

Data Base of Historical Demography

By

Durgaprasad Bhattacharya

Pre-Census Population Studies Unit
Research and Training School
Indian Statistical Institute
203 B.T. Road, Calcutta - 35.

Abstract

Modern enumeration of population known as the census operation made a beginning in the middle of the eighteenth century in European countries. Prior to a census, "the main task of research on population" as Joseph Schumpeter pointed out, "was not to analyse given facts, but as far as possible, to find out what facts actually were". Professor Prasanta Chandra Mahalanobis considered modern statistics as the result of the fusion of two originally distinct disciplines one primarily descriptive, concerned with the collection of data; the other essentially analytic, associated with concepts of chance and probability". For the first, the Professor cited examples of Artha-Sastra of Kautilya : 3rd Century B.C., Ain-i-Akbari : circa 1590 A.D. and the Survey of Eastern India by Francis Buchanan : 1807-15 A.D. The earliest reference to a census or vital statistics is obtained during the rule of Chandra Gupta Mourya. The Arthasastra mentions an elaborate system of numbering of houses, registration of the total number of citizens of the four caste in each village, and also of recording exact number of cultivators, cowherds, merchants, artisans, labourers, slaves and biped and quadruped animals. Cadastral survey system was prevalent in the Mughal and Mahratta period and actual records are sometimes traceable. During both the periods, some sort of counting of houses named as Khana Soomari, was also in practice as mentioned by Buchanan and Richard Jenkins. Khana Shomari according to Buchanan is "a list of number of houses, families, tradesman, castes, ploughs, looms, tanks and other public works, civil and religious". A number of such Khana Soomari tables was reproduced in the Report on the Population Estimates of India 1820-1830 (Census of India 1961).

In 1864 W.W. Hunter was appointed as the first Director-General of the Statistical Survey of India and found himself "in the position of a man who has unexpectedly fallen heir to the hoarded accumulation of a century... containing precious materials..." "Generations of dedicated young Englishmen with a passion for scientific quest often equally strong as that of building an empire traversed from one end of the country to other sometimes knocking at door to door in towns and villages, sometimes walking in plot to plot with chains in hand, sometimes moving in hills and mountains to conduct botanical, geological, zoological or trigonometrical, cadastral or revenue survey. These efforts gave birth to institutions and organizations of which India is rightly proud today. Luminaries like Colin Mackenzie, James Princep or Colonel W.H. Sykes became distinguished Fellows of the Royal Society. Immeasurable volumes of gazetteers', 'geographical, statistical and historical accounts', 'survey and settlement reports', thousands of pages of 'imperial gazetteers' generated by W.W. Hunter followed by district series as the production of the Statistical Survey of India contain a massive quantitative survey of almost all aspects of the country from 1770 down to 1930 with a probe in the past upto pre-historical era. A negative micro-film set of manuscripts of Francis Buchanan's statistical survey of six districts of Bengal containing 10,000 handwritten pages at the India Office Library (a small part published) was procured by Prasanta Chandra Mahalanobis in order to edit and publish them in several volumes because he believed that "there is nothing in any subsequent survey in India to approach the one conducted by Buchanan 140 years ago".

Buchanan's method of consumption survey through a simple recording of the frequency of consumption of several items by each family may be more useful than that of a doubtful quantified data collected through the National Sample Survey. According to the N.S.S., during 1952-1966, per-capita physical

consumption of cereals exceeded per capita "official" availability by 40 per cent. Some scholars still considered per capita N.S.S. consumer expenditure with obvious weight of food consumption as an under-estimate due to their disagreement with the "official" estimate of private consumption. The bottom ten per cent, according to the N.S.S., consumed more cereals per head than that is distributed in the statutory rationing area. Incidentally an enquiry among the tribal population (who constitute now about 8 per cent of India's population) of Bihar revealed that the low incidence of mortality in famines of 1866 was the result of a negligible incidence of cereal consumption due to poverty. The position perhaps did not alter much in course of a century ending 1966.

The Britishers came to India, learned our languages, revived oriental studies, and very efficiently collected data on all aspects of land and people in order to fulfil the object of imperialism on the cardinal principle of 'divide and rule' leading to an exploitation of our resources for about two centuries and finally to the bleeding partition of India. In order to attempt a social change in the given structure or in order to prepare for a social revolution for a new and just order, it is essential to understand the institutions and conditions of the country, both being deeply rooted in the past. Here lies the relevance of the past demographic and related socio-economic data as well as methodology followed and results thrown by them to better our understanding of the present to plan the future correctly.

DATA BASE OF HISTORICAL DEMOGRAPHY OF INDIA

by
Durgaprasad Bhattacharya
Indian Statistical Institute

1. pre-British period

Prasanta Chandra Mahalanobis considered that modern statistics is the result of the fusion of two originally distinct disciplines - "one primarily descriptive, concerned with the collection of data; the other essentially analytic, associated with concepts of chance or probability. From time immemorial men must have been compiling information for peace and war. Statistics is in this sense as old as statecraft. At each upsurge of social and political development or during war, there is a rapid growth or expansion of statistical practice"¹. The Professor cited three examples from his own country - (1) Arthashastra of Kautilya : 3rd Century B.C. (2) Ain-i-Akbari : Circa 1590 A.D. and (3) Survey of Eastern India 1807-15 A.D. We shall mention the first two briefly, and discuss the third in some detail.

1.2 The Arthashastra of Kautilya contains the earliest reference to a census and vital statistics registration. "The third [Municipal] Board was responsible for systematic registration of births and deaths ..."²

"Also having numbered the houses as tax paying or non-tax paying, the [the Gopa] shall not only register the total number of the inhabitants of all the four castes in each village, but also shall keep an account of the exact number of cultivators, cowherds, merchants, artisans, labourers, slaves and biped and qua-druped animals!"³

1.3 "In another peak period of Indian history, in the time of the great Akbar," wrote the Professor, "We find a description of highly developed statistical system in Ain-i-Akbari which is practically the administration report and statistical returns of his government as it was in 1590 A.D."⁴ This document has been and is being constantly used to make quantitative estimate of population, cultivation and products of the then India. It should be mentioned that in between these two documents, there exists a large volume of information from which a quantification of important variables is possible.

1.4 Modern enumeration of population known as the census operations began only in the middle of the eighteenth century. Prior to the census, "the main task of research on population" as Joseph Schumpeter pointed out, "was not to analyse given facts, but as far as possible, to find out what facts actually were". Researches into pre-census period, in the context of India, at the moment, involves two phases of work (1) to search for data and (2) to ascertain their validity to use them in construction of estimates. During the Mughal and Mahratta period, some sort of counting of houses, however partial, was perhaps in practice. Francis Buchanan mentioned "a list called Khana Soomari containing a statement of number of houses, families, tradesman, castes, ploughs, looms, tanks and other public works, civil and religious, within the jurisdiction of the magistrate which is usually kept under all native government and seems to be useful"⁵. Richard Jenkins also observed, "Under the Mahratta Government, there existed a kind of ground work for a census in most of the districts, in what is called the Khana Soomari, or annual enumeration of the houses of each district, with a special mention of castes and professions of each house-holder, and other particulars...."⁶

1.5 In Deccan or Dukhun, revenue or cadastral surveys undertaken as a basis for land assessment data from the reign of Akbar, in whose time over 7 million acres in Gujarat were measured in connection with the system of Todarmal. By Akbar's settlement, as reported by C.J. Prescott, Superintendent, Revenue Survey, Gujarat on 21-3-1862 in connection with Kaira Survey, "a correct account of boundaries of each village was drawn out, and the whole land carefully measured... In the time of Shah Jahan this survey was extended to Deccan. The first for which records are available is that undertaken by Bijapur Sultans at the end of the sixteenth century. This survey formed the basis of revenue assessment till 1817 though the original settlement was practically revised by Sivaji as the country passed under the sway of the Maharattas"⁷.

1.6 Travellers' accounts contain glimpses of population estimates. Some of them estimated population of different localities in India. One such early estimate is that of the city of Dacca in 1638 by Fray Sebastian Manrique. He also mentioned population of Patna and Agra for 1640⁸. A rough estimate of the population of Madras was deduced from a comparison of revenue in 1639. The East India Company was responsible for estimating the population of Madras for 1646 and 1648⁹. One Dr. John Frior was appointed as a Sergeant by the East India Company. He came to India as a General of Medical Profession but from his writings it appears that his concern about statistics was greater. He estimated the population of Bombay Island in 1661 at 10,000 and subsequently in 1673 at 16 thousand¹⁰. He also estimated the population of Mausalipatam and Madras. Thomas Bowrey came to Madras in 1687 and left a record of experiences. He estimated the population of Madras town at 14 thousand in 1670¹¹. Population of Madras was estimated by John Frior at 33 thousand in 1673, by Sir

William Longhern in 1674 at 50 thousand, by the Company in 1681 at 2 lacks.

We may go ahead to quote similar sources for hundreds of cities, towns and rural habitation of India.

2. British Period, the first phase

2.1 In 1869, W.W. Hunter was appointed as the first Director-General of the Statistical Survey of India and in his very first report, he said,¹² "I found myself, therefore, in the position of a man who had unexpectedly fallen heir to the hoarded accumulation of a century, accumulation scattered over a great empire in unsifted heaps, but containing precious materials for the fabric which the Government of India resolved to raise". The massive data have remained practically unseen, unutilised and unsung, only a tiny fragment has so far been used. The volumes of Historical Records of the Survey of India initiated by Phillimore and the Catalogue of the Geographical Department of the India Office Library contain indications of their sources, nature, method, coverage and characteristics.

2.2 In 1760's, a series of pamphlets known as India Tracts began to appear. One such pamphlet contains a speech by Lord Clive in the House of Commons where, on the one hand, he mentioned a population of 15 million for the then Bengal, a land of dazzling splendour and riches with its capital Muxadabad equally populous but more wealthy than the City of London, and, on the other, he laid bare an abject poverty of the masses who "drink nothing but water," "wear no clothes", who are at no "expense other than eating", whose houses are built with mud and clay thatched with straw and where the wage rate is Rs.2/- per month*. In August 1769, an elaborate circular was issued to English Officers

* At this level of wages with a kilo of rice at three paise, condition of rural masses might have been better than it is today, at 1972 prices, daily wages were perhaps around Rs.3.00 per day in 1772.

calling for Historical and Statistical Account of the Country (emphasis mine-D.B.). The President-in-Council carefully prescribed the points to be taken up, including, among others, land tenures, list of products and means of development of internal resource. We find a volume of evidence on conditions of land and people of the country into Parliamentary reports and famine documents¹⁴ between 1772-1782. This series of reports also contains the most luminous Ninth Report by Great Edmund Burke¹⁵ who with usual vigour explained the external trade of Bengal as a case of simple plunder**.

2.3 In 1789 we come across a document called "Estimate of Population of the Provinces of Bengal and Bahar; the Company's possession in Orissa; and the Province of Benares, from estimates transmitted by the Collectors of three former, and Resident in the latter, in answer to a reference made to them by desire of Lord Cornwallis in July 1789"¹⁶. The population return is given for each district and divided into three groups 'Men,' 'Women', and 'Children'. The methodology is of considerable interest. Mr. Duncan formed the estimate of Benares "according to the grain produce, allowing nine maunds on an average for consumption of each person, children included" except for the City of Benares and its vicinity returned as having a population of 607,000 or one million. Population of Bhagulpoor was estimated on the number of villages and houses or families allowing four persons to family or house and twenty houses to each village. The population of Calcutta

** It may be mentioned that prior to 1765, according to data available annually from 1708, more than 60 per cent exports of the English East India Company from England to Bengal consisted of bullions. J.M. Keynes also mentioned this "chronic influx of precious metal" in the General Theory of Employment, Interest and Money.

and 50 villages adjacent to the town was estimated at 4 lacks on the basis of an average of several estimates furnished by intelligent natives. The estimate of Purnea was based "on an average of actual investigation of three small villages multiplied by 1500, the number of villages in this district". In this connection, we should mention that William Jones was also connected with population returns and furnished an estimate for Bengal.¹⁷

2.4 The year 1793 was a landmark in the history, being the year of the Permanent Settlement. W.W. Hunter said, "And whatever may have been the shortcomings of Lord Cornwallis' Land Law, the records attest that it was based upon a careful and protracted inquiry into the actual facts of the country"¹⁸. Lord Wellesley was responsible for a Cornwallis-type population return of Bengal districts in 1802-04 partly published by Walter Hamilton in 1820. Henry Thomas Colobrooke prepared his Remarks on the Husbandry and Internal Commerce of Bengal, a joint production of several gentlemen conversant with different branches of the subject" originally in 1784, printed in 1794 and again in 1803.¹⁹ Colobrooke wrote in the chapter on Population, "In India, no bills of mortality, nor register of births, marriages or burials, afford data for calculation". He estimated the population of Bengal, Bihar, and Benares at 27 million by three parallel methods such as (1) ascertaining the number of husbandmen holding leases and number of artificers in 2284 villages upon 2531 square miles, a resemblance of sampling techniques perhaps, (2) examining the result of many land utilisation surveys and estimating the proportion of land in tillage and waste and thereby calculating the number of tenants and artificers, (3) checking consistency between two variables, population and consumption. The same methods were used by William Ewer in estimating the population of Orissa for the year 1818.²⁰ It is interesting to

note that in an edition of 1884²¹, the editor of the volume presented the following table with remarks: "With Mr. Colobrooke's invaluable essay in our possession, we are now able for the first time, to produce the following table of comparative statistics, concerning the land of these provinces, under the settlement of 1793 and 1883".

[comparative tables]

	<u>1973</u>	<u>1884</u>
	[population and cultivation]	
Population (million)	25	60
Acres under tillage (million)	31	70
Gross rental on Ryots (million Rs.)	40	130
	price of staple.	
Grain (per md.)	8 to 12 annas	Rs. 2 to 3
Ghee (per seer)	3 annas	12 to 13 annas
Cattle (per head)	4 to 5 Rs.	20 to 30 Rs.
	wage of labour (unskilled)	
Agriculture (per month)	8 annas	Rs. 2
Urban (per month)	Rupee one	Rs. 6 to 7
	value of exports	
Estimate (£lak)	20	300
Value of money	100	33
Gross value of harvest (million Rs.)	320	2500
Proportion of rents to harvests	1/8	1/20th

2.5 Thomas Munro is one of the most pioneer statistical investigators. Incidentally, he visualised an India free of alien British rule as early as 1824 in his last Destatch to the Court of Directors. He was the Principal Collector of Ceded Districts - districts obtained from Tipu Sultan now partly in Mysore and partly in Andhra merged mostly with Anantpur, Bellary and Kurnool. In a note on a table based on an agricultural survey, Munro writes,

"The accompanying statement No.5 contains an abstract of everything that seems to be necessary in an agricultural survey. It shows the population, the number of cattle or sheep, and the extent and value of all land, cultivated and waste... when I transmitted to the Board, on the 24th August 1802, an abstract of the population of the country, I was convinced that it was greatly under-rated, but I took no immediate measures to ascertain the fact; because the inhabitants at that time, would have suspected that the enquiry was instituted merely with a view to introducing a general capitation tax, and would have endeavoured as much as possible to suppress information".

2.6 After a lapse of five years with remedial measures in taxes being implemented, Munro instructed for a new return of the population in every village upon actual muster, except in the case of those caste who seclude their women from public view. "The returns were prepared by the curnums of the different villages assisted by potails, from muster where mode could be adopted and where it could not, as among Mussulmans, as well as from several castes of Hindoes, from the information of the heads of families or their neighbours". The population in course of five years between 1802 and 1807 increased from 1.2 to 1.9 million according to the census. Munro attributed only one-fourth of this increase to be possibly real due to tranquillity, but "the remainder must be attributed to the falsity of former returns.

There is every reason to believe that the total is rather below than above the actual population, for the number of females ought to be greater!"²²

Munro started with four investigators. Every year he trained a large number of field workers and attempted elaborate arrangements for a cross-check of data collected.

Colin Mackenzie F.R.S. 1800-1821

2.7 At the junction of the eighteenth and the nineteenth century, we find Colin Mackenzie who was the first Surveyor General of India during 1815-1821 and won the distinction as a Fellow of the Royal Society (FRS) by virtue of his work in India. The Governor-General appointed Captain Colin Mackenzie to undertake "a survey on an extensive scale of the territories lately subjected to the Company the Raja of Mysore;... the attention of the surveyors should not be confined to mere military or geographical information, but that his enquiries should be extended to a statistical account of the whole country. On the 5th January 1800, an elaborate Plan of Mysore Survey was submitted by Mackenzie, to collect information on Mathematical and Physical subjects. Under the latter, information was to be collected on (1) botany, mineralogy, medicine, (2) the diseases, medicines, remedies, (3) the air, climate, seasons, periodical rains, (4) soil, its produce, mode of cultivation, waterworks, tenures of land, (5) the various descriptions and classes of natives, their customs, languages, manners, (7) revenue and population. It should be mentioned that Mackenzie was a well-recognised scholar with a knowledge of about a dozen of Indian languages and had an all-embracing interest. The Madras University had been preparing a summary of the manuscript in four South Indian languages, Tamil, Telegu, Kannada and Malayalam. By 1800 Mackenzie was conducting an enumeration of population for each pargana. By 1803 Mackenzie submitted his second general report with maps and memoirs. The memoirs included information about "the situation, extent and boundaries and contents in square miles of the several Purgunnahs of the partition of 1799... The population by castes and houses (as no enumeration by census can be immediately ascertained)..." All the

schedules canvassed were generally in local languages. We have, at the India Office Library, the complete records of the Statistic and Geographical Survey of the Ceded Districts executed during 1809-1815 by Colin Mackenzie in the two folio volumes "on pages 769 and 632 respectively" throughout in a tabular form containing 'Registers of villages', 'Statistic Tables', 'Description of limits', comprising "Statistic Tables or Khana Shumaris, Village Register or Dihizada",... etc.²³

3. Francis Buchanan Hamilton

3.1 Dr. Francis Buchanan, a former superintendent of the Company's Botanical Garden at Calcutta, who produced an excellent treatise on Mysore²⁴ was appointed by the East India Company to conduct a statistical survey of the Company's territory under the Presidency of Fort William on the 7th January 1807. Hunter ably summarised the scope of the survey; "The instructions drawn up by the Governor-General in Council*... set out by requesting an account of each District, its topography, its history, and climate. They proceed to the condition of the people; their number, clothing, dwellings, religious sects and means of education. The natural production of the country - animal, vegetable and mineral - next pass under review, together with the modes of tillage, implements of husbandry, breeds of cattle, and safeguards against floods. The size of the farms, the rates of wages, and above all the land tenures, are successively considered; and the list concludes with arts, manufactures, and commerce of Bengal... after seven years, only a fragment of a single province was surveyed... and not one page had been printed. The records of this Survey form a series of 28 folios, aggregating at least ten thousand pages of MS. Thirty years later, a compiler abstracted three

* dated 11th September 1807.

volumes from them, and placed his own name on the title page, but, unfortunately brought no acquaintance with the subject of his work*. They practically remained unedited and unutilised until made over by the India Office to this Department [Statistical Survey of India] in 1872"²⁵.

3.2 Prasanta Chandra Mahalanobis procured a set of micro-filmed manuscripts of Buchanan's survey from the India Office Library, dreamt of publishing these 10,000 pages in several volumes under his editorship in collaboration with his colleagues and of initiating a series of objective study of socio-economic changes over 150 years based on these invaluable data. According to Mahalanobis "the report everywhere shows the critical attitude, keen scientific spirit, and the experimental approach of Dr. Buchanan. The wealth and reliability of the information (as far as this can be judged from internal evidence) make the report one of the most remarkable surveys of all times. There is nothing in any subsequent survey in India to approach the one conducted by Buchanan 140 years ago."²⁶ We have so far copied out all the tables of four districts (Bihar and Patna, Shahabad, Bhagalpur and Gorakhpur surveyed during 1810-14), recast them into modern forms as far as possible and also prepared some comparative tables for the period 1810-14 and 1961-71. In fact, the manuscripts of Gorakhpur intended for publication as the first volume of the series was partly examined by Professor Mahalanobis in 1971-72. Buchanan's survey is extremely useful as a guide to present-day investigations in many respects. Buchanan tried to ascertain the truth by all

* Here R.M. Martin's Eastern India (3 Vols. 1836) is referred to. The Bihar and Orissa Research Society published mainly text portions of the reports on Bihar districts in 1930's omitting statistical tables.

possible means. He used official agencies, data collected was then checked by Pandits of the survey, and again rechecked through local investigations by himself. Buchanan frankly stated the magnitude of trust-worthiness of his data. He himself extensively travelled in difficult days and in difficult routes. This tradition was followed by W.W. Hunter in his introduction to the provincial editors.²⁷

3.3 A number of scholars for a decade are working on a so-called poverty line and the line is fluctuating like anything from year to year and from author to author. Consumption of cereals according to the N.S.S. data on which most of the recent poverty studies are based exceeds official availability figures by about 40 per-cent on an average of about 12 rounds between 1952 and 1966. One top scholar in the field, Dr. V.M. Dandekar, considered the N.S.S. data in 1960's to be an underestimate in relation to official aggregate private consumption estimate in spite of so much excess consumption of food grains over the official availability figures.²⁸ The same scholar in 1953 considered the NSS estimate based on Calcutta schedules to be a gross-over-estimate.²⁹ Consumer expenditure derived from Poona Schedules was only at 40 per cent of the expenditure from Calcutta schedules. Dandekar of 1953 rightly enumerated a series of investigator's and informant's bias, and, he argued just in the opposite in 1971 : It may be perhaps better to follow Buchanan in having a broad and simple idea of the actual level of living by collecting information like the number of Families (1) who eat rice two times daily (2) once boiled rice and one wheaten cakes (3) in general wheat and coarse grains and rice on some occasions, (4) part of the year use Mahua and other substitutes for grains (5) rice in harvest two times, in other seasons wheat or other coarse grains. Similar information was collected for several

other items such as curry, dal, fish, meat, ghee, oil, milk, etc. According to the NSS data, the poorest 10 per cent of the population consumed above 10 seers of cereals per month on an average for 12 rounds between 1952 to 1966, a quantity more than that of cereals given through fair price shops in the City of Calcutta, the demand being absolutely inelastic to changing prices which rose from 0.46 paise per seer to 0.74 paise per seer. The poorest 10 per cent include naturally tribal population and the harijans who together perhaps account for the bottom one-tenth. After the famine of 1866-67, an enquiry was conducted by a geologist³⁰ in the forest area of two districts of Bihar to enumerate the jungle products used as food to reveal that the causes of a low incidence of mortality among the people of tribal belts as a result of famines were due to a lower incidence of consumption of cereals among them, the main items of consumption often being wild roots and fruits. A number of Buchanan's tables has been presented in the Appendix including one showing the inequality in the level of living in three districts of Bihar in 1810-1813, the expenditure data, however, was not reliable according to Buchanan. He mentioned some types of informant bias associated with this kind of enquiries even to-day.

4. a brief survey : 1811-1971

4.1 Between 1800 and 1875 three generations of dedicated men (may be to the cause of the Empire) traversed from one end of India to the other tract by tract, plot to plot, house to house, through plains and terrains, valleys and mountains to leave behind most illuminating scientific data on astronomy, topography, natural and social history, botany, biology, and population. These endeavours gave birth to organisations like the Survey of India,

Anthropological Survey of India, Botanical Survey of India, Geological Survey of India and Statistical Survey of India. A work by an Indian named Haliram Dhekial Phukan deserves a special mention. Phukan published in 1828 his Assam Burunji, the first scientific treatise in Bengali language mentioned by James Long in his Catalogue in 1855 and Sukumar Sen in his history of Bengali prose. It contains ~~the result of a population census of a tract of Assam, his inferences on deficiencies of data and his method of adjustment~~ are perhaps simply unparallel in his time.

4.2 Between 1811 and 1820 there exist works by a number of eminent scholars. W.B. Bayley, Judge and Magistrate of Burdwan conducted an enumeration in 98 villages and towns in several districts to ascertain the population of Burdwan on the basis of ~~co-efficients obtained from the enumeration.~~ In Broach, Monier Williams conducted a revenue survey containing valuable socio-economic and technological data during 1812-1816, and this survey was recommended as a model for the future. Mount Stuart Elphinstone compiled his Report on the Territories Conquered from the Peishwa objectively. William Chaplin, the Commissioner of Deccan in 1820's, compiled factual socio-economic and population data in Mahratta districts. On the data-base of Madras and Bombay in early years, W.W. Hunter said, "For Madras a magnificent series of two hundred manuscript folios, known as the 'Orme'* collection was compiled from about 1740 to 1770, and, with the exception the portions utilised in Orme's two printed volumes, remains unedited to this day. The Bombay Government went further, and at an early period created a distinct department.

* The first "Quinquennial Report on the Statistical Account of India" contain a 64 page bibliography where 'Orme collection' as consulted is recorded in detail.

Colonel Sykes, as Statistical Reporter, drew up a mass of papers, which taken in connection with previous documents, furnish a continuous picture of that Presidency since the territorial establishment of British Rule.³¹

4.3 Under the guidance of Colonel Sykes, a census of Khandeish was conducted in 1826,³² a document, which has much more internal consistency with detail than many documents of a modern census operation. Data are given for each parganah showing area, land use, ethnic and religious composition as well as occupational structure of the population, number of deserted and repopulated villages with indications of urbanisation. Colonel Sykes later became a Fellow of the Royal Society and finally the President of the Royal Statistical Society in 1863.

4.4 James Princep conducted a census of Benares, a document which graphically reveals essential features of an urban community in 1827 with as accuracy as possible under given conditions. Princep, once responsible for completing canals and locks to connect Hoogly and Salt Water Lake, edited Cleanings in Science and the Journal of the Royal Statistical Society of Bengal, was also perhaps responsible for the first Statistical Committee for guidance to the Government of India under the auspices of the Asiatic Society, successfully deciphered inscriptions on Asoka Pillars, became distinguished as a Fellow of the Royal Society. The celebrated Fifth Report from the East India Company, 1812, four volumes of documents printed in 1820-1826 called East India Papers, and the third volume of the Report of the Select Committee 1831 contain massive data on land and people of India. The census of Travancore and Cochin, 1816-20, by Ward and Conner reveals the internal resources of the country and structural composition of the society of the day. The "Chang Shoomaree Tables" and "Dazajadda Tables" presented are a continuation of the tradition.

4.5 Under Bengal Population III of 1822 and II of 1833, we are in possession of massive village level data for a tract from Hissar district of the Punjab to Gorackpur of the U.P. The data collected under the supervision of distinguished surveyors contains area, land use, extent of cultivation, crop-pattern, population, cattle, irrigation, yield, prices, etc. for each village with cadastral maps. Data deposited at the West Bengal Archives and the National Archives of India have been compiled for about one thousand villages and changes in the socio-economic structure are being worked out upto 1971 for two small tracts in Aligarh and Mirat district. The agency employed was the usual survey staff at the village level and the method was one of complete enumeration. Similar village level data are available for several tracts of Tamil Nadu and Andhra at the Madras Archives and the National Archives of India. A census was conducted in Bombay in 1846 and an estimate of population was constructed for the N.W.P. in 1846 revised in 1848. A well-organised census was conducted in the N.W.P. in 1853 followed in 1861 and 1865. A quinquennial census started in the Madras Presidency in 1851. In 1850's population returns began to be placed before the Parliament annually. The Imperial Census was designed in 1850's, its execution started only in late 1860's.

4.6 Since 1830's, a series of historical, geographical, statistical accounts appeared together with settlement reports giving information often up to village level. The Imperial Gazetteer series and statistical abstracts from 1840 gave us a quantitative chain of data with regard to many important variables. An all-India census in fact started in 1881 and continues decennially up to date. But it is being gradually impossible to study changes from census data with all its usual deficiencies at any point of time. Data

for crucial economic indicators such as per capita income, wages, and consumer prices are not readily available even for the period 1951-1971. A constantly changing base of indices without maintaining a link with the immediate past is a great hindrance.

4.7 Population is a crucial variable and sufficient raw materials are available to construct reasonably valid estimates at least back up to 1751. The only way to test the data, as Dr. C.R. Rao suggested, is to put them in analytical studies and check demographic data with socio-economic variables. It was not surprising when in a remote village named Kheri Boozoorg, 40 kilometres from Aligarh, bullock-plough ratio was found fairly constant between 1823 and 1974 with yield per acre also not changing much.

4.8 Some of the methods used for adjustment of historical data involve, firstly, checking internal consistency exhaustively, secondly using technical efficiencies such as sex-ratio, ratio of broad age-group, land-man ratio, land-plough and bullock-plough ratio and the like; socio-economic data may be checked with demographic and technological data and vice versa. An examination of factors retarding or favouring a growth of population for each year such as rainfall and drought, pattern of season and outturn of crops, incidence of famines and pestilence, growth, stagnation or decay in economic activities, etc. is also important to check the plausibility of a set of data at a given historical period. By such methods, we constructed, following the guidelines of P.C. Mahalanobis, a decennial preliminary series of population estimates from 1801 to 1961 for each Provinces and Princely States of India on the 1941 territorial basis.

4.9 We are aware of the advancement in what the Great Professor called a Key Technology of the Century for all Sciences, but in application perhaps we are to look deeply into and try to understand the objective conditions. Only

recently, perhaps about 6 to 10 per cent of the Indian population remained in starvation and privation for months; if any statistical series show a constant or increasing consumption of food grains, we should verify them very carefully. While we are not competent to speak of sampling bias, we know how large may be the magnitude of informant bias or investigator bias. It will be proper for all research workers in the field of social sciences to keep a living intercourse with the people and their surrounding to conduct any meaningful investigations.

4.10 A question naturally arises as to why we should waste our energy and resources in searching for and studying the past data. The Britishers came to India, learned our languages, revived oriental studies and very efficiently collected comprehensive information on all aspects of the land and people in order to fulfil the objective of imperialism. They successfully divided the population into several conflicting groups resulting finally in the partition of India and constantly drained away resources of this country. To-day, in order to attempt a social and economic planning under the given class structure or property relations, or alternatively, in order to prepare for a total social revolution for a new and just social order, we essentially require to understand the institutions and conditions of the land and people, both of them being rooted in the past. The relevance of the past data, therefore, cannot be overemphasised, as these two identities, institutions and conditions, cannot be understood without looking deep into the history.

FOOT NOTE

- 1 Why Statistics? - Address of the General President at the 37th Indian Science Congress Poona, 2nd January, 1950.
- 2 Vincent, A. Smith. The Early History of India. 4th rev. ed. Oxford, Clarendon Press, 1957.
- 3 Shamasastri, R. Kautilya's Arthashastra. Mysore, Shri Raghuvver Printing Press, 1951.
- 4 Quoted from No.1.
- 5 Buchanan, Francis. An Account of the District or Zilla of Dinajpur surveyed in 1809 (Micro-filmed mss. at the ISI Library).
- 6 Jenkins, Richard. Report on the Territories under the Rajah of Nagpur. Calcutta, 1827
- 7 India. Historical Records of the Survey of India. Vol.3. 1815-1830.
- 8 Manrique, Fray Sobastion. Travels of Fray Sobastion Manrique, 1629-1643. Vol.I. London; Hakluyt Society, 1926 (Second Series, LXI).
- 9 Love, Honry Davidson. Vestiges of Old Madras. Vol.III., London, 1931-33.
10. Fryer, John. A New Account of India and Persia in eight letters being nine years' travel begun in 1672 and finished in 1681, containing observations made in moral, natural and artificial state of these countries, London, 1698.
11. Bowrey, Thomas. A geographical account of the countries round the Bay of Bengal, 1669-1679. Cambridge, 1905.
12. Hunter, W.W. Quinquennial Report on the Statistical Survey of India, London, 1876.
- 13 (a) Great Britain. Parliament. Nature, State, and condition of the East India Company, and of the British affairs in the East India. Reports Nos. 1 to 5 Select Committee of House of Commons (Col. Burgeyne, Chairman)... 26 May, 1772 to 18 June 1773.
(b) State of the East India Company. Reports Nos. 1 to 9 of the Committee of Secrecy appointed by the House of Commons. 7 December 1772 to 30 June 1773.
(c) Administration of Justice in Bengal, Behar and Orissa & c. 1st to 5th Reports. With Appendices of Select Committee of House of Commons ("Burke" Committee)...
(d) Sixth Report. Collection of Revenues of Bengal and Administration of Justice, as altered by Order in Council (Plan of 1781); Accounts.

14. India
Extracts from records in the India Office relating to famines in India 1769-1788. Compiled by George Campbell to which is appended remarks on the great famine of 1769-1770 by W.W. Hunter. Calcutta, 1868.
15. Reprinted by the Socio-Economic Research Institute, Calcutta, under the title "Burke on Indian Economy"
16. Martin R.M. The British Colonial Library. Vol.VIII. London, Whittaker & Co., 1837.
17. Jones, Williams. Complete Works. Introduction to Al-Sirajjiyah. :
18. See Hunter, W.W. No. 12.
19. Reprinted by Asok Mitra in Census of India 1951. Vol.6. Part 1-C.
20. We have presented Colobrooke's three methods in a tabular form in the Report on the Population Estimates of India 1811-1830 submitted to the Registrar General India in December 1972 and also in A Guide to Population Estimates of Eastern India 1811-1830 circulated in the same month.
21. Edition of 1884 was published from Calcutta.
22. Munro discussed the sex ratio in different countries, conducted further enquiry into several localities and hinted to a higher population. The tables and notes have been printed in the Madras Volume of the Fifth Report of the Select Committee of the House of Commons, 1812 edited by Firminger in 1917.
23. Exact type of information that a Khana Shumari and Dazajadda table contain may be obtained from the records of the survey of Travancore and Cochin reproduced in the Report on the Population Estimate of India 1820-1830. These surveys are well-described in several volumes of the Historical Records of the Survey of India.
24. Buchanan, Francis. A Journey from Madras through the countries of Mysore... 3 V. London, 1807.
25. Hunter, W.W. No.12
26. The scheme of Prasanta Chandra Mahalanobis about Buchanan's survey was illustrated in A Note on Socio-Economic Historical Studies on India issued in a mimeographed form by the Pre-Census Population Studies Unit of the Indian Statistical Institute. Mahalanobis spoke on this survey in his Presidential Address 'Why Statistics ?' at 37th Indian Science Congress, 1950.
27. W.W. Hunter's instruction to provincial editors are appended to his Plan for Imperial Gazetteer of India, they were asked to visit the field before starting writing on the basis of data sent to them.

- 28 Dandekar, V.M. and Rath, Nilkanta. Poverty in India. Bombay, 1971.
- 29 Dandekar, V.M. On the NSS Estimate of consumption of Foodgrains in India. Indian Economic Review. Vol.1. No.2. October, 1953.
- 30 Dr. V. Ball in an article entitled "on the jungle products used as articles of food by the inhabitants of the district of Manbhoom and Hazaribagh (Journal of the Asiatic Society, Part II - Physical Science, No.II 1867, p.73-74) wrote, "in some of the more jungly parts of these districts, where the cultivation round the villages is very limited and deficient, nearly the whole of the inhabitants who have survived the past famine, can have had little else but the roots and fruits of the surrounding jungle upon which to subsist. While passing through some of these villages last season, I was told that but few deaths had occurred them.

On the whole I am inclined to believe that people living in such villages are more independent and less affected in every way by famine than those, who residing in the centre of cultivation, have no jungle readily accessible. Were a census to be taken, it would probably be found that the relative proportion of deserted houses and villages, the result of the famine, to those still inhabited, would be much greater in the open, cultivated parts of the district than in the densest jungles. Indeed the jungles may be regarded to a certain extent as the saving of the lower races of the population; did they not afford nutritious food in abundance, the result of a famine like that of 1866-7, would probably be not merely decimation, but utter depopulation throughout extended areas.

It is not to be supposed that even those who are in the habit of using this description of food regularly, for a greater or less portion of every year, regard it as in any degree an equivalent to rice. Many have spoken to me of eating Mhowa, which is by far the best of these products, as being only better than suffering from absolute famine, and they always consider themselves legitimate objects of charity, when they can say they are living on it alone.

- 31 Hunter, W.W. See No.12.
- 32 This document along with some others were reproduced in the Report on the Population Estimates of India 1820-1830 issued by the Registrar General, India.

A P P E N D I X

Table 1. CUMULATIVE PERCENTAGE DISTRIBUTION OF PERSONS BY PER CAPITA MONTHLY EXPENDITURE GROUP IN THREE BIHAR DISTRICTS SURVEYED BY FRANCIS BUCHANAN IN 1810-1813

Per capita monthly ex- penditure group (Rs.0.00)	Bhagalpur 1810-11			Bihar & Patna 1811-12			Shahabad 1812-13		
	population	cumulative		population	cumulative		population	cumulative	
		downward	upward		downward	upward		downward	upward
1	2	3	4	5	6	7	8	9	10
0.00 - 0.50	-	5.53	100.00	-	1.92	100.00	-	-	-
0.50 - 1.00	-	66.94	94.47	-	55.90	98.00	-	53.68	100.00
1.00 - 1.50	-	88.76	33.06	-	68.99	44.10	-	60.70	46.32
1.50 - 2.00	-	97.06	11.24	-	83.65	31.01	-	86.30	30.30
2.00 - 2.50	-	99.73	2.94	-	90.18	16.35	-	92.03	13.70
2.50 - 3.00	-	99.80	0.27	-	90.76	9.82	-	95.83	7.98
3.00 - 4.00	-	100.00	0.20	-	98.37	9.24	-	99.56	4.17
4.00 - 5.00	-	-	-	-	99.71	1.63	-	100.00	0.44
5.00 - 6.00	-	-	-	-	99.77	0.29	-	-	-
6.00 - 7.00	-	-	-	-	99.98	0.28	-	-	-
7.00 - 8.00	-	-	-	-	-	-	-	-	-
8.00 - 9.00	-	-	-	-	-	-	-	-	-
9.00 - 10.00	-	-	-	-	-	-	-	-	-
10.00 - 15.00	-	-	-	-	100.00	0.02	-	-	-
15.00 - 20.00	-	-	-	-	100.00	-	-	-	-
20.00 & above	-	-	-	-	-	-	-	-	-
Total population	1,961,900	-	-	3,364,420	-	-	1,419,520	-	-

~~BHAGALPUR, BIHAR AND PATNA, SHAHABAD~~
(area indentical as in 1810-1813)

district	population (000)				annual rate of p.c. change		
	1810-13	1872	1921	1961	1810-72	1872-1921	1921-1961
1	2	3	4	5	6	7	8
Bhagalpur	2,020	2,576	3,403	5,491	0.4	0.7	1.5
Bihar and Patna	3,364	3,227	3,345	5,840	-0.07	0.09	1.9
Shahabad	1,420	1,607	1,697	2,983	0.20	0.11	1.9

Table 3. CONSUMPTION OF CEREALS, PULSE FOR CURRY, CURRY, VEGETABLES, SALT, OIL, FISH, MILK IN THREE DISTRICTS OF BIHAR AND PATNA, BHAGALPUR, SHAHABAD SURVEYED BY FRANCIS BUCHANAN IN 1810-1813

3.1 Percentage distribution of families by incidence of consumption of cereals and substitute

srl. no.	classification of families	Bihar & Patna	Bhagalpur	Shahabad
1	2	3	4	5
1.	rice two times daily, wheaten cakes occasionally as a variety	47.36	45.76	26.74
2.	once boiled rice, and once wheaten cakes	43.43		40.93
3.	in general wheat or coarse grains, and rice on some occasion	8.60	54.24	23.80
4.	part of the year use mahuya or other substitutes for grain	0.61	-	0.22
5.	rice in harvest two times in other seasons wheat or other coarse grains			8.31
6.	all groups	100.00	100.00	100.00
7.	Total families	489,331	333,245	217525

Table 3. CONSUMPTION OF CEREALS, PULSES FOR CURRY, CURRY, ETC.(Contd.)

3.2 Percentage distribution of families by incidence of consumption of pulse for curry

srl. no.	classification of families	Bihar & Patna	Bhagalpur	Shahabad
1	2	3	4	5
1	daily	70.37	47.10	73.97
2	frequently	21.69	43.53	26.03
3	seldom	7.94	9.37	-
4	all groups	100.00	100.00	100.00
5	total families	489,331	333,245	217,525

Table 3. CONSUMPTION OF CEREALS, PULSES FOR CURRY, CURRY, ETC.(Contd.)

3.3 Percentage distribution of families by incidence of consumption of curry.

srl. no.	classification of families	Bihar & Patna	Bhagalpur	Shahabad
1	2	3	4	5
1	2 or 3 curries daily or frequently	8.05	18.17	4.10
2	2 or 3 curries 5 or 6 times a month	31.42	37.87	26.18
3	one curry a day exception great occasions	60.53	43.96	69.72
4	all groups	100.00	100.00	100.00
5	total families	489,331	333,245	217,525

Table 3. CONSUMPTION OF CEREALS, PULSES FOR CURRY, CURRY, ETC.(Contd.)

3.4 Percentage distribution of families by incidence
of consumption of cultivated vegetables

srl. no.	classification of families	Bihar & Patna	Bhagalpur	Shahabad
1	2	3	4	5
1	daily	7.42	20.14	4.10
2	often	31.92	59.13	30.41
3	seldom	60.66	20.73	65.59
4	all groups	100.00	100.00	100.00
5	total families	489,331	333,245	217,525

Table 3. CONSUMPTION OF CEREALS, PULSES FOR CURRY, CURRY, ETC.(Contd.)

3.5 Percentage distribution of families by incidence
of consumption of salt

srl. no.	classification of families	Bihar & Patna	Bhagalpur	Shahabad
1	2	3	4	5
1	inabundance	9.00	9.41	2.87
2	stinted	29.60	37.90	21.96
3	scanty	55.96	49.08	52.17
4	negligible	5.44	3.61	23.00
5	all groups	100.00	100.00	100.00
6	total families	489,331	333,245	217,525

Table 3. CONSUMPTION OF CEREALS, PULSES FOR CURRY, CURRY, ETC.(Contd.)

Percentage distribution of families by incidence of
consumption of oil

srl. no.	classification of families	Bihar & Patna	Bhagalpur	Shahabad
1	2	3	4	5
1	abundance	7.85	5.76	1.79
2	stinted	28.00	35.27	14.89
3	scanty	56.54	43.67	43.77
4	occasional	7.61	15.30	39.55
5	all groups	100.00	100.00	100.00
6	total families	489,331	333,245	217,525

Table 3. CONSUMPTION OF CEREALS, PULSE FOR CURRY, CURRY, ETC.(Contd.)

3.7. Percentage distribution of families by incidence of consumption of fish

srl. no.	classification of families	Bihar & Patna	Bhagalpur	Shahabad
1	2	3	4	5
1	in abundance	0.17	11.87	0.10
2	cheap season daily, and in the dear season some times	33.81	58.08	19.09
3	by fishing or purchase	54.92	23.20	62.80
4	reject	11.10	6.85	18.01
5	all groups	100.00	100.00	100.00
6	total families	489,331	333,245	217,525

Table 3. CONSUMPTION OF CEREALS, PULSES FOR CURRY, CURRY, ETC.(Contd.)

3.8. Percentage distribution of families by incidence of consumption of families of milk

srl. no.	classification of families	Bihar & Patna	Bhagalpur	Shahabad
1	2	3	4	5
1	daily	19.27	30.40	27.33
2	cheap season only	33.15	40.89	34.72
3	on holidays	43.97	28.33	37.95
4	seldom	3.61	0.38	
5	all groups	100.00	100.00	100.00
6	total families	489,331	333,245	217,525