arrived at by some statistical calculation. It is the result of a pure guess work. "Once or more during the growth of the crop and again at the time of harvesting the village accountant estimates the yield as so many annas taking a definite number of annas e. g. 12 or 16 as standard. The tehsildar receiving such statements from the villages in his tehsil takes some sort of average of them, using his general knowledge of crop condition, and reports a single result, such as annas 10 for the Tehsil to the district officer. This officer modifies this figure according to his knowledge or discretion and either proceeds as did the Tehsildar and selects a single number of annas for the district as a whole, or applying the anna yield to the area sown in each tehsil separately reports an

average for the district. The district officer reports the area sown and the anna yield to the Director of Agriculture, who uses them in conjunction with the standard yield for each district to estimate the district total; at the same time he has his own sources of information from his subordinates.

The above quotation from the Bowley Robertson Committee Report gives an idea as to how the condition factor is arrived at. However, in all provinces it is not the patwari or the village accountant who makes the first estimate e. g. in United Provinces the work is done by Kanungo and some other persons outside the revenue staff. In the year 1944-45 out of the 1615 crop reporters in U.P. 721 were Kanungos, 309 agricultural supervisors, 32 officers of cane development and 553 non-officials consisting of prominent agriculturists and selected zamindars.

This system of estimating the seasonal factor has come for a good deal of criticism. The crop reporters are generally uneducated or very little educated persons and the task assigned to them is one which requires a very remarkable guessing ability and perfectly unbiassed and balanced state of mind. As a matter of fact it is very difficult even for trained persons to give even a fairly accurate idea of the condition of a crop as compared to a normal crop, and as such to expect that these official and unofficial reporters who are not even aware of the grave consequences of a slight error of judgment, would be in a position to give a fair estimate of the crop is to expect too much from them. Even for a single field, this kind of estimation is very difficult and when we know that the condition factor is dependent on a multiplicity of causes like weather, soil, irrigation facilities and individual skill etc. it is evident that the work requires a versatile knowledge.

Even if we assume that the work given to crop reporters can be efficiently done by them there are other factors which go a long way in making the figures faulty. There is a certain amount of bias in the mind of the crop reporters which affects the figures very adversely. It is generally held that the official crop reporter is pessimistic by nature and this results in the under estimation of the

crop. He has a tendency to report the same estimate year after year, without making any change from the previous years. He is also charged with reporting a crop as average when the yield is moderate and further he has a tendency to exaggerate a fall in the case of bad crop and to underestimate a good crop. If an effort is made to go behind the causes of this pessimism one will find that one of the reasons for his undue pessimism is the vagueness of the word "Normal." We have already said a lot about it in previous pages and need not discuss it once again. "His idea of a normal crop is that which he longs to see but rarely sees .... " We have already pointed out that the average crop in India is usually below normal and when this normal is also to mean something above normal then a pessimism is bound to come. The result of this is, that figures are usually underestimations. Besides this zamindar-crop-reporters avoid making high estimates because later on these might be used to support a case for increase in land revenue. Similarly the cultivator-crop-reporter is also not inclined to give a high estimate. "This indeed is recognised by the Government in Land Records Manual U. P. (Paragraph 655) which warns the revenue official to use their own judgment in framing their estimates."

"It is generally held that the figures of the annawari estimates are sometimes vitiated on account of the fact that in temporarily settled tracts remissions of land revenue have to be granted when the seasonal condition falls below a certain percentage of the normal. It is possible that, when the seasonal conditions are on the border line for the grant of remission, some over-zealous village accountants and subordinate officers may pitch their annawari estimate too high, thinking that they will displease their supervisors by the possible loss of revenue." Therefore in border line figures the extent of supervision should be increased and higher officials should themselves check these figures. As a matter of fact the supervision of higher officials, at present is a mere farce. Whatever figures , right or wrong, come from the crop reporters are taken as final and it is only in exceptional cases that a tehsildar or district officer actually goes to the field to have a first hand knowledge of the things. The only remedy for this seems to be to entrust this work

to specially trained persons and to overhaul the revenue department entirely to have a fair and fresh distribution of work between patwaris, kanungos and tehsildars etc. No amount of supervision can do any good so long as the present hopeless state of affairs continue.

Besides these discripencies in the figures actually collected or these primary or original figures there are many drawbacks and inaccuracies in the working out of these figures for final estimates. We know that the estimated figures for each important crop in villages are the basis of figures for the 'firka' which in their turn form the basis of 'taluka' figures and from these taluka figures the district estimates are calculated. The question is on what basis, and in what manner is the primary data turned into a secondary one? Are the figures for district the arithmetic average of the figures of various talukas and the taluka figures the average of firka figures and so on? At present inspite of the fact that Dr. Bowley pointed out that in the Indian precedure detailed arithmetic average would give the best results, no uniform system is followed. The average to be used at the successive stages is not defined at all. Arithmetic average is not used universally because the results are arrived at, successive stages either by scanning the most common figures (this is the mode) or by the officer concerned using his own discretion and judgment. There is absolutely no justification for such a state of affairs except that the estimate of the higher officials would be more correct than those of crop reporters. But this is also a very lame reason when we take into account the actual interest that those so called "higher officials" take in this work.

Improvement has been made in this respect by Madras. The arithmetic average of the village figures is calculated to find out the firka estimates, and weighted arithmetic average of the firka estimates is used to find out the figures for the taluka. The method is highly commendable. Weights can be assigned either in proportion to the acreage under the crop in each village or the expected yield. Weighted average would give better results for district and provincial estimates. Percentages can also be used in later stages instead of 'as so many annas'.

Besides these there are other defects also. At present inspite of the fact that there is a large army of crop reporters the number of reports actually received is very few. In United Provinces in 1944-45 out of the 1615 official and unofficial crop reporters only 416 reports for the first wheat forecast, 401 for the second and 368 for the third forecast were received. Small number of crop reports make the conclusions fallacious and misleading. Official reporters, if they fail to give their estimates on due dates should be taken to task and non-official reporters should first be persuaded to give figures and this can be encouraged by giving them good certificates etc. or otherwise their names should be struck off and, if possible, substituted by others. In England and U.S.A. there are paid reporters but the Royal Commission or Agriculture was not in favour of having such persons in India, as in its opinion under the then existing stage of economic development of the country no extensive use could be made of the system of paid crop reporters. At present there is no reason why such paid staff should not be employed in India and as suggested before we feel that the revenue department should be relieved of this additional work and trained staff should be employed in its place.

Yet another defect of the system is the tendency of the crop reporter to favour even figures. This is a psychological instinct and only propaganda and an effort to impress upon the reporter the grave consequences of this slight mistake can improve the situation.

A point which calls for special attention is that the extent of error of these estimates cannot be calculated except by introducing a system of random sampling. Besides this, there is no method to check the crop condition reports. It is not possible even for the reporter to know whether his estimate is right or wrong. The estimates are guessworks and it is not easy to say whether they are correct or not. No statistical method can prove their accuracy or otherwise.

Taking into consideration the defects of the present method of crop estimation Dr. Bowley and Mr. Robertson recommended that instead of first fixing a normal yield and then estimating the condition factor as a proportion of the normal yield, it would be better to have direct figures

in maunds per bigha or bushels per acre etc. If this method is adopted the problem of normal yield figures will be no more. This suggestion had already been discussed as early as 1919 and again in 1929 in the Conference of Empire Metereologists held in London. The suggestion was rejected because it was found that the experiments on these lines carried on in Punjab were not very encouraging. There were great discrepencies between the quantitative estimates made even by experts and the actual results. The untrained crop reporter would have given still worse results. Yet another point that goes against it is that, it is easier to calculate the condition factor as a proportion of the normal yield than to calculate the number of maunds per acre indicated by the present or normal condition.

For the last 20 years U.S.A. has been making experiments to have "objective forecasts." At present the crop forecasting system as followed in India and in other countries of the world, in general, suffers from certain drawbacks and to have more accurate estimates an attempt is being made to forecast figures by taking into consideration some objective elements. Attempts are being made to find out the association between crop yield and the weather conditions at the time of sowing and during the period of growth. After experimenting in this line it has been found that there is a definite relationship between crop yields and weather conditions and that the crop forecasts based on weather conditions combined with a study of soil fertility, manuring etc. are more accurate than subjective forecasts. The system is yet in its infancy but taking into account the good results that it has shown it is likely that in future the system of such objective forecasting may replace the present system.

With all the criticism that has been made, of the condition figure, it should not be assumed that it is peculiar to this country only. In other countries, too, the same defects exist though not to so high a degree as in India. The condition estimates of even the American Bureau of Statistics which has a very large expert staff, are subject to similar criticisms. The Royal Commission on Agriculture also emphasised the point and warned people not to take a very exaggerated view of the degree of inaccuracy

resulting from crop condition reports under the present system.

Final Forecasts and their Publication

So far we have examined the methods by which crop forecasts in this country are made. We have seen that these crop forecasts are by no means to be depended on to any great extent. They are subjective estimates and it is not possible to say that they are correct. However we can have some idea of their accuracy by having what is popularly known as the 'post mortem examination'. We can compare the estimates of the crop forecasts of previous years by the actual yield of those years. This proposal was already made as early as 1907, but the difficulty was that of finding the actual yield figures of the past. In 1919 Mr. Stuart, the then Agricultural Adviser to the Government of India suggested that an idea of such figures can be had by a "detailed study of statistics of movement by rail or sea, or manufacture or of any process such as baling and of estimates of local consumption." Obviously this system is defective. In a huge country like India with scattered villages and sub-divided and fragmented holdings it is almost impossible to have figures of local consumption or seed requirements of cereals like wheat or rice. This system can be adopted only for those crops which are centralized in any one region and in which local consumption is significant. In the case of a crop like jute which is mostly grown in Bengal and in which local consumption is not much, figures of trade by rail or sea, or of baling and manufacture may give a rough idea of its production but the system is useless for crops like wheat, rice or oilseeds.

A better suggestion in this connection is to have a random sampling of some fields at the harvesting time and to actually weigh the crop on them. By this method we can have an idea about the accuracy or otherwise of our final forecast.

As far as the question of the publication of the crop forecast is concerned, at present the provincial figures are sent to the central office of the Department of Commercial Intelligence and Statistics, Calcutta. The figures are also

published in provincial governments' official Gazettes. There is a deplorable lack of punctuality in the publication of these forecasts . At present, sometimes the forecasts are published after the crop is actually in the market. As has been emphasised already, the utility of the crop forecasts can be availed of only if they are published before the actual harvesting. If the crop is already in the market the forecast is useless. Probably one of the most important reasons for the occurence of famines or foodshortages in India, is this delay in the publication of crop forecasts. This delay is due to many reasons. Firstly the publication of the figures is delayed because both all-India and the provincial forecasts are to be released simultaneously, and the figures of all the provinces are not received in time because of late sowings in some provinces. For this it is suggested that each province should be allowed to work out its own forecast taking into account the period of sowing and the special weather conditions prevailing there. Another reason for this delay is the extraordinarily slow speed of work and the exceptionally indifferent attitude of the revenue department, to this job which is over and above their routine work. We have already suggested that this work should be taken away from the revenue department altogether and if it is not possible to do so for reasons of practical difficulty, trained persons with a knowledge of both agriculture and statistics should be kept in charge of this work, on responsible posts. As previously suggested the services of the Economic Intelligence Inspectors can also be utilized for supervision work.

Even if our forecasts are made in time (and this is very rarely) the information that they give is about 4 weeks old whereas in other countries crop forecasts give information which is only a week old. It is suggested that at least the provincial forecasts should give information which is not more than a week old and the all-India forecast may give figures of a month back.

At present the publicity given to these forecasts is not much . Though the services of the radio are being utilized for this purpose yet there is a necessity of quicker and wider propaganda, particularly in villages with regard to the condition of the crops.

CHAPTER V

AGRICULTURAL STATISTICS (continued)

(Animal Husbandry, Live Stock-products, Fisheries, Forests, Irrigation etc.)

Animal Husbandry:—In a country which is predominantly agricultural, and in which about 90% of the population live in villages and are connected with rural economy the necessity of a knowledge of the cattle cannot be overemphasised. In India the statistics of the livestock were first collected at the instance of Secretary of State for India. It was in the year 1883 that the Statistical Conference prescribed a form on which the details of a cattle census were to be filled in. Since then, figures of livestock are being published quinquennally in "Agricultural Statistics Volume I". In some provinces the census of live stock is held each year.

In ryotwari or temporarily settled areas it was the village patwari who was entrusted with the task of reporting the number of cattle in his area. The revenue department did not give much importance to this work and the figures submitted by the patwari were generally not reliable. In permanently settled areas the condition was still worse. There was no arrangement for cattle census till 1912, and after that year also, the figures given were very rough estimates with huge margins of error.

In the year 1916 the Government of India decided to improve the situation and to have a cattle census for the whole of (former) British India in the year 1920, and to repeat it after every 5 years. A cattle census was held in the year 1920 and since then it is being held every fifth year. In the beginning, the situation did not improve much because many areas failed to submit returns and the census did not relate to the whole country . The reports were also not published in time and sometimes they came out very late; but at present the situation is a little better and the "Livestock Statistics" which is a regular quinquennial publi-

cation gives certain statistical information about the cattle wealth of the country. In this publication the number of cattle, subdivided into males, females and young stock, the number of sheep and goats, the number of horses and ponnies etc. are given.

The statistics given in this publication are, however, not fully comparable from period to period as information is sometimes not available for certain areas in various provinces. Moreover, the number of states taking part in the enumeration is not the same at the time of every census, and whatever figures are available for the states, cannot be relied upon because there is no proper agency for the collection of data there. In Jaipur the enumeration in 1934-35 showed the number of bulls and bullocks at two and half times the number shown in 1933-34 and in 1935-36. The figures of Indian provinces are also not absolutely correct but as there can be no reasons for deliberate overstatement or understatement of such figures, it is quite likely that mistakes in one direction are balanced by similar mistakes in another direction. But this also can be true only in case of those animals which are large in number e.g. cows, buffalos etc. We cannot reasonably expect compensating errors to remove the mistakes of wrong counting or rough estimation in case of those animals whose numbers are not large e. g. camels, horses or mules.

Yet another drawback in the present livestock statistics is that classification of cattle is not uniform for the whole country. In the Punjab the cattle are classified in twenty columns whereas in Madras in only eight. This is a very serious drawback because on account of this, classwise figures of cattle become almost useless. The definitions of the words, Bull, Bullock, Breeding Bulls and other Bulls etc. are not common for the whole country, and as such figures of various provinces are not comparable with each other.

From the above discussion it is clear that the figures of livestock in India are unreliable and unfit for comparison. From the strictly statistical point of view such wrong figures do more harm than good. It is absolutely

necessary that India should have a very reliable record of her cattle wealth. The agricultural economy of India has much to do with her livestock and the general public is much to gain by its proper utilisation. We suggest that the five yearly census of livestock should be taken on a more comprehensive and correct basis. Just as for census of population, days are fixed on which enumeration is done on a countrywide scale, similarly for livestock census days must be fixed in advance. At present, since there are no fixed dates and days, census is taken on varying dates and the migration of cattle in the meantime makes these figures inaccurate. The figures collected should relate to the whole of India including Indian states. Laws should be enacted whereby such a census should be obligatory not only in India but in Indian states also. For the actual collection of these figures we should utilise the services of crop reporters in the rural areas. We have already suggested that for crop reporting purposes the Patwaris and Kanungos should be replaced by trained reporters . If this is done the same agency can give figures about the cattle also. In urban areas the Municipal Boards and the District Boards can very easily take up the task.

Livestock Products: A serious lacuna of the Indian economic statistics is the absence of figures of livestock products. The government does not publish any figures of the production, or consumption of milk, hides, skins, meat, bones, etc. In an agricultural country such statistics are of vital importance. From time to time some work has been done on the problem by the Imperial Council of Agricultural Research and the Central Agricultural Marketing Department to the Government of India. It is high time when the government should realise the gravity of the situation and see to the importance and urgency of the problem and regularly publish some statistics.

We have seen that the statistics relating to the number of cattle are far from satisfactory and as such whatever meagre statistics of livestock products are available are also affected by such inaccuracies. We shall

examine briefly the statistics relating to milk, and milk products, hides and skins, meat, bones, and eggs.

Milk: No estimates are published of the amount of milk produced in the country. The only official figures in this connection are those which relate to the number of cattle and their classification in various groups. We have already seen that these figures are not reliable "The most satisfactory method of estimating the annual yield of milk for animals in the different parts of the country would be to examine the milk yield records of a large number of village cows and she-buffaloes over a long period. Such records, unfortunately, are not available. There are only a few reliable farm records of milk yields compared with the vast number of cattle in the country. This is due to the fact that milk recording is practised at the government farms (civil and military) and at a few private farms. Of approximately 658 lakhs three-year-old milch cows and she-buffaloes it appears that roughly 7,500 animals only are individually recorded. Further, the records of about half of the 22,000 she-buffaloes kept in the Bombay city milk stables may also be compiled from the owners accounts. Thus individual or collective records of only about 18,500 cattle or less than 0.03 per cent of the total milch cattle in India are available."[1]

Even the above mentioned scanty statistics available are not much useful because they relate to government farm cattle who are above average and who live under conditions better than those of ordinary cattle in the villages.

If we wish to have some idea about the quantity of milk produced in the country, we should first of all know the strength of the cattle. We have some figures of the number of various cattle and these figures can be improved upon. Secondly we should know the proportion of animals that calve annually and remain in milk. Thirdly we should know the length of the lactation and lastly the average milk yield per day.

In a vast country like India where climate differs from province to province, the yield of milk and the lacta-

[1] Report on the marketing of Milk p. 5.

tion period are bound to differ from place to place. Moreover the yield and lactation of cows, she-buffaloes and goats also differ. Therefore to have a fairly accurate idea of the quantity of milk we should first have separate figures for separate provinces for these cattles. We can have provincial estimates of the quantity of milk produced by multiplying the average daily yield figure by the lactation period and the number of milch cattle. Daily average yield of milk for buffalos, cows and goats can be had for each province by holding a random sample enquiry for a large number of villages and towns. The lactation period can also be determined in the same way.

It is an admitted fact that the yield of Indian cattle is very low. Though there are no regular statistics of yield in our country yet the data available, howsoever scanty it is, is sufficient enough to prove that we are considerably behind other countries in this respect. Our milk production is less than Germany's though the number of our cattle is about six times that of that country. If proper statistics regarding the diet and other conditions of living of our cattle are kept, we can, by comparison with similar statistics of other countries and by adopting necessary changes, increase the yield of our cattle. So it is necessary to maintain figures regarding the diet etc. of cattle in our country.

The figures of consumption of milk are equally important. It is very necessary to know how the total milk produced is consumed. It is desirable, therefore, to have statistics of the amount of milk consumed by the calves, the amount of milk taken liquid and the amount converted into Ghee, Butter, Curd, Cheese, etc. At present when both ghee and milk are not available and are being substituted by skimmed milk and vegetable ghee it will be very useful if the figures of the consumption of skimmed milk and vegetable ghee are collected and published regularly. At present whatever data is available on these problems is contained only in the Marketing Reports published by the office of the Agricultural Marketing Adviser, Government of India. It is suggested that detailed information on the above problems be published every year.

At present there is no data to show the cost of milk produced and the price fetched by it. Some people hold that milk is not able to fetch even its cost. A statistical study of the problem will be highly useful.

It will be highly useful if studies are made to find out whether there is a correlation between consumption of milk and the incomes of people and the production of milk and its price. Such studies can go a long way in explaining high or low consumption of milk by certain sections of the population.

It is a hard fact that at present we are not in a position even to have an idea of the trend of milk production and consumption in the country. Yearly figures are not available and as such conclusions cannot be drawn. From the data available, it can, however, be safely said that milk production is not keeping pace with increasing population. Not only the proportionate increase in cattle is less but the milk yield is also said to have gone down. Under such conditions the urgency of having a proper record of all these things is very great.

Hides and Skins: The statistics relating to hides and skins are extremely scanty in our country. The only figures that we have in this connection are those which relate to our export or import of hides and skins. We have no figures of the annual production of hides and skins, nor do we have figures relating to the consumption of the same.

In other countries of the world most of the hides and skins produced are those of the slaughtered animals and their records are easily available from the slaughter houses. In our country, however, the situation is different. On account of certain religious tenets, the number of animals slaughtered is small. Therefore, most of the hides and skins that we have are of a "fallen" type which means that these are taken from the animals who die a natural death. The supply of hides and skins is, therefore, very scattered and not concentrated in slaughter houses. This, unlike other countries, greatly adds to the difficulties of collecting figures of their production etc.

It is, however, not very difficult to have accurate record of production of hides and skins. Production of hides is related to the number of animals that die; therefore if proper records of cattle mortality are kept the figures of hide production can easily be known. In Mysore State at present cattle mortality records are kept and the Cattle Mortality Report, issued by the government, contains some information regarding the death of animals. The Hide and Cess Committee estimated that the average life of cattle was 5 years. If this estimate is verified and found to be correct a rough estimate about the death of cattle can be had from the figures of cattle census. This, in our opinion, is not a very good system because the estimates that we shall be arriving at will be very rough, with a huge margin of error on either side. Moreover, in order to have annual figures of hide production we shall require an annual cattle census. At present the cattle census is held once in five years and, then too the figures are not reliable. If the census is an annual one and the figures of the number of cattle are not accurate, the margin of error in the figures of hide production will be substantial, as there will be double approximation. Further it is not necessary that all cattle that die should be claimed for hides. In some of the Western India States a better system is in vogue. All the dead animals are reckoned to be state property and annual contracts are given for collection of hides. These contractors have, out of necessity, to keep their agents in villages, and they being big contractors also keep their own accounts. The figures of hide production are, then, very easily collected from these contractors. The system is no doubt very convenient but its accuracy depends on the records of contractors. If they are properly kept and are made obligatory there seems to be no harm in adopting such a system.

In our opinion, if we want to have really reliable figures, the crop reporters, in the villages should maintain a cattle mortality register. In this register, should be recorded the death of cattle and the causes of their death. It will thus be of double advantage, because not only shall we know the figures of cattle mortality but also the

number of deaths on account of various diseases. In the urban areas this work should be done either by the Veterinary Department or by District and Municipal Boards. There is, no doubt, one drawback in this system and it is that the hides of animals that die may not necessarily be claimed. Many times cattle die in jungles and no record can obviously be made of their death. For such discrepancies we can conveniently allow a margin in our estimates.

An alternative method can also be suggested. We know that in India the hide removing work is done by only one community i.e. *chamars*. If it is possible to ask these *chamars* to give periodically the number and type of hides that they remove from dead animals, we can have records of hide production. The weakness of this system is that unless it is made obligatory for the *chamar* to give such information it will be difficult to have all the figures.

As far as the production of slaughtered hides is concerned, the slaughter houses keep records of such slaughter. If these records are properly kept we can easily have figures of slaughtered hides. As has been already said, in India, slaughtered hides are but a small fraction of the total hide production.

Side by side with the figures of production we also require the figures of consumption of hides. How are the hides that are produced disposed of? What percentage of the total hides is consumed in harness and saddlery factories, what percentage in shoes and leather boxes etc? Detailed information on all these points is needed to find out the total trade carried on in hide and skin products.

Meat and Bones etc. Though, as we have already mentioned, statistics of slaughter houses are not published in India, yet there is no difficulty in collecting statistics of meat production and consumption because meat consumption is largely confined to urban areas. Comparatively greater poverty of the villager, and his firmness of belief in religious sentiments are an explanation of this phenomenon. There may be difficulty in

obtaining figures of hides and skin because most of the hides and skins in our country are of a "fallen" type and it is not easy to have their statistics, but in case of meat there is no question of scattered information because, as we have just mentioned, most of the meat consumption is in urban areas which have registered and licenced slaughter houses.

We suggest that it should be made legally obligatory for all slaughter houses to maintain complete record of all cattle slaughtered. These statistics should be collected by the Veterinary Department annually, and after being aggregated district and province wise should be published by Department of Commercial Intelligence and Statistics.

As far as the consumption in rural areas is concerned we suggest the following method to obtain the figures of meat consumption:

Every year some village surveys should be conducted on a random sampling basis in various provinces and states. Then on the basis of the population of these selected villages the *per capita* meat consumption in rural areas in various provinces should be found out. This *per capita* figure of meat consumption can be multiplied with the total rural population of the province or state concerned and in this way we can have an estimate of meat consumed in rural areas in each province or state.

We are aware of the fact that a better system would be one in which the crop reporters maintain records of the slaughter of animals in the same way in which the statistics of cattle mortality are suggested to be kept but taking into account the fact that rural consumption of meat is but a small fraction of total meat consumption we do not think it is desirable to keep so detailed records of the same. It is also possible to have one column in the cattle mortality register for cattle slaughter and this system can also be recommended. If properly kept, such figures would be more reliable than those under the first method.

At present we have absolutely no statistics of the production of bones, horns etc., the price that they fetch and

the way in which they are consumed. The best system to obtain statistics of bones would be to have only registered dealers in bones etc. They should be asked to keep complete records of bones and horns that they have obtained, their sources and prices. The slaughter houses should be instructed to dispose of their bones etc. only to registered dealers and in villages also it should be made the duty of Patwari or crop reporter to see that the bones are not sold to anybody else except the agent of the licenced dealers.

The Indian Economic Enquiry Committee was of opinion that "statistics of the production of bones may be obtained by the returns of railways and bone factories, while those of horns and hoofs may be ascertained, along with the production of cottage industries, from industrial works which utilise these as their raw material. Horns and hoofs which are neither sold with bones nor used in cottage industries are of no value.

The extent of bacon and ham curing and the amount of lard produced can be ascertained from the curing establishments."

If these suggestions are also implemented we can have reliable statistics of bones etc. consumed, the price at which they are sold and the way in which they are used.

Poultry Statistics: Unfortunately poultry keeping is a sadly neglected branch of Indian Agriculture. It is a profitable and paying work, yet no attention has been paid to it and the only statistics of poultry are those found in the "Report on Marketing of Eggs" issued by the Office of the Agricultural Marketing Adviser to the Government of India.

According to this report which was published as early as 1938, India has more than 10% of the world's population of fowls and hens. According to the same report the egg production of India is less than 6% of the total world production of hen eggs. These figures indicate that, in India, poultry industry is not cared for, and no efforts are made to improve the breeds.

The way in which figures of poultry were collected at various places, for the purposes of this report, was not uniform. Different methods were followed in different parts of the country. In the Punjab the figures were taken from the Poultry Census conducted by the Agricultural Department in the year 1932 and were modified. In Patiala State a printed form was sent to Patwaris who filled the details; in Delhi it was calculated that one house in a hundred kept hens on an average of two *desi pullets* and hens, and on this basis the figures were worked out; in Bombay Presidency the method of finding out hens was worked backwards i.e. from the figure of consumption of eggs; in Madras a poultry census was taken with the help of village officials in 25 representative villages and on the basis of random sampling the number of hens in proportion of human population was also calculated; in U. P. 67 places in 33 districts were visited and on its basis a rough estimate was made.

We find that none of the above methods of finding out the number of hens, fowls, chickens and pullets is free from defect. To have more accurate estimate we should make a list of those villages and small towns which are inhabited mostly by Muslims, low caste Hindus and other communities engaged in this work in each province. Figures should be collected for a good number of villages or towns which should be selected from this list on a random sampling basis. Poultry Inspectors can be assigned this task and they can be helped in this work by patwaries or crop reporters. Average number of hens etc. per family or per 5 or 10 persons should be calculated on the basis of these figures and thus we can have a rough estimate of the number of fowls and hens etc. in the villages and towns included in the list. Figures for cities or government farms can be had from Municipal or District Boards and the farm authorities. For those villages which are predominantly inhabited by orthodox caste Hindus a rough estimate can be made for each Province on the basis of some intensive study. In this way we can have more reliable figures of poultry in each province.

Once we collect reliable figures of hens and fowls etc. it is not difficult to estimate the number of eggs laid. Aver-

age number of eggs laid by different breeds can be found out and by multiplying it with the number of laying birds, egg production can be estimated for each breed separately and the total egg production of all breeds can be found. No doubt a large number of eggs are spoiled or lost before collection but a fair margin for this is not difficult to cal culate.

It is also essential that the Veterinary Department should also try to estimate the number of birds dying due to certain diseases so that precautionary measures may be taken.

Fruits and Vegetables: India is an important fruit producing country in the world. It is by far the most important fruit producing country in the British Commonwealth. Inspite of increased importance of fruits in the recent years, due to the discovery of vitamins, we have almost no statistics of either the acreage under fruits and vegetables or of the total production.

Whatever meagre records we have about the area, yield and production of fruits, are those which are collected by the Agricultural and Revenue Departments in some provinces of the country. It is not at all difficult to maintain the records of area under fruits. When statistics relating to area and yield of agricultural commodities can be kept, there is no point in not keeping figures of area under various fruits. As a matter of fact the agency collecting figures of agricultural commodities should also collect figures of fruit acreage and production etc.

If reliable records of area under fruits are available it is quite easy to find out the total production of fruits. For this, we have to know the average number of trees per acre. No doubt at present there is no regular system of planting and the number of trees per acre shows wide variations even for one fruit in different provinces, still we can have some rough estimates through random sample enquiries in various parts of the country.

After knowing the figures of area and number of trees per acre the next thing to be known is the yield.

Yield figures can be had either per acre or per tree. We should average the yield figures province wise, as yield very much differs from province to province on account of difference in climate, soil and manuring etc. The yield also depends on pruning and spraying and other cultural operations, damage by frost, wind, insects, pests etc. and the age of the trees. In India we do not follow any method of calculating the effects of these factors on the yield because production records of orchards with reference to factors influencing the yield are not maintained. If experiments are made on these lines, our statistical information about yield can be more accurate than at present.

At present we have no reliable record of the consumption of fruits. It is an admitted fact, that, though we are not far behind many countries in the matter of fruit production yet our consumption of the same is very low. We have some figures of export and import of fruits in custom houses; but as production figures are not reliable, per copita consumption cannot be known. Moreover, we do not know what quantity of fruits is turned into pickles, sauces, and juice and preserved. Figures of all these are absolutely necessary and should be collected.

Till recently prices of fruits were not published in any of the government publications. Now the U. P. Government has started publishing the prices of fruits and vegetables at various centres in its monthly bulletin on statistics. Growers, as a rule, do not keep any account of the price realised by them for their produce. No doubt some merchants and contractors keep accounts but such information is very meagre, incomplete and useless for comparisons, as the prices recorded by them do not generally indicate the quality of the fruit. It is highly necessary to have the figures of price of the fruits. Interesting conclusions can be drawn by comparing figures of prices of fruits, fruit consumption and income per capita. We suggest that for having reliable records of fruit prices, marketing surveys should be organised for various fruits at their harvest time.

At present we have absolutely no statistics of vegetables produced in the country. There is a great difficulty

in having regular statistics of vegetable because its production is very scattered and it is a very perishable commodity. But the difficulty is not altogether insurmountable. The Indian Economic Enquiry Committee was of opinion that ". . . it is quite easy for the district officer to ascertain what an acre of vegetables grown in the suburbs of the towns and cities usually yields. Enquiries into a few individual cases will provide a reliable formula to be applied to the total area under vegetables in villages. In the rural tract vegetables have little value and are not grown on any extensive scale. The local revenue office can assign a cash value per acre to the vegetable grown in each assessment circle and tehsil".

We can have more accurate statistics of vegetable like potatoes which are less perishable and in which there is a countrywide trade. Report on the Marketing of Potatoes issued by the office of the Agricultural Marketing Adviser to the Government of India gives valuable and useful information about the production, consumption and prices etc. of potatoes.

Forests: It is gratifying to note that the statistics relating to our forests and forest produce are satisfactory. Forest statistics are published mainly by the Insepector General of Forests to the Government of India. A return of statistics relating to Forest Administration in India is published annually and once in every five years a review is issued with the Annual Return. Statistical Abstract and the Agricultural Statistics of India Vol I and II also give useful information about forests.

The forest statistics are available in a classified manner and this adds to their utility. Area under control of Forest Department is divided in "Reserved", "Protected" and "Unclassed" areas. Classified figures of state and private ownership, areas open for grazing, number of animals grazed, the outturn of forest produce in various classes of forests are also available. The Annual Return also contains figures about the produce of bamboo and fodder grass. Figures about the value of various other forest products and their price are also included in these

publications. A question that arises in this connection is whether the forest produce should be valued at the price or royalty recovered by the government, or at its market value. The majority of opinion seems to be in favour of valuing it at the price which the Government receives. The reason is that the increase in the value of forest produce, when it comes to the market, is on account of the services of the middleman. The real value of forest produce is the value at the spot and not in the markets.

Formerly figures relating to private owned forests were not available but now the area figures of such forests are regularly published in the Annual Returns.

At present when many forests have been cut for fuel purposes and many more for buildings and furniture and miscellaneous war requirements, our forest strength has considerably been reduced. We known that forests are a great asset to a country and a considerable reduction in forest strength means a great loss to the nation. As such we should ascertain whether the forests thus destroyed are more than what we could have conveniently spared, and if the answer is in the affirmative we should take adequate precautions to preserve the area under forests. But probably it will be difficult to reconcile this statement with the fact that population is increasing and there is a food scarcity in the country and we need more land under agriculture. But even under such circumstances a reconciliation of the two statements may be possible if we have full statistics of food requirements, food supply, population and area which is cultivable waste.

We believe that our forest statistics are accurate and complete to a great extent and as such we have no fresh suggestions to make. (For detailed information about forest statistics Chapter VI).

Fisheries: Statistics relating to fisheries are very incomplete in our country. The only published material on the problem is the Annual Report of the Department of Fisheries, Madras.

There are many difficulties in having figures of fisheries because even today our fishing industry is in the

primitive stage and is not developed on modern lines. The collection of statistics becomes extremely difficult when we take into account the fact that we have about 1700 miles of sea coast exclusive of estuaries and indentations, and almost every mile has its fishing village with few canoes and catamarans. Moreover fishing is done at any odd hour convenient to the villager, be it night or day and whatever is got is immediately sold to any purchaser in the local market. The illiterate fishermen are not much acquainted with the weights and measures and they speak in terms of baskets which are of varying sizes in different localities. Besides the boats, large and small, there are a large number of shore seines and casting nets which are used at any time.

In other countries it not difficult to collect fishing statistics. "In Great Britain the Fishery Departments are chiefly statistical and regulative and not industrial just because the men engaged in the direct fishing and allied industries not only know their own business and interests, most thoroughly but have initiative is the highest possible degree and are infinitely better acquainted with their own industries and interests than any Government or Board can be. Moreover in consequence of the fishery organisation, the collection of statistics is simple matter; the boats are large and chiefly issue, often under the fleet system, from a few large ports, and are owned and run by intelligent businessmen, who moreover know that statistics are collected not for fiscal but for public purposes. Hence all that has to be done is to appoint an Inspector at each port—in England often a businessman himself who simply receives from the various owners notes of their catches which he compiles into a daily report; the fish markets, moreover, are perfectly organised and it is easy to ascertain every pound of fish landed".[1]

We have already seen that such conditions do not prevail in India and our statistics are very meagre. The Madras report deals only "with sea fishing and gives the value of the take of sea fish within certain areas, the average quantity of fish cured, number of fishing yards, ticket

[1] "Fisheries Statistics and Information, West and East Coast Madras Presidency" p.

holders, markets and boats. . . " It is necessary for us to have figures of both inland and sea fishing. In Madras, the Fisheries Department can get reliable data of the production of sea fish in the whole of the presidency, as far as the main centres of fishing and fish curing yard, are concerned. As far as fishig in areas outside the yards are concerned, such figures can be collected by the Revenue Department with the assistance of some Inspectors. In the same way we can collect figures about fresh water fishing. Municipalities and Railways can give us information about the consumption of fish in big cities. The Fisheries Department of Bengal which was abolished in 1923 should be revived again to collect figures. More fisheries departments should be opened at other places to collect statistical information and some inspectors should work under the guidance of these departments. Fish curing and other subsidiary inustries connected with fishing should be treated as cottage industries and information should be collected on these problems in the same way as for other cottage industries.

Mining: Like forest statistics, the statistics of mines and minerals are quite satisfactory in our country. The chief sources of information are the Report of the Chief Inspector of Mines and the Review of the Mineral Production of India. These publications deal with the number of workers, output per head, total output of various minerals, accidents, mineral concessions, licences and lease, number of mines opened or closed during the year etc. The information is exhaustive.

However statistics regarding some small mines are not available; though such mines and the work done in them constitute a very small percentage of the total mines and minerals in the country yet we cannot ignore them on account of their smallness. Statistics of such mines which are generally in remote rural areas can be collected by the Revenue Department according to the instructions laid down by the Chief Inspector of Mines. The information to be collected should relate to the quantity and value of the mineral produced, number of persons employed and the cost of taking out the mineral products.

The official statistics collected at present relate only to those mines which come under the Indian Mines Act 1923. According to this Act the Governmet of India is empowered to exempt some mines from the operation of this Act from time to time. The usual exemptions are borings and oil wells, and certain classes of stones and other quarries. Statistics of mines exempted from the Act can be collected in the same fashion as those of small mines.

Figures of mines and minerals of Indian States are not included in the government figures. Every state, rich in minerals, should be legally bound to collect accurate figures of minerals and those figures should be incorporated in government publications to give us a complete picture of the whole country.

Irrigation: The statistics of irrigation, in India, are also satisfactory. Government publications on irrigation give figures of area under irrigation, irrigated area under various crops, results of operation of irrigation works etc. No doubt there are some minor drawbacks in the figures published (and we shall deal with them in chapter VI) still these statistics can be safely relied upon. Information regarding canal mileage in operation, estimated cost of construction, total capital outlay, gross receipts, working expenses, net revenue and net profit or loss is also available.

(For a detailed discussion of irrigation statistics see chapterVI).

CHAPTER VI

AGRICULTURAL STATISTICS (CONTD.)

(A critical examination of government publication on statistics of primary production)

Statistics relating to primary production are available in the following publications:

Agriculture

1. Estimates of Area and Yield of Principal Crops in India (Annual)
2. (a) Agricultural Statistics in India (Vol. I)
   (b) Agricultural Statistics in India (Vol. II)
3. (a) The Crop Forecasts (Periodical)
   (b) Indian Trade Journal (Weekly)
4. Quinquennial Report on the average yield per acre of the principal crops in India.
5. Statistical Abstract of British India (Annual).
6. Monthly Survey of Business conditions.
7. Agriculture and Animal Husbandry in India (Annual).
8. (a) Indian Tea Statistics.
   (b) Indian Coffee Statistics.
   (c) Indian Rubber Statistics.

Animal Husbandry

1. Live Stock Statistics.
2. Agricultural Statistics of India Vol. I and II.
3. Agriculture and Animal Husbandry in India.

Forests

1. Annual Return of Statistics relating to Forest Administration in British India.
2. Agricultural Statistics of India Vol. I and II.
3. Statistical Abstracts of British India (Annual).

Fisheries

1. Report of the Department of Fisheries—Madras.

Mines and Minerals

1. The Annual Report of the Chief Inspector of Mines for British India.
2. (a) Annual Statement on Mineral Productions in India.

   (b) The Quinquennial Review of Mineral Production in India.

   (c) The Quarterly Statistics of production of Coal, Gold and Petroleum.
3. Monthly Survey of Business Conditions in India.
4. (a) Indian Trade Journal.
   (b) Indian Coal Statistics.
   (c) The Statistical Abstract for British India.

Irrigation

1. Agricultural Statistics in India Vol. I & II.
2. Statistical Abstract of British India.
3. Irrigation in India—Review.
4. Triennueal Review of Irrigation in India.

We shall deal with these publications one by one and try to show what they contain, what their drawbacks are and how they can be improved upon.

AGRICULTURE

1. Estimate of Area and Yield of Principal Crops in India

This annual publication of the Department of Commercial Intelligence and Statistics deals with many crops. It is published to give, as early as possible, an idea about the area and yield of certain crops along with the nature of seasonal conditions. The crops that it covers can be grouped in 3 classes:—

(i) Those crops for which All-India Forecasts are issued viz. rice, wheat, sugar-cane, cotton, jute, linseed, rope and mustard, sesamum, castorseed and ground nuts.

(ii) Plantations viz. Tea, Coffee and Rubber.

(iii) Barley jwar, bajra, maize, gram, tobacco and indigo.

Figures relating to items in the first group except jute are compiled from the final forecasts issued annually by the Department of Commercial Intelligence and Statistics. In case of jute the figures are from the forecasts issued by the Director of Agriculture, Bengal. The figures of items in the second group are taken from the special annual publication on each of the three plantation crops by the above department. The estimates of crop belonging to the last group are taken from the Seasonal and Crop Reports of the provinces, and the states where available, and are specially obtained from the local authorities in other cases.

At the end of this volume, are given some tables of the area and yield of certain crops in foreign countries. These figures are obtained from the International Year Book of Agricultural Statistics published by the International Institute of Agriculture, Rome. A separate table in this publication is devoted to the figures of normal and actual rainfall in each province and the meteorological subdivisions of India. This contains figures for both India and Indian states and is published usually 6 to 9 months after the previous crop has been harvested.

In all there are 19 tables and 2 appendices in this volume. The first table gives the figures of area and yield of each of the crops in group I and II. Quinquennial averages only, are given from the year 1895-96 but for the last 10 years the annual figures are tabulated. A drawback of these figures is that they are not comparable. For the earlier years the area figures relate only to those places where cultivation was done on large and commercial basis. The small areas were left out; but such areas are included in recent figures.

The second table gives figures of average yield per acre of all the items in group I and II. Figures for the last 9 years are also given, besides those of the year under review. These average yield figures are derived by

dividing the estimated yield of each year by the estimated area. Statistics of yield per acre in the table refer to the yield per acre sown and not harvested. As such these figure should be used with great caution, because average yield figures in most of the foreign countries relate to the harvested area.

In the 3rd table standard or normal yield per acre of the items of group I is given. These figures are obtained from the Quinquennial Report on the Average Yield per acre of Principal Crops in India.

Next 13 tables are devoted to each of the thirteen crops of Groups I and II. Each table gives the area and yield of particular crop, province and state-wise for the last 10 years. The figures of the last 9 years are revised forecasts whereas the figures of the year under review are the final forecasts. The tables relating to cotton and jute have a special feature—the trade estimate figures of yield.

"The trade estimate for cotton represent the aggregate of returns of mill consumption of Indian cotton, compiled by the Indian Central Cotton Committee, an estimate for extra factory consumption framed from time to time by the same body on the basis of enquiries in selected areas and net exports. The carry over of stock is not taken into account owing to the absence of complete information.

As regards Jute two alternative estimates are given: the first being made up of exports and total consumption and the second, of exports, mill purchases during the year, and the estimated local consumption. The figures relating to mill consumption and purchases are based on voluntary returns made by the mills."

Table No. 17 which is supplementary table gives the area and yield of crops in group III. Figures are given for each province and as far as possible for Indian States.

The next table gives the normal and actual rainfall in the chief meteorological division of each province for 10 years. These figures are based on the reports of the Meteorological Department.

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[1] Guide to current Official Statistics Vol. I p. 2.

The last table No. 19 gives the area and yield of some important crops (rice, wheat, barley, maize, sugarcane, cotton, linseed, rapeseed, tea and coffee) in a comparative statement for a period of 10 years.

The two appendices contained in the volume are on the methods of framing estimates of crop and the methods of collecting the statistics in different provinces and states.

The figures given in the publication should be used with great caution. We have already pointed out that these figures are not comparable year after year, since new territories are included in various years. Besides this the percentage error in the figures of total yield will be reduced with the gradual improvement in the figures of standard yield, thus rendering a comparison liable to mistakes. Another defect of the existing figures is that there are no checks to varify the accuracy of these figures, except, as we have seen, in case of cotton and jute. This volume should embrace some more crops like grains, pulses, fruits, vegetables, etc. which constitute an important item of food and some other crops which are important from the point of view of trade or manufacture. It goes without saying that the accuracy of these estimates of the yield of crops of group I is dependent on the reliability of figures relating to area, standard yield and condition factor. The figures of items in group III are obviously incomplete and their utility is also limited as all-India figures. The crops in group II have each a special publication which will be dealt with elsewhere in this chapter.

2. **Agricultural Statistics of India Vol. I.**

The figures given in the publication relate only to (former) British India. They are based on the information and returns submitted by the various Provincial Governments to the Department of Commercial Intelligence and Statistics. This volume gives information about the following:

1. Total Area.
2. Classification of Area.

3. Area under Irrigation.
4. Area under each crop.
5. Live stock ploughs and carts.
6. Incidence of Land Revenue.
7. Harvest Prices.

In the present section we shall be dealing with items Nos. 1, 2 and 4 only. Other items relating to Irrigation, Livestock, Land Revenue and Prices will be dealt with in details, in other sections.

Table No. 1 gives us the figures of Total area of each province and district under 2 main heads viz:

(i) Area by professional survey.
(ii) Area according to the village paper.

The figures by professional surveys are calculated by Provincial Survey Departments in Madras and Bombay and by Survey of India in other provinces.

The area according to village papers is calculated from the village returns submitted by the village staff for purposes of revenue collection. In permanently settled areas, however, where this system is not prevalent, the survey figures only are taken.

There are differences in the figures of the professional survey and those of village papers. The reasons are not far to seek. The area according to the surveys is calculated in blocks where as the area according to the village papers is calculated by totalling up the village returns. Even if there are minor discrepancies in the village returns they are sure to mount up when such figures are added in large numbers. Moreover, the area covered by hedges and boundaries between two fields are left out in the village returns but obviously included in survey figures. Some allowances should be made in survey figures for this also; yet there is bound to remain some difference between these two figures. Another reason for such a difference arises on account of the fact that the village returns, in some provinces, do not cover some areas which are includ-

ed in the survey figures e.g. area under forest etc. Yet another cause for the difference is on account of a lack of uniformity in rules regarding the exclusion of area covered by railways, roads, buildings etc. Such discrepancies can be removed only by a little modification of rules, regulations and instructions to authorities concerned.

In table No. 2 the figures of area according to village surveys are subdivided in 3 main heads viz: (i) Area under forests (ii) Net area sown and (iii) the Balance. The last head of Balance is further subdivided into 3 heads viz. not available for cultivation, cultivable waste other than fallow, and current fallows.

Area Under Forests: "This area includes the forest areas administered by District Collector and local bodies in addition to forests worked by the Forest Department." We shall take it in detail when we deal with publications on Forest Statistics.

Land Not available for cultivation: This class includes all land which is barren, rocky, dry, hilly and also land which is put to non-agricultural uses e.g. that under buildings, railways, roads, etc. It would be better if this class is further subdivided into 2 sub-headings viz: (i) area which is barren and rocky and (ii) area covered under buildings, roads etc. or used for other non-agricultural purposes.

Cultivable Waste other than fallow: Under this head comes all the land that is fit for cultivation but is not cultivated. It also includes groves, areas under bamboo and thatching grasses when not included in forests. We have seen that the barren land is divided in 3 groups, viz. not available for cultivation; cultivable waste and the current fallows. The division of the barren land between land not available for cultivation and the cultivable waste other than fallows is very arbitrary. In some of the permanently settled areas of Bengal, Bihar and Orrisa this is based on estimates while for those areas which are not surveyed the same proportion as that of surveyed areas is applied. In making use of these figures considerable

care and caution is necessary. We should not hastily conclude that such areas can come under plough and thus be very optimistic about the situation of potential food supply. These lands can be put to cultivation only at very high costs. When we are studying the figures of potential food supply of the country we should take into account only such portion of this land which can economically be put under cultivation.

Current fallows: This denotes cultivable areas which are not cultivated after the expiry of a certain period. The period varies from province to province. In Punjab it is only two years; in Bombay it is 10 years. In other provinces it is between 2 and 10 years. After the expiry of this period the land is transferred to the column of cultivable waste other than current fallows. This classification is done to give an idea of the land on which agriculture has been abandoned in recent years; but the utility of these figures is not much when we consider such figures on an all-India basis. The difference in the period in which an uncultivated fallow becomes a cultivable waste in various provinces, robs the figures of much of their usefulness. It is suggested that there should be uniformity in this respect in order that we may have more useful data.

Net Area Sown: If from the total area we deduct the sum of area under forest, land not available for cultivation, cultivable waste and current fallows, we get the figure of net area sown. Under such circumstances the area sown more than once, is counted only once in the summary table for India. If such areas are shown separately there would be a 15% increase in the aggregate figure. However in provincial and district tables the areas sown more than once are shown separately and the total area sown is classified under various heads which are also further sub-divided into their various individual components.

In making use of the figures given in this publication it should not be forgotten that the figures of all years are not strictly comparable. In early years a very great

part of the total area was altogether left out of account, for the reason that statistics of those areas were not available. Gradually the area included has been increasing. Those areas also, for which no statistics are available are not left now because for such areas estimates are taken. For Bengal the area figures of jute are collected through schedules supplied to the village union. "The figures of areas under other crops in Bengal, under all crops in Bihar and very nearly the whole of Orissa, in the permanently settled regions of Madras and the United Provinces and the hill tracts of United Provinces are no more than estimates made by the District Officers on the basis of their knowledge of local condition and the information supplied by sub-ordinate officials." [1]

A defect in the area figures also arises on account of varying practices followed in recording the area under mixed crops. We have amply discussed this problem in the fourth chapter.

The area shown in the volume is the area sown whether successfully cropped or not, excepting the land which is devoted to other crops after the failure of the original crop.

Another point that adds to the defects of the publication is that the basic period of statistics is not uniform in all the provinces. Upto 1919-20 some provinces adopted the financial year (1st April to 30th March) while others followed the revenue year (1st July to 30th June). But from 1919-20 all provinces are using the revenue year except C. P. which prepares returns for the year ending 31st May and Assam whose year ends on 31st July.

If we note the area figures in the volume and compare them with figures of areas given in the "Area and Yield of Principal Crops in India" we shall note certain amount of difference between the 2 figures. The reasons for this are as follows:

(1) Certain areas of land for which no forecasts are issued are not included in the figures of area as published

[1] Guide to Current Official Statistics Vol. I p. 10.

in the 'Estimate.' But such figures are incorporated in "Agricultural Statistics".

"In the case of rice for instance the figures for the Punjab, N.W.F.P. and Ajmer Merwara are not shown in the estimates. In 1935-36 the deficiency in the "Estimates" figure due to this cause was 1,011,000 acres."

(2) In the district of Almorah, and Garhwal and in the hill tracts of Nainital district in U. P. there is no agency for collection of figures and as such the "Estimates" do not include figures of these areas; but in the "Agricultural Statistics" a rough estimate of these areas is also added.

"This difference amounted to 122,000 acres in case of rice in 1935-36."

(3) In some cases the figures as given in the 'Estimates' are revised before being published in the 'Agricultural Statistics.' In the year 1935-36 the revision revealed an excess of 280,000 acres in the "Estimate" figures of rice in Orissa.

2 (b) **Agricultural Statistics of India Vol. II.**

This volume deals with agricultural statistics relating to Indian states. Formerly when the number of states collecting figures was not large, these figures also were included in Vol. I but later on when gradually the number of states furnishing records increased a second volume began to be published. Various efforts have been made to increase the number of states giving such figures but even now the number of such states is not very large. Even the reporting states do not give figures of their whole state. Out of the total area of 257 m. acres in the reporting states in the year 1934-35 an area of 11 m. acres was not covered by statistics.

The states are grouped under two main heads:

(1) Those under the jurisdiction of Provincial Governments and Administrations and

(ii) Those having direct political relationship with the Central Government.

Of the states coming under the 1st group reports are received only from the states of Punjab and U. P. which together constitute 22% of the total state area under this group. In the states coming under the 2nd group figures are available for Hyderabad, Mysore, Kashmir, Gwalior etc. which comprise about 59% of the total state area under this group,

It should be noted that these figures are not comparable year after year as the area under review has been constantly changing due to the inclusion of many new tracts not included formerly.

We have already mentioned that the statistics submitted by states are incomplete, as a high percentage of the state area is generally unsurveyed and no records are available of lands under privileged tenures.

Moreover the year for which the figures are collected is not one and uniform in all states.

The statistics are far less accurate and complete than those of (former) British India. The same set of tables as used in Vol. I are also used in Vol. II with the exception of Table No. VII relating to harvest price which is not published in Vol. II. All the criticisms offered for the figures in the Vol. I apply with greater stress to the figures of Vol. II.

3. The Crop Forests:

We have already dealt in detail with the crop forecasts in Chapter No. 4 on Agricultural Statistics. However, we give here some more details.

These crop forecasts issued by the Director of Commercial Intelligence and Statistics are published periodically. The number of forecasts issued is not uniform for all crops. The dates on which they are published are also different for different crops. The following table gives us the number of forecasts and the time table of their issue.

No. of forecasts	1st.	2nd.	3rd.	4th.	Final
Wheat 5	25th Jan.	6th March	15th April	20th May	6th Aug.
Cotton 4	15th Aug.	15th Oct.	15th Dec.	15th Feb.	
Sesamum 3	1st Sept.	20th Oct.	15th Jan.		
Rice 3	20th Oct.	20th Dec.	20th Feb.		
Sugar cane 3	20th Aug.	20th Oct.	5th Feb.		
Ground nuts 3	20th Aug.	20th Oct.	15th Feb.		
Linseed Rape & Mustard 3	1st Jan.	15th March	1st June		
Jute 2	7th July	21st Sept.			
Castor seed 1	20th Feb.				

All the above forecasts except that of jute are prepared by the Director of Commercial Intelligence and Statistics. Jute forecasts are prepared by Director of Agriculture, Bengal. In case of cotton the figures of certain parts of Madras, Bombay, Sind and Hyderabad are not available at the time of the final forecast and hence a supplementary memorandum is issued. Similarly a supplementary forecast is published in case of sesamum on account of the figures of Madras being received late.

In this publication many charts illustrate the variation in area of yield for various crops over a period of 10 years. Condition of crop and the probable yield of foreign countries, export and import figures, are also given. Cotton forecasts also give information about varieties sown, figures of mill consumption and of inter-provincial trade. The final forecast for rice includes the summer rice area, which is not included in previous forecasts. Forecasts for cotton and castor seed cover the whole area under these crops. In case of other crops the estimates of area in the non-forecasting parts are worked out on the basis of the last 5 years average for which final figures are available, and the yield figures are taken to be the same per acre, as those for area forecasted. In case of mustard and rape, linseed and sesamum the figures for mixed crops are not included in the earlier forecasts but such figures are incorporated in final forecasts.

We have already dealt in detail the system adopted in forecasting of crop, in Chapter IV and have offered our criticism and as such we need not repeat it here.

3 (b) **Indian Trade Journal:** This is a weekly journal and it reproduces all-India Crop forecasts. The information is contained in a table which has the following 9 columns.

1. *Crop forecasts*: In this column the name of the crop along with the number of the forecasts to which the figures relate is given.

2. *Tracts comprised in the figures and percentages of total Indian crop represented by them*:—This column gives the names of the tracts province-wise and also gives the names of states. It also gives the percentage of total Indian crop which these tracts represent.

3. *Estimated area*: In this column area figures are given.

4. *Percentage of preceding year*: In this column is given the percentage of area, taking the figure of the previous year's corresponding date as 100.

5. *Final figure of previous year*: This column gives the final figure of area in the last year.

6. *Estimated outturn*: Yield figures are given in this column.

7. *Percentage*: This column gives figures of yield in percentage—last years figures of the same date being taken as 100.

8. *Final figures of last year*: It gives the final figures of yield in the previous year.

9. *Date of the publication of forecast in the journal*: The date on which the forecasts are to be published in the journal are given in this column.

Some provincial forecasts for minor crops like ginger and senna etc. are also reproduced in the journal.

The journal also publishes data regarding the weather, temperature, rainfall and humidity etc. in various provinces.

4. **Quinquennial Report On The Average Yield Per Acre Of The Principal Crops In India**: This Publication dates from the year 1892 and its report covers the whole of (former) British India and the Mysore state. The publication is divided in 2 parts—part one is the general report and part two gives the figures. Broadly speaking, the report gives an account of the change in figures of standard yield on a 5 yearly revision.

We have seen in Chapter IV that the Normal Yield plays a very important part in the estimation of the forecasts of various crops. We have also seen that the figures of the normal or standard yield are revised every five years and these revisions are made on the basis of crop cutting experiments. The figures of the standard yield are worked out by the Department of Agriculture or Land Records, separately for irrigated and unirrigated areas. Investigations are made annually and the provincial authorities are to submit the result of such investigations to the Department of Commercial Intelligence and Statistics every five years. On the basis of these reports consolidated statements are published is this publication.

The statements give information of standard yield per acre of important crops. Figures are given district-

wise for the period under review. Provincial figures for 5 quinquennia are given by finding out the weighted average of district figures. Weights are assigned on the basis of area under the crops in districts. But it should be noted that the provincial figures for Bihar and Orissa given in the district tables are only simple averages. A weighted average for (former) British India is also worked out for each crop. The weights assigned to various provinces are again in proportion of the area under a crop in provinces.

This publication also gives the average yield per acre of tea. The averages are calculated on the basis of annual returns of area and yield for 5 preceding years.

We have criticised, at length, the concept of normal yield in Chapter IV, and have made certain suggestions. It may suffice to write here that the utility of these figures is considerably reduced on account of the fact, that the methods of finding out the standard yield differ from province to province. In some provinces the figures of crop cutting experiment are modified on the basis of the knowledge of local officers, in others, no crop cutting experiments are held, in still others old figures are modified a little here and there. As a matter of fact the whole show of crop cutting experiments in most of the cases is a mere farce and as such the conclusions arrived at are rarely worth anything.

In most provinces the figures of standard yield rarely change but in some provinces there is an abnormal rise while in others a fall. In such cases the combined average for the country is very deceptive. "Moreover the areas under improved crops are seldom, if ever, considered in fixing the standard yield and so the figures given in this publication cannot be of use in discussions relating to the improvement in crop production."

5. **Statistical Abstract For British India:** This publication gives the figures of area and yield of various crops province-wise. The provincial figures are given only for one year but aggregate figures are given for the last

10 years. Figures for cotton are not those of final forecast but those of Trade Estimates which are calculated by adding up exports and consumption figures. The figures of the area are the same as published in the "Agricultural Statistics of India Vol. I" but the figures of yield are taken from the "Estimates of Area and Yield of Principal Crops in India."

Obviously the figures given in the abstract are not comparable and do not serve any great purpose because area figures are from one publication, the yield figures are from the other one. We have already seen that these two publications i.e. 'Agricultural Statistics of India' and the 'Estimate of Area and Yield' do not give identical figures of area or yield. In 'Agricultural Statistics of British India' area figures only of (former) British India are collected but the yield in the "Estimates" includes some Indian states also. Hence the figures of area and yield cannot be studied together. Besides this, the "Estimates" exclude the figures of those tracts for which no forecasts are published but the area figures of such parts are included in the 'Agricultural Statistics of British India.' This fact further renders a direct comparison misleading.

Besides this information the abstract contains a table which gives yearly figures of rainfall in the chief meteorological divisions of various provinces and some Indian states, for the last 10 years. The figures of the last year are given monthwise also. The mean monthly temperature is also given in a separate table. Such figures are derived from the data furnished by the Meteorological Department.

6. **Monthly Survey of Business Conditions:** This publication is issued monthly from the office of the Economic Adviser to the Government of India. The most important feature of this publication, as far as agricultural statistics are concerned, is the review of agricultural condition of India for the months under review. This review or survey gives information about the nature of rainfall, the probable condition of crops, and the probable deviation of the outturn from the normal.

Figures about the production of rice, wheat, sugarcane, cotton, jute, linseed, rape and mustard, sesamum and groundnut for a period of 2 years are also published The percentage changes are also worked out in the table. The figures given are the forecast figures.

Monthly figures for 10 years are given for the production of tea. But their utility is not much as these figures are not for the whole of India. They refer to plantation of Northern India alone. Figures for Southern India plantations which form about 19 per cent of the total plantations are not given in the publication.

7. **Agriculture and Animal Husbandry in India:** This is an annual publication issued by the Imperial Council of Agricultural Research. The information given in this publication about agriculture mostly relates to the improvement in methods of production etc. on account of research.

It gives information about the area under improved crops in the various provinces of India and some Indian states. The number of crops for which information is given differs from province to province. Figures are given for only 3 crops in Madras but in case of Bombay as many as 15 crops are dealt with. These figures are also far from satisfactory because they are incomplete. It is extremely difficult to find out the full extent of the spread of the improved seed etc. Figures can be had only for those areas where improved seed has been distributed through the agency of the Agricultural Department. Besides this, only few Indian states give such figures, and they too have begun giving figures from 1936-37 only. Such states are Hyderabad, Mysore, Baroda, Travancore, Cochin, Bhopal, Kashmir and Gwalior.

There is a chapter, in this publication, which is headed as "Economic Work in Crops" and this gives the progress of research on various crops and the improvement effected in the methods of production.

Figures of the world consumption of cotton are also given. Besides this, a review of the work done by the

Indian Central Cotton Committee, in the matter of improving cotton forecasts is also given.

Figures of the sale of improved implements and of improved seeds (incluling fruit plants) and manure are also published in this publication.

Figures of this publication are based on the reports of the Agricultural Department of the various provinces and some of the states.

Figures in this publication relate to the year ending 30th June (except when otherwise stated). We have seen that in some publications the year ends on the 31st March, in others on 31st December and in this on 30th June. This diversity of the period of the year renders the figures of the various publications unfit for comparison e.g. we cannot correlate (without adjustment) the figures of the sale of improved implements and seeds (in the publication) with the figures of the changes in yield taken from the 'Estimates of Area and Yield of Principal Crops in India.'

8. (a) **Indian Tea Statistics**

The "Report on the production of Tea in India" is a publication of the Department of Commercial Intelligence and Statistics and is issued annually. Its figures relate to the calendar year. There are two parts of this publication. The first is the report giving an account of various factors of production, trade, prices etc. The second part contains statistical information in the shape of tables.

The data in these tables are obtained from the owners of the states, who are supplied a schedule by the Department of Commercial Intelligence and Statistics. Though the filling and returning of these forms are voluntary yet only a few persons abstain from giving information. Even from such persons the Department tries to have information and mostly succeeds in its work. If the information is not forthcoming even then, their official estimates of area and yield are made and included in the total figures. The error on account of this is usually very little. It was

1.4% in 1934 and 1.5% in 1935. It would be better that before being published the figures should be compared with those collected by Indian Tea Association. Besides this, from 1933-34 figures have also been collected by the Indian Tea Licensing Committee. The Indian Tea Control Act 1933, empowered this committee to call for returns relating to production, sale, export etc. These figures serve as a check on the figures of "Indian Tea Statistics."

The second part of the publication which gives statistical information is divided in a number of tables which give information on the following points:—

(i) *Area and Yield*: Tables I and II deal with figures of area and yield respectively for each province and state. Five yearly average beginning from 1885 along with annual figures for 10 years relating to each province or state are given. Table No. 3 deals with details of area and production district wise. In this table the figures are only for the year under review.

(ii) *Average number of employees*: The third table which deals with district figures of area and production also gives the average number of persons employed daily in the plantations. These figures which are district wise are classified in 2 groups.

(a) Garden Labour.
(b) Outside Labour.

The garden labour is permanent and the outside labour is further subdivided in 2 groups. viz.

(a) Permanent and
(b) Temporary.

These figures are for the year ending 31st December.

(iii) *Wages*: Before the year 1935 figures for four years relating to the average monthly wages of labourers employed in the plantations were given in the form of tables. But at present only a short statement about this is given in the introduction of the publication. Figures are given separately for men, women and children, and are calculated on the basis of daily working strength during March and

September. Only cash earnings are taken into account. Wages in the shape of free fuel or grazing rights etc. are ignored. It should not be forgotten that these figures relate to the year ending in September.

(iv) *Foreign Trade*: Tables IV to IX deal with sea borne and land borne trade in tea. Exports from India by land and sea are shown separately . But the land export figures are defective because they represent whole trade at some selected railway stations which are near the land frontiers. However, a formula has been evolved in consultation with the Indian Tea Cess Committee Commissioner (now Commissioner, Indian Tea Market Expansion Board) and on its basis alternative estimates are compiled which are given in the Introductory Chapter of this publication.

Details are given regarding the quantity of tea exported to Ceylon, China, Java, U. K. and other countries. Share of each port in the total export is also given. Import of tea in certain foreign countries classified according to the country of origin are also tabulated. One table gives figures regarding the total export and the index number of exports of tea from the main tea producing countries viz India, Ceylon, China and Java. For India, Ceylon, and China the base year is 1896-97 but for Java it is 1905-6. Figures regarding, imports, re-exports and balance of trade are also available.

(v) *Quantity sold by auction in Calcutta and price per pound*: Some 2 or 3 tables are devoted to the information regarding the quantity of tea sold in packages and also the selling price per pound at Calcutta and London. From the year 1934, when the Tea Control Act came in force, separate figures are given for the tea sold with export right and for the tea sold for internal consumption. Rates of freight from Calcutta to London for different years are also given in a separate table.

(vi) *Consumption*: Figures of tea consumption are worked out by adding to the year's produce, the carry over from the previous year and subtracting from this total the carry forward for the next year. Figures for the consumption of tea for 10 years are also published.

(vii) *Miscellaneous*: This publication also gives information about the number of joint stock companies engaged in tea industry and their capital. These figures are collected from the Registrar of Joint Stock Companies. Rates of dividend and the share value of some companies are also published, these figures being taken from the "Capital".

Figures for the import of machinery and tea chests are also collected from the sea borne trade accounts and published in this volume.

8 (b) **Coffee Statistics**: This annual publication of the Department of Commercial Intelligence and Statistics gives the following statistics:—

(1) *Area under coffee and the production of cured coffee*: The first two tables of this volume, which are abstract statements, give figures of area and production of cured coffee in each Indian Province and a few Indian states. The figures are for 10 years ending with the year of the report. The third table is devoted to district-wise details. District figures are given for the year under review only.

(ii) *The average number of persons employed daily in the plantations*: Figures under this head relate to the districts. These district figures of number of daily average employees are classified according to the nature of employment.

(iii) *Foreign Trade*: Quantity of Indian coffee exported from India and certain figures of import are given in the last 2 tables (Nos. 4 and 5) of the publication. Export figures are for 5 years ending with the year of the report. Imports of coffee by U. K. and France etc. from Brazil and other coffee producing countries are also given.

(iv) *Prices*: Prices are given per cwt. according to the value of the exports. Prices are also converted into Index Numbers with the year 1894-95 as base. Price per cwt. and price index numbers of the Brazilian Coffee in the New York market. for some years are also given.

Besides this information, the figures of import duty on coffee in different countries of the world at the time of the report are also published.

The figures of area and production are compiled from the returns furnished by the planters to the Provincial Governments of Madras, Orissa and Coorg, to the Durbar of Mysore, and Resident of Madras States in case of Travancore and Cochin.

The figures of the coffee production on area are not very reliable. Before the year 1931-32 plantations with an area of less than 10 acres were altogether left out, though such areas are considerable. However, from the year 1931-32 plantation with an area between 5 to 10 acres are included in the tables published in this volume. Such areas constitute about 8.5% of the total area and the production on such plantations is not less than 6.6% of the total production. According to Marketing Reports production on such gardens is about 12% of the total production.

In the earlier years these figures related to the calendar year but from 1908-9 figures are for the year ending 30th June. The publication of this volume was suspended from 1910-11 to 1918-19 due to the unsatisfactory nature of the data published in it. It again appeared in the year 1919-20 in an improved form.

8 (c) **Rubber Statistics**: The statistics relating to rubber began to be published very late in comparison with those of tea and coffee. Rubber statistics are being published from the year 1919 only. The bulk of the rubber produced in India comes from Travancore. Till recently the method of collecting figures of rubber acreage or production was very unsatisfactory. However, after a thorough enquiry in Rubber acreage made by Indian Rubber Licensing Company, the figures have very much improved. Area and Yield figures are now based on voluntary returns furnished by planters.

(i) *Area and Production*: There are 6 tables in this publication. Tables 1 and 2, which are abstract statements, give figures of area and production of rubber in rubber producing Indian provinces and Indian states. The totals for the whole of India are also given. Figures of area and production of all the 3 types of dry rubber are given separately.

(ii) *Number of employees*: Table 3 of this volume gives the figures of area and production district-wise and also furnishes details about the number of states and the number of persons employed in the various estates in various districts.

(iii) *Stock*: Table 4 gives detailed information about stock of the 3 types of rubber at various places. Separate figures of rubber stock, on 31st December are given for—

(a) Estates.
(b) Up country Warehouses.
(c) Ports (awaiting shipment).
(d) Mercantile firms and banks.

(iv) *Export and Import*: Last two tables numbering five and six deal with export of rubber from and imports to India. Details are given regarding the countries of origin and destination. Figures of the inter-provincial and Indo-Burman trade are also available.

The following publications also deal with Agricultural Statistics:

(1) The Season and Crop Reports issued annually by the provincial authorities.

(2) Report on the Enquiry into the Rise of Prices in India (1914) Vol. III pp. 254-419, 431-462.

(3) A manual on the preparation of crop forecast in India (1917) issued by the Department of Statistics in India.

(4) Report of the Indian Economic Enquiry Committee (1925) Vol. I pp. 16-23.

(5) Report of the Royal Commission on Agriculture in India (1928) pp. 600-612.

(6) Bowley Robertson Report on a Scheme for an Economic Census of India (1934) pp. 35-40.

(7) Report on cocoanut enquiry in India (1934) issued by the Imperial Council of Agricultural Research.

(8) Report on the work of Imperial Council of Agricultural Research in applying Science to Crop Production in India by Sir John Russel D.Sc., F.R.S. (1937) pp. 7-38.

(9) Report on the cost of production of crops in the principal sugarcane and cotton tracts of India.

Issued by the Imperial Council of Agricultural Research (1938).

(10) Reports on the marketing of

(a) Wheat.
(b) Linseed.
(c) Tobacco.
(d) Coffee.
(e) Potatoes.
(f) Grapes.
(g) Groundnuts.
(h) Rice.

Issued by the Office of the Agricultural Marketing Adviser to the Government of India.

Details of the method of compilation of agricultural and animal husbandry statistics are also discussed in a special report entitled "The Agricultural Statistics of India" prepared by the Department of Commercial Intelligence and Statistics for the World Agricultural Census (1930).

Statistics relating to the number of sugarcane crushers, oil engines used for irrigation purposes, electric pumps for tube wells and tractors etc. are available in 'Live Stock Statistics'.

ANIMAL HUSBANDRY

(1) **Livestock Statistics:** The following information is available in this publication:

1. *Number of Cattle*: The number of cattle, other than buffaloes (which are dealt separately) is given in a classified form. First of all, cattle are divided in 3 groups:

(a) Males.
(b) Females.
(c) Young Stock—Not above 3 years.

Figures for males, females and young stock are given separately and males and females are further subdivided in 3 classes as follows:

(i) Breeding animals.
(ii) Those used for work.
(iii) Others.

As far as young stock is concerned it is also divided in males and females and separate figures are given sexwise for young stock under 1 year and others.

(2) *Number of Sheep and goat.*

(3) *Number of horses and Ponies*: Figures are given in 4 classes:

(i) Horses.
(ii) Mares.
(iii) Young stock.
  (a) Under one year.
  (b) Others.

(4) *Number of Mules, Donkeys and Camels.*

(5) *Number of Ploughs and Carts*: Figures for wooden and iron ploughs are given separately.

All the above figures are given in the basis of the 5 yearly cattle census. We have already criticised the main drawbacks of the census in an earlier chapter, and need not repeat it here.

(6) *Number of Cattle Sheep and horses in some foreign countries.*

The figures are taken either from the publications of International Institute of Agriculture or from the Official Year Books of the respective countries. These figures are not strictly comparable as the classification adopted is not uniform in the various countries.

The figures given in this publication have certain drawbacks and limitations e.g. the figures of cattle etc. in cities and cantonments are included at very few places Information regarding cattle is nowhere properly recorded in cities and towns, and hence these figures of this volume take only such meagre statistics as are available for urban areas. Moreover the comparative value of the figures is lost to a great extent on account of the fact that the number of states furnishing information is not always constant. Figures for certain districts of the United Provinces and many states are altogether absent. There are many drawbacks in the system of reporting figures by the patwaris etc. Above all, the figures of Indian States also are very un-

reliable. The number of bulls and bullocks reported in Jaipur in 1934-35 was two and a half times the figure of 1933-34 as well as of 1935-36.

As we have already pointed out there is need of a proper census of cattle. The importance of such a census is greater in case of India which is yet an agricultural country and in which cattle wealth contributes a lot towards the income of the rural classes.

(2) **Agricultural Statistics of India Vol. I and II:** Volume I of this publication gives the following information.

(i) Aggregate figures of cattle for (former) British India for 20 years.

(ii) Figures of individual provinces and districts. Figures, only of the last 2 quinquennial censuses are given. In case of Central Provinces the provincial table gives figures of 5 years and the district table of 2 years only.

Volume II gives the corresponding figures for the Indian States. We have seen that all states do not keep such records and as such the number of states included in this volume is not many. Annual figures are available for Baroda, Kashmir, Jaipur and Bombay States.

Figures reproduced in these 2 volumes are taken from the "Live Stock Statistics" about which we have already written previously.

(3) **Agricultural and Animal Husbandry in India:** This is a publication of the Imperial Council of Agricultural Research and the information contained in it, is based on the reports of:

(i) The Veterinary and Agricultural Departments.
(ii) The Imperial Veterinary and Agricultural Institute.
(iii) The Imperial Dairy Institute.
(iv) The Army Veterinary Department.

Information on the following points is given in this volume—

(i) *Number of cattle issued to public from government farms*: Figures are given province and statewise. Figures of cattle are also classified into Bulls, Cows, Male and Female Buffalos and Young Stock.

(ii) *Veterinary Hospitals*: Information regarding the number of veterinary hospitals and dispensaries, the number of cases treated, the main diseases in various parts and deaths from them, is published for provinces and some Indian states.

(iii) *Improvement in Breed etc*: A review of the efforts made in various provinces and states in the direction of improving the cattle breeds as well as the breeding of horses and sheep etc. and the progress in poultry keeping is also published.

(iv) *Relation between cultivable area and working animals*: A useful table showing the relationship between cultivable area and the working animals in each of the provinces is being published since 1936-37. The definition of the term "cultivable area" is the same as taken in Agricultural Statistics of India Vol. I and it represents the total of net area sown and current fallows. Figures of cultivable area are taken from the Agricultural Statistics of India Vol. I. The number of working animals is taken from the latest census of livestock. It is an aggregate of the number of working bullocks, cows used for work, male and female working buffallos.

The following reports also contain some Animal Husbandry Statistics:—

1. Reports on the marketing of

(i) Eggs.
(ii) Milk and Hides.

(Issued by the office of the Agricultural Marketing Advisor to the Government of India).

2. Report on the development of cattle and dairy industries of India (1937) by Dr. N. C. Wright.

3. Report of the village enquiry regarding cattle and the production and consumption of milk in certain breeding tracts of India (1938) Issued by the Imperial Council of Agricultural Research.

4. Annual Reports of

(a) The Provincial Agricultural and Veterinary Departments.

(b) The Imperial Agricultural Research Institute.

(c) The Imperial Veterinary Research Institute.

(d) The Imperial Dairy Expert.

5. Report of the Hide and Cess Enquiry Committee (1930).

6. Report of the Royal Commission on Agriculture in India (1928) pp. 168-256.

FORESTS

(1) **Annual Return of Statistics Relating to Forest administrations in British India:** This publication is issued by the Inspector General of Forests to the Government of India and gives the following information:—

(i) *Area*: Figures of area under forest are given in great details and in a classified form. Separate figures are available for reserved forests, protected forests and and unclassed areas. Reserved forests are those where mainly timber grows and where the right of grazing or cultivation is seldom if ever allowed. Such forests are reserved for timber production. In protected forests the restrictions are not so strict. Right of grazing or cultivation is allowed but certain limitations and restrictions are imposed. The unclassed area refers to the inaccessible forests or unoccupied waste. It is mostly in Assam and certain parts of Bengal that forests which are difficult to reach and survey, occur. The unoccupied waste is found in other provinces also.

This total area under all the three types of forests is classified according to ownership. Details are given as under:—

(i) State ownership

(a) Under timber production.

(b) Other forests.

(ii) Corporate Bodies.
(iii) Private Ownership.

These classes are further subdivided under 3 sub-heads viz:

(i) Mercantile.
(ii) Unprofitable.
(iii) Inaccessible.

Figures are also given of the number of animals grazed. Figures of different kinds of animals grazed are given separately. Number of animals allowed grazing free and on payment is also given separately.

Figures connected with artificial and natural regeneration of forests are also given separately. The cost of regeneration and afforestation is also mentioned. The Royal Commission on Agriculture recommended a reclassification of the forest area. They were of opinion that at a time when pressure of population on land was increasing and agriculture and cultivation were coming to the forefront, the classification of forests must be made on lines which may be more useful to the Agricultural Department also. They were of opinion that area should be classified under 3 heads viz:

(a) Land suitable for growth of timber trees or fuel etc.

(b) Land not suitable for timber or fuel but if worked can be profitably used for grazing etc.

(c) Land suitable for ordinary cultivation.

If forest areas are classified in the fashion, no doubt the utility of forest statistics will greatly increase and we would also be in a position to know something about the area that could be brought under the plough, if need be.

(ii) *Outturn*: The outturn of forest produce in the various classes of forests are given under 2 heads viz:

(i) Timber and Fuel.
(ii) Minor Produce.

In case of timber and fuel the publication gives figures of the quantity but in case of minor produce which

mostly constitutes bamboo and fodder grass, only figures relating to value are given. Information regarding the volume of timber and fuel, and value of minor produce removed by the government or purchasers or right holders etc. is also given in detail. In a separate table value of products given away free or at reduced rate is also given.

All the above figures are based on the reports of the Provincial Forest Departments. They relate to the year ending 31st March. Total figures for the whole of (former) British India are given for the last 5 years ending with the year of the report, whereas the provincial figures are given only for the year under review.

A statement showing the receipts and payments of the forest department and the surplus in different provinces, for a number of years is also given. The figures for the year under review are given in a detailed and analytical form.

Once in every five years a review is published along with the original report and it throws light on the following points:—

(i) Reasons why the area under the control of Forest Department and the yield from such forests have fluctuated.

(ii) Progress of forest research during the last five years.

(iii) Five yearly average of revenue, expenditure and surplus from the year 1864-65 with a chart.

(iv) Publications issued by the forest research institute during the last five years.

(2) **Agricultural Statistics of India Vol. I and II:** The figures given in these volumes are of the area of forest in the (former) British India and the Indian States. Volume I gives figures for the (former) British India and Vol. II for Indian states. Total area under forest in (former) British India for the last 20 years, provincial totals for last 5 years and district totals for the last 2 years are also published in Volume I.

We have seen that the Administration Report of the Forest Department of each province also gives area figures which find place in the "Annual Return of Statistics Relating to Forest Administration in British India." One could naturally think that the area figures in these 2 publications much be the same. But on perusal of the various figures in these publications it will be seen that there is a difference between the two figures. The reasons for this are—

1. In those places where protected forests are transferred to the Revenue Department they are not dealt with in the administration reports of the forest departments and as such these tracts are not included in the "Annual Return." In the "Agricultural Statistics" such forests administered by local bodies and district collectors are also included.

2. Certain cultivated lands and large tracts of unoccupied waste that come under the group of "Unclassed State" and are included in the "Annual Return" are not classed under forests in the "Agricultural Statistics."

3. The "Annual Return" relates to the year ending 31st March but "Agricultural Statistics" gives figures ending 30th June.

(3) **Statistical Abstract for British India**: It contains only abstract tables which give the following information:—

(i) *Area of forest lands*: Figures are given province-wise: Ajmer, Merwara, British Baluchistan, Coorg, Andamans and Nicobarsa are also included. Aggregate figures are given for a period of 10 years but provincial figures are only for the year under review.

(ii) *Quantity and Value of the forest products*:

(iii) *Area protected from fire*: Areas attempted and actually protected are given separately and percentage of forest under fire protection to total area of resources is also worked out.

(iv) *Area closed to animals, area closed to browsers only, number of animals grazed on payment and grazed free.*

All these figures are based on the information supplied by the Forest Research Institute Dehradun. These figures are the same as found in "Annual Return of Statistics Relating to Forest Administration in British India."

(v) *Detailed figures of Forest Revenue and Expenditure* both Central and Provincial for period of 4 year are also given, and these figures are taken from the annual Finance and Revenue Account of the Government.

The Indian Trade Journal publishes some periodical estimates of the total production of lac and these figures are compiled from the report received from the Indian Lac Cess Committee.

FISHERIES

(1) **Report of the Department of Fisheries (Madras):** This is the only publication on Indian Fish Statistics. Certain bulletins are occasionally issued by the same Department. The Department of Fisheries in Bengal also used to publish figures upto 1923 but in that year it was wound up and the publication of report consequently came to an end. The Madras Report gives the following information—

(i) Details of the number of fish curing yards.
(ii) Quantity of the fish cured.
(iii) Weight and value of fish caught in certain areas.

This report deals with sea fishing only and that too for some part of Madras province only. We have already discussed the problem of fish statistics and made suggestions in this respect in the previous chapter and need not repeat them again.

Recently in 1941 the office of the Agricultural Marketing adviser has also issued a "Preliminary Guide to Indian fish, fisheries, methods of fishing and curing" which also contains useful information from the marketing point of view.

MINES AND MINERALS

(1) **The Annual Report of the Chief Inspector of Mines for British India**: This volume does not deal with all the mines of this country, nor even all the mines in (former) British India. It deals with only those Indian mines which come under the Indian Mines Act 1923. The Government of India has power to exempt certain mines from operation of this act and usually the borings and oil-wells, and certain classes of stones and quarries have enjoyed this privilege.

Statistics are given on the following points:—

(i) Number of Workers:—Workers are classified according to the nature of their works.

(ii) Average number of hours per week for each kind of labour.

(iii) Average daily earning in December every year in each important mining field.

(iv) Death Rate due to accidents per million tons raised and per 1000 workers. Information is given for the last 10 years.

The above figures are based on information supplied by the owners and managers of mines and relate to the calendar year.

(v) Output per head.

(vi) Total Output for several important minerals, and names of fields, district and provinces.

(vii) Fluctuation in Total Output of principal minerals.

(viii) Detailed figures of output etc., supplemented by charts, for coal.

(ix) The number of mines opened or closed during the year.

(x) Number of mines worked by mechanical power, number of electric motors in use and their aggregate horse power. Figures are available provincewise.

(xi) Number of mechanical ventilators and safety lamps in the mines.

2 (a) **Annual Statement of mineral productions in India**: These statements are published in the "records" of

Geological survey of India and give the following information—

(i) Quantity and Value of Production.
(ii) Average number of persons employed.
(iii) Output per worker in case of coal fields.
(iv) Death Rate.
(v) Figures of exports and imports.
(vi) Production and export figures for pig iron.
(vii) Figures of consumption of important minerals in India.

Minerals have been divided in 2 groups for the purpose of discussion viz.

(i) Those for which reliable information is available.
(ii) Those for which "regular recurring and full particulars cannot be procured."

The above information is given for only those items that come under Group I. Information about items coming in Group II is not so detailed. However, for some items like building material, road metal and sulphate of ammonia, in this group also, details are available.

Figures of petroleum and building material are not included in the Report of the Chief Inspectors of Mines and hence special attention may be drawn to them.

Besides the figures of the current year figures of the previous year are also given for the sake of comparison. The figures are based on the returns forwarded to the Geological Survey by local governments and political agents of states. The figures of mines covered by the Indian Mines Act, 1923, are supplied by the Chief Inspector of Mines. Information is collected from other miscellaneous sources also.

2 (b) **Quinquennial Review of Mineral Production in India:** This quinquennial review is also published by the Director of the Geological Survey of India. It gives detailed historical accounts of some important minerals and discusses the general trend of production, consumption, export and imports etc. It consolidates the figures given

in the Annual Statement of Mineral Production in India. A comparison between the figures of our production, consumption, export and imports is also made with similar figures for some foreign countries. In case of coal, rate of consumption to production is also given. A summary table showing the average number of persons employed daily in various classes of mines is also provided.

2 (c) **Quarterly Statistics of production of coal, gold and petroleum:** The Director of Geological Survey also publishes, since 1934, in the 'Records' quarterly statistics of the production of coal, gold and petroleum.

3 **Monthly Survey of Business Conditions in India:** The survey gives the figures for export and import of coal. Monthly figures for 4 or 5 years are given. Production figures for 4 or 5 years are also given. Production figures of coal, petrol and kerosine are also available.

4 (a) **Indian Trade Journal:** Periodically the Indian Trade Journal publishes figures of Salt. Information is given about the manufactured amount as well as imports.

4 (b) **Indian Coal Statistics:** The publication gives detailed information on the following points.

(i) *Production of Coal*: Production of each coal field is given separately. Percentages of the production of individual fields to the total production of coal in India are also worked out.

(ii) *Consumption of Coal*: A detailed statement gives the amount of coal consumption by major industries.

(iii) *Exports and Imports*: Exports and Imports from and to various countries are given in detail and the freight rates by land and sea are also mentioned.

(iv) *Number of persons*: Detailed information is available about the average daily number of persons employed. Figures of output per head are also calculated and these figures are compared with those of the other countries. In compiling these figures information is collected from all possible sources.

4 (c) **Statistical Abstract for British India:** All India as well as Provincial figures are available regarding the quantity and value of each mineral in India for the last 10 years. This publication gives a table about the number of persons employed daily in the production of certain minerals.

Information is obtained from the Geological Survey of India and the Report of the Chief Inspector of Mines.

The following points should not be lost sight of in making use of these statistics.

(i) That the statistics regarding Indigenous industries are not included in any of these publications. It is a serious omission and needs to be filled up.

(ii) That scrap mica is not included in the production of mica as Mines Act does not apply to it. Probably there is a great leakage in transit between pit heads and stores and that is why in many years our exports of mica are about double the figures of production. We do not import much of mica and that cannot explain the situation. Therefore, in the "Annual Statement on Mineral Production in India" issued by the Director of Geological Survey, instead of production figures, figures of export are taken for inclusion in summary tables.

(iii) As there are no restrictions on the manufacture of saline substances the figures for production of saltpetre are either not available since 1924, or, if at all available, are incomplete. Therefore, in this case also quantities and value given refer to export figures and not to figures of production.

These are all very serious drawbacks and there is no reason why they should be allowed to continue. When we discuss the problem of cottage industries we will suggest some ways and means by which figures of production of various industries, on a cottage basis, can be collected. The same suggestions can hold good in case of collection of mineral statistics of unorganised indegenous units.

IRRIGATION STATISTICS

(1) **Agricultural Statistics of India Vol. I and II:** Table III of the Agricultural Statistics of India Vol. I and II gives the following information relating to (former) British India and Indian states respectively.

The table gives the details of the irrigated area classified according to the different sources of irrigation viz.

(i) Government canals.
(ii) Private canals.
(iii) Tanks.
(iv) Wells.
(v) Other sources—mainly temporary bunds for the storage of rain water and streams too small to be classed as canals.

The total of the areas of all the above five items gives the total irrigated area. It means in other words that irrigated areas sown more than once are counted only once or only net areas are considered.

Irrigated areas under various crops are also given. Individual figures are given for

Rice, Wheat, Barley, Jwar, Bajra, Maize, Sugarcane and Cotton.

The miscellaneous crops are shown under 3 sub-heads viz.

(a) Other cereals.
(b) Other non-food crops.
(c) Other food crops.

In these cases the total area under each crop is the gross area irrigated; or in other words areas sown more that once in a year are counted separately for each crop.

The reason why the total area under irrigated crops is greater than the total irrigated area is now easily explained. In the first case i.e. in estimating the total area under irrigated crops, an area irrigated at both the harvests in a year will be counted twice whereas in the second case i.e. in calculating the total irrigated area it will be counted only once.

It should not be lost sight of, that the classification of area under irrigation between government canals and private canals is not uniform throughout the country. In U. P. the figures for both the private and government canals are included in government canals whereas in C. P. the figures of government canals are included in private canals.

The figures are generally, only rough estimates. Except for lands irrigated from government sources other figures are not completely reliable. In Bengal, Bihar Orissa, Madras and many parts of U. P. the figures of area irrigated by sources other than government canals are very rough estimates. Figures of Indian states are still more inaccurate. Besides many other reasons of inaccuracy of state figures, an additional reason seems to be the lack of uniformity in classification of irrigation sources. The figures of Assam and Coorg are not even complete.

(2) **Statistical Abstract for British India:** Information is available on the following points. In this publication:

(i) *The Results of Operation of Irrigation* Works: The information is given in the shape of a table containing the following main columns.

(a) Mileage in operation: This heading is further subdivided into 2 classes viz. main canals and distributories.

(b) Area of land irrigated: The area is divided into 2 classes viz. Productive and Unproductive. Information about productive and unproductive areas is given in separate tables. Productive area is considered to be one which produces sufficient revenue to cover the working expenses and interest on capital charge. Majority of the big irrigation works in our country belong to this class. Unproductive area is one which consists of those areas which are not sufficiently remunerative but which are irrigated only to protect some tracts against famines.

(c) Total Capital Outlay—Direct or Indirect.
(d) Gross Receipt—Direct or Indirect.
(e) Working Expenses—Direct or Indirect.

(f) Net Revenue—Besides the amount of net revenue its percentage to capital outlay is also given.

(g) Interest on mean capital outlay and percentage of working expenses to receipts.

(ii) *Details of operation of Irrigation and Navigation Works*: The figures of this table are compiled from the provincial irrigation reports and annual returns. The following information is available.

(a) Area irrigated from government works in each of the crop season.

(b) Gross revenue from all sources and per acre irrigated.

(c) Total value of crops irrigated.

(d) Length of canals open for navigation, and total number of boats.

(e) Quantity and value of cargo, carried.

(iii) *Area under irrigation*: The irrigated area is classified according to the source of irrigation and also according to the crops irrigated. These figures are extracted from the Agricultural Statistics of India. Vol. I & II.

(3) **Irrigation in India—Review.**

This publication gives all the information contained in the Statistical Abstract. We have already given details of the information and need not repeat them again.

Besides the above information the number of wells in use and the area irrigated by them is also given. This information is being supplied only from the year 1934-35 and relates to all wells irrespective of their ownership. These figures are said to be complete only for the United Provinces and the Punjab. According to the 'Review' there is no well irrigation in Bengal but according to the 'Agricultural Statistics of India' about 60,000 acres of land were irrigated by wells in the year 1935-36. There are similar differences in other cases also.

A survey of the progress of irrigation is also provided and details are furnished about the character of the season, extent of land irrigated by state works and works complete and in progress.

In making use of the figures of 'Statistical Abstract' or the 'Review' it should be remembered that the capital outlay includes expenditure on many works completed or in course of construction but which have not yet begun bringing in revenue.

Figures of area irrigated by canals do not include that area in Indian states which is irrigated by channels drawn from the U. P. and the Punjab canals. Further the classification of works as productive and unproductive is not permanent. It also undergoes a change from time to time. The figures relating to the estimated value of the crops raised on irrigated lands are very crude and rough. For the food grains, they are calculated on the basis of assumed value per ton, and for non food crops on the basis of an assumed value per acre.

The figures of the 'Review' and 'Agricultural Statistics of India' are not comparable because whereas the "Agricultural Statistics" deals with the whole of irrigated area, the 'Review' deals only with government works. Moreover in 'Agricultural Statistics' separate figures are given only for government canals whereas the figures in the introduction of the 'Review' deal with government works of all kinds. Besides these, the Review figures are for the fiscal year and the "Agricultural Statistics" figures refer to the agricultural year.

4. Triennial Review of Irrigation in Inlia:

Once in 3 years the annual Review is expanded for the purpose of review of the figures of irrigated area relating to the triennium. It considers the Productive Works separately from the Unproductive ones.

CHAPTER VII

INDUSTRIAL STATISTICS

In modern times the economic structure of almost all important countries is increasingly dominated by industries, and economic development today, is measured, more by industrial development than anything else. There is going on a mad race for industrial supremacy and various countries of the world are concentrating on the growth and development of large scale industries of all types. Under such circumstances the importance of statistics in the field of industries is continuously increasing, as scientific development of industries is not possible in the absence of reliable statistics.

In our country industries do not occupy a very important place. Ours is still an agricultural country and a very great majority of our population depends on agriculture in some form or the other. During the British regime industries did not receive the attention of the state for many reasons and consequently industrial development was very meagre. It is no wonder then that even at present our industrial statistics are very scanty and inaccurate. In fact, no attention was ever paid to the collection of such statistics and we do not have reliable facts and figures on many important problems connected with industries. It is gratifying to note that in recent years public opinion with regard to the place that industries should occupy in the economic structure of the country has undergone a great change and now there is a general feeling that the salvation of the people lies in a rapid industrial development. Consequently attempts are being made to industrialize the country and the problem of industrial statistics has also come to the forefront. The passing of the Industrial Statistics Act and the adoption of the Census of Manufacturing Industries Rules by most of the provinces are important steps that have been taken and shall have far-reaching effects.

Before examining the data available in our country it would be better to mention, in brief, the statistics that are collected in foreign countries in connection with industries. In most of the advanced countries, industrial statistics are collected under the following heads:—

1. Capital.

(a) Separate figures of Authorised, Issued and Paid up capital.
(b) Amount of fixed capital—Separate figures for amounts invested in Buildings, Plant and Machinery etc.
(c) Amount of working capital.

2. Labour.

(a) Number of persons employed, their race and sex.
(b) Wages and salaries paid.

3. Cost of Production.

(a) Quantity of raw materials consumed.
(b) Value of raw materials consumed.
(c) Other items.

4. Output

(a) Quantity and Value of the main product.
(b) Quantity and Value of the bye-product.

5. Power.

(a) Power used—Details of consumption and cost.

The above mentioned points indicate only the broad headings under which information is collected and in actual practice each of these classes is sub-divided into many smaller classes depending on the nature of the data required. These statistics are collected either by sending schedules through post or by deputing factory inspectors.

With this background we now proceed to examine the data available in our country and to make suggestions for improvements. We shall not discuss here labour statistics, in details, as a separate chapter has been devoted to it. Cottage industries will also be dealt with, in a separate section in this chapter.

Data Available

Statistical data available in India about large scale industries can be studied under three main headings, viz:

(A) **General statistics** (Statistics of the number of factories, number of labourers employed, capital invested etc.)

(B) **Statistics of Output and Cost.**
(C) **Statistics of power consumed.**

General Statistics—General Statistics about the number of a factories, the number of persons employed by them and the amount of capital invested are published by the government in the following publications:—

(i) Large Industrial Establishments in India (Issued by the Department of Commercial Intelligence and Statistics—Biennial).

(ii) Statistical Abstract of British India.
(iii) Statistics of Factories and
(iv) Report on the Working of Joint Stock Companies.
The information contained in the above publications is as follows:

(a) *Number of Factories*: The number of factories is given in a classified manner in the 'Large Industrial Establishments in India'. The statistics relate to those establishments only which employ not less than 20 persons and to which Factory Act (1934) applies.

The factories are classified in the following 10 major groups each of which is further subdivided into a number of smaller groups:—

1. Textiles.
2. Engineering.
3. Minerals and Metals.
4. Food, Drink and Tobacco.
5. Chemical Dyes etc.
6. Paper and Printing.
7. Processes relating to wood, stone and glass.
8. Processes connected with skins and hides.

9. Gins and Presses.
10. Miscellaneous.

The number of factories in each of the above mentioned major groups and their sub-divisions is given both district and provincewise. As far as possible the names of the factories are also given. There are separate sets of tables for seasonal and perennial factories. Seasonal factory is taken to mean a factory which does not work for more than 180 days in a year. These figures are compiled from the returns of the Provincial Factories Department. The figures of the Indian States are specially collected. The establishments which are engaged in more than one class of work are classed only under the principal class.

Information with regard to the number of factories is found in the Statistical Abstract as well. The figures in the Abstract relate to those factories only to which the Factory Act of 1934 applies. These figures are not fully comparable with those published in the "Large Industrial Establishments" because the Factory Act applies, in some cases, to those factories also which employ less than 20 persons and such factories are ignored in "Large Industrial Establishments." The Statistical Abstract contains a separate table for the industries run by the government and local bodies. Number of factories in the Indian States is given separately.

Most of the above information contained in this Abstract is published in the "Statistics of Factories" and the "Report on Joint Stock Companies" also.

(b) *Average number of persons employed daily*: The "Large Industrial Establishments" publishes statistics of average number of persons employed daily by a factory. As far as possible figures are given for all those factories whose names are given in this publication. Total attendance on all working days in a factory is divided by the number of working days and the resulting figure is the average number of persons employed daily. Some abstract statements are also published and they give classified provincial totals of the average number of persons

employed daily by each major industry and its sub-divisions. The Statistical Abstract also contains information about the average daily number of workers employed by different industries. Figures are given province-wise as well, and the provincial figures are classified under Adults, Adolescents and Children and each of the first two classes is further sub-divided in Males and Females. Similar figures for Indian States are also available in the Abstract. "Report on Joint Stock Companies" and "Statistics of Factories" also publish the above information.

(c) *Capital*: The Statistical Abstract and the Report on Joint Stock Companies, contain some information about the capital invested in various factories. The figures in the abstract are given separately for authorised capital, paid up capital and debentures. The utility of these figures is not much as they are very incomplete and in many cases inaccurate as well. No separate figures are available for fixed and working capitals. The amount of money spent on the purchase of land and buildings plant and machinery etc. is not known. Moreover, no statistics are available about the extent of foreign capital in our industries. Various estimates have been made from time to time but they vary very widely from each other.

(d) *Other general information*: "Statistics of factories" "Statistical Abstract" and the "Report on Joint Stock Companies" contain certain other general statistics relating to wages, accidents, convictions and inspections, intervals, holidays and hours of work etc.

Statistics of Output and Cost: Statistics of production of large scale industries are very inadequate in our country. Output figures of a few industries only are known and they too, lack details. Figures of cost of production are almost non-existent. The situation with regard to cotton mill industry is somewhat better due to the passing of the Cotton Industry (Statistics) Act in 1926. According to this Act a cotton mill is under legal obligation to supply certain statistical information which, at present, is being published in "Monthly Statistics of

Cotton Spinning and Weaving in Indian Mills" on the following lines:—

Particulars of all cotton goods manufactured: Cotton goods are divided in the following six classes, each of which is further sub-divided into a number of smaller classes.

(a) Grey and Bleached piece goods.
(b) Coloured piece goods.
(c) Grey and coloured goods other than piece goods.
(d) Hosiery.
(e) Miscellaneous cotton goods and
(f) Cotton goods mixed with silk or wool.

Production figures of the above classes and their sub-divisions are collected in yards or pounds. In May issue of this bulletin a detailed statement of the quantity produced in pounds and its equivalent in yards or dozens (as the case may be) and another statement of woven goods in stock with mills on 1st April are also published. These figures are annual and comparative figures for the last 10 years ending with the year under review are also given.

Description and weight of all yarn spun: Information about each count of yarn is given separately. Production figures are in pounds. These figures represent the quantity of all yarn spun in the mills, whether subsequently woven in mills or not. Provincewise figures are available and the aggregate figures for Indian states and French Settlements are also given. Separate figures are given for each count upto 40, and above that, figures of all counts are aggregated together. These figures are not comparable year after year as the number of Indian states, covered by this publication, has not been uniform.

The "Statistical Abstract" and the "Monthly Survey of Business Conditions in India" also publish figures of the production of cotton piece goods and yarn. These figures are based on those of the Monthly Statistics of

Cotton Spinning and Weaving in Indian Mills." Percentage changes from the corresponding month of the previous year are also worked out.

Figures of cost of production are not available even with regard to cotton industry. The quantity and value of raw materials used are not known. The Indian Trade Journal however publishes the following information:—

Amount of cotton pressed: This information is contained in two statements. The first gives figures about cotton pressed in (former) British India in the cotton ginning and pressing factories. Figures are given weekly and the figures of the corresponding week of the previous year are also given. The second statement gives similar figures for Indian States. All these figures are collected in accordance with section 5(2) of the Cotton Ginning and Pressing Factories Act. 1925.

Since the above figures are given in bales and as the size of the bales is not uniform throughout the whole country a further statement is published in the Journal giving figures in bales of 400 lbs. each.

Consumption of Indian Cotton in Indian Mills: The figures of consumption of Indian cotton (both pressed and unpressed) are given provincewise and separate figures are published about Indian states. These figures are based on the returns made under the Indian Cotton Cess Act, 1923, by mills in (former) British India and on voluntary returns submitted by mills in the Indian states.

Figures of the production of some other industries are published in the "Monthly Statistics of the Production of Certain Selected Industries in India." and are reproduced in the Statistical Abstract. During a year, six volumes are published and each contains information for a couple of months. Figures are given for each month and for the sake of comparison, figures of the corresponding month of the previous year are also given. The following information is available in the publication:—

Jute Manufactures: A detailed statement of the quantity of Jute manufactures produced in India is given. Figures are given both in tons and yards. Separate figures are available about the production of Twist and Yarn, Canvas, Gunny Bags, Gunny cloth and Rope etc.

The Statistical Abstract of British India gives some figures of the consumption of raw jute in Indian mills. These figures are based on special returns furnished by the local authorities. The figures relate to 12 months from 1st July to 30th June. Figures of the years before 1932-33 relate to only those mills which were members of the Indian Jute Mills Association.

Paper: Detailed statements of the quantity and description of paper manufactured in India, are given. Figures are given in cwts and separate statistics are available for about eight or nine varieties of paper.

Iron and Steel Manufacturers: These are classified in five main groups and each of these groups is sub-divided in smaller groups and production figures of each main group and sub-group are published. The five main groups are (i) Pig iron (ii) Iron castings and manufactures (iii) Steel Ingots (iv) Semis and (v) Finished steel.

Petrol and Kerosine Oil: Information is available about the production of aviation petrol, motor spirit, highly refined and less refined kerosine oil. Figures are in gallons.

Production figures of *Cement, Paints and Heavy Chemicals* are also published. Besides this figures of quantity of *wheat flour milled in India* are also given in details.

In all the above nine cases (viz, Jute manufactures, Paper, Iron and Steel manufactures, Petrol, Kerosine Oil, Cement, Wheat Flour, Paints and Heavy Chemicals) the figures are compiled from the information given by the factories voluntarily. All factories do not furnish information and as such these figures should be used with

caution. The number of factories giving information has varied from time to time and as such these figures are not comparable month after month. In the introductory part of the publication, the proportion of the average number of persons employed daily by such factories which supply the above information to the average number of persons employed daily by the total number of factories in the industry is worked out. This information is published to give some idea of the extent to which the figures contained in the publication are representative of the entire industry. However, it should not be assumed that the proportion of the reported production to the total production would be the same as the proportion of workers calculated.

Besides the above nine industries this publication deals with Sugar and Match industries as well. Production figures of sugar are given in a classified form. Separate figures are given for Khandsari, Palmyra and other types of sugar. Figures of Khandsari sugar relate only to those factories which pay excise duty. Obviously figures of the production of Khandsari sugar are not complete as certain small units which manufacture khandsari sugar and do not pay excise duty are not included. Figures of the manufacture of various types of match boxes are also published in the bulletin. Separate figures are given for various sizes of match boxes.

These figures of the production of sugar and the manufacture of match boxes are based on the returns received by the Excise Authorities under the Sugar and Matches (Excise Duties) Act 1934.

The Indian Trade Journal also publishes certain statistical information with regard to production of sugar in India. It gives fortnightly figures of sugar stocks, production, and despatches in maunds. These figures are based on the reports issued by the Imperial Council of Agricultural Research, under the Sugar Productions Rules 1933. The territories covered are divided in 6 blocks—A. B. C. D. E and F and figures are given for each block separately. Certain monthly figures of production are

also published and they are compiled by the Imperial Institute of Sugar Technology on the basis of excise returns. The figures published in the Indian Trade Journal relate only to Central Sugar Factories. Central Factories are those which produce sugar directly from cane by the Vaccum Pan Process. The Journal also publishes the memoranda on sugar production issued by the Director of Imperial Institute of Sugar Technology.

"Monthly Statistics of the Production of Certain Selected Industries of India" also deals with the products of Distilleries and Breweries. Figures of the distilleries represent the actual quantity sold during the month. Separate figures are given for country spirit, Indian made 'foreign' spirit, rectified spirit and denatured spirit. Figures of breweries represent the actual production as measured at the producing plant.

During the last war the statistics of some of the above mentioned twelve industries were not available and their publication was suspended temporarily.

Statistics of Power used: Since December 1938, the "Monthly Survey of Business Conditions in India" is publishing monthly statistics of electrical power generated and consumed in India. Upto October 1942 the information was given in a detailed form, and the figures of consumption were given under the following heads:—

(i) Domestic.
(ii) Commercial.
(iii) Industrial.
(iv) Tramways.
(v) Electric Railways.
(vi) Street Lightings.
(vii) Miscellaneous.

Since November 1942, only total figures of energy generated and total units sold for consumption are given. Upto the year 1943 these statistics were supplied by the Economic Adviser's office, but since January, 1944, the statistics relating to electric power generated and consumed

are supplied by the Electrical Commissioner to the Government of India.

These figures exclude the energy generated by the Public Works Department and the Military Stations. They also do not take into account the electricity generated by the industrial concerns from their own plants. The figures, published in the 'Survey', thus are not fully complete.

Analysis

The above survey of the industrial statistics available in India clearly indicates that the situation is not satisfactory. No doubt the information available about cotton industry is better and more than that for other industries but that, too, is neither complete nor fully reliable. Production figures are not comparable year after year as the number of establishments supplying information has been changing. It is not obligatory for industrial concerns to supply information and they never care to see that the data called for are sent in time and are accurate. We do not have any information on the following points:—

(i) Quantity and Value of raw materials used in production.

(ii) Added Value of Manufacture.

(iii) Value of Fuel and Power used.

(iv) Number of Engines, Horse Power, and Kind of power used.

(v) Value of Land, Buildings, Machinery etc.

Information on other points like quantity and value of goods produced is very scanty, incomplete and in many cases inaccurate.

Recent Schemes

The government was fully conscious of the fact that industrial statistics in India were inadequate and that their necessity was imperative from more than one point of view. The need for legislation was a long-felt one and it was in 1942 that Industrial Statistics Act was passed. The act covered the then British India and provincial governments were empowered to demand from industrial establishments

any information relating to factories and to labour conditions and welfare. The provincial governments were free to frame their own rules and to decide the dates on which their rules were to come in force.

Bombay took the lead and framed a set of rules in early 1943, according to which the following information was to be collected.

Capital: Information about the amount of capital invested was to be called for under two main heads, viz. Block account and Working Capital. Detailed figures were to be supplied for the present value of Land, Buildings, Machinery, Tools and other fixed assets like Furniture and Fixtures etc. Value of the stock of raw materials, finished goods and partly finished goods was to be stated separately. The information about cash balance in hand and balance in the bank had also to be supplied.

Industrial Production: Information was to be supplied about the quantity and value of all varieties of principal products and by-products manufactured. Amount charged for work done for other firms and the total net selling value of goods were also to be stated.

Raw Materials: Figures were required for the quantity and cost of the basic materials used for production and similar information was to be given for consumable stores and accessories.

Power, Machinery and Cost of Energy: Under this heading details were to be given about prime movers, electric generators and electric motors. The cost of energy consumed and the amount of consumption was also to be stated.

Industrial Employment: Detailed figures were to be called for the strength of administrative staff, salaries paid to them and the number of industrial employees and the amount of their wages.

The above set of rules were very comprehensive and were actually enforced in Bombay province. It was later on realized that the information to be collected under the

Act should be uniform in all provinces and therefore in the year 1945, Census of Manufacturing Industries Rules were framed and certain forms were prescribed by the Central Government. All the Provincial Governments adopted them, and published them in their official gazettes. Thus we have at present uniform rules for the collection of industrial statistics in all the provinces.

At present these rules apply only to the under mentioned 29 industries and the information called for is to relate to the year 1946 and onwards. Only such factories as are covered by the definition given in section 2 (j) of the Factory Act, 1934, are at present required to furnish the returns. The factories concerned are required to furnish the returns for each year within 2 months after the close of the year. The factories engaged in these 29 industries have also been asked to furnish returns on a voluntary basis for the years 1944 and 1945.

29 Industries.

1. Wheat Flour.
2. Rice Milling.
3. Biscuit Making.
4. Fruits and Vegetables Pressing.
5. Sugar.
6. Distilleries and Breweries.
7. Starch.
8. Vegetable oils.
9. Paints and Varnishes.
10. Soap.
11. Tanning.
12. Cement.
13. Glass and Glassware.
14. Ceramics.
15. Plywood and Tea chests.
16. Paper and Paper Board.
17. Matches.
18. Cotton Textiles.
19. Woollen Textiles.
20. Jute Textiles.
21. Chemicals.
22. Aluminium Copper and Brass.

23. Iron and Steel.
24. Bicycles.
25. Sewing Machines.
26. Producer Gas Plants.
27. Electric Lamps.
28. Electric Fans.
29. General Engineering and Electrical Engineering.

It is proposed to bring under the scope of the Census of Manufacturing Industries Rules, 1945, the following industries in near future.

1. Footwear and Leather Manufactures.
2. Rubber and Rubber Manufactures (including rubber substitutes).
3. Enamelware.
4. Hume pipes and other cement and concrete products (including reinforced products).
5. Asbestos and asbestos cement products.
6. Bricks, Tiles, limes and surkhi manufacturing.
7. Lac.
8. Turpentine and Resin.
9. Plastics (including manufacture of Gramophone records).
10. Petroleum refining.
11. Saw milling.
12. Woodware.
13. Tea manufacturing.
14. Tobacco Products.
15. Groundnut decorticating, cashew-nut processing and dal manufacturing.
16. Printing (including lithographing) and book binding.
17. Webbing, narrow fabrics, embroidery and lace manufacturing.
18. Hosiery and other knitted goods.
19. Thread and thread ball making.
20. Textiles, dyeing, bleaching, finishing and processing (including mercerising, printing, calendering, glazing proofing etc.).
21. Clothing and tailoring.
22. Cotton ginning and pressing.

23. Rope making.
24. Silk and artificial silk.
25. Jute Pressing.
26. Electricity generation and transformation.
27. Automobiles and Coach building.
28. Ship building and ship repairs (including shipyard and dockyards).
29. Railway workshops; repair shops and locomotive shops.
30. Arms, ammunition and explosives.
31. Aircraft assembling, repairs and servicing.
32. Railway wagon manufacturing.
33. Textile machinery and accessories (bobbins, shuttles healds, reeds, pickers, etc.).
34. Unspecified industries (all industries, not mentioned by name in this list).

Under these rules it is obligatory to supply the information called for. For the 29 industries for which information is being collected separate 'forms' are printed and on these forms the information is to be filled in. These forms differ from industry to industry according to its nature and the type of information needed. For Cotton Textiles the following important information is called for:

PART (A)

General Information

This includes items like name of the factory, its location, business address, address of proprietors and managing agents, year of commencement of business etc.

PART (B)

Capital Structure as on 31st December

Detailed information is to be supplied on the following points.

I Paid up Capital.
  (i) Rupee capital.
  (ii) Sterling capital.
  (iii) Other foreign capital.
II Productive capital employed.

(a) Fixed Capital.

(i) Value of factory buildings and the land on which the factory is situated.

(ii) Value of Plant machinery, tools and other mechanical equipment.

(iii) Value of other fixed assets including such items as furniture fixtures and fittings, railway sidings bridges, trade marks, patents etc.

(b) Working Capital.

(i) Value of stock of raw materials fuels and other materials used in the manufacturing process.

(ii) Value of the stocks of the finished products.

(iii) Value of all other items of working capital.

PART (C)

Persons employed, salaries and wages paid and other contribution made to employees during the year ending 31st December.

Information is required on

(i) Total number of man hours worked during the year.

(ii) Average number of persons employed daily.

(iii) Total salaries and wages paid in cash during the year less fines and deductions for absence or damage or loss.

(iv) Total money values of any privileges or benefits or contributions not paid in cash but which are capable of being estimated in terms of money.

PART (D)

Fuel, Electricity, Coal, Gas, Lubricating materials and Water purchased at any time and consumed during the year ending 31st December.

Units of quantity purchased at any time and consumed during the year are to be mentioned and their purchase value is also to be given.

PART (E)

Materials purchased at any time and consumed during the year ending 31st December in the manufacture of

products and by-products made for sale and the work given out during the same year.

Separate figures are required for the quantity consumed and purchase value of

(a) Basic materials.

(b) Chemical sizing and finishing materials and other auxiliary materials.

(c) Packing materials.

(d) Other materials including consumable stores, amount paid to other firms or factories for work done on materials given out is also to be mentioned.

PART (F)

Products and By-products made and work done during the year ending 31st December.

Information is to be collected on the following points:—

(a) Quantity and Value of various types of yarns, woven goods, hosiery and knitted goods, threads, ropes etc. made in the year for sale, whether actually sold during the year or held in stock, in packed or unpacked condition ready for sale in a subsequent period.

(b) Quantity and Value of the products and by-products sold and delivered during the year.

(c) Quantity and Value of the various by-products made in the year.

(d) Amounts received for work done for other firms of customers on materials supplied by them.

The above information seems to be quite comprehensive and if all the industries are brought under the scheme, a very important contribution will be made towards the collection of statistical material in this country.

Cottage Industries

It is an admitted fact that cottage industries have to play a very important role in the future industrial system of this country. The present government has realized this fact and the industrial policy announced by it recently

gives explicit recognition to the important place that such industries have to occupy in future.

In the past, these industries had been badly neglected and consequently we do not have adequate statistics about them. Whatever information is available about them is very scanty and in many cases unreliable. Under such circumstances if we have to develop our cottage and small scale industries, the first, and by far the most important thing that we shall have to do is to collect and maintain adequate statistical information about them.

Before examining the material that is available in our country, at present, we would like to give an idea of the information that is needed about the cottage and small scale industries. We require statistical information about these industries on the following points:—

Production

(a) Quantity and Value of raw material used.
(b) Quantity and Value of total annual production of various grades and qualities of the commodity produced.
(c) Quantity and Value of By-products.
(d) Ways in which commodity produced is disposed of.

Labour

(a) Number of persons engaged—
  (i) Wholly.
  (ii) Partially.
(b) Number of persons engaged in the industries classified as
  (i) Dependents and hired workers.
  (ii) Owners.
(c) The extent to which cottage industries supplement the income of persons engaged in them.

Machinery

Extent of the use of machinery and the type of machinery used.

Material Available

Statistical data on cottage and small scale industries are not regularly published in any official or unofficial publication. No doubt some provincial governments have recently published some bulletins on some small scale industries but they are very limited in their scope and no information is available on an all-India basis. Information about handloom industry which is by far the most important cottage industry in our country is also very meagre and scanty.

The census report of 1921 contains some data on cottage industries. At the time of that census something like an industrial census was held and some information was collected. An enquiry was extended to establishments containing 10 or more employees and the object was to include all establishments of the nature of factories, whether power was used or not, and to exclude family industries where work was done in the house and profits shared by the family. Information was collected on various problems but so far as cottage industries were concerned the only relevant information was with regard to the number of handlooms. This information is obviously very incomplete as the enquiry excluded cottage industries on a family basis. In rural areas most of the cottage industries are on a family basis and their exclusion means a very serious thing. These figures were not collected for the whole country and important provinces like the U.P., Bombay and C. P. were ignored. At present these figures are more or less useless as they are very old and out-of-date.

The Report of the Indian Tariff Board regarding the grant of protection to Indian Cotton Textile Industry (1932) also gives the production figures of the handloom industry for the years 1926-27 to 1931-32. The figures are very rough estimates since they are based on a series of assumptions which are of doubtful validity. Production figures are based on the figures of yarn consumption. From the figures of total yarn produced in the country and imported from outside, the figures of yarn consumption of Indian mills are deducted and the balance is assumed to be

the quantity of yarn consumed by the handloom industry. Two further assumptions are made in arriving at the production figures and they are as follows:—

(i) "That the quantity of mill yarn used for the purpose other than handloom weaving may be offset against the quantity of handspun yarn used on handlooms." This assumption is not easily acceptable because the quantity of mill yarn used for purposes other than handloom weaving and the quantity of handspun yarn used on handlooms are both unknown at present, and we cannot say that they will be equal. Considerable quantity of mill yarn is used in the production of hosiery, ropes, nets, lampwicks etc. and in the absence of any figures it is difficult to estimate it. Similarly quantity of yarn spun by hand is an unknown figure and as such it is doubtful whether the two figures are equal.

(ii) The second assumption is that one pound of yarn will give four yards of cloth. The Tariff Board itself was of opinion that the figure was rather high. In their report the members admitted it when they said that "we are inclined to think that four yards per pound of yarn is too high an average for handloom industry, in which as we shall see, at least 80% of the cloth is woven from the coarser counts of yarn, and we believe that the average yardage of cloth per pound of yarn is nearer three than four."

This method of calculation of handloom production was first adopted by the Industrial Commission in 1918 and was also adopted by Mr. R. D. Bell, formerly Director of Industries, Bombay, in his "Notes on the Indian Textile Industry with special reference to hand-weaving."

Recently various provincial governments have given serious thought to the development of cottage industries and some bulletins have been published by them on certain important cottage industries. The United Provinces Government has also published a report on the cottage industries in the province.

What we urgently need today is a consolidated publication containing all-India statistics of important cottage industries. It would be very much desirable if some central authority co-ordinates the work of various provinces. Provincial governments should regularly collect such statistics and they should be published not only provincewise but for the country as a whole as well.

Suggestions: The next question that arises in this connection is, how should the provincial governments collect statistics of cottage industries. In this connection we are in perfect agreement with the views of the Bombay Industrial and Economic Survey Committee appointed by the first Congress ministry in Bombay in the year 1938. It recommended that each district should have an Industrial Association under an Industrial Officer. This Association should organise and improve the existing cottage industries and explore possibilities of starting new cottage industries in the district. The Association should also collect and complie statistics of production of cottage industries and of whole-time and part-time cottage workers. These district figures should be aggregated province-wise and all-India figures should also be calculated from them. It further recommended that for comparatively bigger industrial units which do not come under the Factory Act information should be collected direct from the owners of the factories concerned. The collection and compilation of this information should be the work of an officer who should be attached to the Department of Industries. We may add further that for such units legislation on the lines of the Industrial Statistics Act, 1942, should also be passed.

If it is not possible to implement the above recommendations immediately, an alternative plan suitable for the time being can also be suggested. According to this plan, as far as small scale industries and comparatively big cottage inuustries in towns and cities are concerned, information should be collected through some investigators. A questionnaire in various languages and scripts should be published and information collected through it. The questionnaire should contain questions about number of persons engaged and their status, quantity and value of the raw

materials used, quantity and value of manufactured goods, extent of the use of machinery, financial needs and marketing difficulties etc. Comprehensive questionnaires on similar lines were issued by the Bombay Industrial and Economic Enquiry Committee in 1938, copies of which are given in Appendix A and B.

For very small industries in towns and villages, the best method for the present would be to hold sample surveys. A very simple questionnaire should be issued and information should be collected about the number of persons engaged, the time devoted by them and the quantity and value of the articles produced.

In this way we can have some statistics about our cottage and small scale industries.

We have examined above the condition of statistics of cottage industries and have given our suggestions. We have also discussed the defects and drawbacks of the statistics of large scale industries, and the recent schemes of the government in this direction. Our discussion will be incomplete, if at this stage we do not write something about Census of Production, Industrial Census and Indices of Industrial Production.

Census of Production: Now that we have examined the statistics both of agricultural production as well as of industrial production, a brief discussion of census of production is but necessary. As a matter of fact, production includes all activities associated with the manufacture of goods and their movement until they are in the hands of the final consumers; but for statistical purposes, for reason of convenience, the term production is limited to mean production of extractive and manufacturing industries.

Both for the purposes of Production Census as well as Indices of Production, we are of opinion that agriculture and manufacturing industries should be treated separately. If they are treated together, agriculture, which is the largest single industry in the country, will over-shadow all other in-

dustries. Moreover ".... the fluctuations of agricultural production are in so great a degree dependent on seasonal climatic conditions that the yields, so far as quantity is concerned, do not bear any close relation to the variation in effort expended on them year by year...."

The Indian Economic Enquiry Committee (1925) was of opinion that it was not necessary to hold a periodical census of agricultural production as the annual agricultural statistics, if improved a little, would not leave much to be desired. It was, however, in favour of having a quinquennial review of the agricultural production. We are of opinion that in order to have a comparative study an index of agricultural production should be constructed every year. Some suitable year, preferably the same as for index of industrial production, should be selected as a base year and weights should be assigned on the basis of relative importance as shown by output. This index number will give us an idea about our agricultural economy year after year. If this index is compared with a similar index of industrial production we can have an idea of the relative position of our agriculture and industry in any particular year.

Besides the index of agricultural production we should also prepare an index of food production. It should be constructed not only from food crops but should also include things like fish, meat, milk, vegetables and fruits etc. This index number will give us an idea whether our food production is keeping pace with population increase.

Census of Industrial Production: At least once in every five years we should have a census of industrial production which should throw light on the following points:—

(i) Gross Output: Selling value of goods made and value of work done.

(ii) Cost of materials and fuel and amount paid for work given out.

(iii) Net Output: Excess of gross output over cost of fuel and material and amount paid for work done.

(iv) Average number of persons employed.
(v) Net output per person employed.
(vi) Power.
  (a) Prime movers.
  (b) Electric motors driven by purchased electricity.

The above material relating to large scale and manufacturing industries can be had easily now after the passing of the Industrial Statistics Act. Schedules can be sent and detailed information on the above point can be gathered. As far as cottage industries are concerned the figures can be collected through enumerators and through schedules also in certain cases. There is no necessity of having detailed information about Gross and Net Output in case of cottage industries because there is not much difference between Gross and Net Output in such industries. We can, in such cases, have only one figure of output i.e. Gross Output.

Index Number of Industrial Production: The main function of an index of an industrial production will be to bridge the gaps between intercensal periods. Representative figures of production from principal industries should be collected yearly and converted into a single index of production. A base year should be selected and as Bowley Robertson Committee pointed out it is better that this year should be the same as selected for index of wholesale prices; but as this index number is yet to be constructed in future and as the index number of wholesale prices already exists this thing, however desirable, is not possible. However, if the index number of wholesale prices are calculated on geometric mean this difficulty is not there but in our country most of the wholesale price index numbers are constructed by using arithmetic average.

The main difficulty, besides that of availability of data, is that it is not easy to decide the measurement which may give an idea of the change in the activities of the industries. "Thus in textiles measurements are possible of the quantity of cotton or jute baled, of deliveries to mills of the bales, of the amount of yarn spun, and of the quantities of tissues woven ..... In some cases it is only

possible to measure the raw materials used because the finished products are diverse and change with the progress of inventions, so that only the less important remain uniform and can be accurately measured. This applies especially to the manufacture of iron and steel products, machinery and motor cars." [1] Under such circumstances only one or two series should be selected and their choice should be guided by facilities for obtaining the figures and closeness to industry.

When we have collected one or two series for each industry, the next step is to combine them into one index number. We have already examined the question of base year and the only questions that now remains to be discussed are those of type of average to be used and the assignment of weights. As far as the type of average to be used is concerned we are in favour of having geometric mean on account of its quality of reversibility. As to the question of weightage we should follow the line of the British Board of Trade Index of Industrial Production. Weights should be assigned on the basis of relative importance as measured by Net Output i.e. added value of manufacture.

The various industries for which information is collected should be classified into groups. The British Board of Trade Index of Industrial Production has the following groups.

(i) Mines and Quarries.
(ii) Iron and Steel.
(iii) Non Ferrous Metals.
(iv) Engineering and Ship Building.
(v) Building materials and Building.
(vi) Textiles.
(vii) Chemicals, Oil etc.
(viii) Leather and Boots and Shoes.
(ix) Food, Drink and Tobacco.
(x) Gas and Electricity.

In addition to the industries enumerated above particulars of the production of pianos and paper and of the

[1] Bowley Robertson Committee Report.

consumption of rubber are included in the calculation of General Index.

We can also follow a similar grouping with changes wherever necessary.

At present there is no Index of Industrial Production in our country. 'Capital', an important Weekly Journal of Calcutta, has been publishing every month an Index of Indian Industrial Activity since March 1938. This index number however cannot serve as an index number of industrial production, nor is it intended to be so. The base year of the index number is 1935 and the original series selected and the weights are as follows:—

Industrial Production	Weights.
1. Cotton Manufactures	9
2. Jute Manufactures	6
3. Steel Ingots	5
4. Pig Iron	8
5. Cement	5
6. Paper	3
Mineral Production—Coal	7
Rail and River Borne Trade	24
Financial Statistics—Cheque clearances	20
Trade Foreign and Coastal—Exports	4
Imports	3
Shipping Foreign and Coastal—Tonnage entered	3
Tonnage cleared	3

Since March 1941 Trade, Foreign and Coastal, and Shipping, Foreign and Coastal, have been left out. Instead Notes in Circulation (base April 1935 to March 1936) and Consumption of Electricity with weights 6 and 7 respectively have been included. Seasonal fluctuations of the quotations are reduced by a twelve months moving average and the average used is geometric mean.

Figures for the index number are taken from the publications of the Department of Commercial Intelligence and Statistics and the Statistical Summary of the Reserve Bank of India.

Though separate indices are available for each item of the series, yet from this index number we cannot have a fair idea of the industrial production of the country. This index number ignores important industries like sugar, and hides and skins etc. and as such the group of industrial production in the index number is not representative. However, as we have already pointed out this index number is not meant to measure the level of industrial production in the country.

It is very difficult to construct an index number of industrial production in the absence of adequate statistics. Probably this is the reason why the above mentioned index number does not include many important items. Even out of the items included the figures of cement have not been available since 1938. With the passing of the Industrial Statistics Act the situation has improved now. It is highly desirable that out of the statistics that are being collected at present, under the Industrial Statistics Act, an index number of industrial production should be constructed to give an idea of the level of industrial production in the country.

CHAPTER VIII.

LABOUR STATISTICS

In modern times when capitalism and large scale production have become almost universal, the necessity of having detailed statistics about various labour problems is greater than before, when these problems were neither very important nor very acute. Formerly it was believed that collection of data relating to wages, cost of living, employment, conditions of work, and living conditions of labourers, was a luxury that could be afforded only by rich countries. It was not realised that such statistics are very essential for having a precise idea of the problems relating to labour and also useful for international comparisons. It is only in recent years, when the Labour Movement has become very strong and powerful in various countries that the question of having accurate and adequate labour statistics has received due attention. The work that is being done by the International Labour Office in this connection is very commendable and credit goes to it for focussing public attention to labour problems.

In other countries which are economically more advanced than ours and where the public opinion is more awakened than here, statistics of various labour problems are collected by the state, the employers, the labour organisations and research agencies. It has been realised that the labour problems are not only a concern of the employers and employees but of the state as well. In a competitive economy the decentralised and disorganised labour class has certain handicaps as against the employers who are few in number and are usually better organised than labourers. The state, in order to save the labour from the evil effects of such a situation, and also to safeguard the interests of society against any undesirable actions of the labour class, has to assume a very important role. In present planned economy the duties and the responsibilities of the government increase further and in

many cases the state itself plays the role of the employer. From the point of view of general welfare as well, the state has a very great interest in the matter and these things are responsible for the fact that in almost all countries, governments have framed various types of labour legislations. Very useful statistical data emerge out of the actual operation of labour laws and such statistics, if properly handled, are of great use. The employers and the employees collect statistics on various problems to present their respective cases in an impressive and effective manner before the public and the government and to carry on propaganda to achieve desired objectives. Besides these agencies, statistics of labour are very often collected by impartial investigators and research students to draw unprejudiced and unbiassed conclusions and to make a balanced study of various intricate problems of labour.

In our country labour statistics like many other statistics are bye-products of administrative activity. Due to the operation of various labour laws and in their day to day working the Central and Provincial Governments collect statistical data relating to various labour problems and these are by far the most important labour statistics in our country. The employer and the employees do not collect such data, here, as is done in the West The employers do not care to collect such informations and the labourers are not so well organised and their organisations are not so well financed that they may be in a position to have the necessary statistics of their own. Recently attempts have been made to do something in this direction and some labour organisations have also begun to collect and compile statistical data. Under such circumstances it is no surprise that most of our labour statistics are 'official' and arise out of the operation of various labour laws.

Data Available:—The Statistical data available on labour problems in India can be studied under the following heads:—

(i) General Statistics regarding number of labourers in factories, hours of work, holidays, accidents, compensation etc.

(ii) Wage Statistics.
(iii) Trade Union Statistics.
(iv) Statistics of Industrial Disputes and
(v) Cost of Living Statistics.

General Statistics: Statistics of number of labourers in factories, their hours of works, accidents etc. began to be compiled after the passing of the first Factory Act in 1881. It can be said to be the starting point of the labour statistics in the country. This Act was amended in 1891, 1911, 1922, 1923, 1926, 1931 and 1934 and its scope was extended each time. In 1934 a consolidating Act was passed on the recommendations of the Labour Commission and was brought in force on 1st Jan. 1935.

Each province now publishes an annual report on the working of the Factory Act (1934) and therein various labour statistics are published in the form of Tables. Important among these are—

(1) Number of factories in each district and average daily number of workers employed by them. Workers are classified as—

(i) Adults—Males and females.
(ii) Adolescents—Males and females.
(iii) Children—Boys and girls.

(2) Normal Hours of work per week, Intervals and Holidays.
(3) Accidents.
(4) Number of Inspections made by Inspectors.
(5) Exemptions from the different sections of the act.

We have already made a detailed reference about these statistics in the chapter on Industrial Statistics and here we would add that these statistics should be used with special caution on account of certain discrepancies. The figures are not comparable year after year because the scope of the Act has been constantly changing. The Act of 1881 applied to factories employing not less than 100 persons and using power. But in 1891 the provisions applied to all establishments using power and employing

not less than 50 persons. Besides this, local governments were empowered to extend the Act to other factories employing not less than 20 persons. The Act of 1911 brought within its scope seasonal factories also, and the lower limits of 50 and 20 persons were reduced to 20 and 10 respectively. In 1934 those factories which did not use power were also brought under the Act but the provisions were to apply to them if only Local Government so desired. In 1936 wider powers were given to the local governments and even shops and establishments not using any power and employing less than 20 persons could be brought under the purview of the Act. Recently special acts have been passed in most provinces to regulate hours of works etc. for shop assistants and employees.

Besides the change in the scope of Factory Acts other things have also been changed from time to time; therefore such figures, as are published in the reports submitted by provinces on the working of Factory Act, should be used with caution. The "Large Industrial Establishments" which is a publication of the Department of Commercial Intelligence and Statistics also gives general information on labour problems and labour statistics of some Indian States are also published in it. It would be very desirable if more states voluntarily collect and give such informations and co-operate with the Indian Government in this respect.

Statistics of accidents in factories and compensation paid for them are also collected in our country. These statistics generally emerge out of the working of the Workmen's Compensation Act which was passed in 1923. The scope of this act which was limited formerly has now been considerably widened by the amendments made in 1926, 1929, 1931 and 1933. The most drastic changes were made in 1933 and now the Act applies to "railways; tramways; factories; mines; seamen; docks; persons employed in the construction, demolition or repairs of certain buildings; or of roads, bridges, tunnels; marine work, operations relating to telegraph, telephone, or overhead electric lines; blasting operations or exacavations;

boat services; light house; tea, coffee, rubber of cinchona plantations, electricity or gas generating stations, cinematograph workers, salaried motor drivers and underground sewage workers." In all the above cases persons earning more than Rs. 300 p.m. or employed in administrative or clerical capacity are excluded.

The amount of compensation depends on the kind of injury and the earnings of the injured.

Injuries are classified as
1. Fatal.
2. Disablement.
   (a) Permanent Total.
   (b) Permanent Partial.
   (c) Temporary.

Under the Workmen's Compensation Act every commissioner records information about the accidents and compensation paid. The Government of India publishes a report on the working of the Act wherein the above information is given for Provinces and some States. The Gazette of Bombay and Labour Bulletin of Cawnpore publish most of this information.

These statistics are more or less accurate but in using them allowance should be made for the fact that this Act covers wider sections of labour than the Factories Act 1934. Many cases also remain unrecorded as labourers due to illiteracy and fear of loss of employment do not take up the matter with employers. But this tendency is, of late, fading away due to increased consciousness of its rights by the labour class. These statistics can be more useful if they are also classified according to the causes of accidents. Further a very useful study can also be made if the number of injuries is divided according to the part of the body on which they have been inflicted.

Besides the above general statistics, additional data is available for the workers in Railways, Mines and Plantations. Various reports on the working of the railways give statistical information about the number of

railway workers, their hours of work, and provisions for weekly rests etc. The report of the Chief Inspector of Mines contains statistics relating to labour working in mines. The Director, Geological Survey of India, also publishes certain information about such labourers. Workers are classified into (i) underground (ii) open workings and (iii) surface. Information is available about their number, hours of work, attendance etc. Indian Tea Statistics, Indian Coffee Statistics and Indian Rubber Statistics—these three volumes give certain statistical information about the workers in the Tea, Coffee and Rubber gardens. Generally the information is with regard to the number and employment. Detailed information about Tea workers of Assam is collected under the Tea District Emigrants Labour Act 1932, and is published in the Annual Report on the working of the Act.

Wage Statistics: The statistics of wages in India have not been collected at regular intervals, either by official or unofficial committees and commissions or by any government department under statutory sanction, as has been done in many other countries. The Royal Commission on Labour very emphatically criticised this state of affairs and strongly pleaded for better and more statistics with regard to level of wages in various industries at different places. Bombay had taken the lead in this connection and comprehensive surveys had been undertaken in that province to enquire into the wage levels of certain industries. In Bihar also similar surveys had been undertaken but these surveys, and those of Bombay as well, were not only regional in scope but confined their investigations to certain industries only. Before the publication of the Report of the Labour Investigation Committee of the Government of India (Rege Committee) the Statistics of wages available in our country were either those collected by the Labour Office Bombay and by similar other offices, at some other places or those that were collected under the Payment of Wages Act, 1936. Certain earlier information about wages used to be published in the annual publication of the Department of Commercial Intelligence and Statistics known as "Prices and Wages." This publication used to give the results of wage censuses in respect

of some urban and rural occupations. Its publication has been suspended since 1922. Old figures available in "Price and Wages" should be used with caution as they are very defective. They do not embrace a sufficiently large number of villages and towns; the rates have been quoted between too wide a range and the frequency of employment is not given and moreover the unit of time for which wages have been recorded is not uniform.

Comparatively recent information collected by labour office, Bombay, as well as by some committees and commissions makes a real beginning in this field. But most of this information as has been pointed above is not only regional in scope but is confined to specific industries only. Moreover these statistics are not collected regularly at fixed intervals. They are spasmodic and relate to a particular time. There is necessity of regular wage censuses in both the organised and unorganised industries. Statistics should also be collected regularly about labour employed in mines, railways etc. Agricultural Labour is a problem by itself, and statistical data on it should also be collected at fixed intervals.

The recent report of the Labour Investigation Committee, popularly known as Rege Report, has gone a long way in collecting and presenting Statistics of labour, in various industries. This is by far the largest single work on the subject, and has considerably improved the situation. For the first time a real attempt has been made to collect comprehensive statistics on wages of most of the non-agricultural occupations throughout the country.

The Committee has collected statistics on wages in the following occupations:

A. Mining (1) Coal (2) Manganese (3) Gold (4) Mica (5) Iron ore (6) Salt.

B. Plantations (7) Tea (8) Coffee (9) Rubber.

C. Factory Industry (10) Cotton (11) Jute (12) Silk (13) Woollen (14) Mineral oil (15) Dockyard (16) Engineering (17) Cement (18) Matches (19) Paper (20) Carpet weaving (21) Coir matting (22) Tanneries and Leather goods

Manufacturers (23) Potteries (24) Printing Press (25) Glass (26) Chemical and Pharmaceutical works (27) Shellac (28) Bidi-making (29) Mica Splitting (30) Sugar (31) Cotton Ginning and Bailing (32) Rice mills.

D. Transport (33) Transport services (Tramways and Buses) (34) Non-gazetted Railway staff.

E. Other Types of Labour (35) Port Labour (36) Municipal Labour (37) Central P. W. D. Labour (38) Rickshaw Pullers.

The information collected by the Rege Committee though very comprehensive yet suffers from one important drawback and that is the lack of uniformity with regard to the way in which the data have been collected about various industries. For some industries a wage census was conducted and the figures were collected directly from the pay rolls of the employers, and for others the wage lists were collected by holding *ad hoc* surveys. This lack of uniformity in the collection of the data must have resulted in certain discrepancies. In spite of this obvious drawback the work done by the committee in a short interval of time is highly commendable and will form the foundation of future wages statistics in India.

There is a necessity of wage census in all big organised industries in India at regular intervals of about 5 years and unless we set up some permanent machinery for collecting information periodically the problem can hardly be solved. *Ad hoc* investigations may give us some rough idea about the wage level but the results of well organised wage census are more a accurate and impressive. Wage censuses should be well organised like those conducted by United States Bureau of Labour Statistics. The census conducted by the Bombay Labour Office in 1934 was in some respects better than those conducted by the Rege Committee. The Bombay census was preceded by a standardisation of occupational catalogue and was precise and compact. There is a necessity of standardisation of occupational nomenclature as in its absence the data cannot be uniformly collected in various censuses.

Another line in which improvement is needed is the filling of pay rolls by employers. At present there is no uniformity about the maintenance of pay rolls by various employers. This defect can be removed by legislation. All employers should maintain detailed pay rolls which should indicate separately and in details the amount paid to labourers as wages, overtime allowances and bonuses. At present many employers do not publish the figures separately. The number of hours worked should also be published side by side with figures of pay. In cases of time-rated workers figures should be available about wages per hour worked, and per week, fortnight or a month as the case may be. Separate pay rolls should be maintained for men, women, adolescents and children. This practice is also not universal in India as many pay rolls do not distinguish between adult and young workers. There is need for further distinction between permanent and substitute labour. All these points should be included in an Act which should be applicable to all those industries organised or unorganised, large or small which employ 10 or more labourers.

At present no information is available about the wage level in agriculture. This is a very big problem and should be tackled separately. The condition of agricultural labour is said to be worse than that of industrial labour and there is an acute necessity of collecting figures about their problems. Statistics of wages of the agricultural labourers should be collected by that very agency wrich collects other statistics about agriculture and in this way alone can this work be conveniently done.

Trade Union Statistics: Trade Union movement in this country is of a very recent origin and as much statistics of trade union movement are few and a large bulk of them are those collected in accordance with the Trade Union Act of 1926. Registration of Trade Unions is not compulsory in India and some Trade Unions are still unregistered even though registration offers certain privileges. This fact has a bearing on the Trade Union Statistics in as much as the available figures relate only to registered unions. Even amongst the registered trade unions quite a large number fails to send the reports (which they are required

to submit under the Act) regularly and punctually. The Act lays down that the registered trade unions should submit the following informations:

(i) Number of the members at the beginning of the year.

(ii) Number admitted during the year.

(iii) Total number at the end of the year. This information is classified according to sex.

(iv) A Statement of Income and Expenditure and of Assets and Liabilities.

Figures are classified according to provinces as also according to industries to which the unions belong.

Statistics of Industrial Disputes: Though there were a few strikes in India in the last quarter of the last century yet the value of strikes as a weapon was not realised till the beginning of the present century. Strikes became common phenomena after the first world war and it was in 1919-20 that there was a major strike in Bombay. Lockouts in India have not been very popular and most of the industrial disputes are due to strikes rather than lackouts. Statistics of industrial disputes are being collected since 1921. An annual report was received by the Central Government from the factories through the district authorities in this regard till 1939 when factories were required to submit a weekly report on a prescribed form. Besides the Labour Department of Government of Inlia various Provincial Governments also collect this information.

The statistics collected relate to the number of disputes, number of labourers involved, man-days lost and wages lost, etc. Figures are classified according to trade and industry and also according to localities. The results of the dispute are also noted as Successful, Partially Successful and Unsuccessful. These statistics are more or less satisfactory but there is room for improvement. At present, there is some vagueness in the procedue by which the number of persons involved or number of man hours or wages lost is to be determined. There should be a well defined and uniform procedure to determine these facts.

Moreover in some cases the figures are not very accurate as the district authorities do not verify the information supplied by the factories. The figures collected by Government Labour Departments are generally more accurate than those collected by the district authorities through police department. Further, distinction should be made between strikes and lockouts. Though lockouts are few yet they should be dealt with separately.

Cost of Living Statistics: Cost of Living Index numbers for working class are compiled and published for various centres in India and a critical account of the same can be found in the chapter on Prices and Cost of Living.

The above survey of the available labour statistics of India clearly indicates that there is a great necessity of improving the existing statistics and of collecting data about other labour problems so far ignored. At present we have little statistical information with regard to problem like Unemployment, Absenteeism, Turnover, Migration, Housing, Labour Welfare etc. All these are important labour problems and it is high time that statistics relating to them should be adequately collected. There is need for unemployment insurance, and if that is done statistics of labour unemployment can be easily collected. Statistics of absenteeism and turnover are at present collected to a certain extent in the province of Bombay and U.P., but there is no uniformity in the methods of collection nor is there any unanimity of opinion about the exact concept and scope of these terms. It is necessary that a uniform policy be followed throughout India in these respects. Statistics of labour welfare and housing etc. are very meagre and it is necessary to give proper attention to them as well.

Besides this, at present we do not have statistical information about certain classes of labourers like those working in the Construction of Roads, Buildings, Canals etc. and labourers employed in Transport Services particularly docks, tramways, railways etc. and also labourers employed in Shops, Restaurants and other Commercial Houses. It is necessary to extend the scope of labour statistics to these classes of labourers also, and then only we can have adequate statistical information about our labourers and their economic problems.

CHAPTER IX

STATISTICS OF PRICES AND COST OF LIVING

The importance of having accurate statistics of prices is very great as variations in prices affect all individuals, in some form or other. The producer judges whether his business ability and labour are fully rewarded or not by finding out the price that he gets for his product; the consumer, on the other hand decides, on the basis of prices of various commodities, the articles he is to consume and their quantities. Changes in the price level affect classes as a whole. Rising prices may stimulate business and promise a good return to manufacturers, while falling prices may depress trade and business. If prices rise and wages do not go up in the same proportion labourers' condition becomes worse, as the cost of living increases more than the wages.

Under such circumstances, it is not surprising that the course of the prices is a subject of constant interest to businessmen, economists and sociologists alike. Success or failure of a businessman depends to a great extent on the accuracy or otherwise of his forecasts about the future levels of prices, which are generally based on past figures. Economists advocate theories to reduce economic fluctuations caused by booms and depressions by attempting to stabilise prices. Sociologists can proceed with the task of ameliorating the condition of labourers by studying statistics of cost of living and wages. We thus find that the importance of price statistics is very great.

Statistics of prices are collected in such a way as to indicate not only the changes in the prices of individual commodities over a period of time but also changes in the general price level. Prices of various articles are recorded from time to time and index numbers are also prepared to show relative changes.

The data available in India, can be studied under two broad heads viz.

(i) Data relating to wholesale prices and

(ii) Data relating to retail prices and cost of living.

A—Wholesale Prices

At present, as far as the data on wholesale prices is concerned, we have in our country certain index numbers

of wholesale prices, and besides these, prices of certain selected articles are also collected and published.

Index Numbers of Wholesale Prices: Various Index Numbers of wholesale prices are published in our country. Important among these are the Calcutta Wholesale Price Index Number and Index Numbers published by the office of the Economic Adviser to the Government of India. Bombay Wholesale Price Index Number was another very important index number but its compilation has been discontinued since 1944. Some other index numbers have also been discontinued and we shall discuss them as well. Besides these, wholesale price index numbers are also published from Madras and Cawnpore; but these index numbers have never been popular and are very defective also. We shall now examine some of these index numbers and offer some suggestions for improvement.

Calcutta Wholesale Price Index Number: This index number is monthly and is compiled from 72 items which are divided in the following 16 groups:

1. Cereals	with	8 items
2. Pulses	,,	6 ,,
3. Sugar	,,	5 ,,
4. Tea	,,	3 ,,
5. Other food articles	,,	9 ,,
6. Oilseeds	,,	3 ,,
7. Oil-mustard	,,	2 ,,
8. Jute-Raw	,,	3 ,,
9. Jute-Manufactures	,,	4 ,,
10. Cotton-Raw	,,	2 ,,
11. Cotton Manufactures	,,	7 ,,
12. Other Textiles (wool and silk)	,,	2 ,,
13. Hides and skins	,,	3 ,,
14. Metals	,,	6 ,,
15. Other Raw and Manufactured articles	,,	8 ,,
16. Building Material (teak wood)	,,	1 ,,
		72

A separate index number is worked out for each group. The index number of each group is calculated by finding out the simple arithmetic average of the price relatives of the articles included in the group. The base is July 1914 and the price quotations are the wholesale prices of those commodities prevailing in Calcutta and are taken from the "Wholesale Prices of certain selected articles at various stations in India". Though the index number of each individual group is calculated by the use of simple arithmetic average, yet an element of weighting is introduced by taking more than one quotation for some items within a group; thus "Cereals" includes 4 varieties of rice and only one variety each of wheat, barely, maize and oats.

The general index number is arrived at by calculating the simple arithmetic average of all individual price relatives included in the compilation. We can say, that in a way, this general index number is also a weighted average, the weights in each case being equal to the number of items included in each group.

The Calcutta Wholesale Price Index Number should be used with great caution. It should not be forgotten, while using it, that the price quotations refer only to *one* day in a month and as such it cannot be representative of the price of the whole month. It is more so in times of abnormal price movements, when, to speak of the price of any single day as representative of the average price for the month is incorrect. Besides this, the weights of the index number have not always been the same and have often been changed. The weights are affected by the change in number of varieties for which quotations are available. Two items have been dropped under sugar since February, 1934, and one item under cotton manufactures since September 1936, as their quotations were no longer available and no suitable substitutes could be found. Again it is not desirable to use this index number in discussing problems of an all-India character. The various markets differ considerably from one another with regard to the relative importance of the various items in the index number e. g. in this Index Number rice has been assigned a weight of 4 as against 1 of wheat. This may be true for Calcutta or

Bengal but it cannot hold good for the Punjab or West U.P. Probably the position would have to be reversed. Therefore we should not frequently quote this index number when we are discussing problems which have a countrywide importance.

Index Numbers of Weekly Wholesale Prices of certain Articles in Inlia: This is popularly known as Economic adviser's Index Number, as it is issued by the Office of the Economic Adviser to the Government of India.

This index number is based on 23 commodities which are divided in 4 groups as follows:

I. **Food and Tobacco Group**

(i) Rice, (ii) Wheat, (iii) Tea, (iv) Groundnuts, (v) Coffee, (vi) Sugar, (vii) Tobacco, (viii) Copra.

II. **Other Agricultural Commodities**

(i) Raw Cotton (ii) Raw Jute (iii) Linseed.

III. **Raw Materials (Non-Agricultural)**

(i) Pig Iron, (ii) Coal, (iii) Lac, (iv) Raw Wool, (v) Raw Hides and Skins, (vi) Kerosene, (vii) Petrol.

IV. **Manufactured Articles**

(i) Cotton Manufacturers, (ii) Jute Manufacturers, (iii) Cement, (iv) Galvanised corrugated sheets, (v) Leather.

The base period of this index number is the week ended 19th August 1939. The prices on which this index number is based are the all-India wholesale prices. Several varieties are included in the case of some commodities but the price relatives of all the varieties are averaged into a simple price relative for being included in the compilation. Obviously the index number is not weighted even indirectly like the Calcutta index number. The average used is the simple geometric mean.

First the index number for each group is worked out separately by calculating the simple geometric mean of the price relatives included, and later on, the general index is obtained by averaging the price relatives of all the 23 commodities in a similar manner.

An index called the Primary Commodities index is also worked out by averaging the 18 commodities included in the first three groups. An index of chief Articles of Exports is also worked out by averaging the following 14 items out of the above 23:

1. Wheat, 2. Tea, 3. Groundnuts, 4. Coffee, 5. Tobacco, 6. Raw Cotton, 7. Raw Jute, 8. Linseed, 9. Pig Iron, 10. Lac, 11. Raw Wool, 12. Raw Hide and Skins, 13. Jute Manufactures, 14. Leather.

The above index numbers issued by the Office of the Economic Adviser came in for a good deal of criticism as the number of items included in the indices was very small. The wholesale price index number was a sensitive one and did not serve any useful purpose. The index number of the food group was all the more criticised, because, not only the items contained in it were very few but also because it included items like, groundnuts and copra while important items like millet, pulses, gur and salt were ignored. Besides this, the index number was unweighted and as such did not reflect the true state of affairs.

New Schemes: In view of the above criticisms the office of the Economic Adviser prepared a new scheme for the compilation of wholesale price index number suitable for general purposes. The proposed index number was to be prepared in five stages as follows:—

1. Food.
2. Industrial Raw Materials.
3. Semi-Manufactures.
4. Manufautures.
5. Miscellaneous.

The scheme was started in February 1944 when the index number of the food group began to be published and was completed in the beginning of this year (1948) when not only all the five groups had separate index numbers but they had also been combined into a single general purpose index number.

The new index is a weighted geometric mean of the price relatives of 78 commodities which are arranged in 18 sub-groups and 5 important economic groups. The base period for the index is the year ended August 1939. The Food Group, formerly, had the last week of August 1939 as its base, but beginning with the week ended January 3, 1948, the base period for food articles has also been changed to the year ended August, 1939. Now all the revised group indices have a common base period and this is a great improvement made in the index number in this year. The "miscellaneous" group has also been added this year and now the index number has become more broad based.

The index numbers (all the six one for each of the five groups and one combined) are now regularly published every week. The weekly index numbers are calculated from one-day-a-week prices on or about Friday. In order to secure representative character for the index numbers, particularly from the point of view of the markets included several varieties have been included in case of many commodities but their quotations are first geometrically averaged so that at the time of actual compilation of the index numbers each commodity has only one price relative. In all, a total of about 130 quotations are taken into account in the compilation. For the most part prices are those charged by manufacturers or importers or those prevailing in main markets.

The weights assigned to various commodities in the index numbers are proportionate to the total value of the commodities as determined from the estimated quantities marketed and the prices prevailing during 1938-39. Marketing Reports and Handbooks of Commercial Information have been depended upon to a great extent to estimate the quantity marketed and the average price. For the sake of convenience, in case of agricultural commodities and other industrial raw materials, the estimated quantities retained

by the producers have been left out of account. In regard to manufactured and semi-manufactured articles it has been assumed that the entire production was put on the market.

The weights attached to the various commodities within the group are given below:

I. Food	
(1) Rice	36
(2) Wheat	12
(3) Jowar	8
(4) Bajra	3
(5) Gram	5
(6) Dal	3
(7) Tea	7
(8) Coffee	1
(9) Sugar	13
(10) Gur	9
(11) Salt	3
	100
II. Industrial Raw Materials	
(1) Cotton	28
(2) Jute	22
(3) Silk	1
(4) Wool	2
(5) Groundnuts	12
(6) Linseeds	3
(7) Castor	1
(8) Gingelly	3
(9) Rapeseed	5
(10) Cotton Seed	4
(11) Copra	2
(12) Coal	6
(13) Manganese ore	2
(14) Mica	1
(15) Iron ore	1
(16) Hides	3
(17) Skins	2
(18) Lac	1
(19) Rubber	1
	100

III. Semi Manufactures	
(1) Cow Hides	3
(2) Buff Hides	2
(3) Sheep skins	1
(4) Goat skins	2
(5) Kerosene Oil	7
(6) Petrol	6
(7) Coconut Oil	2
(8) Groundnut Oil	3
(9) Mustard Oil	7
(10) Castor Oil	1
(11) Gingelly Oil	2
(12) Linseed Oil	1
(13) Cotton Yarn	35
(14) Pig Iron	8
(15) Semis	7
(16) Brass	1
(17) Copper	1
(18) Zinc	1
(19) Groundnut Cake	2
(20) Coconut cake	1
(21) Gingelly cake	2
(22) Coir Yarn	1
(23) Timber	4
	100
IV. Manufactures	
(1) Jute	11
(2) Cotton	45
(3) Rayon and Silk	6
(4) Wool	2
(5) Iron and Steel	8
(6) Machinery and Mill Work	7
(7) Vehicles (motors)	2
(8) Footwear	4
(9) Tyres and Tubes	1
(10) Cement	2
(11) Paper	2
(12) Matches	1
(13) Glass	1
(14) Soap	2
(15) Chemicals	1

(16) Dye stuffs	1
(17) Paints	1
(18) Cigarettes	2
(19) Liquors	1
	100

V. Miscellaneous

(1) Vanaspati	5
(2) Tobacco Leaf	42
(3) Betelnuts	9
(4) Cashewnuts	4
(5) Condiments and spices	21
(6) Bricks and tiles	19
	100

The above are the weights of individual commodities in the compilation of the group index numbers. For the purposes of General Purpose Index Number, weights have been assigned to various groups. They are as follows:—

1. Food articles	31
2. Industrial Raw Materials	18
3. Semi-Manufactures	17
4. Manufactures	30
5. Miscellaneous	4
	100

The above index numbers include a fairly good number of commodities and can be said to be comprehensive. The weights have been assigned in a very scientific manner and indicate the importance of various commodities from the country's point of view. The use of geometric average has made the index numbers more scientific than others which use the arithmetic average, The geometric average possesses the quality of reversibility and this is of very great importance. Besides this, the geometric average measures relative changes and is not affected by extreme items. It would have been much better if the index numbers would have been constructed on a chain base system. In recent years the utility of

chain base has been realised everywhere and many index numbers are prepared on chain base rather than the fixed base. Comparisons with the previous years are more useful than comparison with the remote past. It is suggested that in addition to these indices on the fixed base, fresh indices should be worked on chain base as well. This will not involve any extra cost as material is already there, and only fresh calculations have to be made.

Discontinued Wholesale Price Index Numbers: Among the discontinued wholesale price index numbers the following deserve mention:—

I. Bombay Wholesale Price Index Number (discontinued since 1944).
II. Weighted Index Number of Wholesale Prices (discontinued since 1941).
III. Indices of prices for exported and imported articles.

(1) **Bombay Wholesale Price Index Numbers:** This index number which was issued by the Labour Office, Government of Bombay, was compiled from 40 items which were distributed over 11 groups as follows:—

All Food Group	
(i) Cereals with	7 items
(ii) Pulses with	2 ,,
(iii) Sugar with	2 ,,
(iv) Other food with	3 ,,
	14 ,,
All Non-food Group	
(i) Oil Seeds with	4 items
(ii) Raw Cotton with	5 ,,
(iii) Cotton Manufactures with	3 ,,
(iv) Other Textiles with	2 ,,
(v) Hides and Skins with	3 ,,
(vi) Metals with	5 ,,
(vii) Other Raw and Manufactured articles with	4 ,,
	26 ,,

The procedure of the construction of this index number was the same as that of Calcutta Index Number which we have already discussed. Its base was July 1914. Index Number of each group was published separately and besides this, two seperate index numbers were published for all food and all non-food groups. The general index number was calculated by finding out the simple arithmetic average of all individual price relatives included in the computation. Like Calcutta index number this index number was also indirectly weighted as more than one variety of some items was taken into account. Five varieties of raw cotton and three of wheat were taken. This index number suffered from the same defects from which the Calcutta index number suffers and was unfit for discussions of general problems relating to the whole country.

(II) Weighted Index Number of Wholesale Prices:

This index number was compiled from 37 articles, of which 14 were of the food group, 17 of raw produce group and 6 of manufactures group. The weights were assigned to the various commodities indirectly by including more than one variety of the commodity, or by including more than one quotations of the same variety at different stations. The total quotations (or weights) for the 14 articles of food group were 60, of the 17 articles of Raw produce group 29, and of the 6 articles of Manufactures 11. The position can be better stated as follows:—

	No. of articles.	Quotations.
Food Group	14	60
Raw Produce Group	17	29
Manufactures Group	6	11
	37	100

The base year was 1871 but was later on shifted to 1873. The average used was arithmetic average. It should not be forgotten that the arithmetic average does not satisfy the Time Reversal Test and as such the

shifting of the base from 1871 to 1873 must have introduced a certain amount of error. Moreover important commodities like pig iron, groundnuts, etc. were not included in the index number. It gave too much importance to food articles and too little to manufactures. It was not very useful for being used as the General Index Number of Wholesale Price, and since its base was too old it was discontinued.

(III) Indices of Imported and Exported Articles:—

They include—

(i) Indices of Prices of Imported Articles.

(ii) Indices of Prices of exported Articles.

(iii) Indices of Prices of all Articles.

Index Number of imported articles was compiled from 11 articles only whereas that of exported articles from 28 articles. The base year was 1873 and unweighted arithmetic average was used in their compilations. These index numbers were very defective because not only their base year was very old and the number of articles included was too small but also because the unweighted arithmetic average which they used was not suited for the compilation of index numbers. Moreover many new articles were included afterwards e.g. in exported articles cotton yarn and cloth were included in 1874; in imported articles coal came in only in 1888. Naturally these inclusions also resulted in introducing errors in the index numbers.

Besides this, new varieties of various commodities had replaced older ones at various times and probably that was why the price relative of coal for 1929 was 111 as compared to 100 of the base year, 1873, though the price in 1929 was Rs. 17-4-2 and that in 1873 Rs. 25-8-0.

Obviously these indices were doing a disservice rather than a service and that was why the Bowley Robertson Committee in 1934, recommended their suspension.

The index number of all articles which was popularly known as All-India Wholesale Price Index Number was also useless and in the words of the Bowley Robertson Committee was "undoubtedly unsuitable for its purpose." It resembled in its constitution the old British Board of Trade Index Number which was discarded as early as 1920. This was discontinued in 1941.

Besides these, the annual all-India publication, "Prices and Wages," was suspended in 1922. It used to give wholesale and retail prices of some commodities at several places with their index numbers and also their export and import prices.

Other Index Numbers:

Besides the above mentioned index numbers, certain other index numbers of wholesale prices are also published. Notable among these are the Index Numbers of Declared Values of Exports and Imports.

The Monthly Survey of Business Conditions in India publishes index numbers of declared values of exports and imports. The export index number is constructed from 76 articles and the import index number from 161 articles. The base year is 1927-28. Prior to May 1939, base year was 1913-14. These index numbers have been revised and made more comprehensive and now take into account almost all exports and imports.

The index numbers are of aggregate type i.e. the value of exports or imports during the month under consideration (summation of the products of prices and quantities of the current month) is divided by the total of the product of prices of the base year and the quantity of the current month. Thus the index number of the current month is equal to—

$$\frac{\sum P \times Q}{\sum P' \times Q} \times 100 \text{ when}$$

P—Prices of the current period.
P′—Prices of the Base period.
Q—Quantities of the current period.

Recently there has been a move in some provinces to compile Wholesale Price Index Numbers. The U. P. Government is publishing an Index Number of Agricultural Wholesale Prices in U.P. The base period is August, 1939. The Index number is divided in two main groups viz: cereals and noncereals. Separate index numbers are published every month for each of these two groups and a general index number is also calculated. It is a welcome move and we hope that the scope of such statistics will gradually widen and similar attempts will be made in other provinces as well.

Other Wholesale Price Statistics: We have examined the various index numbers of wholesale prices published in India. In addition to these index numbers the following information about wholesale prices is also available:—

(I) *Wholesale Price of Certain Selected Articles at various Centres in India*: The Department of Commercial Intelligence and Statistics issues monthly statement about the wholesale prices of the various commodities at the following centres:—

Calcutta
Bombay
Karachi (now in Pakistan)
Madras
Patna
Lahore (now in Pakistan)
Bangalore
Hyderabad City

The articles of which the quotations are available are 69 in number and constitute various items of food grains, condiments and spices, raw and manufactured jute and cotton, hides and skins, metals, kerosene, coal and building materials etc. The quotations generally relate to the end of the each month but when such quotations are not available those of the nearest previous week are generally taken.

Figures are available from 1931 only. From this date upto September, 1939, these figures used to be

published in the Indian Trade Journal but since October, 1939, the journal does not publish these figures, instead a separate publication is issued by the Department of Commercial Intelligence and Statistics under the name of "Wholesale price of certain selected article of trade at selected stations in India."

(II) *Wholesale Price of Certain Staple Articles of Trade at Selected Stations in India*: This information is given in the publication of the same name. Besides, this very information is also available in the Indian Trade Journal, the Statistical Abstract of British India, and the Review of Trade of India.

The figures represent the wholesale prices prevailing in the markets during the first week of each month, but if quotations are not available for that week, for the nearest period. The information is collected from commercial organisations. Different markets are selected for different commodities. Thus the prices of jute are taken from the Calcutta market and that of cotton from Bombay, of wheat from the Punjab and so on. More than one quotation from two or more markets are also taken.

In the 'Wholesale Price of Certain Staple Articles of Trade at Selected Stations in India,' the prices are given in the shape of range varying between two limits; in the 'Review of Trade' the maximum prices or the upper limits of the range are published.

The items included are more than 40 in number and are spread over a wide range.

(III) *Harvest Price of Certain Principal Crops*:—

Agricultural Statistics of India Vol. I gives the prices of important crops at the time of harvest. The provincial figures are the median of the district figures. The number of crops for which prices are published varies from province to province. It is 4 in Madras and 12 in Bihar and Orissa. More than one quotation are also given for one commodity. There is no uniformity in the

quality of the commodities for which figures are quoted e.g. in some provinces the price quoted for rice refers to unhusked rice, in some provinces to cleaned rice, and in some to all varieties. Therefore the figures published here should be used with great caution. These are official price figures collected through the Revenue Department, which, as we have remarked elsewhere in the book, is overburdened with work and cannot be expected to take interest in the work. As such these official figures differ widely from the so called unofficial figures given by various Trade Associations.

The Indian Trade Journal also furnishes some information regarding the harvest price of some important crops. But "these figures are based on information collected through non-official agencies and represent the average of the weekly quotations during the harvesting period at the important market centres, adjoining the major producing areas for each crop."

(IV) *Price Quotation for some Important Commodities*:—

Monthly and in some cases weekly price quotations are published in the Monthly Survey of Business Conditions in India, for raw cotton, cotton manufactures, raw and manufactured jute, iron and steel, sugar, coal and tea. The price of raw cotton is published every week.

The figures are based on the information collected from commercial organisations in Calcutta or Bombay. A table relating to the average monthly parities of Broach (Bombay) and American Middling (Liverpool) is also published.

(V) *Monthly figures of prices paid for sugarcane delivered at the factories and the portions actually received by the grower*:—

These are taken from the monthly reports issued by Imperial Council of Agricultural Research. The Council collects figures from the returns that it receives under the Sugar Production Rules of 1935. It should not be forgotten that these returns relate only to the "Central Sugar Factories" i.e. those factories which manufacture sugar

from cane or juice by Vacuum Pan Process. The figures are published in the Indian Trade Journal.

The Monthly Survey of Business Conditions also publishes an Index Number of Wholesale Prices of Sugar at Calcutta, with July, 1914, as base.

(VI) *The Price quotations for tea at auction sales in India*:—

The prices of tea realised per pound and the number of packages sold are published in the Indian Trade Journal. Separate figures are available for tea sold for export and that sold for home consumption.

(VII) *Declared Value per unit of principal imported and exported articles*:—

The Indian Trade Journal publishes the prices of imported and exported articles. Total value of exports or imports and the total quantity exported or imported are taken into account to calculate the price per unit. In some cases, if the commodity in question is an important one from the point of view of foreign trade, prices are calculated for more than one variety of the commodity. In other cases, the varieties are combined and only average price is worked out. Figures are available for 48 articles of export and 59 of import.

The values of imported articles are inclusive of cost, insurance and freight (C.I.F.) while those of exported articles are free on board (F.O.B.)

Recent Schemes: In recent years statistical data relating to the wholesale prices are being collected in various provinces. In United Provinces the following information about Wholesale prices is being published in the newly started "Monthly Bulletin of Statistics":—

(a) Weekly (Friday) Wholesale Prices of Industrial Commodities in U. P.
(b) Weekly (Friday) Wholesale Prices of Agricultural Commodities at important centres in U.P.
(c) Weekly (Friday) Wholesale Prices of fruits and Vegetables at important Centres in U. P.

These attempts are highly commendable and it is expected that such statistics would be collected in each province in the near future.

Conclusions: A review of the above statistics relating to wholesale prices in our country indicates that it is only in recent years, particularly after the coming in force of the new scheme of the Economic Adviser to the Government of India, that the situation has become tolerable. Formerly our statistics were very incomplete as we did not possess a single general purpose index number worth the name. The Calcutta and Bombay Wholesale Price Index Numbers did not satisfy the nation's requirements. We should not forget that "the main uses of index numbers of wholesale prices are in relation to national, not to local economic problems, and for the study of general tendencies. They are considered in relation to the movement of currency, exchange, of wholesale prices in other countries and of indices of production, wages, retail prices etc. in each country." It is only now that we have one reliable general purpose index number. It does not, however, mean that there is no further scope for the construction of wholesale price index numbers. Each province should have separate wholesale price index numbers. Such index numbers should be prepared separately for various groups and should also be combined into one provincial general purpose index number. For a big country like ours, it is necessary to have separate indices for various regions and these index numbers only can truly reflect the trend of provincial prices. There is already a move in this direction and let us hope that new schemes would materialise soon.

Besides new index numbers, wholesale prices of various articles that come in our trade and business should also be collected at various centres. Index numbers merely indicate the rise or fall of prices as compared to a particular year but actual prices indicate the level of the phenomenon. It is by comparing the actual prices of two countries and not their index numbers that we can

know their comparative position. Businessmen are greatly interested in comparing the actual prices of various commodities and as such we should have more statistics of actual wholesale prices. Dealers in various districts can be required to furnish this information weekly and free post card system can be introduced with advantage in this connection.

It is gratifying to note that people have begun to realise the importance of price statistics and the government is also moving with times to meet the changed situation and is attempting to collect and publish reliable statistics.

B—Retail Prices and Cost of Living

The statistics of retail prices and cost of living in India are more inadequate than those of wholesale prices. The scope of the retail price statistics is very narrow and it includes only such items as foodgrains and salt; cost of living indices are not many in number and most of them suffer from various drawbacks.

Recently the Economic Adviser's office has paid attention towards these problems and before we examine their schemes we shall describe other statistical material available in India on retail prices and cost of living.

.. Data available on Retail Prices:—

(I) *Average Annual Retail Prices of Food Grains*:—These statistics published in the Statistical Abstract of British India and the Index Numbers of Indian Prices are available for the following articles:—

1. Rice
2. Wheat
3. Jowar
4. Bajra
5. Gram
6. Barley
7. Ragi

The figures are compiled from the fortnightly price quotations received from selected centres. The names of these centres for different commodities are published in the Statistical Abstract. The Abstract gives the figures

of the last 10 years ending with the year under review. The prices are collected by various provincial authorities by making enquiries in *bazar* areas. In *Taluk* centres the prices are collected by the officials of the Taluka.

These prices are not very reliable and they differ widely from similar prices collected through marketing surveys. The Report on the Marketing of Wheat in India as well as other similar reports are strongly of opinion that no care is exercised by officials in collecting these prices and they are unfit for statistical analysis.

(II) *Index Numbers of Retail Prices of Food Grains*:— "The Index Number of Indian Prices" publishes index numbers of the retail prices of the above-mentioned 7 commodities. These indices are unweighted arithmetic averages of the price relatives based on the year, 1873. We have already mentioned that these prices are not reliable and consequently these index numbers are also more or less useless.

(III) *Retail Prices of Salt*: The Indian Trade Journal used to give figures of the retail prices of salt at various centres till November, 1939. Since then, these statistics are not published in the journal and now they are available only in the Statistical Abstract.

These figures are compiled from fortnightly returns of Local Governments and Administrations. Statistics are available for various centres in different provinces and some Indian States.

Before we examine recent schemes of the Central and Provincial Governments in connection with the collection of retail price statistics we would discuss in brief the data available in India about the cost of living because under these recent schemes statistics of retail prices and cost of living are collected together.

Data available on Cost of Living: Monthly cost of living

index numbers are prepared for the following centres in India:—

Bombay

(i) Bombay City
(ii) Ahmedabad
(iii) Sholapur
(iv) Jalgaon

Bihar

(i) Patna
(ii) Muzaffarpur
(iii) Monghyr
(iv) Jharia
(v) Jamshedpur
(vi) Ranchi

C. P.

(i) Nagpur
(ii) Jubblepur
(iii) Hinganghat
(iv) Pulgaon
(v) Badnera
(vi) Elichpur
(vii) Akola
(viii) Burhanpur

U. P.

(i) Cawnpore
(ii) Meerut
(iii) Gorakhpur
(iv) Lucknow

Madras

(i) Madras City
(ii) Vizagapatam
(iii) Ellore
(iv) Trichinapali
(v) Bellari
(vi) Coimbatore
(vii) Madura
(viii) Cuddalore
(ix) Calicut

Orissa

(i) Cuttuck
(ii) Berhampur

Punjab

(i) Lahore*
(ii) Sialkot*
(iii) Ludhiana*
(iv) Rohtak
(v) Multan*

Besides the above index numbers, cost of living indices are also prepared for Jalgaon, Surat, Dhulia and Hubli in Bombay presidency. In U.P. cost of living indices are constructed for low paid government servants at Agra, Allahabad, Almora, Bareilly, Banaras, Gorakhpur, Jhansi, Lucknow and Meerut. In Mysore State also a cost of

*Now in Pakistan.

living index number is compiled for Bangalore city but details of the same are not available.

We shall now examine some of these indices:—

Bombay .Working Class Cost of Living .Indices:— Under this head we will discuss together three index numbers viz. Bombay city, Ahmedabad and Sholapur. The working class cost of living index number for Bombay city was first published in the year 1921. As in the absence of any family budget enquiry it was not possible to assign weights to various items, this index number was constructed on the aggregate consumption method. The first family budget enquiry in the working class was held by the Bombay Labour Office from May 1921 to April 1922 in Bombay city; a second enquiry was conducted between May 1932 and June 1933. The results of the second enquiry have been used in the compilation of the revised index number, which has been made more comprehensive than the previous one, as the miscellaneous group has been added and the commodities in other groups increased. The family budget enquiries for Sholapur and Ahmedabad index numbers were conducted in the years 1925 and 1926 respectively. All the three enquiries were conducted by the Bombay Labour Office.

The Bombay City enquiry committee took a 3% sample of the working class families. If the sampled tenement was vacant or occupied by persons out of the scope of the enquiry, the next tenement fulfilling the conditions was taken up. The Ahmedabad enquiry also took a 3% sample with the difference that if the sampled tenement was not occupied by a worker it was omitted and the adjoining tenement was not taken as in the case of Bombay. The Sholapur City enquiry, which was concerned with textile workers only, took a sample of 1000 families by selecting them from various localities carefully.

The information in all the three enquiries was collected by what is called the "interview" method. The members of the Labour Office paid house to house visit to collect information regarding the amount of money spent on various items.

The items included in the Bombay (City) index number and their weights are as follows:—

A.	**Food**	
1.	Rice	22
2.	Patni	6
3.	Wheat	3
4.	Jowar	1
5.	Bajri	4
6.	Turdal	4
7.	Gram	1
8.	R. Sugar	1
9.	Sugar	5
10.	Tea	2
11.	Fish Dry Bumlows	3
12.	Fish Fresh Bhing or Patah	1
13.	Fish Fresh Prawns	2
14.	Fish Fresh Bumlows	2
15.	Mutton	5
16.	Milk	7
17.	Salt	1
18.	Chillies Dry	3
19.	Tamarind Old	2
20.	Turmeric	2
21.	Ghee	2
22.	Potatos	1
23.	Onions	1
24.	Brinjals	5
25.	Pumpkins White	5
26.	Cocoanut Oil	2
27.	Sweet Oil	2
28.	Tea Ready Made	5
		100
B.	**Fuel & Lighting**	
1.	Charcoal	30
2.	Firewood	52
3.	Kerosene Oil	16
4.	Matches	2
		100
C.	**Clothing**	
1.	Dhoties	15
2.	Coating	12
3.	Shirting	23
4.	Cloth for Trousers	4
5.	Sarees	36
6.	Khans	10
		100
D.	**House Rent**	100
E.	**Miscellaneous**	
1.	Barber	13
2.	Soap (Washing)	9
3.	Medicine	3
4.	Supari	25
5.	Bidies	22
6.	Travelling	27
7.	News Paper	1
		100

The following are the weights assigned to each of the five groups for the construction of the final index number. They are in proportion to the percentages that expendi-

ture on each group bears to the total expenditure on all groups.

(a) Food	47
(b) Fuel and Lighting	7
(c) Clothing	8
(d) House Rent	13
(e) Miscellaneous	14
	89

The weights in Ahmedabad and Sholapur index numbers are as follows:—

	Ahmedabad	Sholapur
(a) Food	58	49
(b) Fuel and Lighting	7	10
(c) Clothing	10	12
(d) House Rent	12	6
(e) Miscellaneous	4	6
	91	83

In Bombay city the price quotations of all articles excepting for clothing, 4 varieties of fish, brinjals and pumpkins, are collected weekly by the Labour Office. The quotations are taken from two shops in each of the 12 different industrial areas. The prices of all clothing articles excepting *Khans* are collected from 4 different cotton mills having retails shops in Bombay city. The prices of brinjals, pumpkins and fish are taken from the municipal records. In case of Ahmedabad, the prices are collected by the Investigators of the Labour Office every week from eight representative retailers in the city. In case of Sholapur the prices are collected every fortnight by the "Prices Clerk" of the Collector of Sholapur from 10 representative retailers.

The base year for Bombay City index number is the year ending June 1934, that for Ahmedabad is the year ending July 1927 and for Sholapur the year ending January 1928.

The method used in the compilation of the index numbers (all the three) resembles that of British Ministry of Labour. The index number for each group is first calculated by averaging the group figures together after weighting them by the percentages that each item of the group bears to the total expenditure on the group. The final index number is calculated by averaging the group indices after weighing them by the percentages that expenditure on each group bears to the total expenditure on all groups. The average used in both the cases is the arithmetic average.

From 15th May 1943, some readjustment has been made in the method of the compilation of the Bombay City Index Number for the cereals subgroup, due to the disappearance of cereals like *patni* and jowari from the local markets.

Other Index Numbers: It is not possible to give a detailed account of all the index numbers compiled in the country. We have given above some important points in connection with the construction of cost of living indices in Bombay Province in general, and Bombay City in particular. Almost all index numbers in this country are compiled on the lines of the Bombay cost of living index numbers. However we give below, in the shape of two tables, some relevant information about some other cost of living index numbers.

Table I

Index No. of	Base period	Time and duration of family budget enquiry.	Kind of average used	No. of budgets accepted
Nagpur	January 1927 August 1939	September 1926 to January 1927	Arithmetic average	1002
Jharia	5 years preceding 1914	1923	„	—
Cawnpore	August 1939	1938-39	„	—
Madras	Year ending June 1936	June 1935 to September 1936	„	641
Patna	5 years preceding 1914	5 years ending 1918-19	„	—

Table II (weights)

Groups	Nagpur	Jharia	Cawnpore	Madras	Patna
1. Food	64.10	55	42	58.23	63
2. Other articles of food.	—	31	—	—	19
3. Fuel & lighting	9.62	Supplied free.	6	8.42	5
4. Clothing	10.70	14	8	6.10	13
5. House Rent	—	—	7	14.57	—
6. Miscellaneous	15.58 including H. Rent	—	6	12.68	—
Total	100	100	69	100	100

Notes:

1. In C. P. (Nagpur) the food group is sub-divided into cereals, pulses and other articles of food. In Bihar Orissa, separate index numbers are constructed for food grain and other articles of food.
2. In Bihar Orissa and C. P. the final index number is worked by directly averaging the individual price relatives because the weights assigned in these cases to each commodity is the ratio that the expenditure on the commodity bears to the total expenditure, and not to the expenditure on the group as in other provinces.

Diversity and Drawbacks of these indices:—These cost of living index numbers have come in for a good deal of criticism and their practical utility has very often been challenged. The Rau Court of Enquiry appointed by the G.I.P. Railway to investigate the dispute regarding the Dearness Allowance to railway workers was of opinion that "none of the cost of living index figures at present available is entirely satisfactory." The Court of Enquiry was hampered by the fact that there was no evidence as regards movements in cost of living.

The enquiries conducted for the construction of these index numbers have not been comprehensive and leaving the enquiries conducted by the Bombay Labour Office and the one relating to Madras City, no details are available about them. It is difficult to say, in the absence of the primary data whether the sample taken in various enquiries is actually representative or not. As details are not available in case of most of the enquiries they cannot be statistically analysed. In the Madras enquiry it was possible to check, to some extent, the reliability of the sample by comparing the average income of the worker in the sample with the average income of the total working population. No such check was available in other cases. The proportion of workers covered by the enquiries, and the period for which the figures were collected was not uniform in all centres. Though the budgets were collected generally for a month's expenditure yet the month chosen differed from centre to centre and the seasonal variations at various places introduce an appreciable amount of error. As we have already seen the dates of the family budget enquiries are widely varying. Whereas the Cawnpore index number is constructed on the basis of the enquiry conducted as recently as 1938-39 the index numbers of Patna, Jharia etc. rely on enquiry conducted as early as 1909-1914. This fact is responsible for the drawback that these enquiries fail to give a comparative picture of the cost of living at various centres. The distribution of workers' expenditure in the year 1914 and the year 1939 is not the same. It has undergone a great change due to changes in habits and customs, and ways of living. In the enquiry conducted in Ahmedabad in 1926, 57.9% was spent on food and 12.7% on miscellaneous items but the enquiry of 1933-35 shows that these percentages changed to 49.3 and 23.6 respectively. Under such circumstances these cost of living indices cannot give us a comparative picture. Varying size of the family unit in various enquiries is an additional source of difficulty. In Madras city index number the average size of a family comes at 6.03 persons whereas in case of Bombay city, it is only 3.70 persons.

There is no uniformity in the various centres either regarding the agency through which prices are collected or the frequency with which quotations are obtained. In C. P. and the Punjab there is no specially trained staff for doing this job as is in other provinces. Nothing is known about the procedure that is adopted by investigators to get the prices. Obviously investigators cannot have any access to the records of the various people and they have to rely on verbal quotations given by shopkeepers from their memory. These figures, however, can be taken as correct because mistakes in one direction are balanced by similar mistakes in other direction, though there can be no guarantee for this. The frequency of the price quotations is not the same. In Madras quotations are got generally twice a week, in Bombay, Ahmedabad and Cawnpore once a week and in Sholapur once a fortnight. In C. P. prices refer to the 15th of every month and in the cases of the Punjab, Bihar and Orissa to the last day of the month.

In C. P. and Bihar Orissa, house rent is ignored altogether but in other cases where it is included the prevailing house rent is calculated by appointing *ad hoc* committees at long intervals. Cawnpore index number has recorded a 20% rise in rent in 1944 after an enquiry. In case of Bombay the house rent of the base year has continued to be the house rent of all the years and in the Punjab house rent figures are collected in the same way as the prices of various commodities.

Besides the above variations the base periods of our index numbers vary widely. The Punjab index numbers have as old a base as 1909-14 and Cawnpore index number is based on a period as late as August 1939. Moreover the length of the base periods also shows wide variations. On the one hand the Punjab and Bihar indices have as their period one full quinquennium ending 1914, on the other hand Nagpur and Jubbulpore index numbers are based on one month only, January 1927. Recently the base of Nagpur and Jubblepore has been changed to August 1939. The result of such variations is that the index numbers are not strictly comparable

because their weights are calculated on investigations which are not made simultaneously but at widely different and varying base periods.

The scope of these indices is very narrow in some cases and it also shows wide variations. The Cawnpore index number is constructed from items over which only 69% of the total expenditure is incurred. Practically all index numbers appear to be comprehensive as far as the list of items in the food group is concerned, though the same cannot be said about the weights assigned to them e. g. in Bombay rice gets a heavy weightage though a big minority of U. P. and the Punjab workers in Bombay eat mostly wheat. The weights are not representative in such cases. As far as the fuel and lighting group is concerned it is altogether ignored in Jharia index number on the ground that fuel and lighting is supplied free to labourers. This may be alright from the point of view of actual cost of living but this robs the index number of its merit of comparison with other provincial index numbers. Bihar Orissa, C.P. and U.P. index numbers do not include matches in the group of fuel and lighting. Clothing group is also not satisfactory in most index numbers. It excludes tailoring charges due to difficulty of getting quotations. Tailoring charges do not rise in the same proportion as the cloth prices and if the tailoring charges are also included in the clothing group under the price of cloth it amounts to slight overstatement. Moreover, new articles should be introduced in place of the old ones as it is baseless to go on including items which are no more in use. House rent is altogether absent from the index numbers of the provinces of Bihar Orissa and C.P. This makes these indices uncomparable with others which include house rent. Moreover as rent does not rise much even in items of rising prices its exclusion leads to overstatement of rise. The miscellaneous group shows wide variations. On the one hand Madras index number contains as many as 9 items in the miscellaneous group, on the other hand, the Bihar and Orissa indices do not contain this group at all.

Thus the various index numbers published are widely varying and different and cannot be compared with each

other. Even for measuring the change in the cost of living of the same centre their utility is not much as the list of commodities is rarely changed and the price quotations are not necessarily reliable. These indices do not even correctly represent the cost of living, as they do not include all items of expenses and as we have seen, in the case of Cawnpore, the index number includes items covering only 69% of the total expenditure.

Government of India's recent schemes

We have already seen that the index number of retail prices and the cost of living index numbers in our country are not only too few but also very defective and not comparable with each other. There is a necessity of having better indices of retail prices and uniform cost of living index numbers. The Government of India also felt considerable difficulty on account of these drawbacks during the last war (1939-45) and the Rau Court of Enquiry, appointed in August, 1940, to investigate the dispute of Dearness Allowance to workers of G.I.P. Railway, was also handicapped due to absence of reliable cost of living indices. It pointed out that "the requisite for any satisfactory revision of the allowance that we have recommended is the preparation of up-to-date cost of living index numbers for three distinct classes of areas, city, urban and rural....we would accordingly recommend that the question of preparing and maintaining such figures for the purposes of the Central Government be considered by the Government of India." (para 111 of the report).

The Government of India acted on the recommendation of the Rau Court of Enquiry and prepared a tentative scheme for maintenance of cost of living and retail prices indices, and in 1941 circulated it to the Provinces for eliciting their opinion. There was an encouraging response and there was a consensus of opinion on the suggestion for compiling these indices for selected centres on a uniform basis. This scheme was also considered at the Third Conference of Labour Ministers held at Delhi in January, 1942, and they also concluded that it was necessary to have uniform cost of living indices for all provinces. They further suggested that though family budget enquiries can be

made by provincial staff yet the Central Government should maintain a co-ordinating and directing machinery. Further the government should appoint a Committee of Experts with representatives of provinces to decide the various details of the scheme.

Taking into account all these suggestions the government appointed an officer to make preparation for compiling indices on a uniform basis for the country. Government of India also decided to proceed concurrently with a scheme for the preparations of retail price indices for those centres for which cost of living index numbers were to be ultimately prepared. Due to the difficulty of organisation the government, for the present, has selected 15 rural centres situated in the different parts of the country (including states) for the compilation of retail price index number. All these centres are wayside railway stations.

Thus at present there are three schemes with which the government is proceedings:—

1. The Main Cost of Living Index Scheme
2. Retail Price Index Number Scheme, Urban centres and
3. Retail Prices Index Number Scheme, Rural centres.

The Main Cost of Living Index Number Scheme:— The following 50 centres were selected for which cost of living index numbers of working classes were to be prepared.

Name of Province	Name of Centre
Bombay	Bombay, Ahmedabad Sholapur, Surat, Jalgaon, Hoobli, Poona and Dohad.
Bengal	Kharagpur, Calcutta, Kanchrapara, Raniganj, Chittagong, Budge Budge, Serampur, Kankinara and Narayanganj.
United Provinces	Cawnpore, Lucknow, Meerut, Gorakhpur Agra, Bareilly, Benares, Allahabad and Jhansi.

C. P. and Berar	Nagpur, Jubbulpore and Akola.
Assam	Gauhati and Tinsukia
Bihar	Patna, Jamshedpur, Jharia Muzaffarpur, Ranchi, Monghyr and Dehri-on-Sone.
Orissa	Cuttack and Berhampur.
Sind	Karachi and Sukkur.
Punjab	Lahore, Lyallpur, Amritsar, Ludhiana, Sialkot and Rawalpindi.
Ajmer	Ajmer.
Delhi	Delhi.

Now due to partition of the country the question of construction of index numbers for centres of Sind and some centres of Punjab does not arise.

Family budget enquiries were conducted in some centres but due to various political events, the progress of the scheme was very slow. It was decided to collect some 20,000 family budgets, but this could not be done. The lists of items drawn up for the Retail Price Index Number Scheme were so drawn up that they might be useful for the construction of cost of living index numbers.

Retail Price Index Number Scheme, Urban Centres:—

For this scheme, the centres selected were the same as for the Main Cost of Living Scheme. The necessary organisation for the scheme has been set up and at present weekly price returns are received from many centres. There are certain difficulties in getting returns due to unavailability of certain articles in the market, but they are being gradually overcome. Care is taken to scrutinise the returns received from the centres and only comparable price data are utilised for the preparation of these indices.

Retail Price Index Number Scheme, Rural Centres:—

Fifteen centres have been selected for this scheme. They have been divided into three zones as follows:—

Northern Zone	1. Gujarkhan	(Punjab)
	2. Shujabad	(Punjab)
	3. Salamatpur	(Bhupal State)
	4. Multapi	(C. P.)
	5. Nana	(Jodhpur State)
Eastern Zone	1. Maibang	(Assam)
	2. Sonaili	(Bihar)
	3. Rajapur	(Bengal)
	4. Shankergarh	(U. P.)
	5. Bamra	(Bamra State, Orissa)
Southern Zone	1. Lakh	(Bombay)
	2. Krishna	(Hyderabad State)
	3. Kudchi	(Bombay)
	4. Malur	(Mysore State)
	5. Muniguda	(Orissa)

The necessary preliminary investigations at these centres (some of these are now in Pakistan) were conducted under the supervision of 3 officers on special duty. On the basis of these enquiries the list of articles for which prices were collected has been drawn up and some shops are selected to supply price quotations every week on a day appointed for this purpose. The work of collection of prices has been entrusted to Station Masters of the stations and their work is supervised by Inspector of Railway Labour. The returns are properly scrutinised and monthly index numbers are now being maintained for all these centres.

Other Schemes: Besides the above schemes of the Central Government, various provincial governments are also collecting statistics of retail prices and also publishing certain cost of living index numbers. The United Provinces Government are publishing retail prices of some 47 commodities (distributed over 4 groups viz: Food:

Clothing and Footwear; Fuel and Light and Miscellaneous). These prices are available for Agra, Allahabad, Benares, Bareilly, Faizabad, Gorakhpur, Jhansi, Kanpur, Lucknow, Meerut and Nainital. The prices are weekly and are those ruling in the markets on each Sunday.

The U. P. Government is also publishing weekly (Friday) Retail Prices of Fruits and Vegetables at selected centres. At present the articles for which prices are published are 33 in number. The centres for which prices are collected are the same (11 in number) as those for other articles, mentioned above.

We have already mentioned that the U. P. Government is also publishing cost of living indices for low paid government servants at various centres. These attempts are welcome and if this progress continues in future (as we hope it will) our retail price and cost of living statistics will become complete and accurate.

CHAPTER X

Statistics relating to Joint Stock Companies, Insurance and Cooperation

Joint Stock Companies

A joint stock company may be defined as an association of persons carrying on business with a common capital, divided into shares, held by the members in any proportion. It is legally necessary that an association of more than 10 persons in case of banking business and more than 20 persons in other cases should be incorporated as a joint stock company, under the Indian Company's Act.

Joint Stock Companies may be of three types:

(i) *A company limited by shares*:—In such companies the liability of a member is limited to the amount, if any, unpaid on the shares owned by him. He is not responsible for payment of company's losses beyond that amount. That is his maximum liability.

(ii) *A company limited by guarantee*:—Here the liability of a member is limited to the amount that he has undertaken to contribute to the assets of the company, in case it is wound up. Such companies need not have a share capital.

(iii) *An unlimited company*:—In such companies there is no limit to the liability of the shareholders. A shareholder may be called upon to pay any amount in respect of the liability of the company. Such companies also need not have a share capital.

Most of the companies in India are Joint Stock Companies limited by shares. Any seven or more persons can form a limited company for carrying on any lawful business. A private company can be formed by two persons only. A private company is one which by its articles—

(i) restricts the right to transfer the shares, if any
(ii) limits the number of members to 50, excluding employees and
(iii) prohibits any invitation to the public to subscribe for the shares or debentures of the company.

As against private company a public company is one which offers its shares and debentures to the public for subscription.

The Indian Companies Act, 1913, as amended in 1936 requires every company to submit at the time of registration a memorandum with various details including those of share capital (if any). Besides this, section 32(2) of the Indian Companies Act requires that every company having a share capital shall, once in a year, prepare a statement distinguishing between shares issued for cash and issued as fully or partly paid up otherwise than in cash, giving besides other things the following particulars:—

(i) The amount of share capital of the company and the number of shares in which it is divided.
(ii) The number of shares taken from the commencement of the company, up to the date of return.
(iii) The amount called up on each share.
(iv) The total amount of calls received.
(v) The total amount of calls unpaid.
(vi) The total number of shares forfeited.

Besides this section 130 of the Act requires that every company should keep proper books of account in respect of receipts and payments, purchases and sales and assets and liabilities. Annually a Profit and Loss Account and Balance Sheet should be prepared and audited by a registered auditor. The Profit and Loss Account and Balance Sheet should be kept, as far as possible, in accordance with the form prescribed in the Form F of the Act.

The Registrar of Joint Stock Companies receives all the above information, and the statistics relating to Joint Stock Companies in India are all based on these figures.

We have already discussed that, besides this, at present the government is collecting additional information with regard to industrial companies in accordance with the Industrial Statistics Act. We have already discussed these things in the chapter on Industrial Statistics.

At present the Department of Commercial Intelligence and Statistics is issuing two publications exclusively on the statistics of Joint Stock Companies. They are:

(i) Joint Stock Companies in India—Monthly.

(ii) Joint Stock Companies in British India, the Indian States of Hyderabad, Mysore, Baroda, Gwalior, Indore, Travancore and Cochin (Annual).

Statistics regarding Joint Stock Companies are also published in the Statistical Abstract and the Indian Trade Journal (both issued by the Department of Commercial Intelligence and Statistics). The Capital, Commerce, and Industries Indian Year Book published by Place Siddons, and Gough, Calcutta, and other Stock Exchange year books give many other details not published in official publications on Joint Stock Companies in India.

The statistics published in the four Government publications named above generally relate to the number of companies and a detailed information about their capital. The first two publications viz 'Joint Stock Companies in India' and "Joint Stock Companies in British India, the Indian States of Hyderabad, Mysore, Baroda, Gwalior, Indore, Travancore and Cochin" classify the companies as follows:—

I. Banking, Loan and Insurance.

(a) Banking and Loan.
  (i) Banking.
  (ii) Loan.
  (iii) Investment and Trade.
  (iv) Nidhis and Chit Associations.

(b) Insurance
  (i) Life, Fire and Marine Insurance.
  (ii) Provident Insurance.
  (iii) Others.

II. Transit and Transport

(a) Navigation.
(b) Railways and Tramways.
(c) Motor Tractions dealing and manufacturing.
(d) Docks, Harbours, Shipping, Landing and Warehousing.
(e) Others.

III. Trading and Manufacturing.

(a) Mutual Trading Associations.
(b) Printing Publishing and Stationery.
(c) Chemicals and allied trades.
(d) Iron Steel and Ship Building.
(e) Engineering.
(f) Tanneries and Leather Trade.
(g) Canvas and India Rubber Trade.
(h) Public Service Companies—gas, water, electric light, power, and telephone.
(i) Clay, stone, cement, lime and other building and constructing materials.
(j) Glass.
(k) Ice and areated water.
(l) Agencies (including managing agents.)
(m) Tea Box and cabinet manufacturing.
(n) Tobacco (Cigars etc.)
(o) Soap, candles etc.
(p) Brass and copperware.
(q) Aluminium ware.
(r) Match.
(s) Others.

IV. Mills and Presses

(a) Cotton mills.
(b) Cotton ginning, pressing and bailing etc.
(c) Jute Mills.
(d) Jute presser etc.
(e) Mills for wool, silk, hemp etc.
(f) Paper mills.
(g) Rice mills.
(h) Flour mills.
(i) Saw and Timber mills.

(j) Oil mills.
(k) Other mills and presses.

V. **Tea and other Planting Companies**
(a) Tea.
(b) Coffee and Cinchona.
(c) Rubber.
(d) Others.

VI. **Mining and quarrying**
(a) Coal.
(b) Gold.
(c) Iron ore.
(d) Stone and marble quarries.
(e) Manganese.
(f) Mica.
(g) Petroleum.
(h) Others.

VII. **Estate, Land and Building.**
VIII. **Breweries and Distilleries.**
IX. **Sugar (including Jaggery) Manufactures.**
X. **Hotels, Theatres and Entertainments.**
XI. **Companies other than those specified above.**

Information for each of the above classes available is as follows:—

Number of Companies registered:—The "Joint Stock Companies" gives the number of Joint Stock Companies incorporated in (former) British India, and in the states of Hyderabad, Baroda, Mysore, Travancore and Cochin, registered in the month under review. Various details are furnished. Names of managing agents, secretaries, etc., the situation of registered office, objects, amounts of authorised, subscribed and paid up capital are given.

"Joint Stock companies in British India and in the States of Hyderabad, Baroda, Mysore, Travancore and Cochin" publishes the number, description and capital of companies (in each province and state) at the end of the year under review. Figures for the last ten years ending with the year under review are given. Figures of the new companies incorporated during the year under review are given separately.

Number of Companies ceasing work or going into liquidation:—Monthly figures of the number of companies going into liquidation, or ceasing to work, or becoming defunct are given in the "Joint Stock Companies in India." Dates of registration of such companies, their names, capital (Authorised, Subscribed and Paid up), date of going into liquidation and date of final dissolution are also published. The other publication gives the yearly number of companies which cease to work along with their capital.

Number of Companies incorporated elsewhere but working in India:—"Joint Stock Companies in British India and in Indian States of Hyderabad, Mysore, Baroda, Gwalior, Indore, Travancore and Cochin" publishes a table giving the number, description and capital (in sterling) of companies incorporated elsewhere but working in India in the year under review. Figures are given separately for each province and state.

It should not be presumed that the capital figures as shown in the publication relate to the amount invested in India. The figures are for total capital and only a small part of it is invested in India. Therefore these figures should not be assumed to be figures of foreign capital invested in the country.

Capital of the Companies and Changes therein:—Capital of the companies is given in both the publications, but the "Joint Stock Companies" gives a detailed statement of changes in the authorised, subscribed and paid up capitals of existing Joint Stock Companies reported during the month under review. Information given is the class and name of the company, reported date of increase or decrease, previous capital, present capital and the difference.

Alphabetical list of companies:—Joint Stock Companies in India and certain Indian States, gives a very useful table giving the alphabetical list of companies at work in India on 31st March each year. The details given are the name of the company, classification, date of registration, capital and situation of registered office.

The Statistical Abstract of British India also publishes statistics regarding the number and paid up capital of Joint Stock Companies at work in India at the end of the financial year. Figures are available under broad heads which differ from those of the above described publications. The classification of the companies in the 'Abstract' is as follows:—

1. Banking and Loan.
2. Insurance.
3. Navigation.
4. Railways and Tramways.
5. Other Transit and Transport.
6. Trading and Manufacturing Companies.
7. Tea.
8. Other planting companies.
9. Coal mining.
10. Gold mining.
11. Other mining and quarrying companies.
12. Cotton mills.
13. Jute mills.
14. Mills for Wool, Silk, Hemp etc.
15. Cotton Ginning, Pressing and Bailing etc.
16. Jute Pressers etc.
17. Flour mills.
18. Estate, Land and Buildings.
19. Sugar (including Jaggery).
20. Other companies.

Information given relates to the number of companies and their paid up capital, companies registered in (former) British India and certain Indian states are dealt with separately. Provincewise figures are also available and the number of companies registered outside India but working in each province or state is also stated.

The Indian Trade Journal also publishes the number of Joint Stock Companies registered in Bengal in each month. The capital of such companies is also stated and the figures are given in accordance with the classification followed by "Joint Stock Companies in India."

Statistics regarding number of companies and particularly with regard to details of capital are published in a number of non-government publications like Stock Exchange Year Book, Investor's India Year Book and Capital etc. These publications give a more detailed information than the government publications. They give figures of ordinary share capital, preference share capital, debentures, gross block account, reserves and other funds and the market quotations for share etc. The amount of deferred shares and the rates of preference shares and debenture are also mentioned.

Figures regarding capital of Joint Stock Companies should be used with caution. As already pointed out many unlimited companies and companies limited by guarantee do not have any capital but they are included in number of companies and as such we cannot calculate correctly the average capital of companies simply by dividing the total capital by the number of companies. If average capital has to be calculated, then first the number of unlimited companies and those limited by guarantee should be deleted. Their number can be found out from the alphabetical list of companies given in "Joint Stock companies in British India and some Indian States."

Profits—The only official information about the profits of companies is the Index Number of Profits compiled by the Office of the Economic Adviser and published in the Review of Trade of India. This index number is, as we shall see, very incomplete and is not representative of the business profits of the country. The importance of the statistics of profits is very great as they are very useful in analysing the period of trade cycles and show the phase of the cycle in the country concerned. In England, the Economist used to publish quarterly analysis of the profits of Joint Stock enterprises and in 1932 it compiled an index number of profits. The index number was worked backward to 1923. Since then, the Economist is regularly publishing an index number of profits in that country. Various independent enquiries have also been made and their results also published.

This index number compiled by the Office of the Economic Adviser to the Government of India includes the following 8 industries:—

1. Cotton.
2. Jute.
3. Cement.
4. Tea.
5. Iron and Steel.
6. Sugar.
7. Paper and
8. Coal.

The technique of construction of the index number is very simple. A number of companies have been selected from the list available in the Investor's Year Book published by Messrs. Place, Siddons and Gough. The profits of these industries are found out and an index number for each industry is calculated on the chain base system. Profits of the current year are expressed as percentages of the profits of the previous year and an average of these percentages is the index number of profit of the industry concerned. These chain relatives are also linked to the year 1928 which is taken as the base. A combined index number of all industries is also prepared and it is the average of the indices of individual industries.

This index number is not representative of the business profits in the country and should not be used for general purposes. Some of the industries have been adequately represented while others are not. If we calculate the percentage of the paid up capital of the individual companies included in the index to the total paid-up capital of all companies in that industry we will find that Jute and Paper industries are adequately represented and industries like Cotton, Sugar and Coal etc. are not represented well. Percentages of paid up capital of companies included in the index to the total paid up capital of all companies in that industry for the year 1939-40 are as follows:

Cotton	46.5%
Jute	92.7%
Cement	80.4%
Tea	40.6%
Iron and Steel	72.2%
Sugar	34.6%
Paper	98.0%
Coal	63.7%
Average	61.2%

Above figures clearly show that the index number is not dependable. The percentage of the paid up capital of all companies in the index to the total paid up capital of all companies of the country is only 25%. This figure clearly shows that the index number does not represent business profits of Joint Stock Companies as it takes into account only about 1/4th of the total business of companies. It can never be taken as representing the trend of profits in the country because it ignores the profit of thousands of firms and unlimited companies which do not publish their profits and which are not included in the index. We have seen that even for profit of Joint Stock Companies it does not serve the purpose. However since this index number includes 8 important industries of the country and takes into account companies with about 60 per cent of the total paid up capital of these industries it can be taken as representative of only industrial profits of the country.

Besides being unrepresentative there are many other drawbacks in the index number. It is based on profits which are neither the total profit of the manufacturers nor the amount available for final distribution to the shareholders. There is no uniformity in the return submitted by the companies and hence it cannot be said definitely which profits this index number takes into account. Usually from the gross profits, taxes, interest, commission etc. are deducted but no deductions are made for depreciation or contribution to reserve etc.

Yet another point is that some companies close their books of account on 31st December, some on 31st March

and some on 30th June. Some companies close them at other dates as well. Under such circumstances the yearly profits of all companies are not of the same period and therefore an index number based on such profits is not absolutely accurate. Moreover the profits declared in a particular year show the prosperity of the previous year and not the year in which they are declared and as such the index number of a particular year, in reality, shows the prosperity or otherwise of industries in the previous year and not the current one.

If we take into consideration the above points it would not be difficult to conclude that this index number does not serve its purpose. There is need of having uniformity in the concept of profits and it is also necessary that such an index should cover a wide range of companies. No doubt, for some time to come, very great difficulty will be felt with regard to unlimited and small concerns but there is no reason why more limited companies cannot be included in the index. This index number should be expanded and should take into account not only a greater number of companies of each industry but a greater number of industries also. During the last war new industries were started and the authorities would do well to include some of these industries also in the index number.

Besides the above index number, 'Capital' every week publishes a long list of limited companies (about 600) about which very useful statistical information is given. Not only figures are available about the Paid up Capital, Net Block Account, Reserves, Depreciation etc. but the dividends of the last 3 years are also stated along with the market price of the shares. This paper is doing a very useful service by publishing these figures in such details. The Stock Exchange Year Book also gives such figures. They publish the dividends of various types of shares of various companies. Though dividends are no sure guide of the profits of the companies yet in the absence of anything better they serve the purpose well. Many companies in order to maintain or pull up the value of their shares declare high dividends out of reserves etc. or by nonprovision of depreciation etc. but as we have

already said that in the absence of such detailed information the rate of dividends show the trend of the profits. The 'Capital' as far as possible, indicates the companies which have declared dividends without providing for depreciation. It also indicates the closing dates of the year of the various companies.

Insurance

Insurance business is of recent origin in this country. Most of the insurance companies have been started quite recently and are doing only life business. Non-Indian Companies in this country do mostly non-life business. The working of the Insurance Companies in India is regulated by the Insurance Act, 1938. According to this Act it is compulsory for every company carrying on insurance business in (former) British India to get itself registered and obtain a Certificate of Registration from the Superintendent of Insurance. A Life Insurance company should have a capital of at least Rs. 50,000 exclusive of Deposit to be made on registration and preliminary expenses. According to the Act all Insurance Companies have to deposit with the Reserve Bank of India certain fixed amounts in specific instalments. The amounts to be deposited are as under:—

	Rs.
(a) For Life Business only	2,00,000
(b) For Fire Business only	1,50,000
(c) For Marine Business only	1,50,000
(d) For Accident Business including workmen's compensation and motor car insurance	1,50,000
(e) For Life and any one of (b), (c) or (d)	3,00,000
(f) For Life and any two of (b), (c) or (d)	4,00,000
(g) For Life and (b), (c) and (d)	4,50,000
(h) For any two of (b), (c) or (d) without Life Business	2,50,000
(i) For (b), (c) and (d) without Life Business	3,50,000
(j) For Marine Insurance relating to country craft	10,000

Besides, separate accounts have to be maintained for each class of business, and the Revenue Account and the Balance Sheet for various classes of business are to be in accordance with new Regulations and Forms as prescribed in First, Second and Third Schedules of the Act. For Life Assurance Companies it is necessary that an actual valuation should be made at least once in every five years.

An important point in the Act is the compulsory investment of assets to the extent of 55% of liabilities in respect of Life Assurance Business in Government and other approved securities. Twice in a year before 30th June and 31st December a certified statement is to be submitted to the Superintendent of Insurance showing that 55% has been invested as required by law. This provision has come for a lot of criticism. By this provision insurance companies are rendered incapable of financing industry and agriculture. In other countries Insurance companies and other institutional investors help both industry and agriculture. We are not concerned here with the merits or drawbacks of this provision but it should not be lost sight of that such a policy, which has been supported on grounds of safety and security, cannot be defended particularly when we find that investment in good concerns are equally secure and safe and more paying than the government paper.

The Act also fixes the maximum remuneration to be paid to the agents and these figures are as follows:—

40% on First Year's Premium in Life Business.
5% on Renewals.
15% on Premiums for any other business.

For New Life Assurance Companies the figures are—

55% on First Year's Premium,
6% on Renewals,

during the first 10 years of business.

The act also contains certain important provisions with regard to Provident Societies.

Statistics relating to Insurance are not very meagre. The Insurance Year Book gives a lot of statistical infor-

mation about Insurance Companies and their business, and important figures from these are reproduced in the Statistical Abstract as well. The details of the Post Office Insurance Fund are to be found in the Annual Report of the Post and Telegraph Departments.

We shall first examine the material available about Indian Life Assurance Companies. Important information available about them is as follows:

(I) **Number of Indian Life Assurance Companies.**

(II) **Amount of Income and Outgo of Life Assurance Companies.** Both the Year Book and the Abstract publish detailed information about the income and outgo of Indian Life Assurance Companies. Information is available under the following heads:—

Income

(a) Premium for Life Assurance and annuities.

(b) Net Interest, Dividends and Rents.

(c) Other Receipts.

Outgo

(a) Claims by Death.

(b) Claims by Survival.

(c) Surrenders, including bonus in cash and the reduction of premium.

(d) Annuities and Pensions.

(e) Dividends including those paid by companies transacting business other than Life Assurance.

(f) Expenses of management.

(g) Depreciation, Transfer to Investment Fluctuations Account etc.

(h) Miscellaneous—(Prior to 1932, figures in respect of this item were included in (g).

(III) **Life Assurance Fund, Paid-up Capital and Total Realizable Assets:—**

Life Assurance Fund represents the excess of Income over Outgo. It is sometimes mistaken for profits of the company. But it is not so. If we take into account the special nature of life assurance business we can easily conclude that the excess of income over outgo cannot be the profit of the company. Profit of Life Assurance

Companies is found out by actuarial valuation, by estimating the present worth of future premiums. Figures of the Life Assurance Funds are available along with the figures of Paid-up Capital and Realizable Assets. Information is available under the following heads:—

Liabilities

Life Assurance Fund
Paid-up Capital

Realizable Assets

Mortgage on Property in India.
Loans on policies within their surrender value.
Loans on stock and shares etc.
Other loans.
Indian Government Securities.
Securities of Indian States.
Port Trust, Improvement Trust and Municipal Securities etc.
Shares in Indian Companies.
Land and House property.
British, Colonial and Foreign Government Securities.
Agents' balances, outstanding premium and outstanding interest etc.
Accrued Interest.
Deposits, cash and stamps.
Miscellaneous assets.

One very important thing to be noted about the figures is in connection with Investments. The valuation of investment by various companies is not on uniform lines. Some companies value investments at cost, others at par, still others at market rates. This is really a very undesirable state of affairs. The Insurance Companies should follow a uniform policy with regard to the valuation of their investments.

(IV) **New Business of Indian Life Anssurance Companies and their total business at the close of each financial year**:—

Figures are available under the following heads:—

New Business

(a) Sums assured.
(b) Annuities per annum.

Total Business

(a) Sums assured and bonus.
(b) Annuities per annum.

It should however be remembered that the financial year to which the above figures relate is different for different companies.

(V) **Annuities**: The Year Book gives information about the number and annual value of new contracts effected in the year under review and the total business.

(VI) **Results of Valuation**: Five years' figures are published and the surplus or deficit is also stated.

(VII) **Rates of Dividend**: The Year Book publishes a table with regard to companies owned by shareholders (Indian Proprietory Companies) transacting Life Business. Their names are arranged in alphabetical order and rates of dividends for previous five years are stated.

(VIII) **Valuation reports**: Various details are provided. The basis of valuation. (Mortality tables, the rate of interest reckoned in valuation, and percentage of premiums renewed), business in force (number of policies sums assured, annuities, yearly premiums and Life Insurance Funds), results of valuation (surplus or deficit), and allocation of surplus (between policy holders and shareholders and reserve fund etc.), and simple reversionery bonus per cent per annum etc. are all stated in details.

(IV) **Life Business of Foreign Companies**:—Non-Indian Companies are first classified according as they are constituted in U. K. or outside U. K. Various details about them are also available. Information is available about new life assurance policies effected by them. The number of such companies, the number of policies effected by them, the sums assured and premiums received

are also stated. Their Revenue Accounts and Valuation Reports are also available. Indian business of such companies is separately dealt with in the valuation reports.

Besides the above information the Year Book furnishes other informations with regard to average sum assured, net rates of interest realised by Life Insurance Companies, expenses of management as percentage of premium income, and similar other secondary statistics.

Post Office Insurance Business:—Post offices in India also do a certain amount of insurance business and details about it are available in the Annual Reports of the Post and Telegraph Department. Some information is published in the Year Book and is also reproduced in the Statistical Abstract. Information available is as follows:—

(i) *Income and Outgo of Post Office Insurance Fund*

Income

(a) Premium for Life Assurance and Annuities.
(b) Net Interest, Dividend and Rents.
(c) Other Receipts.

Outgo

(a) Claims by Death.
(b) Claims by Survival.
(c) Surrenders, including Bonus in cash and in reduction of premium.
(d) Annuities and Pensions.
(e) Expenses of management.

(ii) *Total sums assured*—Number of policies and their total amount at the beginning of the year, issued during the year, discharged during the year and balance at the end of the financial period are stated separately.

(iii) *Post Office Insurance Fund*:—Figures of various receipts like premiums, fines, medical fees and interest are stated in detail, and the payments are also shown in detail. Excess of receipts over the payments representing the fund is shown separately. Separate figures are available for Life and Endowment Assurances.

Non-Life Business

Statistics relating to Fire, Marine, and Miscellaneous (accident, workmen's compensation, motor-car etc) insurance are published separately for Indian and Non-Indian companies. For Indian companies the details available are:—

(i) Number of companies.
(ii) Premium income included in Revenue Account:—
  (a) Fire
  (b) Marine
  (c) Miscellaneous.
  (d) Total
(iii) Claims paid.

(iv) Balance Sheets as on 31st December.

Information about non-Indian companies is given separately for companies constituted in U. K. and those constituted in other countries. Separate figures are given for companies constituted in various countries of the world. Information available is—

(i) Number of companies.

(ii) Indian Business—Premium income included in Revenue Account under policies effected in India:—

  (a) Fire
  (b) Marine
  (c) Miscellaneous
  (d) Total.

(iii) Total assets in India of companies not doing life business.

(iv) Total Business—Figures are given for total premium income (other than life), General Reserve Fund, Profit and Loss Account balance etc.

(v) Claims paid on Indian Business.

The Insurance Year Book also publishes a list of Providend Societies which have made the required deposit under Section 73 of Insurance Act 1938. Such societies generally do dividing insurance type of business. Under this type of insurance, neither the amount payable as premium nor the amount payable by the company is definite. Both the amounts depend on the number and amount of claims payable by the company. Due to its unscientific nature the Insurance Act prohibited it from 1st July 1942.

The above described Insurance Statistics seem to be quite sufficient and accurate. There are, however, some points which should be kept in mind while making use of these figures. The Indian Insurance Act (1938) applies only to Companies constituted in (former) British India. Insurance companies which are constituted in the Indian States do not come under the Act and this is a serious drawback. At other places also, we have very strongly pleaded for uniform acts for India and the Indian States. Under Sec. 116 of the Act prior agreement is necessary before this Act would apply to such companies and such agreement if at all entered into generally takes time.

Besides this, owing to different systems of accounts being in vogue, the figures do not entirely relate to the transactions of entirely the same financial period for all companies. Moreover the separation of accounts in case of companies carrying more than one class of business is not very scientific. We have seen that according to the Act the accounts of life business only have to be kept separate from other businesses. As far as other businesses are concerned there is no legal obligation to have distinctly separate accounts. In case of many companies the classification of figures is not precise and accurate and this is generally so in case of companies doing Miscellaneous Insurance business.

COOPERATION

Cooperative movement in India is not very old. It was started in the year 1904, when an Act was passed by the government. Cooperative movement in the

country has not been as successful as was originally expected. There are many reasons for this but we are not concerned with them here and we shall confine ourselves to the statistical information available about the cooperative institutions in India.

At present the cooperative organisation in the country consists of the Provincial Cooperative Banks at the top, the Central Banks, and finally the Primary Societies. Primary Societies are affiliated with Central Banks and these in their turn are affiliated with the Provincial Cooperative Bank. The Central Banks are of 2 types, the first having a membership list confined to societies only, known as Banking Unions and the second whose membership is open to societies as well as individuals known as Central Banks. Primary Societies by law cannot lend to non-members. However there are many classifications of primary societies but we shall be dividing them only under 2 heads viz: Agricultural Societies and Non-Agricultural Societies. Agricultural Societies are those societies whose members are mostly agriculturists or whose business is mostly agricultural. Most of the primary societies in India are agricultural. Non-Agricultural Societies meet the needs of industrial employees or finance small business.

Besides the Primary Societies, the Central Banks and the Provincial Banks, there are Guaranteeing and Supervising Unions. A Guaranteeing Union is not a bank in the sense in which Central Bank is. A Central Bank, borrows money on the ultimate liability of the societies which are its members but, Guaranteeing Unions leave the ultimate liability of societies unimpaired. All such unions do not do banking business and those of them which do banking business are classed as Central Banks in the government returns. Then there are Cooperative Land Mortgage Banks and Societies. These are limited liability associations of borrowers with a few non-borrowing persons. These non-borrowing persons are included with a view to attract capital and business talent. This section of members robs the society of its cooperative character. In our country most of the Land Mortgage

Banks are not of purely cooperative type. Finally there are Cooperative Insurance Societies. At present there is only one Cooperative Insurance Society coming under the Cooperative Societies Act and it is in Bombay. It is of an agricultural character. Even the non-agricultural societies (which cannot come under the Act) are very few in number.

We shall discuss the statistics available about all the above types of cooperative organisations, which in an abstract form, are as follows:

1. Provincial Cooperative Banks.
2. Central Banks and Banking Unions.
3. Primary Societies.
   (a) Agricultural.
   (b) Non-agricultural.
4. Guaranteeing and Supervising Unions.
5. Land Mortgage Banks.
6. Insurance Societies.

Section 43 of the Cooperative Societies Act governs the submission of accounts and returns to the Registrar, Cooperative Societies. These returns are prepared by the secretaries of the societies with the assistance of auditing and supervising staff. Statistical information about these societies is compiled on the basis of these returns. It is published in the "Statistical Statements Relating to the Cooperative Movement in India" published by the Department of Commercial Intelligence and Statistics. The Statistical Abstract also reproduces certain figures from the above publication. The figures relate to the Cooperative Year which means calender year in case of Bihar, fiscal year in case of Assam, the year ending July in case of the Punjab, Delhi and Baroda and other periods in various states. For other provinces it is the year ending June. This lack of uniformity in the concept of 'Cooperative Year' has resulted in some discrepancies creeping in the returns. The figures, since they do not relate to the same period in all places, are not comparable and as such lose much of their value. "The Statistical Statements Relating to Cooperative Movement

in India" are compiled on the lines recommended by the Committee of Cooperation in India in 1915. The information available is as follows:—

Number of Societies in India:—Separate figures are available for Central Societies, including Provincial and Central Banks as also the Banking Unions. The number of primary societies is also given in the shape of detailed classifications. Agricultural and Non-agricultural Societies are dealt with separately and there is a further division of agricultural societies into five sub-divisions as follows:—

(1) Credit.
(2) Purchase and Purchase and Sale.
(3) Production.
(4) Production and Sale.
(5) Other forms.

The above classification was adopted on the recommendations of the International Institute of Agriculture, Rome. Where societies transact both credit and non credit business they are classified according to their main business. The number of limited and unlimited societies is also stated. The number of Land Mortgage Banks and Insurance Societies is also given.

Number of Members:—Figures about number of members are also provided in great details. Separate figures are given for all classes of societies on the same lines as in the case of number of societies. In case of Provincial and Central Banks the members are classified as:—

(i) Individuals and
(ii) Societies.

It should be remembered, however, that individual members of Central and Provincial Banks and Banking Unions are not included in the total on the assumption that they have already been counted as members of some primary societies.

Loans—In case of Provincial and Central Banks the information is available with regard to loans made during the year to individuals and banks and societies. Receipts from loans and deposits repaid during the year by borrowers, and the loans due by them at the close are also mentioned. Besides this, loans and deposits received during the year from Central Banks, Primary Societies and Individuals and other sources are also stated.

Information regarding the loans made, amounts received and balances due to Land Mortgage Banks and Primary Societies is also given in detail.

Working Capital.—The Working capital of Cooperative Societies consists of the following items, separate figures of which are available:—

(a) Loans from private persons, other societies and banks
(b) Share capital.
(c) Deposits by members.
(d) State aid.
(e) Borrowing of Land Mortgage Banks and Societies.
(f) Reserve funds.

The working capital of Provincial and Central Banks consists of share capital, loans and deposits held at the end of the year from Societies, Provincial and Central Banks, Government and Individuals and other sources, and the Reserve Fund and other funds. It should be remembered that under Sec. 33 of Cooperative Societies Act no registered society can divide profits unless 25% of the net profits are transferred to a Reserve Fund. Other funds outside the statutory reserve are also kept either in liquid form or in easily realizable securities to meet the claims of depositors or to meet a financial stringency.

The amount of subscribed and uncalled share capital is also given.

Sale of goods to members and purchase of their goods: These figures relate to central banks only.

Profit and Loss during the year—Besides the figures of profits and loss, information with regard to usual dividend paid on shares, most usual rate of interest on borrowing and lendings is also given.

Insurance Societies:—Detailed information about Insurance Societies is available. The number of such societies, number of their members, amount of risk insured and premiums etc. are specified. Separate figures are available regarding the number of animals insured and the number of animals lost and the number of persons insured and number of persons dead. Besides this, the amount of claims paid, cost of management, funds in hand at the end of the year, amount of risk reinsured and the premiums paid thereon are also stated. Separate figures are available for Cattle Insurance, Agricultural and other Insurance and Non-agricultural Insurance.

Under all the above heads, individual figures are given for various Indian Provinces and some Indian states. Comparative figures of the last year are also given.

The above statistics about cooperative movement in India appear to be quite sufficient and accurate but there are certain points which should be taken into account while making use of these statistics and drawing any conclusion from them.

First of all, very often it happens that undesirable practices are followed to conceal the fact that loans are given for considerably longer periods than they should be. The Committee on Cooperation in India, in their report, have pointed out that what is done is that outstanding loan is shown in accounts as fully repaid and on or about the same date a fresh loan of the same amount is sanctioned. Actually what happens is that neither the loan has been repaid nor a new loan drawn but only book entries have been made. It is a common practice and has to be checked, as it can give a very wrong picture of the state of affairs of Cooperative Societies which may in turn lead to wrong conclusions being drawn. This practice can be checked to some extent if a provision is

made that a member can be given a new loan after say one month of the date on which he has cleared his last loan. Surprise visits and checking of cash balance by inspectors can also help to some extent.

Another point to be noted is that if a society is receiving payments from its members and is regularly paying the central financing institution, it should not be concluded that the loans are being given for productive purposes and the members are always in a position to repay. It is quite likely that a society which is negligent in supervising the activities of its members may not be knowing that its members are sinking into debts to the extent of money borrowed for some productive purposes but wasted. There is, therefore, a very great necessity of the society being very careful about the supervision over its members.

There are some cases in which registration has been made under the Cooperative Societies Act rather than Indian Companies Act, because by doing so not only they enjoy the benefits provided by cooperative societies but also escape from the limitations and restrictions placed on Indian companies under the Companies Act. This is so generally in case of Building Societies and Urban Stores and Banks. Many urban banks on cooperative lines, actually give loans for speculative enterprises. This practice is really very undesirable and should be checked. If a cooperative society is found to do above types of work it should be made obligatory for it to be registered as a Joint Stock Company.

The figures of Reserve Fund should also be used with caution. In so far as bad debts are not written off the figures of the Reserve Fund are not accurate. These figures should not be used to denote the excess of assets over liabilities. Another important point about Reserve Fund is that whereas limited societies have to carry 25% of profits to the Reserve Fund, unlimited societies must carry forward whole of the net profits to the Reserve Fund and profits cannot be distributed except with the consent of the Local Government.

Yet another item requiring a note of caution is "Overdue Loans." These loans are defined as those for which payment has not been made and extension not granted. But there are no provisions as to when extension should or should not be granted. It is, therefore, possible that some loans which have been refused payment by the borrowers do not appear as overdue because they might have been granted extension. There is therefore a great necessity that provision should be made for the extension of the loans.

Another point to be noted is that since no figures are available about mortality of cattle the premiums charged by Cooperative Insurance Companies are only arbitrary.

Finally these statistics are not strictly comparable year after year. Figures prior to 1915-16 were compiled and published in a different way from that they appeared after that date. Changes were made on the recommendations of the Committee of Cooperation in India. Moreover we have already pointed out that certain mistakes creep in the returns due to the fact that "Cooperative Year" does not mean the same period all over the country.

CHAPTER XI

TRADE STATISTICS

Trade Statistics of India unlike other statistics are neither very meagre nor very defective. They do not require a long commentary but it should not be lost sight of that 'Indian Official Trade Statistics arise, in the first place, out of compilations made in the course of administrative laws such as those relating to taxation of goods entering or leaving the country, and secondly from compilations made by Departments of Government for their own use such as returns received from railways, on which are based Statistics of Inland Trade.'[1] 'This feature does not necessarily introduce an element of error in the statistics of trade though such a thing may be responsible for gross errors under many circumstances.

Statistics of trade are published by the Department of Commercial Intelligence and Statistics in the following publications:—

1. Accounts relating to the Sea Borne Trade and Navigation of British India (monthly).
2. Accounts relating to the Sea Borne Trade and Navigation of British India for the calendar year (annual).
3. Annual Statement of the Sea Borne Trade of British India with British Empire and foreign countries Vols. I & II.
4. Trade Statistics relating to the maritime states in Kathiawar and the state of Travancore.
5. Exports of Indian Artware and Sport goods (monthly).
6. Accounts relating to the Coasting Trade and Navigation of British India (monthly).
7. Accounts relating to the Inland (Rail and river borne) Trade of India (monthly).
8. Raw cotton Trade Statistics.
9. Indian Trade Journal.
10. Statistical Abstract of British India.

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[1] Guide to current official statistics p. 1.

Besides this, Review of Trade of India and the Monthly Survey of Business Conditions of India, which are issued from the Office of the Economic Adviser to Government of India, also contain Trade Statistics.

Most of the Statistics of Foreign Trade are available in the monthly and annual accounts and statements of the Seaborne Trade and Navigation of British India along with the annual Review of Trade of India. The Statistics of inland trade are published in the Accounts relating to the Coasting Trade and Navigation of British India and the Accounts relating to Inland (Rail and River borne) Trade of India. We shall examine these in some details and point out the drawbacks of each.

Accounts Relating to the Sea Borne Trade and Navigation of British India

The most important information supplied by this publication is with regard to the quantity and value of the goods, imported, exported and re-exported from (former) British India. The quantity generally represents the net weight *i.e.* total weight less the weight of packing etc. Value of the goods imported or exported is based on the wholesale cash price less trade discount, for which like goods can be sold at the time and place of import or export as the case may be. In case of exports no deductions are made but in case of imports from the value thus calculated deductions are made for the import duty payable thereon. If it is difficult to ascertain the wholesale cash price, the value generally represents the cost at which goods of like nature and quality can be delivered at such place. However, if the goods are subject to duty on tariff valuation, this value is taken as the correct value though there may be a great difference between this valuation and the actual value. In making use of these figures we should always remember the following points.

(i) That these are based on declarations of importers and exporters in the bills of entry and shipping bills respectively, which are accepted practically without question. The policy of the Government has been that

the goods should not be detained on account of misstatements, affecting 'statistics only' (not revenue) and therefore to a very great extent the accuracy of our trade statistics depends on the accuracy of declarations of these people particularly in matters which do not affect the Government's revenue.

(ii) Exports do not include goods purchased by the Government and shipped on Government chartered vessels.

(iii) Export figures relate only to Indian merchandise as foreign merchandise exported from India is classed under re-exports.

(iv) Import figures include all goods, landed in India irrespective of their final destination, and dutiable articles whether in passenger's luggage or imported by letter post.

Both the imports and exports are classified in separate tables according to countries and according to the nature of the articles. Exports and Re-exports are classified according to the countries of final destination as declared by suppliers. If for example goods are exported from Bombay to Cairo on their way to London they will be classified as exported to London and not Cairo. But imports are classified according to the countries from which goods are consigned. The country from which goods are consigned may not necessarily be the country of origin. Goods produced in England and purchased by Egypt and sent to India will be classed as imports from Egypt, the consigning country and not from England the country of origin. Again before 1911 the trade with countries having no port (like Switzerland) was accounted in the name of countries in which the port of shipment of the goods was situated.

As far as classification according to the nature of the article is concerned goods are classed under the following 5 main heads:—

(i) Food, drinks and tobacco.
(ii) Raw material and produce and articles mainly manufactured.
(iii) Articles wholly or mainly manufactured
(iv) Living animals.
(v) Postal articles.

Various articles are grouped under small headings which are arranged in alphabetical order in detailed tables. The list of miscellaneous articles is published by the Department of Commercial Intelligence and Statistics in a publication named "Alphabetical Index of the Commodities that enter into the Foreign Sea-borne Trade of India."

Separate figures are available for

(i) Private merchandise

(ii) Government Stores and

(iii) Treasure

(a) Government

(b) Private

As far as possible the share of each maritime province in the export and import trade is also mentioned. Quantities of important articles subject to duties lying in the custom's bonded warehouse are also stated for the month under review.

The figures relating to the traffic in opium and other similar drugs are re-classified in a table prepared on the lines recommended by the League of Nations Advisory Committee on Traffic in Opium.

Besides the above information regarding the quality and value of the imports, exports and re-exports this publication also states the gross amount of export and import duty collected. The total amount of duty shown in this publication differs from the figure in the financial accounts as in the latter the import duty on salt is shown separately.

A separate table gives the declared values per unit of exports and imports of about 30 articles worked out from the detailed tables.

Finally this publication contains the statistics of ships that enter and clear with cargoes from (former) British Indian ports; and we shall deal with these in the chapter on Statistics of Transport and Communication.

Accounts relating to the Sea Borne Trade and Navigation of British India for the Calendar year.

This publication gives the same information as the previous one with the only difference that the figures are not monthly but relate to the calendar year under review. It also contains some illustrative charts showing the variations in exports, imports and re-exports of private merchandise and the Balance of Trade in private merchandise over a number of years. All the comments which have been made with regard to the last publication are applicable to this also.

Annual Statement of the Sea Borne Trade of British India with Empire and Foreign Countries Vols. I & II

Vol. I. of the publication gives the figures of exports, imports and re-exports of all articles entering the foreign trade of India. The matter is arranged in the same way as in the 'Accounts relating to the Sea Borne Trade and Navigations of British India' but greater details are available. Share of each Maritime Province in the trade is given with reference to each commodity and separate figures are available for a greater number of countries than in "Accounts." Changes made in the classification and the description of the articles are mentioned in an appendix to the publication.

Vol. II. The object of the second volume is to arrange the figures of Foreign Trade of India, according to the countries with which trade is carried on and chief ports in India through which it passes.

Imports (as in 'Accounts') are classified as received from the countries from which they have been consigned and the exports to countries of final destination.

Tables I & II. Table I shows the value of the import of merchandise and treasure from each principal country and table II gives similar details for exports and re-exports. Exclusive figures of exports and re-exports of merchandise only are given in total in a separate table whose number is 3. In these 3 tables various foreign countries are grouped under (1) British Empire (ii) Foreign countries.

Tables 4 to 7 give the share of each principal country in the total trade in import, export and re-exports of private merchandise. The countries are grouped within each continent.

Table No. 4 gives the Value of the total trade (import, export and re-export) in private merchandise with principal countries. Table No. 5 gives the value of Total Import only and Table No. 6 of exports only and Table No. 7 of re-exports only.

Tables 8 & 9 show the share of each maritime province in the total imports and exports (including re-export) of private merchandise and treasure. Maritime Provinces are Bengal, Orissa, Bombay, Sind and Madras. Before its separation Burma was another such province. Value of imports, exports and re-exports are given separately for each of these provinces. Figures of Merchandise and Treasure are also shown separately. Similar figures about Govt. store and Treasure are given in table No. 9.

Table 10 shows the value of the total trade in private merchandise of each maritime province with each of the principal countries of the world grouped under various continents.

Table 11 shows the total imports and exports of merchandise and treasure separately at each port. Figures are given for chief and subordinate ports of Calcutta, Bombay, Karachi and Madras. For chief ports figures of both quantity and value are mentioned and for subordinate ports figures for only the total imports, exports and re-exports are given.

Table 12 shows the quantities and values of the principal articles of merchandise imported into and exported from the chief ports of each of the Provinces of (former) British India. These returns are not, strictly speaking, exact indications of imports and exports passing through each port as imported goods though landed at the ports to which they are accredited are sometimes carried in coasting vessels to other ports before actually passing into consumption.

Table 13 shows the quantities and value of the principal articles of merchandise imported from and exported to each principal country. The trade in each article is recorded separately when its value is Rs. 10,000 or more. If the value is less than this limit it is generally grouped under this head "all other articles of merchandise".

Tables 14, 15, 16 give details of custom's duties collected—(i) on imports and exports at each port in each province. (ii) in respect of the principal and other articles of imported merchandise and (iii) in respect of the dutiable article of exported merchandise.

Table 17 gives the amounts of drawbacks paid and duties refunded on the principal and other articles imported and exported.

Table 18 shows the dutiable articles of imported merchandise allowed free of duty and Table 19 shows the quantity of certain principal articles of merchandise imported which remained in certain bonded warehouse on the last day of each official year. These, however, do not include duty paid goods lying in warehouses outside customs authority.

Trade of the French Possessions in India: This publication gives figures of this trade also. They are recorded in separate sets of tables. Individual quantities and value figures are available for about 45 articles of import and 30 articles of export. Figures of treasure are shown separately from those of merchandise.

Trade Statistics relating to Maritime States in Kathiawar and the State of Travancore

This is a monthly publication and the information contained in it can be studied in 3 parts.

I Accounts relating to the foreign-sea borne trade of maritime states in Kathiawar:—The information is divided in 4 tables which give statistics of

(i) Imports.
(ii) Exports.
(iii) Re-export of merchandise.
(iv) Treasure.

Imports of goods are classified in the same way as in "Accounts relating to their Sea Borne Trade and Navigation of British India." The figures are inclusive of all Government stores. The values of imports are classified according to the countries of consignment in a separate table. Similar tables are available for export and re-export. The share of each state in the total of import, export and re-export is also given.

Import of and export of gold and silver (both coin bullion and currency notes) are given in a table.

II. Statistics of the import into (former) British India from Kathiawar across the Viramgam Dhandhuka Land Custom's Lines:—The information is given in 3 tables as follows:

"(a) Quantity and value of imports of foreign goods (duty-free, dutiable paired with or without concession) across the Viramgam-Dhandhuka Land Customs Line.

(b) Quantity and value of Local manufactured produce and re-imported goods which pass into British India across the Viramgam-Dahndhuka Land Customs Line.

(c) Quantity of duty recovered goods (salt) imported across the Line in India."

III. This part gives the information about Travancore state similar to that provided for Kathiawar states in the first part.

Exports of Indian Artware and Sport Goods.

This monthly publication has 2 parts. The first part contains figures of export of artware (Indian manufacture) from (former) British India to Foreign countries and ports. Second part deals with the export of Indian made sports goods.

In the first part figures are given separately for objects of:—

1. Fine Arts
2. Furniture
3. Toys
4. Cotton Prints
5. Jewellery

6. Lacquered Ware
7. Bronze and Brass Ware
8. Silk shawls and scarves other than silk
9. Embroidery
10. Silver work
11. Art Pottery
12. Ivory Manufactures
13. Mother of Pearl and Shell (Manufactures)
14. Stone work (including marble)
15. Rugs
16. Miscellaneous items.

The share of each principal importing country is mentioned and the share of each maritime province is also shown. Only values are given.

As far as the second part is concerned figures are given for

1. Tennis Racquets and Frames
2. Hockey sticks, Blades and balls.
3. Polo sticks and belts etc.
4. Cricket Bats, Balls and other requisites.
5. Badminton Racquets, frames etc.
6. Foot balls, Basket balls both complete balls and covers.
7. Fishing Nets, rods or poles etc.
8. Other sporting requisites.

Here also only values are given and the share of each principal importing country and of each manufacturing province in the export is also given.

The above figures are not comparable with the figures of "Accounts" as their classification is different.

Indian Trade Journal

Much of the information published in the journal with regard to Foreign trade has at present been suspended. A brief account of the statistics that it published previously

and of that which are being published now is given below:

Weekly figures of exports and imports of selected commodities: Upto May 1942 the journal published the figures of the following 10 commodities of export and 5 commodities of import:

Export

1. Raw cotton
2. Cotton Twist & Yarn
3. Jute Raw
4. Jute Bags
5. Jute Cloth
6. Linseed
7. Rape and mustard
8. Rice (not in the husk)
9. Tea
10. Wheat

Import

1. Cotton goods (grey white and other kinds)
2. Cotton twist and yarn
3. Kerosine oil
4. Sugar (refined)
5. Wheat.

These figures were compiled from the corrected shipping bills received during the week. It should not be forgotten, while making use of these figures, that they are provisional because the correcting of bills goes on even after the week under review. Moreover these figures relate only to some selected ports and do not necessarily show the total trade. For these reasons they are not comparable with similar figures given in the "Accounts."

The journal since Jan. 1934 publishes the weekly arrivals and despatches of 28 commodities at 35 centres. It gives a rough idea of the inland goods traffic in the country. These statistics cannot claim completeness

though certainly they give an idea of the fluctuations in the volume of inland trade. The figures are based on reports received from railway and steamer officials. From 11th Jan. 1940 the figures are omitted from the journal and published under the name of Weekly Arrivals and Despatches of certain commodities into and from Selected Centres.

Before Feb. 1940 the journal also published once a month, the imports of protected descriptions of iron and steel materials in (former) British India.

Once a month the journal publishes a summary of the foreign sea borne trade of India and gives figures of

(i) Value of exports and imports of
  (a) private marchandise
  (b) private treasure.
(ii) The visible balance of Trade and
(iii) The Balance of remittances of funds .

The journal publishes useful information with regard to the demand of Indian goods in foreign countries from the reports of various Indian Trade Commissioners abroad.

Freight rates for jute from Calcutta and cotton and oil seeds from Bombay and monthly figures of export and imports of important items from chief ports of India are also published in the journal.

Trade at Stations Adjacent to Land Frontier Routes

This is a monthly publication and gives information regarding Trade across land frontiers. The figures are very incomplete as only some selected articles are chosen and the information is about the traffic at certain railway stations adjacent to important trade routes across the frontier.

The publication is divided in two parts. The first part deals with the trade at stations adjacent to land frontier routes. The figures of export are for the total traffic in the respective articles at the particular railway centre

from various parts of the country. The whole of the goods received may not be exported and therefore these figures cannot be exclusively relied upon and are usually over-estimated. In the same way import figures represent the total amount of goods despatched from those railway stations.

These figures are collected from the records of Railway and it is difficult for railways to find out the value of the articles and therfore only quantities are published in terms of railway maunds of 82-2/7 pounds.

The second part of the publication gives figures about the trade of India with Afganistan. These figures have been collected only from Feb. 1, 1937. Recently a section has been added on Indo-Iranian Trade.

Figures are given separately for individual items and movements of treasure are distinguished from those of other merchandise.

Review of Trade of India

This annual review is divided in 2 parts *viz.* the Report and the Tables.

The report begins with long discussion on the general features of trade development during the year under review, and deals with the general economic trends. Chapter II and III are—devoted to a discussion of imports and exports of merchandise. The direction of overseas trade is discussed in a separate chapter and one chapter each is devoted to Foreign Sea Borne Trade of Maritime States and Frontier Trade. Maritime states comprise the Kathiawar states and the states of Travancore. In the chapter on Frontier Trade figures are available about land Frontier Trade, Indo-Afgan Trade and Indo-Iranian Trade. The last chapter is devoted to Balance of Trade and movement of treasure.

The second part of the review gives Statistical Tables. This part contains the following ten sets of tables.

A. Total Sea Borne Trade.

B. Imports of merchandise.

C. Exports of merchandise.
D. Production and miscellaneous.
E. Kathiawar Trade.
F. Indo-Burma Trade.
G. Freights.
H. Customs Revenue.
I. Prices.
J. Trade in articles subject to restriction.

Under each set various detailed tables are given. The total number of tables given is 49.

Accounts Relating to Coasting Trade & Navigation of British India

The trade dealt with in these tables is "the coastal trade registered at the British Indian Ports, that is to say the trade of these ports with one another and with Indian ports not British." .. "The figures show the trade as declared in shipping document duly scrutinised with reports of notices of short arrivals or shipments and passed through the custom houses up to the last working day of the month or as near to that date as practicable."

The coasting trade is registered separately (from the foreign sea borne trade) in five maritime provinces viz, Bengal, Orissa, Bombay, Sind and Madras. The total imports into and the total exports from each one of these 5 provinces are divided as follows:—

(a) Internal Trade *i.e.* Trade among the ports of the same province.

(b) External Trade *i.e.* Trade between one province on the one side and the remaining four provinces plus non-British ports in India (e.g. Kathiawar and French ports etc.) on the other.

The first two tables are abstract ones and deal with the imports and exports. Imports and Exports are classified as follows:

A. Private Merchandise.

(i) Indian

(a) Total Internal Trade

(b) External Trade (Separate figures for various Provinces)

(ii) Foreign

(a) Total Internal Trade

(b) External Trade (Separate figures for various Provinces)

B. Treasure Private and Government.

(i) Private

(a) Total Internal Transaction

(b) External Transaction (Separate figures for various Provinces).

(ii) Government.

Merchandise imported or exported on government account is outside the scope of these statistics.

The first detailed table is of the "Quantity and value of the Principal article of Indian merchandise imported coastwise into the British Indian Ports." The second table is devoted to similar figures of import of foreign merchandise. For each class of article figures for internal trade and external trade are shown separately. The figures represent the qualities and values declared by importers in Bills of Entry and as subsequently checked by customs officials.

It should be remembered that in the foreign and the sea borne trade import or export duties are not included in the values recorded but in the values of articles imported or exported as recorded in the coasting trade, customs and excise duties previously paid are included.

Table III is devoted to "Quantity and value of the Principal articles of Indian merchandise exported coastwise from (former) British Indian Ports" and table IV gives similar details of articles of foreign merchandise.

Table V deals with the "Quantity and value of the coastwise imports of gold and silver coin and bullion." Separate figures are available for

A. *Gold* Coin and Bullion.

B. *Silver*

(i) Government of Indian rupees.
(ii) Other coins and bullion.

Corresponding figures of exports are given in the next table No. VI.

The weights of import and export of gold is shown in "fine ounces" and those of silver in "standard ounces," the later meaning 37/40 fine (British Standard). The values of both private and government exports and imports of gold and silver represent the market value at the time of export and import but in case of Government of India rupees the face value is shown.

These tables are followed by four tables which deal with number and tonnage of steamers and sailing vessels employed in the Coasting trade of (former) British India and they will be dealt with at length in the chapter on Transport Statistics.

"Accounts Relating to the Inland (Rail and River-borne) Trade of India"

For the purpose of registration of the rail and river borne trade the country at present is divided in 22 blocks Formerly the country was divided in 18 blocks. The present (pre-partition) blocks can be classified as under:—

A. Five Block of Port Towns
(a) Calcutta
(b) Bombay
(c) Madras
(d) Karachi
(e) Minor ports of the Province of Madras

B. Twelve Blocks of Provinces (excluding ports) including Delhi Province.

(a) Assam
(b) Bengal
(c) Bihar
(d) Orissa
(e) United Provinces of Agra and Oudh
(f) Punjab
(g) Delhi
(h) N. W. F. P.
(i) Sind and British Baluchistan
(j) C. P. and Berar
(k) Bombay
(l) Madras

C. Five Blocks of Indian States.

(a) Rajputana
(b) Central India
(c) Hyderabad
(d) Mysore
(e) Kashmir

Other Indian states are included in the relevant Provincial Blocks within whose external boundaries they lie.

This publication gives export and import figures of more than 50 items. Table I is an abstract table showing the total quantity of merchandise imported into and exported from each Province and Indian State and the important ports. Similar figures about Treasure are given in Table II. The third table gives figures of exports and imports for five years for each of these 22 blocks about each articles according to the classified list. The fourth gives the general view of the trade of the year in each article. Tables V-XII show the imports and exports of principal articles (i.e. the articles in which the trade exceed 1000 cwts a year in each province) into and from Calcutta, Bombay, Karachi and Madras ports for 5 years.

The registration of the railborne trade is done by the railway audit office. This office registers the goods carried for delivery to consignees on their own lines and in some cases for delivery on connected lines. Trade

carried on between stations in the same block is not registered. The required information is collected from the invoices which show the details of the goods *i.e.* place of destination the nature of the goods and their gross weight etc. A certain percentage which varies according to the class of goods is taken to represent the weight of packing material and it is deducted from the gross weight to arrive at the net figure. In tables only the net weight is recorded.

The river-borne trade used to represent the trade carried by country boats as well as by inland steamers. But it was found later on that inter-provincial trade carried on by country boats was not so large as to justify the elaborate arrangements necessary for its adjustment. The boat traffic was registered at certain river stations by clerks who collected the necessary information from the boatmen and forwarded it to the Provincial authorities. Due to the elaborate arrangement needed these figures were later on deleted and now river-borne trade represents the trade carried by inland steamers only. The trade carried by steamers is registered by steamer agents. The trade partly carried by rail and partly by river when booked through and carried by steamers running in connection with railways is generally recorded by the railway and is treated as Rail-Borne Trade.

These statistics relate to the Quantities of the trade and not the Value. The railway and steamer invoices do not show value and therefore the figures recorded are only of quantity in standard maunds of 82 $\frac{2}{7}$ lbs.

The publication of these figures was suspended in the year 1922 but since 1933 these figures are being published again. Before 1922 these figures were published every quarter and covered a wider range as they gave the figures of traffic moved by country boats as well. This last information has been deleted and is not published now.

Raw Cotton Trade Statistics

This publication deals with the import and export of raw cotton into and from

Assam	Punjab	
Bengal	Sind and Baluchistan (now in Pakistan)	Central India and other centrally administered area.
Bihar	C. P. and Berar	
Orissa	Bombay Presidency	
U. P.	Madras Presidency and Rajputana	

For giving details each of the above regions is subdivided in various sub-groups. There are 2 sets of tables. One for imports and the other for exports. The information given is the imports (or exports) of raw cotton in maunds into (or from) each internal block of the province or area from (or to) each external block and other internal blocks of the province or area. The figures relate to all qualities and varieties of cotton as it is difficult to register separate varieties separately.

Monthly Survey of Business Conditions in India

It gives the following information:—

A. *Foreign Trade*:—The information published with regard to foreign trade is the value and volume of the foreign trade of some commodities. Figures are available of the important exports of Indian merchandise and the imports of foreign merchandise.

B. *Inland Trade*:—Volume of inland trade in some commodities is given. It is the trade carried by Railways and Steamer service in selected commodities.

C. *Coastal Trade*:—Value of coastal imports of some commodities is published.

All these figures are quoted from the publications devoted to foreign, inland and sea-borne trade, which we have already described.

Statistical Abstract of India

The 'Abstract' gives practically all the information with regard to Foreign and Home Trade published in the

above journals and volumes. The information is classified unedr 4 heads, *viz*:

(a) Foreign Trade
(b) Coasting trade
(c) Inland Trade
(d) Land Frontier Trade

Foreign Trade

As far as foreign trade is concerned the following information is available in the abstract:

(a) Total value of Sea Borne Trade

(b) Distribution of Sea Borne Trade, Foreign and Coasting in private merchandise among the Provinces.

(c) Total Sea Borne Trade—Foreign and Coasting Private Merchandise, of eight principal ports.

(d) Value of import of private merchandise by sea, into (former) British India, distinguishing principal countries of consignment.

(e) Quantity and Value of import of Principal articles of Private Merchandise by Sea into (former) British India from Foreign countries.

(f) Value of exports of Private merchandise (Indian Produce and Manufactures) by sea from (former) British India, distinguishing Principal countries of destination.

(g) Quantity and Value of Exports of Principal articles of Private merchandise (Indian Produce and Manufactures) by sea from (former) British India to Foreign countries.

(h) Value of re-exports of Private merchandise (Foreign Produce and Manufactures) by sea from British India, distinguishing Principal countries of destination.

(i) Quantity and Value of re-exports of Principal articles of Private merchandise (Foreign Produce and

Manufactures) by sea from (former) British India to Foreign countries.

(j) Value of Principal articles of Government stores imported by sea into (former) British India.

(k) Value of Principal articles of Government stores (Indian merchandise) exported by sea from (former) British India.

(l) Value of Principal articles of Govt. Stores (Foreign merchandise) re-exported by sea from (former) British India.

(m) Value of Treasure (Private & Govt.) imported by sea into (former) British India, distinguishing principal countries of consignment.

(n) Value of Treasure (Private and Govt.) exported by sea into (former) British India, distinguished principal countries of destination.

(o) Balance of Trade.

(p) Variation in the Quantities and Price level of the Foreign sea borne trade, Import and export, of (former) British India as compared with the year 1927-28.

Coasting Trade

(a) Total value of Coasting Trade

(b) Total value of Private merchandise (Indian and Foreign) and Treasure, imported into and exported from the several maritime Provinces of (former) British India from and to Indian ports (British and non-British).

Inland Trade

(a) Movements of certain Principal articles (10 in number) by Rail and River between the Provinces, Principal States and Chief Port Towns.

Land Frontier Trade

Rail Borne Trade at Stations adjacent to land Frontiers Routes of India.

We have alrealy mentioned in the beginning that Statistics of Trade in India call for little comment. They are more or less satisfactory. However, a few sugges-

tions can be made. Imports and exports on behalf of the Govt. are shown separately from those on Private Accounts but are not shown in much details. Therefore, the total trade in particular commodities cannot be correctly estimated. If the figures of Government exports and imports are also given in more details the usefulness of these figures can be greatly increased.

The classification of goods in the various publications also calls for attention. These classifications are not satisfactory in many cases and are not always suitable for statistical analysis. These classifications can be changed. No doubt frequent alterations of classifications have the danger of affecting the comparability of figures "but the time has perhaps arrived when the details of classification by commodities might be reconsidered." Comparability of figures will not be lost if the changes are mainly in subdivisions of existing classes or involve separate treatment of an article which has been merged in the 'miscellaneous group' till now.

Besides this, there should be periodical revision of the classification of the countries under each commodity imported or exported. If the revision is not made, many countries with which trade has been considerably reduced will remain on the list while others with which trade has increased will not be included in the list at all. The item 'other countries' should be subdivided from time to time, to give more details.

CHAPTER XII

STATISTICS OF TRANSPORT AND COMMUNICATION.

The statistics included under the head "Transport and Communication" can be divided into:

Transport

(a) Railways
(b) Shipping
(c) Roads and Navigation canals
(d) Civil Aviation

Communication

(a) Posts, Telegraphs and Telephones
(b) Radio and Wireless

Railways

The primary compilation of the Railway Statistics is done by the various railways and the information is published by the Railway Board in the publication entitled "Annual Report of the Railway Board on Indian Railways". The report is divided in two volumes. The first volume gives a description of the general position and points out the special features of the statistical tables which are published in volume II.

Railways have been divided in three classes as follows:—

A. Class I:—Railways with gross earnings of Rs. 50 lacs or more per year.

B. Class II:—Railways with gross earnings exceeding Rs. 10 lacs but less than Rs. 50 lacs.

C. Class III:—Railways with gross earnings upto Rs. 10 lacs.

The following details about the above classes of railways are available:—

Mileage:—Figures are available for both route mileage and track mileage. In calculating route mileage double or treble lines are counted only once, but in calculating

the track mileage they are counted the proper number of times, and besides this, the transportation and commercial sidings are also taken into account.

Result of the Working of Railways:

(a) Number of passengers carried and earnings therefrom.

These figures are given separately for each class of traffic and for each railway. Before 1923-24 passengers travelling over two or more railways during a journey were counted as two or three persons; after that they are now counted as one person only.

(b) Tonnage of goods carried and revenue therefrom.

In case of class I railways figures are classified according to individual commodities but for other classes of railways only total tonnage is given.

Besides this, the passenger miles and ton miles are also published and the density of traffic as measured by number of passenger miles and ton miles to the length of the running track are also calculated for Class I railways.

Capital Outlay and Earnings etc:—The following information about each railway with regard to capital and earnings is available:—

(a) Total capital at charge (including ferries and suspense) on open lines and on lines wholly or partly under construction
(b) Gross Earnings
(c) Working Expenses
(d) Net Earnings
(e) Percentage of Working Expenses to Gross Earnings
(f) Percentage of net earnings on total capital at charge

In addition to this, information with regard to the number of locomotives and the wagons of various kinds on the last day of the official year, average load per train, repairs etc. are also published.

The above statistics published by the Railway Board, though quite comprehensive, are open to criticism. The Indian Railway Enquiry Committee (1937) very ably criticised the existing Railway Statistics and offered valuable suggestions.

Some of these published statistics are really misleading. Statement 15 of volume II of the Railway Board Report is headed "Results of Working Class I Railways" and this includes, besides other details, figures of coaching earnings per train mile, cost of hauling a passenger train one mile, cost of hauling a goods unit (one ton) one mile, profit on working a passenger train one mile etc. Such 'cost' statistics, which are very technical in nature, do not mean what they purport to mean. "The expert critic can make no use of them and they lead the non-expert to false conclusions."[1] Such statistics can be very easily deleted as they create confusion. Other unnecessary figures like Net Passenger Ton Mile, Passenger Station to Station Statistics can also be discontinued with no regrets.

Besides, there is need for the revision of statistics. The present system of collecting statistics dates back to 1924 and does not suit the present day need. In those days when road competition did not exist and traffic came to the railways as a matter of course it was but natural to give greater importance to the statistics relating to the working of railways and comparatively less importance to the character and volume of business. At present when competition with the road is expected to be very keen it is necessary to give a greater importance to commercial statistics rather than to the operating statistics *e.g.* we require more figures about the cotton traffic than about the shunting operations, the figures of which are published in detail.

Other objections that can be raised against these statistics are that they are not available until some ten months after the period to which they relate, and that comparisons are generally only with the preceding year and thus the data is insignificant to indicate the general

[1] Wedgehood Report p. 58.

trend of figures. Moreover the comparative value of these figures is considerably reduced due to difference in the condition of various railways and also on account of the fact that in some cases there is lack of uniformity in the basis of the compilation of the Railway Board Statistics.

Thus we see that there is considerable scope for the improvement in the existing statistics and we suggest that measures should be adopted, as early as possible, to remove the above defects. There is scope for additional statistics on some points on which at present either no information is available or the existing information is extremely meagre. A study of the 'variable costs' incurred in connection with different classes of traffic would be of practical use to railway administration. More attention should be given to the cost of the working of the goods shed. Information should be available both about the handling costs and the clerical costs.

Since the road competition is likely to be very intensive in the coming years it is desirable for Commercial Officers to have early and reliable information concerning the flow of traffic at those points which are exposed to competition.

Till recently there was no co-operation between various railways on the question of statistics. Till April 1937, Statistical Officers of the various companies used to meet for this and other allied purpose but this scheme has been dropped in many cases on grounds of economy. It is extremely necessary to have uniformity in statistics and hence there should be some co-ordinating agency to guide and suggest the collection and compilation of statistics on a uniform basis. The collected facts should be interpreted by experts, and then only, conclusisns should be drawn and generalisations made in the report.

The Statistical Abstract of British India reproduces practically all the important tables given in the report, and the Indian Trade Journal gives some figures about the approximate earnings of the state-owned railways (now all companies are state owned) and the figures of wagon load-

ing on class I railways only. Monthly Survey of Business Conditions also publishes the figures of gross earnings of all class I railways and the number of wagons loaded in class I railways.

Shipping

No special publication is issued by the government on shipping statistics but such information, as is available, is found in the publications on Foreign Trade. "Accounts Relating to the Sea Borne Trade and Navigation of British India", "Accounts relating to the Coasting Trade and Navigation of British India" and "Annual Statements of the Sea Borne Trade of British India with the British Empire and the Foreign Countries. Vol. III.'" are the three important publications giving information about the figures of our shipping. Statistical Abstract also publishes some material but it is mostly reproduced from the above three publications. All these publications are issued by the Department of Commercial Intelligence and Statistics. "Monthly Survey of Business Conditions in India" issued by the Office of the Economic Adviser to the Government of India also contains some figures about the tonnage entered and cleared at Indian ports.

"Accounts Relating to the Sea Borne Trade and Navigation of British India" and "Accounts Relating to the Coasting Trade and Navigation of British India" contain similar information. They give details about the movement of cargo shipping, number of tonnage of vessels entering and clearing with cargoes etc. Following details are available:—

(i) Number and tonnage of vessels employed in the coasting trade of (former) British India, entering and clearing with cargoes.
(ii) Tonnage of vessels—distinguishing their nationality of ownership.

Separate figures are available for steamers and native craft.

There are two differences in the figures given in these two publications. Firstly in the Coasting Trade Accounts'

figures of ships that entered or cleared in ballast are also given but these figures are not found in the Sea Borne Trade Account. Secondly the Coasting Trade Account does not give details of the countries from which ships enter or to which they clear but this information is contained in the other publication.

It is necessary to keep in view the following points in making use of these statistics—

(i) Vessels which bring cargo from various foreign ports are entered in the name of the farthest of these ports. Vessels which take cargo from India are also classified in a similar manner.

(ii) The voyage of a ship is considered to be terminated at the first port where a part of the cargo is first unloaded. Similarly ships which leave India are considered to have ended their journey on the last port in which cargo was shipped.

(iii) The figures of tonnage relate to the net tonnage of vessels and not to the cargo carried *i.e.* even if a vessel loads or discharges only a few tons of cargo the total tonnage is entered in the statistics. For registration and statistical purposes the net tonnage of ships are related to volume measurements—100 cubic feet=1 Ton on which harbour and other dues are paid.

The Annual Statement of Sea Borne Trade of British India Vol. II also gives the number and tonnage of the vessels that enter into and clear from Indian ports. Separate figures are available for vessels with cargoes and those in ballast. Native craft and other vessels are distinguished and tonnage is classified according to:

(i) Nationality of the vessels.
(ii) Countries from which and to which ships arrive and go.
(iii) Port into or from which the ship entered or cleared.

Besides this, the number and tonnage of ships built in the various parts of the country is also furnished and the

number and tonnage of vessels first registered in India is also given. Separate figures are given for ships registered under English Merchant Shipping Act (1894) and those registered under the Indian Registration of Ships Act (1841). Registration is not compulsory in all ports of the country and hence the figures are not complete.

The Statistical Abstract of British India reproduces practically all the information contained in the above mentioned volumes. Besides this, particulars are given about the wrecks and casualties in Indian Waters. Separate figures are given for British, Indian and Foreign vessels. Vessels are further classified as "steam" and "sailing" and separate details are given for them. The loss of tonnage and the number of lives lost are also given. The Abstract publishes certain details about passenger traffic also. Number of persons carried in Unberthed Passenger Ships* for long and short voyages from each port are given.

When a ship is continuously out of the port for 120 hours or more, it is a long voyage otherwise a short one. Long voyage figures are given under two heads according as the destination is in India or outside India. Short voyage figures are classified according as the destination is within the same province, beyond the province but in India and outside India.

All the information is supplied to Department of Commercial Intelligence and Statistics by the Mercantile Marine Department. The Mercantile Marine Department gets this information from agents and the shipping companies under the Indian Merchant Shipping Act XXI of 1923.

The number of pilgrims travelling between India and Hedjaz is also published in the Abstract. These figures are received from Port Haj Committees. The Monthly Survey of Business Condition in India publishes the monthly figures

*"An unberthed passenger" denotes a passenger of 12 years of age or more for whom no separate accommodation in specially reserved. It neither includes a passenger in attendance nor a child of less than one year. A passenger between 1-12 is counted half towards total. "Unberthed parsenger Ship" means a ship carrying more than 30 unberthed passengers.

of tonnage entered or cleared at Indian ports. Separate figures are given for coasting and foreign trade.

Statistics of shipping call for little comment. The Indian Economic Enquiry Committee (1925) had recommended that figures of the crew, specially employed on ships plying in coastal waters, should also be published and this has not been done so far. We suggest that such figures should be collected and published at an early date.

Roads and Navigation Canals

Roads: Road statistics of India are published in the Statistical Abstract and the "Indian Road" which is a monthly publication issued by the Department of Commercial Intelligence and Statistics. "Agricultural Statistics of India Vol. I and II and the "Livestock Statistics" also give some information about the Indian roads.

The Statistical Abstract gives figures of the length of roads. Details are given with regard to roads maintained by Public Works Department and local bodies like Municipal, District and Local Boards. Roads are classified as Bituminous, Cement and Macadam.

Expenditure incurred on roads maintained by public authorities in (former) British India is also given. Separate figures are available about (i) the expenditure on maintenance, repairs and minor improvements; (ii) on new constructions and (iii) administration and other charges. Total figures are also published. Provincial and local expenditure on each of the above items is shown separately for each Province and Ajmer Merwara and Coorg. Figures of loan charges are also given. Totals including loan charges and outstanding highway debt at the end of the year are also worked out.

Figures are also available about the sources of expenditure on roads in India. Expenditure is divided under four head *viz.* Road Fund, Provincial Revenues Local Funds and Loans.

The 'Abstract' publishes statistics of motor cars, motor cycles and lorries and buses running in each province. All

these figures are based on the information received by the Department of Commercial Intelligence and Statistics from the Department of Communication, Government of India, which gets the figures from Provincial Governments. The statistics of motor cars are compiled from special returns.

"Indian Roads" gives details of the extra municipal roads maintained by the public authorities. This is a new publication and in the December issue of 1939 figures are given as at 31st March, 1938. These figures are less than those shown by the Abstract for the same date because prior to 1939-40 the Abstract included municipal roads also. Details with regard to the nature of roads are given in the same way as in the Abstract.

Agricultural Statistics of India Vol. I and II and the Livestock Statistics give figures of number of carts in various Indian Provinces and States. These figures are based on periodical census held in provinces and states. These statistics are neither reliable nor comparable and are very limited in their scope. We have already examined their drawbacks in connection with livestock statistics.

At present we do not know the extend of rail road competition in our country. It is difficult to say which of the roads and railways come in competition with each other and it is suggested that statistical studies in this direction should be made. Roads and railways running parallel to each other should be specially studied and the extent of competition estimated. Such a study will be very useful at present when we are to embark upon schemes of development of transport services in our country. A better co-ordination of rail and road is possible through such statistical studies and a lot of public money wasted on unfair competition can be saved.

Navigation Canals: There are few navigation canals at present in India. We have many irrigation canals but they are not suitable as waterways. Following statistics regarding canals are available provincewise in the Statistical Abstract:

(i) Length of the canals open for navigation.
(ii) Total number of boats plying cargo.

(iii) Total number of boats plying passengers.
(iv) Quantity of cargo carried.
(v) Value of cargo carried.
(vi) Number of passengers carried.
(vii) Quantity of cargo carried by rafting.

The figures are compiled from Provincial Irrigation Reports and Annual Returns.

"Irrigation in India—Review" and the "Triennial Review of Irrigation in India" which are publications of the Department of Labour, Government of India, also contain figures of the length of navigable canals open for use in various provinces.

Civil Aviation

There is only one official publication giving civil aviation statistics and it is the Report on the Progress of Civil Aviation in India which is issued by Directorate of Civil Aviation.

The report gives detailed account of Air Mails carried by all scheduled air services, number of flights, number of passengers and total freight carried, aircraft mileage, personnel employed, training imparted at flying clubs, accidents, proceeds of tax duties and fees and mileage flown etc.

COMMUNICATIONS

Posts, Telegraphs and Telephones

Statistics of post offices, telegraph offices and telephones are published in an annual report issued by the Post and Telegraph Department. Most of these figures are reproduced in the Statistical Abstract also. The Monthly Survey of Business Conditions in India also publishes certain figures. We shall examine these statistics separately for post offices and telephones.

Post Offices: The following information is available:—

(i) *Number of Post Offices and Letter Boxes*: Separate figures are available for rural and urban areas. Figure of

the average area served by each post office and each letter box, the literate and illiterate population served and the total population served are also worked out. These figures should however be used with great caution because the population of various places changes very often and till recently the figures were calculated on the basis of the population of 1931.

(ii) *Number of Postal Articles Handled*: Figures are available for the number of letters, post cards, newspapers, parcels and packets sent. Separate figures are given for paid and service, unpaid, registered, insured and V. P. letters, so also for insured, V. P. and Unregistered parcels.

The figures relating to the registered articles represent the actual total posted in various offices. The figures of unregistered articles are estimated by means of a sample study. Each year in the months of February and August all unregistered articles are counted for one week in each month. On the basis of these numbers estimates are made for the year. These figures should be used with caution as there are possibilities of seasonal change in the volume of the traffic and the sample seems to be rather too small.

The average number of postal articles handled per head of population is also worked out but these figures suffer from the limitation that increase in population is not allowed for in time.

(iii) *Mileage over which mails are carried*: Figures are available for the mileage over which various types of carriers are used, *viz.* railway, steamers, mails carts, motor service etc.

(iv) *Total Number and Amount of Money Orders*: Separate provincewise details are available for

(a) Inland Orders issued and paid in India and
(b) Foreign (including Indian States) orders issued and paid in India.

In calculating the grand total for money orders both issued and paid are included, but in case of inland money orders only the amount of 'issued' is included.

(v) *Post Office Savings Bank and Cash Certificates*: With regard to post office savings banks, figures are available about the number of head banks and sub-banks, number of accounts, opening balances, deposits, interest, balance, average number of depositors per bank, average balance in each bank and average balance at the credit of each depositor etc.

The amount of the post office cash certificate issued, the cost price and the amount paid are also published.

(vi) *Post Office Insurance Fund*: Details are available with regard to number of lives insured, amount insured, amount received as premiums and paid as claims etc.

(vii) *Dead Letter Office*: Number of letters dealt with in dead letter office is also published.

(viii) *Capital Expenditure, Receipts and Charges* of (former) British Indian post offices are also, given in separate tables.

Telegraph: The 'Report' and the 'Abstract' give details of:

(a) *Telegraph Lines*: As far as overhead lines are concerned they are divided into two classes *viz.* miles along road and miles along railway. For each of these two classes separate figures are available for line mileage and wire mileage.

As far as aerial, underground and submarines are concerned separate figures are given for cable mileage and copper conductor mileage.

(b) *Number of Telegrams handled and their receipts*:—

Telegrams are first classified as inland and foreign. Inland telegrams are further classified into State, Private, Raj (Indian states) and Press telegrams. Foreign telegrams are classified into State, Private and Press telegrams. Express and Ordinary telegrams are dealt with separately.

(c) *Number of Telegraph Offices*: Telegraph offices are classified into

(a) Departmental Offices
(b) Combined Post and Telegraph Offices
(c) Railway Offices
(d) Canal Offices

Other miscellaneous information including technical details is also provided in the report.

Telephones: The following information about telephones is available both in the Report and in the Abstract:

(i) *Number of Exchanges*: Separate figures are given for Departmental, Other than Departmental and Private Branch Exchanges.

(ii) Total lines and total telephones connected.

(iii) Number of Departmental Non-Exchange Telephones.

(iv) Total line and wire mileage.

(v) Revenue earned from rents and telephones call fees.

(vi) Number of lincensed telephone companies, exchanges, sub-exchanges and telephones.

(vii) Strength of the staff employed in the various branches of the department and statements relating to the receipt and expenditure of the department.

Radio and Wireless

Statistics of Radios and Wireless are available in the Annual Report of Post and Telegraph Department. The Statistical Abstract and the Report on the Progress of Broadcasting in India issued by the Director General All-India Radio.

The annual report gives

(a) The number of of wireless stations in operation

(b) Number of messages handled

(c) Number of wireless licences.

The report gives in brief a summary of the development of the wireless telegraphy and also an account of the receipts and payments of the Radio telegraph branch of the Post and Telegraph Department.

The Statistical Abstract publishes the number of radio telegrams sent and received and the amount accrued to the government.

The Report on the Progress of Broadcasting in India publishes the information with regard to the number of broadcast receiving licences in the country. Separate monthly figures are available for licences issued, licences

renewed, licences lapsed and the total number in force. The report also gives details of the programme transmissions hours and particulars regarding short wave and medium wave transmissions and the details of powers of transmitters etc. are also published. Besides this, various details regarding the composition of the programmes, the circulation of the radio journals, receipts and expenditure of the Department of Broadcasting and the strength of the staff are also published in the report.

CHAPTER XIII

FINANCIAL STATISTICS

(Banking, Currency, Exchange, Bullion and Securities)

Banking

Banking statistics of India are of a recent origin and the reason is not far to seek. Though Indian banking is as old and ancient as the Indian industry and commerce yet modern banking was introduced in the country only in the latter half of the last century. Even at that time certain attempts to introduce the new system met with failure as from time immemorial the indigenous banker was an indispensable pillar of Indian society and even today, despite many legislations, he has not been uprooted altogether. There were hardly any statistics worth the name about the indigenous bankers and their business on account of their huge number and extreme decentralization. As far as modern banking institutions were concerned their statistics were also not regularly collected due to the absence of any co-ordinating agency and indifferent attitude of the Government in this direction.

We had no central bank in our country as late as 1935. The Imperial Bank and its predecessors, the Presidency Banks and the Agency Houses, did not collect banking statistics and whatever information was available was published by the Department of Commercial Intelligence and Statistics in a "Statistical Table Relating to Banks in India". As we shall see later on, the figures of this publication were not only meagre but unreliable too. It was only after the inauguration of the Reserve Bank in this country that banking statistics began to be compiled and published with a view to give an accurate position of the credit system and financial situation of the country.

At present the money market and the banking system of India comprise the following constituents:—

(i) The Reserve Bank of India
(ii) The Imperial Bank of India
(iii) The Exchange Banks
(iv) The Indian Joint Stock Banks
(v) The Co-operative Banks and
(vi) The Indigenous Bankers and Moneylenders

The available statistics regarding each one of the above constituents and their criticism can better be appreciated and understood if a brief account of the nature of their functions and work is given.

Reserve Bank: The Reserve Bank of India came into existence on the 1st April 1935. It is a shareholders bank and but for a nominal figure its entire capital of 5 crores is owned by private shareholders. At present there is a move to nationalise the Reserve Bank and a bill is to be introduced in the legislature to this effect.

The Reserve Bank performs all the functions of a Central Bank. It is a Bankers' Bank and keeps deposits of 2% and 5% of the time and demand liabilities respectively of the scheduled banks, and in lieu of this, provides them facilities of rediscount of their paper if need be. It is a Government Banker also as the Central and Provincial Governments entrust the bank with all their money remittances, exchange and banking transactions, and deposit their cash balances without interest. It has the sole right to issue notes in the country and it does this through its Issue Department. The Reserve Bank is also authorised to purchase and sell Sterling and Treasury Bills and to give loans and advances and do agency business with certain restrictions and limitations.

Imperial Bank of India: Prior to the establishment of the Reserve Bank this bank was given most of the privileges enjoyed by the Central Bank of a country. It was a Government Banker and used to hold Treasury Balances. It managed the public debt and used to discount, buy and sell bills of exchange outside India from approved banks. It also used to do ordinary commercial banking business. It was not a full fledged central bank and was denied the

right of note issue; it even did not perform other central banking functions to the satisfaction of all. Now with the inauguration of the Reserve Bank the present position of this bank is that of an ordinary commercial bank. It, however, acts as an agent of the Reserve Bank where the latter has no branches and for this it receives a fixed remuneration.

Exchange Banks: Officialy an Exchange Bank is defined as one the head office of which is outside India. The Exchange Banks are almost all non-Indian and are incorporated outside India. Their principal work is to finance the foreign trade of India but lately they have been capturing the domestic trade as well. These banks are not subject to conditions and restrictions imposed on Indian Banks. They are not required to furnish any statements with regard to their activities in India nor are they required to keep any reserve with the Reserve Bank of India.

Indian Joint Stock Banks: Indian joint stock banks receive deposits and advance loans, overdrafts, cash credits and discount bills. Unfortunately there is no separate banking law in the country and as such they are governed by the Indian Companies Act of 1913 as amended in 1936. Before 1936 there were no restrictions at all on the activities of these banks. It was only in the amended Act of 1936 that some restrictions were imposed. Recently in 1944 certain other restrictions were incorporated in the Act. In India joint stock banks finance to a small extent the requirements of industries, the movement of crop from the village to the port of export and distribution of imports.

Co-operative Banks: The Provincial Co-operative Banks finance and control the central societies which in turn help the primary societies. The Provincial Co-operative Banks get their working capital by receiving deposits from Central Societies and from the public. They have also arrangements with Reserve Bank for cash credit and overdrafts. These banks carry on ordinary banking business also, such as collecting Hundies and dividend from companies etc. There is also an All India Provincial Co-operative Banks' Association to guide and co-ordinate the

activities of Provincial Co-operative Banks. These banks have been dealt in greater details in connection with co-operation.

Indigenous Bankers and Moneylenders: They represent the ancient banking system of the country and are spread throughout the length and breadth of the country. They are known by various names in the different parts of the country. Most common names are Bania, Mahajan, Chetty, Shroff, Saukar etc. Their business is of a hereditary origin and most of them combine banking with some other business. The smaller of these bankers give loan to agriculturists and other persons in rural areas and the bigger ones draw hundies, discount bills and advance loans and even receive deposits.

Data Available

Having briefly examined the important constituents of the Indian money market we proceed to study the statistical information available about each one of these, and in the course of our discussion we shall try to point out their drawbacks and make suggestions for their improvement.

Reserve Bank: Statistics relating to Reserve Bank of India are published in a statement issued weekly by the Reserve Bank itself. The name of the bulletin is "Statement of affairs of the Reserve Bank of India". This statement is divided into two parts and separate figures are available for assets and liabilities of the Banking and Issue Departments of the Bank. Presently we shall confine ourselves to the statistics of the Banking Department alone and shall take up the information about the Issue Department later on when we discuss the statistics of Currency, Exchange and Coinage. The statement gives the following details about the Banking Department of the Reserve Bank:—

Liabilities Rs.

(1) Capital Paid up
(2) Reserve Fund
(3) Deposits
  (a) Government

(i) Central Government
(ii) Government of Burma
(iii) Other Government accounts
(b) Banks
(c) Others
(4) Bills Payable
(5) Other Liabilities
Total

Assets Rs.

(1) Notes held
(2) Rupee Coin
(3) Subsidiary coin
(4) Bills discounted
(a) Internal
(b) External
(c) Government of India Treasury Bills
(5) Balances held abroad
(6) Loans and advances to Governments
(7) Other loans and advances
(8) Investments
(9) Other Assets
Total

Some of the above terms require an explanation.

Bills Payable: These are bills drawn by the various offices of the bank upon each other.

Other Liabilities: This head includes items like transactions in transit and profits awaiting distribution to shareholders and government.

Bills discounted: The Reserve Bank is empowered to discount for any Scheduled Bank the following classes of paper:—

(a) Bills of Exchange and Promissory Notes as defined in the Negotiable Act and payable in India maturing within 90 days from the date of issue.

(b) Agricultural Bills for financing seasonal agricultural operation or marketing of crops not exceeding a period of 9 months.

(c) Bills of Exchange drawn for the purpose of holding or trading in Government Securities and not exceeding a period of 90 days, and

(d) Bills of Exchange drawn in or at a place in the United Kingdom not exceeding a period of 90 days.

It should however be noted that the amount under the head of Bills Discounted refers in bulk to Treasury Bills as other types of internal or external bills are rarely discounted.

Other Loans or Advances: Under section 17(4) of the Reserve Bank Act the Reserve Bank is empowered to make loans and advances to scheduled banks repayable within 90 days against

(a) Trustee Securities
(b) Bullion
(c) Bills of Exchange and Promissory Notes and
(d) Promissory notes supported by documents of title to goods.

This statement is reproduced every week in Indian Trade Journal and consolidated figures of the same are available in the Statistical Abstract and figures as on 31st December each year are available in the Statistical tables relating to Reserve Bank of India.

Besides the above statement the "Reserve Bank Statistical Summary" (monthly) supplies some additional information about the Reserve Bank. It gives the figures of the purchases of sterling by the Reserve Bank. The net amount of the purchases and the rates of purchases are given. Further, the Statistical Summary gives information about the movement of funds by Telegraphic Transfer issued and encashed at offices and branches of the Reserve Bank of India. Telegraphic Transfers issued and those cashed are shown separately and individual figures are available for the various branches of the bank. The Statistical Summary also gives the clearing house returns. Separate figures are given for each clearing. The Reserve Bank Rate and the Exchange Telegraphic Transfer Rates are also published in this "Summary". These rates are published in the Report on Currency and Finance also, which is issued by the Reserve Bank.

The Report on the Currency and Finance in India, issued by the Reserve Bank (yearly), besides giving details

of the various assets and liabilities of the Banking and Currency Departments of the Reserve Bank and clearing house statistics, publishes the following additional information about the Reserve Bank:—

(a) Remittances through the Reserve Bank of India: They refer to telegraphic transfers issued and paid at each of the seven centres of the Bank. We have seen that monthly figures of these are published in the "Reserve Bank Statistical Summary". Here the figures are for previous $2\frac{1}{2}$ years but they are consolidated seasonwise *i.e.* April to September (slack season) October-March (busy season).

(b) A compact statement giving figures of remittances effected between the Reserve Bank of India, the Imperial Bank of India and the Treasury agencies for the half years ending March and September:—

This table gives separate figures of number and amount of

(i) Telegraphic Transfers
(ii) Drafts and Mail Transfers

Individual figures are given for remittances made by

1. The General Public
2. Scheduled Banks
   (i) At par
   (ii) At premium
3. Approved Non-scheduled Banks and Indigenous Bankers
4. Co-operative Banks and Societies
   (i) At par
   (ii) At premium
5. Local Funds at a premium
6. Othe rremittances at par
7. Government
   (i) Intra Provincial at par
   (ii) Extra Provincial at premium

The above information about the working of the Reserve Bank appears to be comprehensive. It does not mean that the Reserve Bank is collecting all the information

which it is expected to collect. As a matter of fact Reserve Bank of India does not collect so many figures which it should. We shall examine this point later on; all that we mean is that the information about the working of the Reserve Bank itself is more or less complete though the working of the bank leaves a lot to be desired.

Imperial Bank of India: Though at present, the position and the status of the Imperial Bank of India is almost the same as that of any other scheduled bank yet it has something special about it. As pointed out earlier, the Imperial Bank of India was a half-hearted Central Bank of the country till 1934 and even today it is the agent of the Reserve Bank and, therefore, most of the publications on Banking Statistics give separate figures relating to this Bank.

The "Statistical Tables relating to Banks in India" publishes detailed figures about the position of the Imperial Bank at the close of each year under the following heads:—

Liabilities

(a) Paid up Capital
(b) Reserve and Rest
(c) Deposits
(d) Acceptances, loans and bills payable
(e) Miscellaneous Credit

Assets

(a) Cash Balances (including balances with Reserve Bank)
(b) Investments (Government and other Securities), Bills of exchange, Bills receivable, Bills Discounted, Loans and Advances and other assets.

Dividends: Dividend for the year under consideration is given.

Before 1935 when the status of the Imperial Bank was different from its present status the information published was as follows:—

(a) Paid up Capital
(b) Reserve and Rest

(c) Total of paid up Capital, Reserve and Rest
(d) Deposits
  (i) Government
  (ii) Private
(e) Cash Balance
(f) Investment (Government and other authorised securities under the Act.)
(g) Dividends for the year.

The Statistical Abstract also publishes separate figures about the Imperial Bank. It gives the following information in the shape of a table which gives information about other scheduled banks also:—

(a) Paid up Capital
(b) Reserve and Rest
(c) Deposits

Upto 1934 separate figures were given for public and private deposits but after that year only private deposits are mentioned, there being no public deposits with the Imperial Bank due to the creation of the Reserve Bank.

Besides the above information relating to the assets and liabilities of the Imperial Bank the following information is also available about it:—

1. Percentage of cash to liabilities on deposits as on 31st December. This figure is available in the Statistical Abstract as well as Statistical Tables relating to Banks in India. The Statistical Abstract gives figures of the last 10 years ending with the year under review.

2. Imperial Bank Hundi Rate—This rate is published in the Report on Currency and Finance and it is the rate at which the Imperial Bank discounts first class 3 months commercial Bills. The Statistical Abstract also publishes the rate.

3. Average 'rate' of the Imperial Bank of India from 1931-34. Details of the halfyearly rates for the half years ending 30th June and 31st December are given in the

Statistical Tables. The average rate for the year is also calculated. Ten years figures are available.

4. Remittances effected through the Imperial Bank of India—These figures are published in the shape of a table in the Report on Currency and Finance. The figures relate to the Demand Drafts purchased. Separate figures are given for Bengal, Bombay and Madras circles.

Remittances effected between the Reserve Bank of India, the Imperial Bank of India and the Treasury Agencies are given in a separate table.

Joint Stock Banks:—Joint stock banks in India can be studied under two heads viz:

(i) Scheduled Banks
(ii) Non-Scheduled Banks

A Scheduled Bank is one which satisfies the following two conditions:—

(a) The bank should have a paid up capital and reserve of an aggregate value of 5 lakhs of rupees. The term aggregate value of paid up capital and reserve means the real or exchangeable value and not merely the value as shown in Balance Sheet.

(b) The bank should be a company defined in clause (2) of Section 2 of the Indian Companies Act, 1913, or a corporation or company incorporated by law outside India.

If the above two conditions are satisfied by any bank it must compulsorily be a scheduled bank.

Every scheduled bank has to maintain a reserve of at least 5% of its demand liabilities and 2% of its time liabilities with the Reserve Bank of India. Every scheduled bank has, further, to send to the Reserve Bank and the Central Government a weekly return of its position in the prescribed form. The Reserve Bank publishes a consolidated return about all scheduled banks every week.

In lieu of the above, the scheduled banks get the facility of financial accommodation in the shape of redis-

count of eligible bills, or loans and advances against eligible securities from the Reserve Bank of India.

The following information with regard to the position of the scheduled banks is published regularly.—

(1) *Statement on the position of Scheduled Banks*:— This is a consolidated statement about the position of scheduled banks and is issued by the Reserve Bank every week. It generally relates to their position as at the close of each Friday.

The following details are given:—

1. Demand Liabilities in India.
2. Time Liabilities in India.
3. Total cash in India.
4. Balances with the Reserve Bank.
5. Advances in India.
6. Bills discounted in India.

For the sake of comparision figures are given for 3 and sometimes 4 weeks, viz:

(i) Current week.
(ii) Last week.
(iii) Corresponding week of the previous year and
(iv) The Pre-war week (ended 1st September 1939).

Now, sometimes, figures of this pre-war week are not given.

It should be noted, however, that item No. 4 of the above 'statement' (*i.e.* Balances with Reserve Bank) does not tally with the figures published under the head of Deposits of Banks in the Weekly Statement of Affairs of the Reserve Bank. The reason for this is that in this statement figures of some banks, which are specially exempted from the submission of weekly return, in view of their inability for geographical reasons, are not included.

The consolidated position of the scheduled banks under the same heads as given in the above statement, is publi-

shed in the "Reserve Bank Statistical Summary" issued monthly. It is reported in Indian Trade Journal also. The Report on Currency and Finance issued annually by the Reserve Bank also publishes the consolidated position of the scheduled banks. It gives the following information:—

(i) Time liabilities
(ii) Demand Liabilities
(iii) Cash
(iv) Balance with Reserve Bank
(v) Excess of the balance with Reserve Bank over the statutory minimum.
(vi) Percentage of cash plus balance with Reserve Bank to the total of Time and Demand Liabilities.
(vii) Advances.
(viii) Bills discounted.
(ix) Percentage of Advances and Bills Discounted to the total of Time and Demand Liabilities.
(x) Annual average of Friday figures for 1939-40 and monthly average for the latest year.

The above information relates exclusively to the scheduled banks. Besides this, other information is also available about Indian Joint Stock Banks (both scheduled and non-scheduled). Upto 1936, these banks in India were completely governed by the Indian Companies Act (1913). There was no special banking legislation in the country. The Indian Companies Act was, however, amended in 1936 and required a banking company which was not a Scheduled Bank to transfer at least 20% of the declared profit to reserve until it was equal to the value of paid up capital. The Non-Scheduled Banks (if they are limited companies) are required by this amended Act to maintain a cash reserve of at least 1½% of time and 5% of Demand Liabilities and to file with the Registrar of Joint Stock Companies a statement of the amount so held.

Statistics relating to non-scheduled banking companies are available in the Statistical Tables relating to Joint Stock Banks in India, along with the statistics relating

to scheduled banks. The following information is available:—

(a) Number of Reporting Banks.
(b) Paid up Capital, Reserve and Rest.
(c) Total of above.
(d) Deposits.
(e) Cash Balances.
(f) Bills Discounted and Loans Advanced.
(g) Government and other securities.

For the purpose of above statistics this publication divides the banks in two categories *viz*:

(a) Banks having a paid up capital and reserve of Rs. 5 lakhs and over and

(b) Banks having a paid up capital and reserve above Rs. 1 lakh and below Rs. 5 lakhs.

Figures of the above two types of banks are given separately. Banks with a capital of less than rupees one lakh are excluded from this publication and this is the reason why the figures given in this publication are widely different from those given in 'Joint Stock Companies.'

The definition of banking business has created a lot of difficulty particularly with regard to smaller institutions calling themselves banks. Hardly one third of the non-scheduled banks submit returns in accordance with the amended Act of 1936. A great number of small banks do not come under the provisions of the Act. This is really a deplorable state of affairs and calls for immediate and urgent action.

Besides the above information given in summary tables, detailed information regarding the Assets and Liabilities of Indian Joint Stock Banks (both scheduled and non-scheduled separately) is given in this publication. The liabilities and assets are divided as under:—

LIABILITIES

(a) *Paid up Capital*:—Minimum capital should be Rs. 50,000. The Amended Act, 1936, lays down that

no bank can commence business unless it has a paid up capital of at least Rs. 50 thousand.

(b) *Reserve and Rest*:—This head includes the following funds:—
- (i) Reserve Fund.
- (ii) Other Contingency Reserve Fund e.g. those for Bad Debt or Security Depreciation etc.
- (iii) Dividend Equalisation Fund.
- (iv) Credit Balances of Profit and Loss Account
- (v) Sinking Fund

(c) *Deposits*
- (i) Fixed
- (ii) Savings
- (iii) Current
- (iv) Others

(d) *Other Liabilities*

ASSETS

(a) *Cash and Bullion*-
- (i) In Hand.
- (ii) At Bankers including balances with Reserve Bank.

(b) Bills Discounted
(c) Loans and Advances
(d) Government and Other Securities
(e) Other Assets

Figures are given separately for scheduled and Non-Scheduled Banks. Non-Scheduled Banks are further divided as having a Paid Up Capital of Rs 5 lakhs or over and between 1 lakh and 5 lakhs. Statistics relating to banks with lower paid up capital and reserve are also being collected now to a certain extent.

Besides the above information with regard to assets and liabilities of Joint Stock Banks following additional information is also available:—

1. Percentage of cash to liabilities on deposits on 31st December each year. Separate figures are given for banks with Capital and Reserve of 5 lakhs and above and below 5 lakhs and above 1 lakh.

2. Number of Joint Stock Banks with Branches
3. Number of Bank failures—Information available is

(a) Capital of such banks
  (i) Authorised
  (ii) Subscribed
  (iii) Paid up
(b) Date of registration
(c) Date of liquidation

Figures are available provincewise.

The above statistics with regard to Indian Joint Stock Banks appear to be quite comprehensive at first sight but they are not only incomplete but in many cases incorrect also.

We have seen that at present we have got figures relating to the business of scheduled and some non-scheduled banks. Unless we have got statistics of all banking companies we cannot draw any reliable conclusions. It is absolutely necessary to collect and compile figures relating to a vast number of smaller banks about which we do not know at present. We are not hinting here towards indigenous bankers. There are many small banking firms which carry on business on modern lines but which do not come within the purview of law and about which no figures are collected. In order that our banking statistics may be comprehensive no efforts should be spared to collect information with regard to these comparatively small banking units.

Not only our figures are not complete but in many cases they do not throw light on many important problems *e.g.* at present we know the amount of money given by banks in the shape of loans and advances but we do not know for what purpose these advances have been made. The figures of loans and advances, as such, are not reliable guides for industrial or agricultural development or otherwise of the country. Twice a year, if not more, the banks should submit to the Reserve Bank a classified statement of loans and advances. Loans and advances can be divided in the following classes:—

1. *For Agricultural Purposes*:—For growing and marketing raw produce. If possible figures should be given separately for each crop.
2. *For Industrial Purposes*:—For manufacturing various commodities. Figures should be given separately for each major industry and for groups of small and minor industries.
3. *For Trading Purposes*:—Separate figures should be given for
   (i) Trading in securities and
   (ii) Trading in other commodities
4. *For Transport Purposes*:—Separate figures for various types of transport agencies should be provided.
5. *For Building and Contracting Purposes*
6. *For Other Purposes*

A similar classification was suggested by the Bowley Robertson Committee (1934).

Yet another example of inadequacy and insufficiency of banking figures is provided by the term "Investments." We do not know the method by which valuation of investments is done. It cannot be said definitely whether these figures refer to cost or market price or to some price other than these. The Indian Banking Enquiry Committee was of opinion that valuation of investments should be made on the basis of cost or market price whichever is lower but it is not known how far this recommendation is followed by banks. It is not improbable that many banks, mostly smaller ones, must be showing the investments at market price or cost price whichever of the two is higher, in order to inflate the value of their assets. It is absolutely necessary that the Reserve Bank should do something in this direction and try to secure uniformity in the principle of valuation of the assets.

Reserve Fund is another item which does not really give the true figures. Many banks keep secret reserves and hence the actual position of the Reserve Fund (in case of banks generally) is much stronger than what the Balance Sheets show. We do not condemn the creation of secret reserves by banks yet excessive amounts of secret reserves are as dangerous as no reserves at all.

We are of opinion that the item of Reserve Fund should show more details and various funds which at present are combined (e.g. Dividend Equalisation Fund, Sinking Fund, Contingency Reserve Fund etc.) should be shown separately.

We have already seen that prior to 1936 there was no restriction as to the minimum amount of capital needed for a banking company. It was only in 1936 that the minimum was laid down at Rs. 50,000. But this applied only to those companies which were started after 15th January, 1937. Companies which were already in existence were not affected. It is high time that such small companies should also be brought under the law. For this it is very essential that the term banking should be exhaustively defined as to leave no doubt or difficulty about a concern being classified as either a banking concern or otherwise.

Before the inauguration of the Reserve Bank there was no legal minimum for cash reserves at any given time and therefore, we could have no idea about the liquid resources of a bank. The figures at the close of a year or half year were no index of the day to day cash position of a bank. At present, however, this thing is no more as scheduled banks have to submit a return each week and legally they are bound to keep a certain minimum cash reserve. Even for non-scheduled banks, we have seen that the amended Indian Companies Act of (1936) lays down certain minimum percentages.

Exchange Banks:—We have already seen that almost all the exchange banks in our country are foreign banks with their head offices outside India. As such they do not come under the jurisdiction of the Indian Companies Act. They are under no obligation to submit any return with regard to their business in this country. Whatever statistics are available about them are compiled from the balance sheets of the banks. Information about the Exchange Banks is published in the Statistical Tables relating to Banks in India and in the Statistical Abstract of British India.

The 'Statistical Tables' gives summary tables about Exchange Banks disclosing the following information:—

(a) Number of Banks.
(b) Paid up Capital, Reserve and Rest.
(c) Deposits.
    (i) Out of India
    (ii) In India
(d) Cash Balance.
    (i) Out of India
    (ii) In India

A general table about the exchange banks is also given and this gives more details about the assets and liabilities of the banks. Figures are available under the following heads:—

LIABILITIES

(i) Capital and Reserve
(ii) Notes in circulation
(iii) Acceptances, Loans and Bills Payable
(iv) Miscellaneous Credits
(v) Deposits and Current Accounts
(vi) Profits

ASSETS

(i) Cash in hand, at bankers, and bullion
(ii) Investments, government and other securities
(iii) Bills of exchange and bills receivable
(iv) Bills discounted, loans and advances.
(v) Buildings and sundries including loans for acceptance and
(vi) Total assets

Besides the above details relating to the assets and liabilities of Exchange Banks other information available about them is the 'percentage of cash to laibilities on deposits' on 31st December each year. For this purpose exchange banks are classified in two groups *viz*:

(a) Doing a considerable part of business in India.
(b) Doing a major portion of their business abroad.

The above information about the exchange banks is extremely insufficient and meagre. Formerly these exchange banks used to confine themselves to the financing of foreign trade and most of their branches were in the port towns; but now many exchange banks are opening branches in the interior and are coming in competition with commercial banks. They are receiving deposits in India and are advancing loans too. These banks have an advantage in as much as the statutory obligations applicable to Indian banks do not apply to them. Under such circumstances it is absolutely essential that more information about them be made available to public. It should be made known to the public as to how far these banks are capturing the fields of home trade and internal business. Loans given by such banks should be scrutinised and the purpose of the loan analysed. The Indian Companies Act should either be amended to bring exchange banks also within its purview or special banking legislation be enacted to curtail their activities.

Co-operative Banks: Statistics relating to Co-operative Banks are found in the Statistical Tables Relating to Co-operative Movement in India. Some figures are also published in the Statistical Abstract. The information relates to all the Provincial and Central Co-operative Banks and registered non-agricultural co-operative credit societies with a limited liability and having a capital and reserve amounting to at least a lakh of rupees.

The following information is available in the 'Statistical Tables Relating to Banks' and Statistical Abstract:—

(i) Number of Banks
(ii) Paid up capital
(iii) Reserve and Other Funds
(iv) Deposits and loans held
(v) Loans outstanding
(vi) Cash Balances

Detailed information about Co-operative Banks and Societies is found in the 'Statistical Tables Relating to Co-operative Movement in India.' We have dealt with these

statistics elsewhere in connection with co-operative institutions.

Indigenous Bankers: Statistics relating to Indigenous Bankers are extremely meagre in our country. We have some figures of the Nidhis and Chit funds of Madras in publications relating to joint stock companies. Besides this no other information is available either with regard to Moneylenders or Indigenous bankers. They do not come under the Indian Companies Act. The Act merely lays down that if a banking business is carried on by more than 10 persons they must form themselves into a company and get it registered under the Act.

It is essential that we should have more figures about indigenous bankers and moneylenders. No doubt it would be difficult to collect statistics about them on account of the fact that they combine banking with some other business yet figures about thousands of such firms which carry on banking business as their main profession can be collected. Firms, which do banking business only as a side work and follow some other main profession, can be excluded but statistics of those firms which follow banking as their main profession with some other side work should be collected.

Post Office Saving Banks: Statistics relating to Post Office Saving Banks are published in the Report of the Post and Telegraph Department, Report on the Currency and Finance in India, and the Statistical Abstract of British India.

The following information is available:—

1. Number of Head Banks and Sub Banks
2. Number of Accounts
   - (i) At the end of last year
   - (ii) Opened during the year
   - (iii) Closed during the year
   - (iv) In force at the end of the year
3. Opening Balance of Accounts
4. Deposits

5. Interest
6. Withdrawals
7. Net increase or decrease in deposits
8. Average number of depositors per bank
9. Average balance in each Bank
10. Average balance at the credit of each depositor.

All the above discussed banking statistics are collected either by the Reserve Bank or the Government. Till recently the bankers themselves did not make any attempt to organise and collect statistics. In the year 1928, however, the Indian Institute of Bankers was established. Out of the many other functions one important function of the Institute was to collect and circulate statistics and other information relating to the business of banking in India. Unfortunately the Institute has not done anything significant in this direction. It has more or less confined itself to holding some examinations and issuing periodicals. It is suggested that the Institute should take up the work of collecting and publishing banking statistics.

There is a great necessity of the creation of Bankers Associations on provincial and all-India basis to organise and consolidate banking business and publish useful information on banking in the country. There is also a necessity of an Indigenous Bankers Association which may collect and publish figures about the working of indigenous bankers and big moneylenders. Unfortunately, contrary to expectations the Reserve Bank has failed to organise banking in India and to co-ordinate the various sections of the money market. The gravity of the situation is much felt today when due to conditions created by war there has been a mushroom growth of banks. Such war-fostered development of banking is no consolation to anybody as it will only create innumerable problems in normal times, when inflationary conditions disappear. It is very essential that at such a time the Reserve Bank should see that undesirable and unhealthy part of this development is curtailed and smaller and unsound banks are purged out and the remaining ones are consolidated. As suggested before there is need of legislation to regulate banking in the country and it is hoped that such legislation would come in force at an

early date. All these things would require correct and reliable statistics as no scheme either of development or co-ordination can work without them and it is the paramount duty of the Reserve Bank, the Government and the Bankers themselves to organise banking statistics on sound lines.

Statistics of Currency, Exchange, Bullion and Securities

Currency and Exchange Statistics in India are fairly comprehensive and reliable. The Reserve Bank and the Finance Department of the Government of India publish most of the information needed in connection with the circulation of currency and prices of bullion and securities. We shall study these statistics under the following heads:—

(i) Currency Statistics
(ii) Foreign Exchange Statistics
(iii) Prices of Bullion and
(iv) Prices of Government and other Securities

Currency Statistics: Every week the Reserve Bank of India publishes a statement giving the assets and liabilities of the Banking and the Issue Departments separately. We have already examined the assets and liabilities of the Banking Department and we shall now study the assets and liabilities of the Issue Department which are as follows:—

Liabilities

(i) Notes in the Banking Department
(ii) Notes in circulation
(iii) Total Notes issued (total of item No. 1 and 2)

Assets

(i) Gold Coin and Bullion
  (a) in India
  (b) outside India

The valuations of gold is done at the statutory rate of 8.47512 grams per rupee *i.e.* at Rs. 21-3-10 per tola.

(ii) Sterling Securities

(iii) Total of gold coin, Bullion and Sterling Securities. It shuld be remembered that for purposes of Indian currency reserves sterling occupies the same status as gold coins or bullion.

(iv) Rupee Coins

(v) Rupee Securities

(vi) Internal Bills of Exchange and other paper.

The above statement gives in brief the currency position of the country during the week under review. This statement is reproduced every week in the Indian Trade Journal and Capital. Consolidated figures of the same are available in the Statistical Abstract.

Besides this summary information given in the statement many details are published in the Statistical Abstract and the Report on the Currency and Finance. The information contained therein is as follows:—

Number and Value of Currency Notes in Circulation

These figures are based on the information supplied by the Reserve Bank. Prior to 1935 the information was being supplied by the Controller of Currency. The number and value of notes of the denomination of Re. 1, Rs. 2-8, 5, 10, 20, 50, 100, 500, 1,000 and 10,000 are given. It should be remembered that 1-rupee notes and 2½-rupee notes were discontinued since 1926 and from that year onwards the figures in the Abstract refer to notes not encashed. Similarly 20 rupee notes were demonetised as early as 1910. Recently 1000 and 10,000 rupee notes have also been demonetised. No doubt 1-rupee and 2-rupee notes have been issued now but the one rupee note is issued by the Government and the figures of it are not included here but are taken under rupee coin.

The figures are available as at 31st March each year upto 1934-35 and as at 31st December each year after 1935, when the Reserve Bank came in existence.

Information with regard to total notes issued is also available. Notes in circulation represent the figures of total

notes issued minus the amount held in the Banking Department of the Reserve Bank.

Notes in Circulation and Paper Currency Reserve: The 'Statistical Abstract' gives a table in which along with the value of notes in circulation the composition of the paper currency reserve is also shown. In India 40% reserve has to be kept in gold bullion, coins or sterling. Sterling and gold are at par for purposes of paper currency reserve. The table prior to 1935 gave the following details.

(i) Notes in circulation
(ii) Reserves held in India
  (a) Gold
  (b) Silver
  (c) Government Securities
(iii) Internal Bills of Exchange on account of Government.
(iv) Reserves held in England
  (a) Gold
  (b) Sterling
(v) Currency notes in Government Treasuries

After 1935 the details changed. Upto 1935 the figures supplied were annual but after that year monthly figures were given. The way in which the information is now given is as follows:—

1. Notes in circulation
  (a) Gross
  (b) Active Circulation
2. Reserves
  (a) India
    (i) Gold coin and bullion
    (ii) Rupee coin
    (iii) Government of India Rupee Securities
  (b) Abroad
    (i) Gold coin and Bullion
    (ii) Sterling Securities

Number and Value of Money coined at Bombay and Calcutta mints: Separate figures are available for Bombay and

Calcutta. In Madras minting was done only upto 1862. The information is given under the following heads:—

(a) *Silver*
  (i) Rupees
  (ii) Half Rupees
  (iii) Quarter Rupees
  (iv) One Eighth Rupee—These are now replaced by nickel.
  (v) One anna—They are particularly issued for states of Udaipur and Mewar.
(b) *Nickel*
  (i) Eight annas
  (ii) Four annas
  (iii) Two annas
  (iv) One anna
  (v) Half anna—since January 1942
(c) *Bronze*
  (i) Single pice
  (ii) Half pice
  (iii) Pies

Figures for the coins minted for States are given separately. A separate table compares the value of old Government of India rupees (including small silver coins) received in the mints for recoinage and the value of new rupee pieces coined.

Absorption of Currency: The Report on Currency and Finance issued by the Reserve Bank gives a statement on the absorption of currency. Separate figures are given for notes, rupees and small coins. Since July 1940, one rupee notes are also included under the head of rupees. Decrease or increase from the previous year is worked out and a separate table is devoted to the absorption of small coins only, wherein detailed figures are available of all the small coins. It should be remembered that since 1935 after the inauguration of Reserve Bank the half rupees have been included in statistics relating to small coins. Monthly absorption of currency for the year under review is given in a separate table. This table not only gives separate figures for notes, rupee coins and small coin but also

works out the increase or decrease from the previous month. Seasonal absorption and return of notes and rupee coins is given in a separate table. Absorption of notes and rupees and their return, seasonwise along with increase or decrease, is shown in great detail.

Currency Circulation and Wholesale Prices: "The Monthly Statistical Summary" gives a table in which the increase or decrease in currency circulation is shown along with Calcutta Index Number of Wholesale Prices. The increase or decrease in currency circulation is calculated from the figures relating to the last Friday of each month. Figures of each month and the progressive changes commencing from April each year are shown separately. Now the price index item has been discontinued. There is no reason why it should have been discontinued. As a matter of fact at present when currency circulation in the country has tremendously increased and the prices have soared up very high it would be very useful to study the relationship between inflation and the rise in price level.

The above information with regard to currency circulation in India appears to be accurate and complete. Yet on account of the absence of the other data they cannot be very gainfully used. We, in our country, have no statistics relating to industrial, agricultural and business activity and in the absence of these we cannot have an idea of the demand for currency at a particular time. We cannot definitely say whether an increase or decrease in the volume of currency means an inflation or deflation or simply an addition or withdrawal of currency for adjustment to the changed level of business activity.

Foreign Exchange: The "Monthly Statistical Summary" and the "Report on Currency and Finance" publish the rate of exchange between the following countries.

(i) Bombay on London—This rate is quoted as so many shillings and pence to a rupee.
(ii) Bombay on New York—This rate is quoted as so many rupees to 100 dollars.
(iii) London on New York—This rate is quoted as so many dollars to a pound.

(iv) New York on London—This is also quoted as so many dollars to a pound. This is a free rate and is fluctuating. The other three rates are fixed and their average, highest and lowest level is a common figure.

Monthly figures are given for current year and yearly figures for previous year.

The "Statistical Abstract" gives the rates of exchange between—

1. Calcutta and Hongkong—The rate is quoted as so many rupees to 100 dollars. The figures represent the monthly average of daily quotations.
2. Calcutta and Japan—This rate relates to the selling of T. T. It is quoted in rupees per 100 yens. The figures are based on quotations supplied by Yakohoma Specie Bank and are averages of weekly quotations. Monthly figures for 10 years are given.

Purchase and Sale of Sterling by Reserve Bank: The Statistical Abstract publishes these figures of purchases and sales of Sterling by Reserve Bank. The amount purchased and sold is shown separately along with the amount paid and received in rupees and the average rate of exchange. Annual figures are given for 10 years and for the last year monthly figures are available.

The amount of purchases of sterling by the Reserve Bank is published in the Report on the Currency and Finance and the Monthly Survey of Business Conditions also. The details given are the same as in the Abstract. The report on Currency and Finance in its introduction contains a statement which brings together the figures relating to the supply of sterling and its disposal from the commencement of the War (1939-45) to the end of the year under review.

The information given is as follows:—

Supply of Sterling

1. Sterling assets held by the Reserve Bank of India in August 1939.
2. Sterling purchases by the Reserve Bank.

3. Sterling payments by His Majesty's Governments.

Disposal of Sterling

1. Sterling amounts utilised for repatriation schemes.
2. Other sterling commitments.
3. Sterling holding of the Reserve Bank at the end of the year.

Bullion: The Statistical Abstract devotes about 10 tables to the presentation of statistics relating to gold and silver. Some of this information is published in the Report on Currency and Finance in India and in the "Monthly Statistical Summary" issued by the Reserve Bank. The following information is available:—

Gold Standard Reserve:—This reserve existed in India only upto 1934-35. In that year the amount of the reserve, with the exception of 7½ m. pounds, was transferred to Reserve Bank. 7½m. pounds were transferred to a special reserve named as Silver Redemption Reserve. This reserve was created by government as it had an obligation under the Reserve Bank Act to pay full legal tender value for the surplus rupees returned by the Reserve Bank from time to time.

Till 1934-35, information about gold standard reserve used to be compiled from the Finance and Revenue Accounts of the Government of India. The information available was:—

On 1st April

Receipts

1. Opening balances
2. Net profits on rupee coinage added to Reserve.
3. Interest and dividends on investment and discount on bills paid off on maturity.
4. Profits by exchange on remittances for the Reserve.
5. Total Receipts (total of the above 4 columns)

Appropriations

1. Appropriated to Reserve
2. Appropriated to Reserve Equalisation Fund
3. Appropriated for reduction of created securities in the Paper Currency Reserve
4. Other charges

On 31st March

1. Closing Balance— Difference between Receipts and Appropriations.
2. How the Balance is held
   (a) Gold in India
   (b) Gold at the Bank of England
   (c) Cash in England placed at short notice
   (d) Due from Treasury Balances
   (e) Temporary loans to Treasury Balances in India
   (f) Cash at Bank of England
   (g) Total estimated value of British and Colonial Government Securities and Corporation of London Bond.

Silver Redemption Reserve—As mentioned above the Reserve was created in 1935 and figures of it are available since that year. Information available is as follows:—

1. Opening Balance.

2. Amounts accruing to the Reserve—This information is given subdivided in six columns, various details regarding the proceeds of silver sales appropriated to the Reserve, payment by Reserve Bank, profits from casual sales of gold by Reserve Bank and interest and dividend on investments etc. are given.

3. Amount paid from the Reserve:—Amount paid from the Reserve is given under three heads viz.
   (a) Value of assets made over to Reserve Bank,
   (b) Amount transfered to reserve and
   (c) Amount transfered to the head "Purchases and Sales of Silver."
4. Closing Balance

Purchases and Sales of Silver—The figures relate to government purchase and sales and are compiled from Combined Finance and Revenue Accounts of the Central and Provincial Goverments in India. The following information is published:—

(i) Opening Balance
(ii) Amounts debited to the head:—They include payment to the Reserve Bank, incidental charges for shipment and other payments.
(iii) Amount Credited to the head—They include proceeds of the sale of silver (less amount appropriated to Silver Redemption Reserve). Receipts transferred from Silver Redemption Reserves. Receitps from the Government of Burma (on account of its share of payment to Reserve Bank) and other receipts.
(iv) Closing Balance

Maximum and minimum price of silver per ounce in London—The figures are compiled from the information published by Pixley and Abell, London. Monthly figures are given for 10 years ending with the year under review. Besides the maximum and minimum prices of silver other information is also given in the tables. This relates to the silver coined in England, sterling purchased in India, export of silver from England to the East, Import of silver bars and coins in England, Import of silver into India, and average bank rate of discount. On the marign of the table remarks and notes giving effects of principal events on bullion trade are also given.

Price of Gold in London and Bombay at the end of each half month—This information is compiled from the Bankers' Magazine, the Economist and the Bombay Chamber of Commerce current quotations. Figures of 10 years are given. Figures of England are as so many shillings and pence per ounce and the Indian figures so many rupees and annas per tola.

The monthly Statistical Summary of the Reserve Bank also gives weekly prices (on Friday) of both gold

and silver at Bombay. Spot, one month forward and two months forward prices are given and the visible stocks (tolas in case of gold and bars (100 tolas) in case of silver) are also mentioned.

The Report on Currency and Finance also publishes prices of gold at Bombay. The prices of silver in London, New York and Bombay markets are also published. The price in London is per standard ounce. The unit of quotation in New York is equal to five ounces and in Bombay the price is per 100 tolas. In case of Bombay, stock and forward prices, and in all cases highest, lowest and average prices are given separately. The estimated stock of silver at the end of each month at Bombay is also given.

Production of gold and silver—Details about the production of gold and silver in India as well as in other countries of the world are given in the Report on Currency and Finance.

Imports and Exports of gold and silver—The Statistical Abstract publishes two tables giving amount of import and export of gold and silver as well as the figures of the amount received and the amount coined in the mints. The information published is compiled from the Accounts Relating to Sea Borne Trade and Navigation of British India and the returns received from the Mint Masters. The information given is—

(a) (i) Imports
(ii) Exports
(iii) Net Imports

(b) Received in Mints

(i) From Individuals
(ii) From Government
(iii) Total

A separate table in the Abstract is devoted to the quantities of gold and silver (in ounces) imported and exported each year. Ten years figures are available.

Government Securities—The prices of Government Securities are published in the Statistical Abstract as well as the Report on Currency and Finance. Besides others prices of the following Central Government papers are published in the Abstract:—

3% loan	1951-54
3% Bond	1941
3% loan	1896-97
3½% guaranteed	
3½% loan	1947-50
4% loan	1960-70
4% Bonds	1943
4½% loan	1955-60
5% loan	1945-55

The prices in the Abstract are shown at par, premium or discount. The Report on Currency and Finance gives figures of some Provincial Government Loans also. In the 'Report' figures are given of the minimum price fixed by Government and the price as revised later on, along with closing quotations. The Monthly Statistical Summary of the Reserve Bank also publishes quotations regarding some of these securities. 'Capital' also publishes these figures.

The above information is supplied by the Reserve Bank since 1937 and before that it was supplied by the Controller of Currency.

Other Securities, Stocks and Shares:—The price quotations of the stocks and shares as well as other papers of commercial and other concerns are published by "Capital" every week. Figures are given about the price quotations of securities of various banks, railways, cotton mills, jute mills, cement companies, engineering companies, insurance companies, paper mills, sugar mills and tea gardens etc. As a matter of fact the list is a very long one and includes most of the important commercial and other concerns of the country. The information given is very detailed and the following information about each security is given:—

1. Opening quotation
2. Highest for the week
3. Lowest for the week
4. Closing quotation
5. Quotation for the corresponding closing date a year ago.

The figures are of Calcutta Stock Exchange.

Economic Advisors' Index Number of Security Prices: —The office of the Economic Advisor to the Government of India has been publishing since April 1937 three indices about the price of Indian Securities. They relate to—

(i) Fixed Yield Government Paper.
(ii) Fixed Yield Industrial Securities.
(iii) Variable Yield Securities.

The number of securities in each group is as follows:—

(1)	Fixed Yield Government Paper	—	6
(2)	Fixed Yield Industrial Securities	—	24

These are distributed over the various industries as follows:—

(i)	Jute	8	quotations
(ii)	Coal	3	
(iii)	Cotton	2	
(iv)	Tea	4	
(v)	Sugar	2	
(vi)	Paper	1	
(vii)	Transit	1	
(viii)	Miscellaneous	3	
		24	
(3)	Variable Yield Securities	—	124

These are distributed as follows:—

(i)	Banks	8
(ii)	Cotton	23
(iii)	Jute	20
(iv)	Coal	13
(v)	Iron and Steel	3
(vi)	Engineering	3
(vii)	Tea	19
(viii)	Sugar	3
(ix)	Electricity and Telephone	11
(x)	Cement	4
(xi)	Railways	4
(xii)	Paper	2
(xiii)		
(xiv)	Flour mills	1
(xv)	Transit	5
(xvi)	Breweries	2
(xvii)	Insurance	3
		124

The weights in the index of variable yield securities have been assigned chiefly on the basis of aggregate paid-up capital of the companies of that group . The total value of output of each industry has also been taken into consideration for arriving at final weights. Only one quotation per month is taken for each security and it relates to a fixed date towards the close of the month. The base year is 1927-28 and the index number is the simple arithmetic average of the quotations expressed as percentages of the quotations of the base year. In a sense it is a weighted average and weights are the number of quotations for each item.

The indices are published in the Monthly Survey of Business Conditions and information about it is also available in the Report on Currency and Finance issued by the Reserve Bank.

A very serious drawback of these index numbers is that only one quotation is taken in the whole of a month and taking into account the abnormal fluctuations in the Indian stock exchanges the figures may not be representative of the whole months.

"Capital" also compiles an index number of security prices and regularly publishes it.

CHAPTER XIV

Financial Statistics (*Contd.*)

PUBLIC FINANCE

Modern age is the age of government activity and state intervention. The days of *laissez faire* have been left far behind and today the state, in every country of the world, is assuming an ever increasing importance. There was a time when the activities of the state were confined to the maintenance of law and order only but gradually it came to be realized that the state can maximize human welfare by entering the field of economics and commerce. In order to carry on the varied activities in which a modern state is involved today, a huge amount of money is needed and public expenditure today amounts to huge figures in all countries of the world. How far this state expenditure is beneficial to public is very difficult to estimate in statistical terms, as most of the expenditure incurred by state is very general in its nature and the benefits cannot be measured directly; but one thing is certain and that is that the state expenditure everywhere is showing a progressive increase.

There is a negative side to this picture as well. The state in order to incur huge expenditure and thus to increase human welfare demands either money or unpaid services from its members and thereby places a burden on them. This is generally referred to as Public Revenue. The state also borrows money and we call it Public Debt. Though benefits of public expenditure are incapable of direct measurement yet we can statistically analyse the effects of the collection of this revenue by the state, and that of borrowings from the public. The burden of public taxation and public debt can be statistically studied and is analysed everywhere.

A study of the Statistics of Public Finance, therefore means in brief the study of—

(i) Public Expenditure, its amounts and direction.

(ii) Public Revenue, its amount and sources.
(iii) Public Debt and
(iv) The burden of Public Taxation and Public Debt.

We can better appreciate the statistics of public finance if we assume the state to be a business firm. Today the state, like a commercial enterprise, has certain assets and liabilities and debits and credits. It collects money from the public in the shape of taxes and spends the money in the shape of various grants for general benefits. Since the expenditure of the state is generally in excess of the receipts, it borrows money from the public for long periods at certain rates of interest. The study of public finance statistics as a matter of fact is the study of the receipts and expenditure of the state.

Before we study these financial statistics of India it would be necessary and useful to have an idea of the Indian system of public finance. Indian finance in recent years has undergone revolutionary changes, most of which are in some way or the other related to the war of 1914-18. Before the War (1914-18) there was only one budget for the whole of India and the provinces had no independent authority of taxation, but at present the provincial finance is almost independent of the central finance. This decentralization was necessitated by the size of the country and its increasing population. The process of decentralization was actually started by Lord Mayo in 1871 and it was revised at quinquennial intervals from 1877 to 1897. In 1904 the relationship between the centre and the provinces was made semi-permanent but minor changes were introduced in 1912. It was after the war of 1914-18 in the year 1921 that Reforms were introduced and major changes in the system of Indian finance took place. Provincial Financial Autonomy was the key-note of the Reforms, and so divided heads of revenue (between the Centre and the Provinces) were abolished and there was a fresh allocation of revenue and expenditure between the Provinces and the Centre. Later on, Railway Finance was also separated from the General Finance. Further changes were made by the Act of 1935 and at present the provinces and the centre have separate sources of revenue, and in addition to this, provinces enjoy additional advantage in the shape of assignments of tax

proceeds and subventions from the central government. Some taxes are collected by the Central Government but the proceeds are divided between the provinces.

Thus it will be observed that the sum and substance contained in the provisions of the Government of India Act, 1935, with regard to financial relation between the Centre and the Provinces is 'that while duties and taxes may be levied and collected by one authority, the proceeds may wholly or in part go to others.' Therefore, it will be useful to arrange the financial subjects in accordance with the fact whether they are under the legislative list of the Federal Government or of the Units.

Federal Legislative List

1. Custom Duties including export duties.
2. Excise on tobacco and other goods produced or manufactured in India, except—
   - (a) Alcoholic liquors for human consumption.
   - (b) Opium, Indian hemp and other narcotic drugs and narcotics and non-narcotic drugs.
   - (c) Medicinal and toilet preparations containing alcohol or any substance included in (b)
3. Corporation Tax.
4. Income Tax excluding agricultural income.
5. Salt Tax (now abolished).
6. Taxes on capital value of assets of individuals and companies excluding agricultural land.
7. Taxes on capital and companies.
8. Succession Duties on property excluding agricultural land.
9. Stamp Duties on B/E, cheques, P/N, B/L, Letters of Credit, Policies of Insurance, proxies and receipts.
10. Terminal Tax on goods and passengers carried by rail or by air.
11. Taxes on railway fares and freights.

Provincial Legislative List.

1. Land Revenue.
2. Excise Duties on following goods manufactured in

provinces and countervailing duties at the same rates or lower rates on similar good produced or manufactured elsewhere in India.

(a) Alcoholic liquors of human consumption.
(b) Opium, Indian hemp and other narcotic drugs and narcotics and non-narcotics drugs.
(c) medicines and toilet preparations containing alcohol or any substance included in (b)

3. Taxes on Agricultural Income.
4. Taxes on Land and Buildings, Hearths and Windows.
5. Succession Duties on Agricultural land.
6. Taxes on Mineral Rights.
7. Capitation Taxes.
8. Taxes on Animals and Boats.
9. Taxes on sale of goods and advertisements.
10. Cesses on the entry of goods into a local area.
11. Taxes on luxuries including taxes on entertainments, amusements, betting and gambling.
12. Stamp Duties excluding those included in federal legislative list.
13. Duties on passengers and goods carried on inland waterways.
14. Tolls

In accordance with Sec. 137 and 138 of the Government of India Act, 1935, the proceeds of succession duties, terminal taxes on goods and passengers carried by rail or air and taxes on railway fares and freights are to be distributed among provinces and such federal states, within which the tax is leviable, in such proportion as the federal legislature may decide.

Income tax and export duty on jute are also shared between the Centre and the Provinces. Besides this the provinces get from the centre various grants and subventions. The difference between a grant and a subvention is that a grant is in the nature of a subsidy without any condition but a subvention is a grant for specific purpose.

With the above background we now proceed to study

statistics of Indian Public Finance. We shall study it under the following heads.

(i) Central Government Finances.
(ii) Provincial Government Finances.
(iii) Railway Finance.
(iv) Local Finance.
(v) Public Debt.

Financial statistics are available in the "Finance and Revenue Accounts of the Central and Provincial Governments," "The Central and Provincial Budgets," "The Report on Currency and Finance" issued by the Reserve Bank and the "Statistical Abstract for British India."

Central Government Finance: Very detailed figures relating to the revenue and expenditure of the Central Government are published in the "Finance and Revenue Accounts of the Central Government" as also in the "Central Budget."

The budget gives estimates of revenue and expenditure as presented to the legislature and also as finally adopted. It should be remembered that all items cannot be altered by the legislature as some of the items are "Non Voted" items on which even a discussion is allowed only with the permission of the Governor General. Following information is available in government publications about the revenue and expenditure of the Central Government.

1. **Revenue of the Central Government:** The Budget gives the figures of revenue under each head for the last year, budget estimates and revised estimates of the current year, and the budget estimates for the year to come. The amount of revenue is given under the following major heads:—

Principal Heads of Revenue

1. Custom.
2. Central Excise Duties.
3. Corporation Tax.

4. Taxes on Income other than Corporation Tax.
5. Salt.
6. Opium.
7. Land Revenue.
8. Provincial Excise.
9. Stamps.
10. Forest.
11. Registration.
12. Receipts under the Motor Vehicle Act.
13. Other Taxes and Duties.

Total.

14. Irrigation.
15. Post and Telegraphs.
16. Civil Administration.
17. Currency and Mint.
18. Civil Works.
19. Miscellaneous.
20. Defence Services.
21. Contributions and miscellaneous adjustment between centre and provinces.
22. Extraordinary Items.
23. Railway Revenue as per Railway Budget.

The item Nos. 14 to 22 are further subdivided in small divisions which number about 53.

2. **Expenditure on Revenue Account:** The items of expenditure of the Central Government are also shown in details like the revenue items. Last year's figures along with current year's budget and revised estimates, and the budget estimates for the year to come are provided. Information is available under the following major heads.—

Principal Heads of Expenditure on Revenue Account

1. Direct Demand on Revenue.
2. Capital outlay of salt works met from revenue.
3. Revenue accounts of irrigation works.
4. Capital accounts of irrigation works met from revenue.
5. Post and Telegraph revenue account.
6. Post and Telegraph capital account met from revenue.
7. Debt services.

8. Civil Administration.
9. Currency and Mint.
10. Civil Works.
11. Miscellaneous.
12. Miscellaneous capital outlay met from revenue.
13. Defence Services.
14. Contributions and miscellaneous adjustments between Central and Provincial Governments.
15. Extraordinary items.
16. Railway expenditure as per Railway Budget.

The first fifteen items of the expenditure are further subdivided in about 64 small divisions.

3. **Statement of the Receipts of the Central Government:** The receipts of the Central Government are not confined to the revenue receipt only as mentioned above. The government takes certain loans and advances and, besides this, there is the capital contributed by railways. A statement giving the details of the receipt of the central government is given in the budget and contains the following items.—

Receipts

1. Revenue—already discussed.
2. Railway Capital not met from revenue (as shown in Railway Budget).

3. Public Debt.
   (a) Permanent Debt
   (b) Floating Debt
   (c) Unfunded Debt
   Debts raised in India and England are shown separately

4. Deposits and Advances.
5. Railway depreciation and Reserve Funds as per Railway Budget.
6. Loans and advances by the Central Government.
7. Remittances etc.
8. Transfer of cash between England and India.

Statement of Disbursement of the Central Government

Just as besides the Revenue Receipts there are other receipts not revenue in character, similarly besides the expenditure charged to revenue, the Central Government incurs certain other expenditure which cannot be taken to the Revenue account. Disbursements of the Central Government are shown as under:—

Disbursements

1. Expenditure charged to Revenue—(already discussed).
2. Capital accounts not met from revenue.
   - (a) Posts and Telegraphs
   - (b) Vizagapatam Port
   - (c) Initial Expenditure on new Capital at Delhi
   - (d) Payments of commuted value of pensions.
   - (e) Schemes connected with war (1939-45)
   - (f) Defence capital expenditure.
3. Railway capital not met from revenue (as shown in Railway Budget).
4. Public Debt.
   - (a) Permanent
   - (b) Floating

   or funded Debt.

   Debts raised in India and England are shown separately.
5. Deposit Advances.
6. Remittances.
7. Transfer of cash between England and India.

Before we examine the way in which these figures are arrived at, it would be better to give items of Provincial Finance also because there is much in common in the preparation of the Central and the Provincial Budgets.

Statistics of Provincial Finance are available almost in the same way, with the same details as those of the Central Finance. The Budget gives actual figures of the last year, the budget and the revised estimates of the current year, and the budget estimates of the year to come. Revenue receipts and expenditures of the Provincial Government and other receipts and disbursements are published in the same way as in case of the Central Government.

The main *Items of Revenue* are as follows.

1. Taxes on Income other than Corporation Tax.
2. Land Revenue.
3. Provincial Excise.
4. Stamps.
5. Forests.
6. Registration.
7. Receipts under Motor Vehicles Act.
8. Other Taxes and Duties.

Total Principal Heads—

9. Irrigation Net Receipts.
10. Debt Services.
11. Civil Administration.
12. Civil Works.
13. Miscellaneous.
14. Contributions and miscellaneous adjustments between Central and Provincial Governments.
15. Extraordinary Items.

The above items are further sub-divided into many small sub-groups.

The principal heads of *Expendiure charged to Revenue* are as follows:—

1. Direct Demand on the Revenue.
2. Irrigation.
3. Debt Services.
4. Civil Administration.
5. Civil Works.
6. Miscellaneous.
7. Extraordinary Items.

These items are also sub-divided in many sub-groups. Other receipts and disbursements not included in the revenue account are as follows.—

Receipts

1. Debts, Deposits and Advances.
   - (a) Permanent Debt.
   - (b) Floating Debt.
   - (c) Loan from the Central Government.
   - (d) Unfunded Debt.
   - (e) Deposits and Advances.

2. Loans and Advances by Provincial Governments.
3. Remittances.

Disbursements

1. Capital outlay not met from revenue.
2. Debt Deposits and Advances.
3. Loans and Advances by Provincial Governments.
4. Remittances.

The above items are also divided and sub-divided in many small classes and sub-classes.

Having seen the major heads under which the Central and the Provincial Governments receive and spend money we now dicsuss briefly the way in which estimates of income and expenditure are made. The questions that confront a lay man when he sees the budget are, 'How do these figures emerge?' 'Is there any reason why a particular amount should be spent under a particular head and neither less nor more than that?' We shall try to briefly give an answer to such enquiries and to examine briefly the procedure by which the budget figures are arrived at and the budget prepared.

Constitutionally the Governor in the Province and the Governor General at the Centre are responsible for framing Provincial and Central Budgets respectively. In practice, however, it is the ministry that frames the budget. The finance department plays a very important part in determining the estimates of income and expenditure, as this department is responsible for the financial affairs of the government.

The initial estimates are prepared by the heads of various offices and are scrutinised by the respective departmental controlling authorities. These data are supplied to the finance department on specially printed forms supplied to all departments each year. After scrutiny by the departmental controlling authorities the estimates are examined by the finance department before their final inclusion in the budget. The finance department has a right to curtail or revise any item it likes as it is the responsibility of this department to frame the

budget. The aggrieved department, however, has a right of appeal against the decision of the finance department, before the Cabinet. As far as revenue estimates are concerned, they are prepared by the finance department in consultation with administrative heads of various departments.

All estimates are prepared for the financial year commencing from 1st April. It is a special feature of our budgets that estimates of revenue and expenditure are presented together and are discussed and voted before the financial year to which the budget relates begins.

There has been a great controversy on the point whether the financial year in India should begin from 1st April or not. The reason why a particular date being chosen as the starting date of the financial year matters is that estimates of revenue cannot be made equally intelligently from all dates of the year. We can judge the prospective position of the agricultural production better after the monsoon than before it. If we take into account the fact that Indian budget is a gamble in rains we will easily conclude that 1st April is not at all a suitable date for the beginning of the financial year in our country. Agricultural condition of the country can be much better judged on first December or first January than on 1st April. If we begin our financial year from first December or January our estimates of revenue would be more accurate then they are at present. A greater part of the uncertainty in the budget figures on account of the monsoons would be no more. The Chamberlain Commission had suggested first November or first January. The Government of India after consulting provincial governments and Chambers of Commerce concluded that the disadvantage of this change would outweigh the advantages. According to them there would be difficulties in the field of accounts and a change would create confusion.

In spite of the government's dropping up the idea of the change in date as early as 1923, we are still of opinion that revenue figures particularly concerning agri-

culture can be gauged much better on 1st December or January than on 1st April, before the monsoons start.

According to the constitution the items of expenditure are to be classified as (i) Voted or (ii) Charged upon the revenues. The legislature votes the former items but it can only discuss the items of latter category. Some of the items like Governor's or Governor General's salary etc. are not discussed at all but are provided by an Order in Council.

As far as other items of expenditure are concerned the estimates are prepared in two parts called "Standing Charges" and "New Items." The standing charges relate to revenue and fixed and fluctuating charges. Standing charges are capable of almost exact calculation. Fixed charges, salaries etc. can be calculated with exact mathematical precision and fluctuating charges (like purchase of raw materials for jails) can be estimated fairly accurately by averages. The Finance Department does not usually go through these estimates in detail and this part of the expenditure is generally passed quickly. New items of expenditure have to be examined very carefully and are scrutinised by a Standing Finance Committee. This system has certain drawbacks. Expenditure on some items which were necessary ten years ago may not be necessary today and yet such items are passed as they are standing charge which are generally not scrutinised. The staff of the various departments do not generally wish a reduction in expenditure and consequently the estimates they prepare continue to include items on which expenditure is unnecessary. New items on the other hand have to undergo extreme scrutiny and many times, on grounds of economy, expenditure on them has to be curtailed though they are very useful and beneficient items. It is suggested, therefore, that there should be a periodical examination, say once in every 5 years, to find out the relative importance of various items of expenditure and to strike off comparatively less important items even though they happen to be a part of the expenditure for a very long period.

Various departmental officers are responsible for the estimates of revenue. From a comparison of previous year's figures and from their experience they are expected to give accurate estimates of revenue. It is very difficult to forecast revenue and the task requires a very sound knowledge and long experience.

Revised Estimates:—Besides the estimates at the time of the budget, revised estimates have to be made both for receipts as well as for expenditure during the course of the year. By first November the controlling authorities have to send to the finance department figures of actual expenditure during the six months, from 1st April upto 1st September, and have to suggest, in the light of other information available, the likely changes in the budget estimates. By early January a report based on 8 months actuals and by early February another report based on 9 months actuals have to be submitted to the finance department. It is in the month of December that the Finance Department forecasts the probable receipts and expenses of the next year on the basis of the revised estimates received by that time and any additional information available.

With all these figures at its disposal, the finance department prepares the budget which is considered by the cabinet and finally published.

These printed estimates then come up before the legislature The legislature cannot vote and discuss all items. Some items like Governor General's or Governor's salary are neither voted nor even discussed. Some other items are only discussed in a general manner and there is no voting on these items. As far as other items of expenditure are concerned the legislature can reject or reduce them though it cannot increase them. A budget can be thrown out but the Governor General or Governor has a right to certify it. The following is a list of items charged on revenue in the Central and Provincial Legislatures on which no voting takes place but a formal and final authorisation of these grants and appropriation is made.

Central.

1. Salary and allowance of Governor General and other expenses of his office.

   Debt charges including interest and sinking fund charges etc.

2. Salaries and allowances of Ministers and of Counsellers, of Financial Adviser, of Advocate General, of Chief Commissioners and of staff of financial adviser.
3. Salaries and allowances and pensions of High Court and Federal Court Judges.
4. Expenditure for the purpose of discharge by Governor General of his functions with respect to
   (a) Defence,
   (b) Ecclesiastical affairs,
   (c) External affairs,
   (d) Tribal areas
   (e) Administration of territories in the control of which the Governor General acts in his discretion.
5. Expenses in discharging the functions of Crown in relation to Indian States.
6. Grant for administration of excluded areas.
7. Sums required to satisfy any judgment, decree of award of any court or arbritral tribunal.
8. Any other expenditure declared by the act to be so charged.

Provincial Sec. 78 (3).

1. Salaries and allowances of the Governor and expenditure of his office.
2. Debt charges for which Provincial Government is liable.
3. Salaries and allowances of Ministers and Advocate General.
4. Salaries and allowances of High Court Judges.
5. Expenditure on Excluded areas.
6. Sums required to satisfy any judgment decree or award of any court or arbitral tribunal.
7. Any other expenditure declared by the act of Provincial Legislature to be so charged.

In this way after discussion and voting of demands for grant and a formal authorisation of grants and appropriation by the Governor General or Governor in the Schedule of Authenticated Expenditure, the expenditure side of the budget comes to an end.

In the end there is the discussion and voting of the finance bill which means sanction of the revenue side of the budget.

We have thus examined the way in which Central and Provincial finance statistics are arrived at. The figures of Revenue and Expenditure are given in separate tables and are analysed. The Central and the Provincial Budgets contain detailed review of changes in the existing items of revenue and expenditure as also a discussion of new items introduced. In the Central Budget for 1947-48, Salt Tax was abolished and new taxes like Business Profit Tax and Capital Gains Tax were introduced. Besides the Budget, the Statistical Abstract also publishes individual tables giving the analysis of each important head of revenue and expenditure. Revenue and expenditure on all important items like Income, Salt, Customs, Land Revenue etc. are shown in separate tables.

Railway Finance—Having discussed in brief the statistics of Central and Provincial Governments' finances we proceed to examine railway finance which was included in the federal finance till 1924. In that year, on the recommendations of the Retrenchment Committee, railway finance was separated from the federal finance and a Separation Convention was arrived at.

The Railway Budget comes up before the legislature a few days earlier than the General Budget. In this Budget also, like the General Budget, the expenditure is divided into voted and non-voted items. The budget estimates are divided in two parts viz the Standing Budget and New Items. Various Railway Administrations prepare the estimates and submit them to the Railway Board. The Divisional Officer and the Railway Board scrutinise the

estimates before preparing the budget. New items are examined by the Standing Finance Committee for Railways. The whole of the budget is shown to the Committee before its submission to the legislature. The rest of the procedure of the General Budget and Railway Budget is common. The 'Central Bubget' is divided in two parts and the first part deals with the Railway Budget.

Detailed items of revenue receipts and payments and other receipts and payments are given in various tables. Expenses are analysed in a number of tables and various funds are shown in detail.

The principal heads of Revenue and Expenditure in Ralway Budget are given below.

Revenue

1. State Railways—
   (a) *Commercial Lines*
      (i) Gross Receipts
      (ii) Less Working Expenses
      (iii) Surplus profits paid to Indian States and Railway Companies
      (iv) Payment to worked lines
      Net Receipts

   (b) *Strategic Lines*
      (i) Gross Receipts
      (ii) Less Working Expenses
      (iii) Net Receipts

Total Net Receipts of Commercial and Strategic Lines.

2. Subsidised Companies.
   Government share of surplus profits etc.
   Miscellaneous Railway Receipts.
3. (a) Commercial Lines.
      (i) Interest on Railway Depreciation Reserve Fund.
      (ii) Interest on Renewal Reserve Fund.
      (iii) Interest on Railway Reserve Fund Balance.
      (iv) Dividend on Investment in Branch Lines and other receipts.

(b) Strategic Lines
Interest on Depreciation Fund Balance.
4. Transfers from Railway Reserve Fund Balance.
Total.

Expenditure

1. State Railways.
   (a) Commercial Lines.
      (i) Interest on Government capital at charge.
      (ii) Interest on capital contributed by Indian States and companies.
   (b) Strategic Lines.
      Interest on capital at charge.
2. Subsidised Companies.
   (i) Land.
   (ii) Subsidy.
3. Miscellaneous Railway Expenditure.
   (i) Commercial Lines.
   (ii) Strategic Lines.
4. Payment to General Revenues.
   (i) Contribution.
   (ii) Arrears of contribution.
   (iii) Additional payment.
5. Repayment of Loan to Railway Depreciation Fund
   Surplus transferred to Railway Reserve Fund.

The above items of revenue receipts and expenditure are shown in greater details in the budget. The items of revenue are further subdivided in small groups. Figures are given for the "Actuals" of last year, Budget and Revised Estimates of the current year and the budget estimates for the year to come.

Besides the above details of the revenue receipts and expenditure of the Railways, additional information with regard to their other receipts and other expenditures not charged to revenue is also available. Receipts other than the revenue receipts are in connection with capital contributed by Railway Companies and Indian States towards outlay on State Railways. The capital expenditure is in connection with construction of State Railways and discharge of debentures etc.

The capital expenditure is divided as under.

1. Construction of State Railways.
   (a) Commercial Lines.
      Open Line Works—
      (i) Rolling Stock
      (ii) Other Works.
      (iii) New construction.
      (iv) Suspense.
      (v) Miscellaneous.
      (vi) Probable Savings.
   (b) Strategic Lines.
      Open Line Works.
      (i) Rolling Stock.
      (ii) Other Works.
      (iii) New construction.
      (iv) Suspense.
      (v) Miscellaneous.
      (vi) Probable Savings.
2. Discharge of Debentures.

Besides this, the Railway Depreciation Fund and the Railway Reserve Fund are shown in two separate tables and various appropriations to and from them along with opening and closing balances are stated. Various statement and tables analyse the various items of receipts and payments and the Transport Member's budget speech and the budget speech of the Chief Commissioner for Railways thoroughly analyse the financial position of the Railways.

The railway finance statistics, like the General and provincial finance statistics are very comprehensive and complete. We are not concerned, in the present studies, with the desirability or otherwise of a particular item of receipts or expenditure. What we are concerned with is the record of the item itself. The interpretation of the same is beyond the scope of this work and judged from this point of view the Central (including Railways) and Provincial finance statistics are very complete, accurate and dependable.

Local Finance: Like the Central and Provincial Finance there is Local Finance also. In former days it was not possible to differentiate between Central and Local

finance as the administrative units were small and the role of the state was restricted. But with the growth of population and enlargement in the size of administrative units it became impossible for the Central Government to perform all its duties and consequently state work was subdivided and matters relating particularly to specific areas were left at the discretion of local bodies. Today local bodies like Municipalities and District Boards have got their own items of revenue and expenditure though they are under the Provincial Government and get certain grant-in-aid from it.

In India local finance statistics are of very great importance as a major portion of Indian population lives in rural areas under the district boards. Inspite of this, local bodies in our country are not properly administered. cared or supervised and their sources of finances are very inadequate, and all sorts of corruptions are rampant in them. The following statistics about their finance are published in the Statistical Abstract and are compiled from returns furnished by the Provincial Governments.

Income of Municipalities: The following are the sources of their income:—

1. Municipal Rates and Taxes.
   - (a) Octroi.
   - (b) Tax on House and Land.
   - (c) Tax on Animals and Vehicles.
   - (d) Tax on Professions and Trade.
   - (e) Water Rates.
   - (f) Lighting rates.
   - (g) Conservancy Rates.
   - (h) Other taxes.
2. Realization under special acts, from Pounds, Hackeny Carriages, License for sale of spirits and drugs etc.
3. Other Sources of Revenue.
   - (a) Rent of land, houses etc.
   - (b) Sale proceeds of lands and produce form lands etc.
   - (c) Conservancy receipts (other than sales).
   - (d) Receipts from markets and slaughter houses.

(e) Fees from educational institutions.
(f) Other fees etc.
(g) Fines.
(h) Grants from government.
(i) Other grants and contributions.
(j) Miscellaneous.

4. Extraordinary Debts.
   (a) Sale proceeds of securities etc.
   (b) Loans from government.
   (c) Loans raised from private individuals.
   (d) Realization of sinking fund.
   (e) Advances.
   (f) Deposits.

Expenditure of Municipalities.

1. General Administration and Collection Charges.

2. Public Safety.
   (a) Lighting.
   (b) Police.
   (c) Fire etc.

3. Public Health and Convenience.
   (a) Water supply (including capital outlay).
   (b) Drainage.
   (c) Conservency („ „)
   (d) Hospital, Dispensaries etc.
   (e) Plague charges.
   (f) Market and slaughter houses.
   (g) Arboriculture, public growers etc.
   (h) Sanitary.

4. Public Works
   (a) Roads.
   (b) Buildings.
   (c) Establishment.
   (d) Stores.
   (e) Miscellaneous.

5. Public Instructions.
6. Contribution for General Purposes.

7. Miscellaneous.
   (a) Interest on Loan.
   (b) Other expenditure.
8. Extra-Ordinary Debt.
   (a) Investments.
   (b) Payment to sinking fund.
   (c) Repayment of loans.
   (d) Advances.
   (e) Deposits.

Similar statistics of Income and Expenses of District Boards are also available. Their main sources of income are Provincial Rates and Civil Works and their expenditure is mostly on Education, Civil Works and Sanitation and Hospitals etc.

The financial year of the local bodies begins from 1st April. The estimates are prepared by the Chairman or the Executive Officer of the Board. He receives the information from the heads of the various departments. Sometimes the municipal board may have a Finance Sub-committee and in such cases the estimates are scrutinised by this committee. The Board passes these estimates, sometimes with the prior approval of the Commissioner, and copies of the same are sent to the local government through the the District Officer. The Provincial Governments see that the Board has provided for all the obligatory functions in the estimates. The estimates can be raised by the Board during the course of the year and expenditure can be increased or reduced subject to the minimum laid down by Provincial Governments.

Analysis

We have examined above the important sources of revenue and receipts of the state, as also the major heads under which expenditure is incurred. We are not concerned in this work with the desirability or otherwise of a particular amount being taken by the state as revenue or a particular amount being spent on a particular item as expenditure, as it would amount to a complete and critical study of Indian Public Finance. Here we are only concerned with the way in which financial statistics are col-

lected and published, their adequacy or otherwise and whether they are capable of statistical analysis.

In India, as in most countries, statistics of Public Finance are adequate, but there are certain inherent drawbacks and difficulties which render them incapable of scientific analysis and international comparison. First of all, it is very difficult to classify uniformly the receipts and payments of the state. Though some ideal classifications have been evolved yet in many items a clear cut division, in one class or the other is impossible. In official returns the words 'tax' and 'receipts' are used without any regard to the actual idea they convey and without minding the actual difference between them. A tax may me called a fee or a charge while revenue from a public industry may really be a tax. Similarly items of expenditure cannot be scientifically classified. We have seen that many a time expenditure is given according to the name of the department making it. It is unscientific to do so because this practice conceals the purpose for which the expenditure is incurred.

Similarly there are difficulties in correlating financial statistics with other statistics to measure the burden of public revenue or benefit of public expenditure. When it is difficult to trace the real purpose of expenditure it appears to be useless to find out as to who actually benefits from it. Its benefits can be found out only if we know whether it is productive or not, and it is difficult to find this out.

Efforts are made to measure the burden of state expenditure by studying the relation between total expenditure and population. Figures of taxation per head are compiled in India also. Statistical Abstract calculates burden of taxation by calculating per capita amount of tax. Such a figure does not carry us far. A lower percentage of burden of tax to income per head also has not any meaning. Lower proportion of low income means heavier burden than a higher proportion of high income. Sometimes public expenditure is correlated with national wealth or national income. In India, figures of national wealth or income are not very dependable and as such these

comparisons are also not satisfactory due to uncertainty of estimates. Expenditure might be productive and more than pay for itself; in such cases the question of burden does not arise. Real burden depends on incidence of taxation. 'Who really pays the tax' is the pertinent question to be asked in such cases. The statistical method in general fails to answer it. Statistical method cannot tell us whether a tax is paid out of capital or income, whether it discourages savings and investment or simply checks unproductive consumption. Only rough approximations are made to show how much of the burden rests upon the working class, middle class and upper class.

We have thus seen that though statistics of public income and expenditure may be complete, yet they cannot be properly analysed unless the statistical machinery in the country is very comprehensive and can supply statistical information on all sorts of problems. Unfortunately in India, as we have already seen, statistical material is inadequate and unreliable and as such our financial statistics are incapable of scientific analysis and interpretation. We cannot calculate the burden of taxation or its incidence nor can we find out the benefit of public expenditure. No doubt such difficulties are felt in other countries also and the statistical methods are also not very perfect to study such problems, yet the fact remains that such difficulties are much more in India than in other advanced countries.

Burden of Taxation: We have seen that burden of taxation is difficult to be measured. In India it is found out by calculating the amount of tax per capita. The Statistical Abstract gives a table in which per capita taxation is calculated. This figure should be used with caution as false and misleading conclusions are apt to be drawn from it. It is sometimes said that per capita burden of taxation in relation to per capita income is very low in India. But this is a very wrong conclusion as a low proportion of low national income may mean a burden higher than a high proportion of high income. Moreover burden of taxation is directly associated with the nature of service rendered by the state in lieu of taxes levied.

Incidence of Taxation: Incidence of taxation, as we have noticed, is still more difficult to be statistically calculated. In India it is more so because data regarding national income and its distribution are very deficient and defective. Unless we are in a position to divide the population in groups according to their income and then study the burden of tax on them we shall not be in a position to have any idea of incidence of taxation. Some attempts have been made to find incidence of taxation but much reliance cannot be placed on these estimates due to above reasons.

Taxable capacity: Taxable capacity may be said to mean the difference between total quantity of production and total consumption. This is very difficult of measurement. We have pointed out the inadequacy and paucity of data for calculation of national income and as such estimates of taxable capacity cannot be relied upon.

We have thus seen that Indian figures of public finance are not capable of statistical analysis in the sense that we cannot draw reliable conclusions from them. This is not due to a defect or deficiency of statistical data relating to public finance but rather to the paucity and unreliability of other data particularly relating to national income, that such calculations are rendered difficult.

Public Debt: A characteristic feature of modern public finance is the presence of large amount of national debt. In India also both the Central and Provincial governments incur huge debts. These debts arise on account of various reasons, like war or continued deficit budgets or huge construction and public work programmes etc. but we need not dilate over their origin and historic developments as that will in itself constitute a volume. What we are concerned with is the way in which records of this debt are maintained and whether adequate statistics regarding them are available to the public.

The combined Finance and Revenue Accounts of the Central and Provincial Governments give the figures of Central and Provincial debts and changes therein. Some of these figures are reproduced in the Statistical Abstract,

and the Report on Currency and Finance issued by the Reserve Bank also deals with some of these statistics.

Total Public Debt in India is shared between the Centre and the Provinces and separate figures of Public Debt are available in a classified form for each province and the Central Government. Public Debt is classified in India as:—

(a) Permanent or Funded Debt.
(b) Temporary or Floating Debt.
(c) Unfunded Debt.
(d) Loans from the Central Government.

Permanent Debt is that debt which at the time of its issue has a currency of more than a year. The original amount is repayable either at the will of the government, in which case it is called interminable funded debt or after a fixed number of years and in that case it is known as terminable funded debt. It can either be in Rupees or Sterling, according as the loan is floated in India or London. Floating Debt, as the name suggests, is of a temporary nature and is repayable within a year from the date of its issue. Ways and Means advance by the Reserve Bank or the Treasury Bills are examples of floating debt. The term Unfunded Debt is always associated with Floating Debt because a floating debt is always unfunded but in our country the term unfunded debt is used for specific interest bearing securities issued by the Central Government *e.g.* Post Office Cash Certificates and State Provident Fund Securities. Loans from Central Government represent the advances made to Provinces and hence are included in Provincial Public Debt.

Statistics are available of each of the above types of loans but it should be remembered that the distinction between permanent and unfunded debt is very arbitrary. Unfunded debt is usually renewed after 3 months and is paid many years after the date of issue. It is sometimes converted in to funded debt, when repayment within a reasonable time is not possible. Besides, as we have already pointed out, distinction between unfunded and floating debts in our country is altogether arbitrary.

The Combined Finance and Revenue Accounts of the Central and Provincial Governments publish, besides others, the following important statistics relating to Indian Public Debt.

(A) *Public Debt of the Central Government*: Separate figures are available of total public debt of the Central Government in India and in England. Other details given in this abstract table are:

(i) Amount outstanding on first April.
(ii) Debts incurred and transferred from other loans.
(iii) Debts discharged and transferred to other loans.
(iv) Amount outstanding on 31st March (Total of i, ii and iii)

A table gives details of the Public Debt of the Central Government. Classification is as follows:

In India

(a) Loans, Bearing Interest.
  (i) Permanent Debts—Separate figures are available for various permanent loans.
  (ii) Floating Debt.
    (a) Treasury Bills.
    (b) Temporary advances by the Reserve Bank.
(b) Loans not Bearing Interest—Figures are given for various loans separately.

In England

(a) Loans Bearing Interest.
  (i) Permanent Debt.
  (ii) Railway Annuities.
(b) Loans not Bearing Interest.

(B) *Public Debt of the Provincial Governments*: An abstract table gives the following details of the public debts of the various Provincial Governments.

(i) Amount outstanding on 1st April.
(ii) Debts incurred.

(iii) Debts discharged.
(iv) Amount outstanding on 31st March.

Besides this, another table gives detailed information about these debts. The classification followed is as given below:

(i) Permanent Debt.
(ii) Floating Debt.
(iii) Loans from Central Government.

Other details like rate of interest and dates of issue and termination etc. are also provided.

(C) Capital and other Expenditure (outside the revenue account) in India and England, and the principal sources from which funds were provided for that expenditure.

The above is a very long table which gives figures for both the Central and Provincial Governments. It gives the capital and other expenditure separately for the Central Government and various Provincial Governments. Figures are given for the capital expenditure on Railways, Posts and Telegraphs, Irrigation, Electrical Scheme and other schemes and besides this India's contribution to war and Central Government's loans to Provincial Government are also shown.

CHAPTER XV

STATISTICS OF NATIONAL INCOME AND WEALTH

National Income

The official and unofficial information available on income and wealth is extremely meagre in our country. No systematic attempts have been made to correctly estimate the income or wealth of the people, and whatever information is available has been collected mostly for purposes of propaganda and counterpropaganda. The national income of India has been quite frequently estimated during the last 80 years, but of the earlier attempts the non-official estimates were mostly for the purpose of showing the acute poverty of the masses with a view to have a change in the economic and political policy of the nation, and the official estimates were generally for counteracting this propaganda. It was only in recent years or more accurately in the present century that the task of estimating the national income was taken up by impartial economists without any bias or ulterior motive but these estimates suffer from serious drawbacks not only due to paucity of data but also on account of inherent defects in the system of calculating the figures.

Before examining the data available on national income we would describe briefly the 2 important methods of estimating national income viz.

(i) Census of Incomes Method and
(ii) Census of Products Method.

According to the first method individual incomes are totalled up to find out the national income. The earnings of individuals are very carefully recorded either by holding a sample occupational enquiry or by conducting a comprehensive census. This system has a very serious handicap due to the extraordinary difficulty in having the necessary data i.e. income figures for all classes of people. Even in economically advanced countries like U. K. and U.S.A. complete data of the individual incomes are not available. This method needs the help of elaborate system of direct taxation based on income, and intensive occupational survey giving detailed information about the family

budgets. Moreover this system is very costly and cumbersome.

In the second method which is also called the Inventory Method, the net annual output of the various branches of the national production is estimated and the services are also evaluated. The evaluation of goods and services gives an idea of the total income of the nation. There are many difficulties in this method also. First of all if we decide to include services to find out the national income, their evaluation would entail a task which by no means is easy. It is, as a matter of fact, a very uncertain and difficult affair. Secondly it is not possible to record figures of the entire field of production, and even if it is attempted, one cannot be sure of the accuracy of the figures of cost which are always very complicated.

In Great Britain both these methods have been employed to calculate the national income and the results tally to a great extent. In our country the statistics of income are extremely meagre and as such the first method i.e. the Census of Incomes Method cannot be usefully applied to estimate the national income; under such circumstances we have at our disposal only the second method, the Census of Products Method. All the estimates made in India so far have used this second method for estimating national income. We shall now examine some of the estimates made by officials and non-officials.

Dadabhai Naoraoji was the first man to estimate the national income of (former) British India. In his book "Poverty and Unbritish Rule in India" he calculated the figures for 1867-68 at 340 million pounds, arrived at as follows:—

Net Agricultural Produce	260	m. pounds.
Salt, Opium, Coal, profits of commerce etc.	17	,,
Manufacturing Industries	15	,,
Produce from Livestock, Fish & Meat etc	15	,,
Any contingency	33	,,
	340	,,

Total population of (former) British India at that time was 17 crores and this gives an average of two pounds per head which at the then prevailing rate of exchange (Rs. 10 for £1) is equivalent to rupees twenty.

Dadabhai Naoraoji has explained his method in the following words "I have taken the largest one or two kinds of produce of a province to represent all its produce as it would be much labour for me to work out every produce great and small. I have taken the whole cultivated area of each district, the produce per acre and the price of the produce, and simple multiplication and addition will give you both the quantity and the value of the total produce." In other words Dadabhai has calculated the value of produce by the following formula:—

Area X Yield per acre X Price.

Out of the above 3 factors, if at all some reliable figures were available in the time of Dadabhai Naoroji, they were with regard to the area of crop under cultivation. The figures of yield per acre or price are even today very haphazard and unreliable and about 75 years ago when this estimate was made they were almost pure guess work. Most of the figures used by Dadabhai are only rough estimates as no statistics were published in his time. He has estimated the value of the work of the industrial classes at 15 m. pounds. This is a considerable underestimation because in his time about 16% of the population was engaged in industries and this will give us a figure of about rupees six as the average value of an industrialist's work. The value of the work of agriculturists who were 63% of the population comes to about rupees twenty four. There cannot be so great a disparity between the value of the agriculturists' work and that of the industrialists. Moreover he has altogether ignored even the value of direct services rendered for money, not to talk of services for which no payment is made. Besides this, Dadabhai has taken up only one or two crops to calculate the entire crop production of the province and this is also open to criticism.

[1] Poverty and unbritish Rule in India p. 4.

The first official estimate of National Income was made in the year 1882 by **Cromer and Barbour.** Their estimate is for the year 1881. In estimating the agricultural income they have followed the same general principle as followed by Dadabhai Naoroji. They did not take a single crop to represent the whole crop production of the province but the average valuation of the food and non-food crops was made on the basis of the work of the Famine Commission of 1878. Average prices of food and non-food crops were estimated on the basis of prices ruling in a small number of markets. There estimate was as follows:

Agricultural Income	Rs. 350,00,00,000
Non Agricultural Income	Rs. 175,00,00,000
	Rs. 525,00,00,000

This figure divided by the population figure of 194,539,000 gives an average of Rs. 27 per head. In this estimate, the non-agricultural income has been taken as half of the agricultural income. This appears to be an over-estimate particularly when we find that agriculture employed a considerably larger number of people than all other occupations and the average productivity of agriculture and other occupations did not vary very much.

Another official estimate is that of **Lord Curzon** for the year 1900. He also assumed that the non-agricultural income was half that of agricultural income and his average income per head came to Rs. 30. Total income was estimated at 675 crores of rupees and total population at 217 millions. Curzon used figures collected by Famine Commission of 1898.

It was **Digby** who estimated the national income of India by using a method other than the one used by his predecessors. His figure of crop production has been calculated on the assumption that there is a definite relationship between Land Revenue and Output. The figures of ratio were adopted from Romesh Chandra

Datta's investigations for each province published in 'Open Letters to Lord Curzon'. Digby multiplied the ratios with the total revenue of different provinces and in his book "Prosperous British India" he has, on this basis, calculated the agricultural income of India for the year 1899 at Rs. 285 crores. To this, he added 143 crores for the non-agricultural income and dividing the total income of 428 crores of rupees by the total population (23.1 crores) he estimated the average income at Rs. 18-9-0. Similar estimates for the year 1900 gave the figure of Rs. 17-4 per head.

Digby has excluded income from services altogether and has given an argument in support of his method. According to him such incomes are paid from respective products, e.g. a manager in a cotton mill is paid ultimately by the product of cotton, and as such, if they are included separately that would mean double counting.

Digby's method is open to serious objection because the accuracy of such estimates will always depend on the accuracy of the ratio that the revenue assessment bears to the total produce. This ratio is usually very uncertain and is often changing.

Another official estimate of National Income is that of **Findley Shirras.** He estimated the national income of India for the year 1911 and calculated the per capita income at a figure of Rs. 50. In this estimate Shirras used the same general principles which were laid down by Dadabhai Naoroji and followed by Barbour and Curzon. A single crop or two were selected to calculate the entire crop production of a province. Shirras recalculated the figure again on a new basis and estimated the average income at Rs. 80 instead of Rs. 50. In the new estimate value of each crop was separately estimated. Non-agricultural income was calculated on the assumption that the proportion of the non-agricultural and agricultural income was the same as the proportion of persons engaged in the non-agricultural and agricultural occupations. Under such circumstances once the agricultural income is estimated, the non-agricultural income can be

calculated from census figures. Shirras also calculated the income for 1922 and 1927. The basis was the same as for the new method of 1911 with the difference that it was assumed that the proportion of non-agricultural income was more than what was warranted by proportionate population, the reason being the rapid development of industries in the country. Therefore Shirras added 75 crores to the figure of non-agricultural income arrived at on the population basis. It is not known how this sum of 75 crores was calculated. The per capita figure of income for the year 1922 comes to Rs. 116. Shirras also calculated the national income for 1931 by a rather strange method. He increased the estimate of 1922 in proportion to an index of business activity, the details of which are not given out by him. This figure was corrected for changes in the price level between 1922 and 1931 by dividing it by the index number of prices of 1931 based on the prices of 1922. The same process was repeated with the figure of 1927. These two estimates for the year 1931 (one on the basis of the figure of 1922 and the other on that of 1927) were then averaged to get the final estimate. This system is open to criticism specially because nothing is known about the business acitivity index number that has been used. The accuracy of these estimates will depend on how far the business activity index number represents the total change in both agricultural and non-agricultural incomes. The accuracy of the adjustment for the change in price level at two different periods will also depend to a great extent upon the accuracy and representativeness of the price index numbers used.

P. A. Wadia and G. N. Joshi have also estimated the national income of India in their Book "Wealth of India". Their calculations relate to the year 1913-14. Like earlier writers they have evaluated the net output in order to arrive at the total income. They have estimated the agricultural income in the same way as Findlay Shirras has done but have made certain improvements as they have deducted 20% of the value of agricultural produce as cost of seed, manure etc. As regards mineral production they have estimated the gross value from production

and have deducted 20% for depreciation in value and the working cost so far as it affects wages. The valuation of products like hides and skins, manures, silk, wool etc. is made on the assumption that the exports of these products are 80% of their production. As regards other items they state, "We have in the case of fisheries and industries and cottage industries resorted to an occupational census, estimating the average earnings and multiplying by the number of people engaged in them as given by the census returns. In the case of manufactures we have taken the figures of gross valuation of commercial crops, mineral products and other products and calculated the added value in manufacture at a fifth of the gross value." [1] They have calculated the total annual value of the cattle from which deductions have been made for the value of the services of the cattle for agricultural purposes, as it is already included in the value of agricultural production. All these figures totalled up come to Rs. 1,210,27,97,010. From this deductions are made for home charges, investment of foreign capital on behalf of the government, profits on foreign capital invested in India, investment of new foreign capital in India and remittances of money from India on private account by government officials. All these deductions total up to Rs. 1,23,00,00,000. The net annual income comes to Rs. 1,087,27,97,010. Divided by the total population of the then British India (2,45,189,716) we get the annual income per head at Rs. 44-5-6. This estimate is open to the same criticism as that of earlier writers, and one more thing that can be said against it is that no occupational census in the right sense of the term has ever been held in India and therefore many calculations of the authors are only arbitrary. Like other writers they have also excluded 'services' from their calculations.

Shah and Khambatta have calculated the national income for the whole of India for the pre-war and post war periods (war of 1914-18). They have also taken the figures for the whole of the period 1900 to 1922 and also calculated the national income for the year 1921-22. The per capita gross income for 1900-14 (pre-war) has been

[1] Wealth of India, p. 95.

calculated at Rs. 36, for 1914-22 (post-war) at Rs. 58-8 for 1900-22 (whole period) at Rs. 44-8 and for the year 1921-22 at Rs. 74. From this, deductions are made for home charges etc. and for the year 1921-22 these deductions amount to Rs. 7 per head and so they calculate the per capita income for 1921-22 at Rs. 67. Shah and Khambatta have calculated the national income in terms of 'Net-Output.' The output of organised industries and mines has been estimated from the then available industrial statistics; the value of the production of cottage industries and handicrafts is arbitrarily assumed. The annual value per head of the work of those engaged in handicrafts and cottage industries has been estimated at Rs. 30, of those in organised industries at Rs. 541 and of those in agriculture at Rs. 214. These figures are not easily acceptable as the disparity between the value of work of those engaged in cottage industries and organised industries is very great. Either the valuation of the work of cottage workers has been underestimated or those of organised industries overestimated, or the former has been underestimated and the latter overestimated. Like Wadia and Joshi these authors have excluded 'services' from their calculations, because according to them "services the product of which consists merely of such non-measurable things as comfort, convenience, security, safety, pleasure, relief from exertion etc., have no right to be included, because these utilities howsoever useful they may be to production are not themselves wealth."

All the writers who have excluded the 'services' from their calculations have really taken a very narrow concept of National Income as consisting only of the value of tangible and material goods. Economists like Marshall and Pigou do not hold this view and regard national income as " .....every thing that is produced in the course of a year, every service rendered, every fresh utility brought about ..... "

Dr. V. K. R. V. Rao has also calculated the national income of (former) British India for the year 1931-32. He has combined both the Census of Products and Census of Incomes methods in arriving at his estimates. He has

estimated the national income at Rs. 16,890 millions and per capita income at Rs. 65 with 6% margin of error on either side. The details are as follows.[1]

Description	Value in millions of rupees	Margin of Error per centage.
Value of Agricultural Output,	5,927	—
Value of Livestock Products,	2,683	±10
Value of Fishing and Hunting,	120	±20
Value of Forest Products,	92	—
Value of Mineral produce,	180	—
Incomes assessed to income tax,	2,161	—
Incomes not assesed to income tax of workers engaged in industry,	2,100	±17
Incomes not assessed to income tax, of workers engaged in the service of the State, Railways, Posts and Telegraphs,	590	—
Incomes not assessed to income tax, of workers engaged in Trade,	1,233	±15
Incomes not assessed to income tax, of workers engaged in Professions and Liberal arts,	416	±15
Incomes not assessed to income tax, of workers engaged in Transport, other than Posts and Telegraphs,	283	±20
Incomes not assessed to income tax, of workers engaged in Domestic Services	325	±20
Miscellaneous items,	780	±10
Grand Total	16,890	± 6

Dr. V. K. R. V. Rao is of opinion that his estimate is better than previous ones because he has made use of a greater amount of statistical material and has supplemented the available statistical data by a number of *ad hoc* enquiries in respect of output of meat and milk, income of persons engaged in industry, service of local authorities, domestic services etc.

[1] Indian Economies. Jather & Beri p. 142.

Dr. Rao has also calculated the national and per capita income of (former) British India for the year 1941-42. This estimate has been arrived at by modifying the figures of 1931-32. The assumptions on which it is based are:—

1. "The income of Burma is excluded.

2. The volume of output other than agricultural and industrial is estimated to have increased by 20 per cent and its price by 30 per cent over their previous levels calculated by me for 1931-32.

3. The volume and value of agricultural and allied output other than agricultural crops are assumed to have increased in the same direction and to the same extent as those of agricultural crops. I assume as correct the estimate of +11.1 per cent and +80.8 per cent respectively, for the change in volume and prices in 1942-43 over my previous figure for 1931-32.

4. The volume of industrial output other than that of organised industry is estimated to have increased by 50 per cent and its price by 60 per cent in 1942-43 over my previous figures for 1931-32.

5. The volume of industrial output attributable to organised industry is estimated to have increased by not more than 90 per cent over my previous figures for 1931-32. I assume as correct the estimate of the rise in industrial prices of 77.7 per cent." [1]

On the above assumptions Dr. Rao has estimated the national income of (former) British India at not more than Rs. 34,229 millions giving a per capita figure of Rs. 114.

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[1] A new estimate of India's national income for 1942-43.—article by Dr. Rao in Commerce of 26th February, 1944.

Dr. Rao has given the following details about his new estimate:—

	Income From				
	Agri-culture.	Organis-ed industry.	Unorganis ed industry.	Other items.	Total
Value in 1931-32 (in millions of Rs.)	8,885	1,630	1,640	4,461	16,616
Per Cent increase in output in 1942-43	11.1	90.0	50.0	20.2	..
Per Cent increase in prices in 1942-43	80.8	77.7	60.0	30.0	
Value in 1942-43 (m.-m. of rupees)	17,831	5,503	3,936	6,959	34,229

These figures of 1942-43 should be compared with caution with the figures of 1931-32. Price level in 1942-43 was almost double that of 1931-32 Wholesale price index numbers are not indentical with the weighted average of prices of the items used in the above estimates. The item of service has always presented a lot of difficulty. "But if we proceed on the basis of he increase in output given in the preceding table, and equating output to value in 1931-32 and weighting them in the proportions in which the different heads mentioned in the previous table contributed to national income in that year, the real content of the national income of British India in 1942-43 could be estimated at Rs. 20,781 millions in terms of the price levels of 1931-32. and the *real* per capita income in 1942-43 at Rs. 69."[1]

Dr. Rao's estimates of the national income of India are considered to be the best, but as Dr. Rao has himself admitted, the absence of statistical data on various points can be responsible for certain errors in the figures.

The above discussion clearly shows that various persons who have tried to estimate the national income of

[1] A new estimate of India's national income for 1942-43.—article by Dr. Rao in Commerce of 26th February, 1944. p. 303.

India from time to time had to work with insufficient, inaccurate and unreliable data. Most of the authors have, as we have seen, tried to find out the value of agricultural production and for this they have multiplied the figures of area, standard yield, condition of crop and price. We have already seen in the chapter on agricultural statistics that out of these four factors the first *i.e.* area has been estimated satisfactorily in temporarily settled areas. As far as yield, crop condition and price are concerned no reliable statistics are available and the estimates of various authors are mere guess work. Even if the above statistics were correct there would have been other drawbacks because it is very difficult to reduce the figure of gross production to those of net production, as estimates of cost cannot be easily made.

The condition with regard to items other than crop production is still worse. Figures of industrial production are not available. Production figures of dairy farming, fishing, forests and small scale industries are not included in the published statistics. It is for this reason that the value of non-agricultural items has been calculated as a certain percentage of the value of agricultural production.

In comparing the national or per capita income figures the reader should be very cautious. The first thing to be remembered about these estimates is that they relate to different dates and before comparison can be made between them the price level at the various dates should be adjusted. Thus Rs. 45 in 1913-14 would be equal to Rs. 81 in 1921-22, assuming that prices have gone up by 80%. Another thing is that the area covered by various estimates is not the same. Shah and Khambatta have estimated the figaure for the whole of India including Indian states whereas most of the other estimates relate to (former) British India only. We have already noticed the difference in the methods of calculation of the various authors. Some of them like Shirras and Rao have included 'services' while others like Wadia and Joshi and Shah and Khambatta have deliberately exluded them. Besides this, allowance must be made for the fact that various authors have no unanimity of opinion with regard to the concept of national income and wealth.

Conservative economists include only material and tangible goods in national wealth while modern economists would define it as aggregate of commodities, material and non-material, including services of all kinds. Besides this, we have already pointed out that many a time the figures are vitiated by political motives and deliberate overestimates or underestimates made according to the needs of the propaganda.

Bowley Robertson Committee's Recommendations:[1] In November 1933 the government of India invited Dr. A. L. Bowley of London School of Economics and Mr. D. H. Robertson, Lecturer of Economics in Cambridge, to examine the data available for estimating the national income and wealth of India and to make suggestions for their improvement. They submitted their report in 1934 and were of opinion that the available statistics of the country were very scanty and highly defective and they made certain recommendations for estimating the national income of India.

The authors of the report defined national income as "the money measure of the aggregate of goods and services accruing to the inhabitants of a country during a year, including net decrements from their individual or collective wealth." The authors discussed both the Census of Products and the Census of Incomes methods in detail and recommended a cautious combination of both of them for estimating the total national income of the country.

The scheme proposed by the committee to estimate the national income of India is primarily based on the census of production though a minor part of the scheme mostly relating to urban areas is also dependent on the collection of income figures of individuals. The authors are in favour of distinguishing the rural income from the urban income as the nature of products and the methods of investigation differ in rural and urban areas.

For estimating the rural income they have recommended an estimate of quantity and value of all goods and ser-

[1] A summary of these is given in Appendix C.

vices arising from land or rendered in the villages by the method of intensive surveys in selected villages. The method of selecting villages should be that of random sampling. The names of villages in each province should be arranged in geographical order of districts and after deciding the number to be investigated, villages should be marked out in a way that every unit in the aggregate has an equal chance of being selected. A village once selected should never be substituted by another. According to the authors, out of the 4,22,000 villages of (former) British India 1650 should be surveyed. Each village should be investigated by a trained investigator who should live in the village for full one year. Above the investigators should be the supervisor-investigators who should do supervision work. Each province should be under a qualified statistician and the entire survey should be controlled by the Director of Statistics. The schedules should be prepared by the Director in consultation with provincial statisticians and should be modified in the light of local conditions. The main enquiry should be with regard to income, production, consumption and such other topic though information about health, co-operation, debt etc., could also be profitably collected.

For urban income they suggest, in the first instance, surveys of large towns on a method successfully adopted in other countries. This is based on sample enquiry of the personnel and occupation of families and an estimate of their incomes by personal statements. For incomes over Rs. 1000 or at least above Rs. 2,000 income tax statistics can afford valuable help.

They have not recommended a random sample of towns. The urban income is to be calculated step by step first by synchronous survey of those cities where universities can organise this work, and afterwards, similar but less intensive surveys can be made of some other towns. Later on, when Rural Surveys and University City Surveys are complete trained investigators can survey selected towns. These surveys can be conducted either on occupational basis or family-wise.

Besides these Rural and Urban Surveys the Committee recommended an Intermediate Urban Population Census. These three enquiries were to be supplemented by a Census of Production applied to factories using power, mines and some other industries. This census would be imposed by a special Act of the Legistlature and would be conducted by Director of Statistics. The facts to be collected are the aggregate value of sales and the aggregate costs of materials for each factory. The difference of these two figures represents roughly the national income accruing to the factory. From such income totalled up for all factories, the depreciation of plant etc and change in value of materials and finished goods should be deducted in order to calculate the national income of the industry.

Inspite of the fact that the scheme suggested by these two experts was quite comprehensive, no action was taken by the government on it. The importance of the estimation of national income cannot be over emphasised; this figure has particular significance as an index of progressive working of endeavours aimed at promoting material welfare. No doubt the necessary data are very scanty in our country and also defective, yet no efforts should be spared to do the job. In the absence of detailed information we have to depend on the random sample method of estimation. We can calculate the national income with reasonable accuracy by collecting the necessary data for a comparatively small number of individuals or production units. We have seen that this random sampling is also the method on which the Bowley Robertson Scheme is based, and it is certain that if the sample selected is representative its results will not vary very much from those of the total figures.

National Wealth: No attempts have been made so far to estimate the total wealth of India and such figures as are often given by statisticians are pure guess work based on published statistical and other material relating to our country. We have already seen that statistical data are not only very meagre but extremely defective in our country and as such any conclusions based on them are liable to be misleading.

There are two methods by which the wealth of a country can be estimated and both these methods have been used in western countries for this purpose. The first method is to capitalize the yield of all income bearing property including goodwill. Appropriate number of years' purchase is assigned to the rent of land and houses, interest and dividend and to this capitalized value is added the estimated value of property publicly owned such as Docks, Railway, Government Buildings etc.

The second method is to use statistics of property passing at death or obtained at probate. Total value of the property in this method is estimated with the help of life tables. None of these methods at present can be applied suitably to the condition of this country. As regards the first method, at present we have not got enough material to assess the value of many important classes of individual property. The second method is impossible to be followed here because there are no taxes on inheritance.

It was in view of these difficulties that Bowley Robertson Committee was of opinion that no useful purpose could be served at that time (1934) by estimating the wealth of India. No doubt there are many difficulties in the way of calculating the wealth of India as it is very difficult to obtain reliable statistics regarding private wealth, yet we cannot ignore the problem in this way. We are of opinion that in the course of enquiries, recommended by Bowley Robertson Committee, investigators should try to collect wherever possible, by house to house enquiry, approximate estimates of individual wealth. Estimates of local collective wealth should be prepared by the 'inventory method' for villages, towns and cities. "Such estimates can be framed by evaluating the area of land, the number of houses and the number of cattle in each unit area. A rough estimate of the value of furniture and implements can be added. The average price of land in each village or group of villages can be worked out from the statistics of sales of land and the tehsildar assisted by a local committee of non-officials can ascertain the value of house, etc. In cities and towns, the work would be heavy and more difficult. But here again the local bodies could be asked to

supply the information partly from the register of rental values and partly with the help of local non-official committees under the advice of experts or municipal or public officials experienced in the valuation of properties. Estimates of national wealth would include private wealth and also public wealth or wealth under communal ownership such as railways, roads, tramways, public buildings, irrigation works, harbours, telegraphs telephones, defence works, military equipment and other similar material. Estimates of the public wealth may be obtained from the government departments or officials who are custodians of such property." [1]

[1] Report of the Indian Economic Enquiry Committee p. 29.

APPENDIX A

QUESTIONNAIRE ISSUED BY THE BOMBAY ECONOMIC AND INDUSTRIAL SURVEY COMMITTEE

(for artisans)

I

1. Name .. ..
2. Native place .. ..
3. Place of residence .. ..
4. Place of occupation .. ..

   If outside the living area what are the rent, light charges etc.?
   Area occupied by the workshop

5. Is your establishment licensed? If so, what charges have you to pay and to whom?
6. Industry and occupation .. .. ..
7. Whether hereditary or self-chosen
8. Status—
   Employer
   Independent worker
   Worker on contract
   Wage earner
9. If employer, number employed .. .. ..
   Members of the family .. .. ..
   Outsiders .. ..
   Managerial staff .. ..
   Clerical staff .. ..
   Manual staff .. ..
   Apprentices .. ..
10. If independent worker:—
    Whether any outsiders are employed, if so for wnat process and for what period?

    How many members of the family are employed and for what process and for what period of time?
11. If worker on contract—
    Whether any outsiders are employed, if so for what process and for what period?

How many members of the family are employed and for what process and for what period of time?

Method of securing the contract for work; and terms on which it is secured.

12. If a Wage earner—

Whether any members of his family are employed along with him or in the same trade and if so, for what process and for what period of time?

II

13. What are the raw materials used by you? Please describe them and classify them by quality

14. Quantity used per month and value .. .. ..
Quantity used per year and value .. .. ..

15. Do you concentrate your purchases in any particular month or period of the year; if so, when?

16. What are the quantities you purchase at a time and their value?

17. From whom do you purchase the raw materials? Do you buy them from a local merchant or do you import them?

18. If you buy them from a local merchant, at what prices do you purchase them?

19. If you import them, at what prices do you buy them? Please state separately the prices at source and the cost of transport.

20. What are your brisk seasons and what are the slack for such purchase?

21. What are the highest and the lowest prices in the brisk season and also in the slack season?

22. How do you pay the charges for the raw materials; by cash or by credit?

23. If by cash, who finances you? Yourself, Sowcar, Co-operative Society or any other organised body?

24. If by credit, for what period is the credit granted by the dealer?

25. Is there any difference between the cash price and the credit price? If so, how much?

After the lapse of credit period do you pay any interest? If so, at what rate?

Does your raw material purchase depend upon the condition that the finished product is to be sold to (1) the dealer himself or (2) to any other particular individual?

26. What improvements would you suggest: (1) in the quality of of the raw material, (2) in the methods of purchase, (3) re: storage facilities, and (4) re:minimising the costs of securing the raw material?

III

27. What are the processes that the raw material goes through from the beginning to tne end?

Name of the process	Time required	Machines and appliances	Nature of power used	Labour	
				Skilled and/or unskilled.	Male Female Child

28. Is there any utilizable waste? If so, what is it and is it utilized and with what results? If not, why not?

29. Description of machines, tools and appliances	Approximate cost and life of each.	Yearly repairs and other charges	Other Expenditure

30. From whom and where do you purchase the equipment?

31. Is your capital borrowed or owned?
If borrowed, from whom: (1) Sowkar, (2) Bank, (3) Government, (4) Co-operative Society, (5) Relatives, (6) Others?
What is the rate of interest at which the capital is borrowed and what is the method of repayment?

32. Do you purchase your equipment on the hire-purchase system? If so, what is the instalment?

33. Is the equipment efficient? If yes, are there any further possibilities of improvement?
If no, in what directions is improvement necessary?

34. Do you meet with any difficulties in securing equipment? If so, what are they and how can they be removed?

35. If your equipment is of the improved pattern, how long is it in use?
Who was responsible for its introduction, (1) you or (2) any Government Agency?

36. Have these improvements benefited you? If not, why not?

37. Do you think that the Government can help you in this direction in any way?

Are you familiar with other methods of production in your line? If so what are they and where are they followed?

Why do you not follow them? If there are any difficulties in your following those methods, can't they be removed?

If so, how? by(1) your action, (2) Government action, (3) the help of any other agency.

IV

38. What are the different types of products of your industry which you are producing?

Different types of products	Time taken to produce one unit of each type	Price obtained per unit of each type			Volume of your production of each type in a		Value of your production of each type in a	
		Maximum	Minimum	Usual	Mth.	Yr.	Mth.	Yr.

Description of machine made products which compete with the different types of your production	Prices of the items which compete with the different items of your production.	

39. Is your industry seasonal? If so, why? Explain from the point of view of the availability of

(a) raw-material,
(b) Processing
(c) demand

40. What are your brisk and slack seasons for production? In the brisk season how do you increase your production?

41. What do you do in the slack season? Do you produce for stock? If not, why not?

41-a How do you employ your equipment during the slack season?

42. Do you take to any other occupation in the slack season? If so, what and where is this occupation? What income do you get from this subsidiary work?

43. Do you produce for order? If so, from where do you get orders—from local dealers or from outside dealers; from local consumers or from outside consumers? What is the average volume of each order?

44. If you are producing directly for a market, how do you know the variations of taste among the customers? If you do, how do you satisfy the changing taste?

45. Do you produce for a periodical market like a fair? If so, how much of your annual production is for this type of market?

46. How old or new are the patterns and types of goods that you are producing? If you are not using new patterns or producing new types why are you not doing so? Do you require any help? If so, what agency would you suggest for the purpose?

47. Are you acquainted with any other producers who have taken to new patterns and designs or new appliances?

If so, what has been their experience?

48. What is the usual market for your product? (1) local, (2) district, (3) Provincial, (4) Inter-Provincial, or (5) Foreign.

Do you sell direct to your customers in those markets, or do you sell to agents?

49. Are you free to sell your goods to any body you like? If not, why not?

50. Over and above the local sales, do you personally go out and sell your goods from place to place? If so, to what extent?

51. Do you participate in fairs, exhibitions, weekly bazars etc.

If so, why do you do it? Is there any special demand for any particular type of your produce?

Do you find any difference in selling prices at your production centre and the fair? Does that difference, if any, cover the cost of participation and leave something extra for you? If so, to what extent?

52. Do you export to any outside merchant directly? If so, to what extent? What is the cost? Do you get any extra income as a result of this? If so, how much is it?

53. Do you employ any any agents to canvas orders, exhibit your goods etc.

54. How and when do you realise your proceeds? Do you sell (1) on cash, (2) on credit, (3) on hypothecation?
If credit what is the nature and duration of credit?

What is the difference between the credit price and the cash price?

Do you charge any interest to the merchant after the lapse of the credit period?

If hypothecated, why do you do it?

To whom do you hypothecate your goods—(1) merchants (2) producers' association, (3) co-operative society (4) a Government agency, (5) a banking organisation?

What are the terms on which the goods are hypothecated?

55. Are there any difficulties in marketing your products? If so, what are they and how can they be removed?
Do you want any Government assistance in this work? If so, of what kind?

56. Is there any co-operative society in your industry? If not, are you prepared to form a co-operative society to help you?

57. Do you think that District Industrial Association in your industry can be of use to you? If not, why not?

58. What are your financial requirements for:—
(a) purchase of equipment, appliances, etc.,
(b) purchase of raw materials,
(c) repairs,
(d) other purposes?

59. How do you obtain your finances?
from
(a) Yourself,
(b) Sowcar,
(c) dealer,
(d) co-operative society,
(e) Government,
(f) bank,
(g) Any other agency?

60. If you borrow your capital, what interest do you pay? What are

61. What is the average rate of return which you get on the capital invested in the industry? Does it leave you enough margin to pay interest and leave something for yourself?

62. Do you find any difficulty in getting your capital? If so, describe them. How do you suggest they can be removed?

63. Do you think that a co-operative society will help you in solving your financial difficulties? If so, why don't you start one? If you already have one, how far has it succeeded in solving your problem?

64. Are you indebted? If so, what is the total amount of your debt and to whom are you indebted? Can you classify the causes of your indebtedness?

VII

65. Are you troubled by competition? If so in what types of products? Please indicate the sources of your competition (1) local, (2) indigenous, (3) foreign.

66. Please give details as in the following Table:—

1	2 Local				3 Indigenous				4 Foreign				5
Types of production in which competition is with	Whether machine made or hand made	Price	Durability	Whether it works as a substitute?	Whether machine made or hand made	Price	Durability	Whether it works as a substitute?	Whether machine made or hand made	Price	Durability	Whether it works as a substitute?	How long has the competition been in existence?

67. Have you given up the production of any of these types of production on account of competition?
68. Why do you persist in the production of these types in which you meet with competition? Do you believe that you have any special advantages in this industry?
69. What steps do you think would enable you to withstand this competition successfully? Indicate the kind of help which you think you should get from
    (a) the Department of Industries
    (b) the Co-operative Department
    (c) other Departments of Government.
70. Did you have any guild in your trade? If so, why has it disappeared? Are you in favour of its revival?

VIII

71. Do you employ any workman to assist you? If so, how many? Classify them by age and sex.
72. What are their daily hours of work?
73. Do you get employment for the whole of the year, or only a part? If only for a part of the year, how long do they remain out of work? Do they get work in any other trade during that period?
74. What is your method of wage payment, time wages or piece wages? If time wages, is it daily, weekly or by month?
75. What is the rate of wages that you pay?
76. Do you have any system of fines or return of damaged material to the workman? Please give details.
77. Have you any complaints regarding the efficiency of your workmen? If you have, how do you think they can be remedied?
68. How many persons do you think are employed in your industry including wage-earners? Please classify them separately under (a) karkhandars, (b) independent artisans, and (c) wage-earners.
79. What is your estimate of the total output of your industry during the last year?
80. What was the value of that output?
81. Are there large variations in the output of your industry from year to year? Please give your estimates of output and prices for the last 10 years.
82. If there are large variations in output, what do you think are the reasons? How, do you think, they can be remedied?
83. If there are large variations in price, what do you think are the reasons? How do you think they can be remedied?
84. What is your estimate of the total quantity of raw material used by your industry?
85. What do you think are the defects in the organisation of your industry? And what measures do you suggest to remove them?
86. What in your opinion are the future prospects of your industry?
87. Have you anything to say generally regarding the possibilities of promoting the expansion of your industry?

APPENDIX B.

Questionnaire issued by the Bombay Economic and Industrial Survey Committee (for small scale industries)

1. Name and address:—
   Established in—
   Industry.

2. Manufacturers of:—

Kind of Products	Quantity produced in a year	Value of production in a year	Remarks

3. Number employed:—
   Manual staff .. ..
   Clerical staff .. ..
   Officers .. ..
   Technical experts .. ..

4. Do you obtain any of your raw materials from abroad? If so, is it possible to replace them by Indian substitutes? If not, why not?

5. What is the amount of capital invested in your concern?

6. (i) Is your equipment efficient? In what direction is improvement possible in the same? Do you think the state can help you in securing such improvements? If so, by what means?

(ii) Do you meet with any difficulties in securing equipments? If so, what are they? How do you think they can be removed? ..

(iii) Do you use power? If so, is it Steam, gas or electricity? What is your annual expenditure on power?

7. How far, in your opinion, do your products compete with the products of Indian cottage industries or of small scale factories?

8. Is your industry seasonal? If so, why?

9. What is the usual market for your product? Local, district, Provincial, inter-Provincial or foreign?

10. Have you any difficulties in marketing your products? How can they be removed. Do you what any Government assistance in in this matter? If so, of what kind?

11. Do you deal only with wholesalers or do you also organise retail sales?

12. Do you find any difficulties in obtaining capital? If so, describe them. How do you suggest they can be removed?

13. In what types of your production do you meet with competition? Please indicate the sources of competition whether from Bombay province or the rest fo India or from abroad.

14. What steps do you think can enable you to withstand the competition successfully? Indicate the kind of help which you think you should get from (a) the Department of Industries, (b) the co-operative Department, (c) Other Departments of Government?

15 What is your total annual wage bill?

Please give separately your wage-total for:—

(a) manual workers .. ..

(b) Clerical staff .. ..

(c) Officers

(d) technical experts

16. Have you any complaint regarding the efficiency of your workmen? If you have, can you suggest any remedies?

17. What, do you think, are the difficulties in the organisation of your industry and what measures do you suggest to remove them?

APPENDIX B

18. What, in youur opinion, are the future prospects of your industry?

    Have you anything to say about the possibility of promoting the expansion of your industry?

19. Can you suggest the establishment of any ancillary or subsidiary industry, arising from your industry?

    If there are possibilities of doing so, why have they not been established?

20. What in your opinion are the steps that the Government should take the facilitate such establishment?

21. Has the Government of Bombay taken any action during the last 17 years which has resulted in encouraging or promoting the development of your industry?

    If so, please describe the steps taken by them in this connection.

22. Can you suggest any specific ways in which Government can assist in the development of your industry? or of subsidiary or ancillary industries?

APPENDIX C

MEASUREMENT OF NATIONAL INCOME OF INDIA

(Summary of Bowley-Robertson Scheme)

Dr. A. L. Bowley of the University of London and Mr. D. H. Robertson of the University of Cambridge were invited by the Government of India to consider the material available for estimating the national income and wealth of India. They critically examined the statistical material available in the country and came to the conclusion that the situation cried out for overhaul. They submitted their report in the year 1934, wherein they put forward practical proposals for estimating the total national income of India.

They defined the national income in the following words:—"The national income is the money measure of the aggregate of goods and services accruing to the inhabitants of a country during a year, including net increments to, or excluding net decrements from their individual or collective wealth."

The Committee pointed out two methods of calculation of national income: the first consisting in an evaluation of the goods and services accruing and the second in a summation of individual incomes. The first method is known as the Census of Products method and the second the Census of Incomes method. The Committee was of opinion that it was unlikely that the census of products method would ever be applicable over the whole even of the industrial field, and further that there was need of great caution in combining the results of the two methods.

In the words of the Committee the two methods may be described as follows:—

"The first or census of products method involves—

(1) evaluating the net output of the various branches of 'productive' enterprises, agriculture, mining, industry, etc., at the point of production, being careful to avoid double counting (*e.g.* counting both the output of wheat and the labour of the cattle employed in raising it);

(2) adding the value added to home-produced goods and to imports by transporting and merchanting agencies in the country;

(3) adding excises on home-produced goods.

(4) deducting the value of exports (f.o.b.) including gold and silver;

(5) adding the value of imports (c.i.f.), including gold and silver;

(6) adding customs duties on imports;

(7) deducting the value of goods, whether home-produced or imported, which are used for the purpose of maintaining fixed capital, or stocks of raw and finished goods intact;

(8) adding the value of personal services of all kinds.

(9) adding the annual rental value of houses, whether rented or lived in by the owners;

(10 adding the increments in the holdings of balances and securities abroad, whether by individuals or Government, or deducting the decrement in such holdings: similarly deducting the increment in the holdings of balances and securities in the country by residents abroad or adding the decrement of such holdings.

Some of these processes call for further comment:—

(1) That part of the product of agriculture etc.,—in India very large—which is consumed by the producer or bartered locally for services should be valued, like the rest of the outturn, at its price at the point of production, not at the retail price which consumers in distant markets pay, and which includes cost of handling, etc., which are not incurred on the home consumed outturn.

(3), (4). This is necessary because the total we are in search of is the aggregate of exchange values to the consumer.

(4), (5), (10). It is easily seen that if the Government of India raises a loan in London for railway construction, the securities imported form part of the real income of the English investors, just as an import of Indian tea woud do. The reverse side of the same truth is that the increment of capital wealth in India, which is included in the evaluation of production or of imports, is balanced by a capital liability to foreigners, and must be deducted to arrive at net income.

The same considerations apply to changes in the ownership of bank balances, at home and abroad, and in the case of India it is very important to increase or decrease the stock of precious metals, which, for this purpose, may be visualised as foreign securities.

(8) (a) Strictly speaking, it may be argued that only those services of Government servants should be included which confer direct utility, —protection, amenity of life, etc., as distinct from assisting to augment production, the value of the latter having already been included, like other costs of production in the sale value of the product under (1). The subtleties to which this complication leads do not seem worth pursuing here; in what follows it will be assumed for simplicity that the services of all Government servants confer direct utility and form part of the real national income; deductions can be made to taste by those who please.

These services should be valued at a sum which includes the pension rights accruing during the year to those who render them.

(b) In India the distinction between charitable gifts, which are not part of income, and the payment for services of a customary or religious nature is peculiarly indefinite; and the line drawn is bound to be somewhat arbitrary.

The census of products method above described is the more fundamental of the two methods of evaluating the national income. In order that the results of the second or census of incomes method may tally with it, certain precautions in following this second method must be observed.

(i) All self-consumed produce and receipts in kind must be included in the individual's income, valued at their selling value at tthe point of production. So must the annual value of houses lived in by the owners.

(ii) All interest payments, even on loans incurred for consumption purposes must be deducted before entering the individual income.

(iii) Apart from this, tre incomes of all individuals in the country, including interest on Government loans and pensions of ex-Government servants, should be entered gross, *i.e.*, before payment of direct taxation (including land revenue). The incomes of Government servants should be entered inclusive of pension rights accruing during the year. To the total so reached should be added the undistributed profits of companies and the net profits of Government enterprises. From the total so reached should be deducted the sum required to pay the interest on Government loans other than for productive enterprises, and the pensions of ex-Government servants, whether due at home or abroad.

(iv) Rather oddly, receipts from customs and excise stamp duties and local rates i.e., all taxes which are of the nature of business costs must be added to the total so far reached. For the latter is the aggregate of exchange values accruing to producers, while the true national income as calculated on the census of products method is the aggregate of exchange values accruing to consumers Unless therefore this addition is made, discrepency will arise.''

The investigations that the Committee proposed for the purpose of estimating the national income is primarily on the basis of production, but as in similar estimates in all countries a minor part depends on individual incomes. The proportion to be thus estimated is greater in towns but much smaller in aggregate than in Western countries. Further owing to differences in nature of the products and partly also because different methods of investigation are necessary rural income has been distinguished from urban income.

For rural income they recommended an estimate of the quantity and value of all produce and services arising from the land or rendered in the villages, by the method of intensive surveys in selected villages.

For urban incomes they advocated, in the first instance, surveys of the larger towns on the basis of a sample enquiry of the personnel and occupations of families and an estimate of their incomes partly by personal statements, partly by investigation of wages and salaries current in the town. For incoomes over Rs. 1000 or at least over Rs. 2000, income tax statistics can afford valuable help.

They also recommended an intermediate Urban Population Census. These three enquiries would be supplemented by a Census of Production appplied to factories using power, mines and some other industries.

The committee was of opinion that all these investigations should be extended to the Indian states so far as they were willing and able to cooperate. For areas not so included estimates would be made by the use of agricultural statistics.

RURAL SURVEYS:

As it is unpracticable to make direct investigation into the circumstances of each of the lacs of villages in India, even if the expense could be met or a sufficient number of investigators found, the committee recommended the method of random sampling. According to this method selection is made in such a way that each village has an equal chance of being selected. The adequacy of the whole method of sampling can be tested by compiling from the returns such total or averages as are already known *e.g.* total areas, total male population, ratio of males to females, land revenue etc., and seeing whether the estimates differ from the facts by more or less than the computed probable error.

The investigation should be trained and live in each village for twelve months. In many cases the villages could be grouped in threes and fours within, say, 30 miles of each other. In such cases a superior investigator should be attached to each group and he should live in the largest village and supervise the investigators in other two or three. A province should be under a qualified statistician and the whole survey should be controlled by the Director of Statistics.

The schedules should be prepared by the Director of Statistics in consultation with Provincial Statisticians and in this connection attention should be paid to local terms of measures, weights etc.

The investigation should not be marked as government official as otherwise it would be difficult to establish personal and confidential relations with the villagers. He should have contact with all officials in or concerned with the village and be allowed all reasonable access to their records.

The main enquiry should be directed to income production consumption and allied topics but the investigator would have ample time to report on subjects such as health, cooperation, debt etc.

Urban Survey

In the words of the Committee, 'It does not seem practicable to organise a simultaneous survey by selecting random samples of towns of different sizes in the various provinces. A town survey needs the services of a group of persons working in co-operation and equipped with local knowledge; in general such a grup is not available, the expense is considerable and the process of selection by sample more hazardous and difficult than in the case of villages.

It appears to be necessary to deal with the problem step by step, first by synchronous survey of those cities in which satisfactory investigation can be organised by universities, secondly by making similar, but perhaps less intensive surveys of other towns.''

University City Surveys

In the organisation of these surveys it will be necessary to combine central control with local autonomy. The Committee recommended the institution of a Central Committee, consisting of the Director of Statistics, a representative of Public Instruction Authorities and two or more University Economists. This committee should draw up an outline schedule of enquiry covering the main subjects on which information was required.

The procedure of organising the surveys will differ according as they fall to government colleges or self-governing universities. In the former the co-operation of the Director of Public Instruction and the Education Department woud be necessary; in case of the latter arrangements would be made with the Economics and Commerce Departments of the University concerned. In each city the survey should directed by one of the economics staff and the detailed investigations should be carried out by graduate or post graduate students reading economics and commerce.

The main object is to supply data for estimating the relative importance of urban and rural activities in the country's economy.

Two methods of approach are suggested by the Committee and they are as follows:

(1) Occupational and

(ii) By families.

(i) An Occupational Census is almost essential. In each industry and important occupation in the town enquiries should be made about current rates of earnings and wages, estimated over the year and allowing for seasonal variations including not only the workers in constructive industries, but also clerks municipal and railway employees, tenga drivers and all others working for salarien or wages or making small profits. The method of payment (piece or time) the organisation of employment and ways of marketing or products may also be recorded.

(ii) In the second method an accurate list of houses or tenements is necessary. Big towns should be divided in wards or groups of wards so that a unit may consist of about 30,000 houses. Out of these about a 1000 should be selected on a random basis. These houses should be visited by the investigators who should establish friendly relations with the residents. The investigator should obtain reliable information about numbers, sex, age, occupation and income of the family group. Schedules should be filled in immediately after and not during the visit.

In every case of doubt the total should be given as within a certain range and not as an exact number. All existing data bearing on the subject of the survey emanating from Central and Local authorities should be studied. Cooperation of all official and non-official organisations should be sought.

Census of Production

"The census would be imposed (as in Great Britain) by a special Act of the Central Legislature, making the communication of the facts demanded comsulsory. It would be conducted by the Director of Statistics, the executive arrangements presumably being made through the Department of Industries and Labour. It appears to be necessary to limit its scope, so far as English and American methods are followed to the higher establishments; and the natural line which suggests itself is that drawn in the Factory Act, viz. the employment of 20 or more persons combined with the use of mechanical power. It would not seem desirable to extend it automatically to those smaller establishments. to which, for special reasons of no greater statistical significance, Provincial Governments have used their powers of extending the Factory Act. But on the one hand there may be some classes of small workshops to which the census could advantageously be extended, while on the other there are certainly some large non-mechanical establishments e.g. in building and constructing, brick making and carpet manufacture, which ought to be brought within its scope. So also the railways and all establishments under the Mines Act."

As the progress of the factory industry is to some extent at the cost of cottage industry. it would be desirable to bring the two in statistical relation to each other. An idea of their relative increase or decrease could be available if some yearly data regarding them could be collected.

The necessary facts to be collected are the aggregate value of the sales and the aggregate cost of the materials for each industry. The difference which is known as 'the net output' or 'value added by manufacture approximately measures the contribution to the national income of the factory. When all factories are considered the aggregate difference after allowing for depreciation of plant and change in value of stocks of materials and finished goods is a measure of the contribution to the national income of the industry.

Besides this main estimate, figures can be collected of the quantity and value of different commodities produced and of materials bought and power used. The classification of the products should be the same as of exports and imports. The employees should be classified as salaried persons and wage earners, young and adult, with a statement of the age division between the two sexes.

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CORRIGENDA

Page.

35, Line 7 read 'family' in place of families.

80, Line 6 from bottom, read 'agricultural' in place of agriculture.

112, Line 3 read 'publications' in place of publication.

113, Line 16 read 'Iriennial' in place of Iriennueal.

179, Line 12 from bottom read 'the present' for present.

318, Line 14 delete 'xiii'; read xiii in place of xiv and correct other figures accordingly.

356, Line 20 read 'the' in place of he.

357, Line 16 read 'regard' in place of egard.

359, Line 21 read 'topics' in place of topic.