

Census of India
1901

Vol. I. Part I.

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INDIA

DENSITY OF POPULATION BY NATURAL DIVISIONS.

Scale 1 Inch = 100 Miles or 160,934,400 Feet



REFERENCE.

The figures show the Normal Rainfall of each Division.
Irrigated areas are shown green.

- 0-100 per square mile.
- 100-200 "
- 200-300 "
- 300-400 "
- 400 and above "

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INTRODUCTION.

IN certain provinces such as Mádras and the Punjab the custom of making ^{Earlier Enumera-} periodic estimates of the population, founded on more or less accurate data, ^{tions.} is of very old standing, but the first systematic attempt to obtain information regarding the population of the whole of India, based on an actual counting of heads, was made between the years 1867 and 1872. But even then, many of the Native States, including Hyderabad, Kashmir, the States of the Central India and Rajputana Agencies and those attached to the Punjab, were left out of the count. This Census, moreover, was non-synchronous; the arrangements were seldom very elaborate, and in some of the more remote tracts it was admittedly carried out in a very rough and imperfect manner. The experience gained, however, was very valuable and it paved the way for the first regular Census on the modern system, which was carried out on the 17th February 1881. On this occasion the operations were extended to all the provinces and states in India, as the term was then understood, except Kashmir and various small remote tracts. The count was a synchronous one, taken in the manner to be presently described, except in certain forest and desert tracts where counting by night was impracticable and the regular procedure was modified to a varying extent; in some places a simplified schedule was employed and the final count was carried out by day, while in others this process was dispensed with altogether and the Census officers recorded the ordinary resident population on the system followed until recently in some European countries. On the 26th February 1891 the second general Census was taken on lines very similar to those of the previous one, but more elaborate arrangements were made to ensure completeness, the non-synchronous area was smaller, and Upper Burma, which had meanwhile been acquired, was included in the operations, as well as the Native States of Kashmir and Sikkim.

The third general Census of India, which is dealt with in these volumes, was ^{The Census of 1901.} taken on the night of the 1st March 1901, or ten years and three days after the previous enumeration. This date was chosen partly with reference to the age of the moon, which was at the full on the 5th March, and partly with the object of avoiding, as far as possible, the anniversaries of great religious festivals and fairs and the nights regarded as auspicious for marriage ceremonies or for bathing in the sacred rivers. The operations of this Census embraced for the first time the Baluchistan Agency, the Bhil country in Rajputana, the scattered island settlements of the wild Nicobarese and Andamanese and certain outlying tracts on the confines of Burma, the Punjab and Kashmir; they extended in fact to the whole of the Indian Empire, with the exception of a small disturbed tract in Burma and of a part of Baluchistan where tribal disputes and the possibility of disturbances rendered it inexpedient to attempt an enumeration. The non-synchronous area was again reduced, and even where it was not found practicable to effect a final revision, the enumeration was ordinarily carried out on the standard schedule. The arrangements for the operations were still further elaborated and a "Code of Census Procedure" was drawn up by the Census Commissioner for India, on the basis of which the Census Superintendents of the different provinces and states prepared their local codes with such

modifications in matters of detail as were needed in order to meet local requirements.*

Outline of
Procedure.

The general scheme provided for the division of the whole of India into blocks, each of which (except in the non-synchronous tracts where they were larger) contained from 30 to 50 houses and was in charge of an Enumerator. Above the block came the circle, a compact group of from 10 to 15 blocks, or about 500 houses, under a Supervisor, who was responsible for the work of all the Enumerators in his circle. Circles were grouped according to thanas, taluks, or other recognized administrative divisions, into charges under Charge Superintendents, who exercised general supervision over the Census operations and tested a large proportion of the work of their subordinates. Excluding Kashmir and two Districts in the Punjab, for which returns have not been received, the total staff of Census officers employed in the whole Empire included in round numbers 9,800 Charge Superintendents, 122,000 Supervisors, and 1,325,000 Enumerators.

During January and February—the precise period varied according to local conditions—the Enumerator wrote up the Census schedules for all the persons in his block; and this record was checked and corrected by the Supervisors and Superintendents and by officers of the district staff. On the 1st March, between 7 P.M. and midnight, the Enumerator went round his block and brought the entries up to date by striking out the names of people who had died or left the block, and filling up the papers for fresh arrivals and newly-born infants.

On the morning of the 2nd March the Enumerators of the various blocks met the circle Supervisor at a place previously arranged, and prepared the first totals of their blocks so as to show the number of occupied houses, males, females, and total population for each block. The Supervisor combined the block totals into a summary for the circle and sent this on to the Charge Superintendent, who did the same for his charge and reported the result to the District Officer. The charge Summaries were then combined into the district total, which was telegraphed to the Provincial Superintendent and the Census Commissioner for India. Careful arrangements were made for checking the additions at each stage and for preventing the omission of the figures for any block or circle.

The First
Totals.

The arrangements for the preparation of these first totals were so complete that the results were received in time to be published by the Government of India on the 15th March, or exactly a fortnight after the date of the Census, and the figure then given (294,266,701) differed by only 94,355 or '03 per cent. from that subsequently arrived at after detailed compilation. The figures for the Central Provinces were received complete on the 7th March; for the Punjab and United Provinces on the 9th; for Bengal and Madras on the 10th; and for Bombay and Assam on the 12th idem. The nearest approximation to the final results was obtained in Madras, where, in a population exceeding 38 millions the net difference was only 827.

* It may be mentioned as an interesting, though very extreme, instance of the efforts which were made to secure as complete a Census as possible, that in the wild and sparsely inhabited Lushai hills which were incorporated in British territory as recently as 1890, a synchronous Census was taken by the officer in charge, Major J. Shakespear, C.I.E., but in order to do so it was found necessary in about ten circles to begin by teaching the men selected as Enumerators how to read and write.

At previous enumerations, the information contained in the schedules was extracted on "abstraction sheets" (one for each final table), which were divided by rules into spaces corresponding to the headings of the table concerned. A separate sheet was used for each Enumerator's book of schedules and a tick was made in the appropriate column corresponding to each entry therein. When the whole book had been abstracted the ticks were counted. The figures thus obtained were added up for the thana or other administrative unit (this was called tabulation), and the figures for the latter were compiled into a total for the district.

On the present occasion, under Mr. Risley's orders, this method was abandoned in favour of what is known as the slip, or card, system, which was invented by Herr Von Mayr in connection with the Bavarian Census of 1871 and has since been adopted in many European countries. A slip containing all the necessary particulars (in some provinces two slips were used) was prepared for each person enumerated, and these slips were sorted for all the final tables in turn into pigeon holes or other receptacles, e.g., for the religion table there was one pigeon hole for Hindu males, another for Hindu females, another for Muhammadan males, and so on. When the sorting for a table had been completed, the slips in each hole were counted and the result was entered on a form prescribed for the purpose. The figures in these forms were posted in tabulation registers and totals were then struck for the district. This system has many obvious advantages. It is much less complicated than the old method; the work is more easily tested, and by putting together and sorting at one time the slips for a large number of persons the operation previously known as tabulation was almost entirely dispensed with. In order to reduce the labour of filling in the slips various devices were resorted to; slips of different colours were used for the different religions; sex and civil condition were indicated by the shape of, or symbols printed on, the slips, and abbreviations or conventional marks were prescribed for a certain number of the other entries most commonly met with.

The copying of the slips was taken in hand immediately after the Census and within the next ten weeks the great bulk of the work had been completed over the whole of India.

Sorting followed immediately and was, for the most part, completed by the end of September 1901. As soon as the sorting for a table was over it was compiled for the district and province, and, generally speaking, all but the tedious caste and occupation tables had been finished before the close of the year. The first of the more important provincial reports to be received in print complete was that for the Bombay Presidency, which reached the Census Commissioner's Office on the 3rd June 1902. Then followed Assam and the Central Provinces (in July) and Madras (in August) and then (in the first week of October) Bengal, the United Provinces, the Punjab, and Burma. The only reports which had not by this time come to hand were those for Hyderabad, Mysore, Cochin, and Travancore.

The total actual cost of the operations was Rs 20,65,105, or Rs 21,93,984 if we include charges which were not debited against the Census budget in the public accounts. In 1891 the actual cost was Rs 26,09,587 exclusive of certain tracts which have contributed about a lakh and a half towards the total

outlay on the present occasion. Practically the whole of this great reduction in the expenditure may be attributed to the savings effected in the three large provinces, Bengal, Madras and the United Provinces, and it is due to a very large extent to the introduction of the slip system. In Bengal (excluding Calcutta) and in the United Provinces the total cost of operations was only R5 per thousand; and in Madras R6.4.

Comparison
with the
Hollerith
machine.

In America and a few other countries the Census results are now tabulated with the aid of the Hollerith machine, a very ingenious contrivance, by means of which the totals for the various tables are obtained mechanically. All possible answers to the questions in the enumeration schedule are printed on cards; one such card is taken for each person, and holes to indicate his age, sex, civil condition, etc., are punched in the appropriate places with the aid of a punching machine; these cards are then passed through the tabulating machine and, an electric current being established through the different holes, the necessary additions are made automatically. The initial cost of these machines, which I believe is about £400, would in any case render it impossible to use them in India, and they could not be employed for the more complicated tables such as caste and language, which involve many more entries than it would be feasible to provide for on the cards and punching machines; but apart from this, in a country where the lower class of clerical labour is as cheap and plentiful as it is here, it is clear that the machine could never compete successfully with hand labour. The tabulation of the results in Cuba with the aid of this machine was done by contract at the rate of 3½ cents per head or about R105 per thousand of the population, which is about fifteen times as great as the rate of expenditure in India on the whole of the Census Operations taken together. In point of speed also the Indian system has the advantage, and in one country where twelve of these machines were employed the tabulation of 24 millions of the people took over two years to complete.

The control
of the opera-
tions.

The Officers in charge of the Census Operations in the different Provinces

Province or State.	Name of Superintendent of Census.
Ajmer-Merwara	Mr. R. C. Bramley.
Andamans	Colonel Sir R. Temple, Bart. C.I.E.
Assam	Mr. B. C. Allen, I.C.S.
Baluchistan	Mr. R. Hughes-Buller, I.C.S.
Bengal	Mr. E. A. Gait, I.C.S.
Berar	Mr. A. D. Chitoy.
Bombay	Mr. R. E. Enthoven, I.C.S.
Bombay City	Mr. S. M. Edwardes, I.C.S.
Burma	Mr. C. C. Lewis, I.C.S.
Calcutta City	Mr. J. R. Blackwood, I.C.S.
Central Provinces	Mr. R. V. Russell, I.C.S.
Madras and Coorg	Mr. W. Francis, I.C.S.
Punjab	Mr. H. A. Rose, I.C.S.
United Provinces	Mr. R. Burn, I.C.S.
Baroda State	Mr. J. A. Dalal.
Central India Agency	Captain C. E. Luard, I.A.
Cochin State	Mr. M. Saunkara Menon.
Gwalior State	Mr. J. W. D. Johnstone.
Hyderabad State	Mirza Medhi Khan.
Kashmir State	Khan Bahadur Manshi Ghulam Ahmed Khan.
Mysore State	Mr. T. Ananda Row.
Rajputana Agency	Captain A. D. Bannerman, C.I.E., I.A.
Travancore State	Mr. N. Subramhanya Aiyar.

and States who were immediately responsible for the conduct of the work in their respective charges and who wrote the Provincial Reports on the results were, for the most part, appointed early in April 1900 or about ten months before the date of the census. The intervening period was occupied in making the various arrangements required, such as the partition of the country into blocks, circles and charges, the elaboration of the necessary instructions,

the preparation, translation and supply of forms, tours undertaken to supervise the local arrangements and the training of the Census staff, and the elaboration of the procedure for the subsequent stages of the work. The Office of Census Commissioner for India was held by Mr. H. H. Risley, C.I.E.,

from its creation in October 1899 until September 1902, when, unfortunately for the Census, his services were required for a higher appointment and his immediate connection with the operations came to an end. At that time the reports for a number of Provinces and States still remained to be received, and it had thus been impossible to make much progress with the General Report for the whole of India. Mr. W. S. Meyer, C.I.E., took charge of the office temporarily, in addition to his duties as Editor of the Imperial Gazetteer, and I succeeded him as Census Commissioner on the 23rd January 1903. In spite of the pressure of other work, Mr. Risley has

Chapter I, paras. 1 to 72.
Chapter II, paras. 98 to 103 and
121 to 129.
Chapter VIII, paras. 614 to 633.
Chapter IX, paras. 692 to 718.

himself completed the Chapter on Caste and the portions of four other Chapters, as noted in the margin, are also from his pen. The Chapter on Language has been contributed by Dr. G. A. Grierson, C.I.E., Ph.D., D. Litt., who is in charge of the Linguistic Survey which is now being conducted under the orders of the Government of India and who, as is well known, possesses very special qualifications for dealing with this subject. For the rest of the Report I am responsible, and also for the tables dealing with Caste and Occupation, and, in part, for the Language table, which was carefully revised in consultation with Dr. Grierson. So far as my share of the Report is concerned, I am painfully conscious of the difficulties under which it has been prepared, owing to the want of time for adequate preparation and to my ignorance of actual local conditions beyond the borders of Bengal and Assam. At the stage when I took up the work, it had become imperative that the Report should be completed without any avoidable delay, and there was no time to travel or to discuss matters locally with the late Provincial Superintendents. I sent them for examination my drafts on the "Movement of Population" in their respective charges and I am indebted to several of them, especially to Mr. Burn, for valuable hints and criticism. In other respects I have had to rely solely on the published reports of the present and previous Censuses and on such publications, official and otherwise, bearing on the subjects dealt with, as I have been able to obtain and peruse in the limited time at my disposal and, although all must regret that Mr. Risley was unable to complete the work which he so ably began, I can only hope that my own disqualifications for the task have not made themselves too apparent and that I have not too often fallen into the error of thinking that the conclusions drawn from personal experience in the Provinces where I have served are necessarily applicable to other parts of India.

In conclusion I have to express my obligations to Mr. Ross, the Superintendent of Government Printing, for the expedition with which he has carried through the printing of the Report and Tables, to Babu Srinath Chakravarti, my Personal Assistant, who successfully controlled the Calcutta Office for the last few months of the operations, and to Babu Pramatha Nath Sen who was in charge of the compilation of the tables from the very beginning and performed his duties most efficiently.

E. A. GAIT.

Co-operation
of the people.

I welcome the opportunity afforded me by Mr. Gait's courtesy of adding a few words to his concise and lucid account of the administration of the last Census of India, and of making some of the acknowledgments that are due, for work faithfully done, to my colleagues the Provincial Superintendents, to the district and departmental officers both Civil and Military, and more than all perhaps to the people themselves, to all sorts and conditions of men from one end of the Empire to another, who gave their unpaid services for an object which most of them understood but imperfectly and many must have regarded with positive suspicion. An Indian Census is pre-eminently the work of the people of India. If they held aloof, or even demanded the most trifling remuneration for their trouble the whole undertaking would be financially impracticable. As it is, the greater part of the enumeration is done for nothing by an army of private individuals, numbering on this occasion more than a million and a quarter, who bring to their troublesome task a spirit of painstaking and occasionally grotesque accuracy which is unequalled anywhere in the world. Mr. Burn, the Superintendent of Census in the United Provinces, tells us how the zeal of one volunteer enumerator impelled him to turn into verse the Census instructions and to suggest that the weaker brethren should be required to learn his production by heart. Other Census officials, with the subtle ingenuity characteristic of the Oriental mind, were insistent in demanding a solution of the problem how the sixteen columns of the schedule were to be filled up for a deaf and dumb lunatic found wandering about by himself on the Census night. With equally Oriental incapacity to appreciate questions of fact, they met the suggestion that the case was an unlikely one with the rejoinder that such unfortunates were extremely numerous. Curiously enough, in the same Province an assemblage of ascetics under vows of silence gave rise to a very similar difficulty, for which special arrangements had to be made. But perhaps the most remarkable instance of voluntary exertion in the public interest occurred in Bombay City where the teaching staff and the senior students of the Elphinstone High School came forward spontaneously and offered to conduct the entire operations of the Census for the quarter in which the school is situated. There was plague in Bombay at the time, the Census enumerators were especially exposed to infection, and several of them fell victims to the disease.

Extension of
operations.

Each successive Census represents an advance on the methods of its predecessor and the Census of 1901 was no exception to this rule. It covered for the first time the whole of the Indian Empire with the exception of the Wa country in Burma and certain tracts in Baluchistan where there was a risk of kindling tribal disputes. The magnitude of the operations may be gathered from the fact that the area dealt with on this occasion extends from the Persian frontier to the confines of China, and from the snow-passes which look down upon Tibet to the tropical forests where Burma touches Siam. Within these wide limits, subject to a few exceptions of minor numerical importance, a uniform schedule of particulars was employed, and a synchronous Census was taken on the night of the 1st March 1901. The exceptions include the greater portion of Baluchistan, the Shan States, the Chin Hills, and other outlying tracts in Burma, the Bhil country of Rajputana, and the scattered villages of the Andamanese and Nicobarese. All of these areas were enumerated for the first time in 1901 and all demanded the application of special methods adapted to the character of the country and the temper of the people. We owe the Census of Baluchistan, with the remarkably interesting results that it has

disclosed, to the unrivalled knowledge of the Agency and its races which enabled Sir Hugh Barnes to devise a new and original mode of procedure based upon the organization of the principal tribes and employing the machinery for collecting the grazing tax levied in the pastoral tracts as a means of carrying out and testing the enumeration of the large body of nomadic herdsmen. In Rajputana the Bhils' experience of the liberal help given to them during the famine combined with Captain Bannerman's tact and energy to allay their suspicions, and they were induced to abandon their ancient claims to be exempt from Census and to submit to enumeration by a special system which recognised their prejudice against outsiders entering their villages and required the headmen to muster their people and have them counted at convenient places in the neighbourhood. They were, I believe, duly impressed by the practical argument that for people who were not enumerated there would be no food at the next famine, and there appears to have been no desire on their part to evade the operation. The proceedings in the non-synchronous areas of Burma were of interest by reason of the use made in a portion of them of a system of estimating population by means of typical areas which had been suggested to me by Mr. Scott Keltie's paper on 'The Population of Uncivilized Countries.' In the Andaman and Nicobar islands the admirable arrangements made by the Chief Commissioner, Sir Richard Temple, rendered it possible to effect the first enumeration of the aborigines. The Census was conducted by special parties of the Settlement officials, at some risk to themselves, in a series of tours by steamer and boat in imperfectly charted waters. At Port Campbell they were attacked by the implacably hostile Jarawas of South Andaman and were obliged to fire on their assailants, one Jarawa being killed. The enumeration brought to light a tribe hitherto unknown, the Tãbõ of North Andaman, concerning whom it is stated, in explanation of their small numbers, that when a contagious disease appeared recently among them they proceeded to kill off all those who were attacked until very few of the tribe were left. Sir Richard Temple's report on the Census contains a mass of interesting information regarding the history and ethnography of the Islands.

• The attempt to accelerate the publication of the first totals of the census and to bring these figures into closer relation with the final statistics imposed upon the Provincial Superintendents and upon all ranks of district and census officials an amount of labour that can be realised only by those who are familiar with the administrative machinery employed and have seen portions of the voluminous correspondence involved. In order to secure the concerted action which resulted in the publication, within a fortnight from the census, of provincial and district totals for nearly three hundred millions of people differing by only .03 per cent. from the final figures, the most careful and minute instructions had to be issued to 9,872 Charge Superintendents, 122,053 Supervisors, and 1,325,478 Enumerators. For every one of these persons special meeting places had to be arranged for working out the totals, first of the Enumerators' blocks, then of the Supervisors' circles, and finally of the Superintendents' charges. This last set of figures had in their turn to be conveyed to the head-quarters of the district and combined into the district total which was telegraphed to the Provincial Superintendent and to the Census Commissioner for India. On paper it all looks simple enough, but in practice the execution of the scheme involved a series of problems in transport and the mobilization of an army of volunteers, most of whom had been recruited some six weeks

The first totals.

before, while none had been exercised in this particular evolution. The idea of breaking the record (already held by India) for rapid publication was taken up with much enthusiasm, especially in the Native States, and the distinction of being first in the field belongs to Sheikh Abdul Ghafur, Minister of the small State of Rampur in the United Provinces, who despatched his totals to me at 9-20 on the morning of the 2nd March. The Rampur Census staff worked all night while the Imperial Service Cavalry rode round and collected the summaries. In British territory Mr. R. V. Russell, Superintendent of the Central Provinces, where communications are difficult and the area of jungle is large, was the first to send in his totals on the 7th March. The labour of compilation in the Census Commissioner's Office was considerable and involved the calculation against time of a large number of percentages of variation. For the benefit of statisticians who may have to do the same sort of thing in a hurry, I may mention that every percentage was first worked with a Thomas arithmometer and then checked by Crelle's *Rechen-Tafeln*. If the results differed the operation was repeated. On this system the machine and the tables exercise a reciprocal control which effectually guards against the liability to set up wrong figures on the one and to read the wrong line in the other. The combination of the two is practically infallible.

Tabulation of statistics.

But the most distinctive feature of Census administration in 1901 was the introduction of the 'slip system' of compilation briefly described above. This process has never been applied on so large a scale before, and it resulted in a reduction of cost which Mr. Gait elsewhere estimates at over £45,000. As the special literature of the subject is mostly in French or German, and is not readily accessible, it seems worth while to give a somewhat fuller account of it here.

The books of schedules containing the various particulars recorded by the enumerators for each individual may be described as the raw material of the Census, and the final tables as the manufactured product. The transformation of the one into the other involves three processes,—abstraction, tabulation, and compilation,—of which the first is by far the most difficult and complicated. Abstraction is the process which groups individual entries by classes, such as sex, religion, occupation and the like, and gives totals of these classes for small territorial units, such as blocks or villages. Tabulation brings together the abstraction-totals by larger units, such as towns, thanas or tahsils. Compilation arranges the tabulation-totals by districts or provinces.

old 'tick' am.

Abstraction had hitherto been conducted in India by means of abstraction-sheets, which practically reproduced the final tables on a greatly enlarged scale. If, for example, one of the final tables was to show the population grouped according to sex, age, religion, and civil condition, the abstraction-sheet, in which the requisite data were entered, would contain, assuming three religions to be dealt with, 836 distinct compartments, each representing a separate combination of the factors exhibited in the table, or a total relating to such combination. The entries in the sheet consisted of strokes or 'ticks,' each representing an individual. Thus, if a male Hindu, who was married and was 35 years old, had to be recorded, the abstractor looked first to the general heading "Males," and under that to the division "Hindus," which was sub-divided into "Married, Single and Widowed." He then ran his eye down the side-column till he found the age-period 35—39. In the compartment thus marked off he made a tick.

Further ticks were added for other persons falling into the same category, every fifth tick being made diagonally through the four preceding it, so as to enable the ticks to be totalled by fives. The unit of abstraction was the block, and for each block there were as many abstraction-sheets as there were final tables. The totals and cross-totals of the ticks on the abstraction-sheet gave the block-totals for religion, sex, civil condition, and age-periods. These, after undergoing certain tests, and in a certain proportion of cases being re-abstracted *ab initio*, were entered in the tabulation registers, where the block-totals were combined into village-totals, and the village-totals into totals for towns, taluks, thanas or tahsils—whichever was adopted as the unit of tabulation in any particular case.

This method of abstraction is open to the following objections:—

- (1) However careful the abstractor may be, the difficulty of picking out the right compartment in a large sheet is very great, and even with expert abstractors, such as are employed on this work in Europe, mistakes are frequent. For some tables the sheets were enormous and one used in 1891 in the United Provinces is reported to have been thirteen feet long.
- (2) With the class of abstractors available in India, carelessness and wilful fudging have also to be reckoned with, especially when the abstractor is paid by the month and has to do a certain task in order to earn his pay.
- (3) No test of the correctness of any sheet can be applied while abstraction is proceeding; even when a sheet has been totalled, the accuracy of its totals can only be gauged by comparison with the corresponding totals as worked out on other sheets; and, when these totals do not correspond, as is usually the case, the only method of determining which of the discrepant totals is correct is re-abstraction; in other words, doing the work again from the beginning. In Bengal, in 1891, the cost of abstraction alone, apart from supervision and checking, was estimated at Rs. 3,200 per million, of which Rs. 800 was for re-abstraction; and the Superintendent, after remarking that the test slip prescribed for the purpose of comparing the different abstraction-sheets "became the cause of much fudging," went on to say that in practice "re-abstraction was permitted free of fines on the abstractors up to a sum equal to 33 per cent. of original abstraction." Mr. Stuart, in Madras, gave 33.04 as the percentage of re-abstraction, and observed that only 14.32 per cent. of the books were correctly abstracted at the first working.
- (4) As it is usually impossible to abstract on a single working sheet more than one book of schedules, and there may be several books for a single block, the number of small totals to be entered in the tabulation registers is unduly multiplied, and the possibility of error very greatly increased.

In the Census of 1901, therefore, I substituted for the system of abstraction by strokes or ticks the method of abstraction by slips which had been successfully

The
slip

used by Dr. Georg von Mayr, now Professor of Statistics at the University of Munich, in the Bavarian Census of 1871, and which appeared to be admirably adapted for use in India. The Professor was good enough to send me a copy of his report, which gave a brief account of the working of his system.

For every person enumerated in Bavaria all the particulars recorded in the schedule were extracted on a separate slip. The slips were of eight different colours indicating sex and civil condition—as single, married, widowed, or divorced, and were filled up in the following manner:—

<i>Specimen slip.</i>	<i>Explanation of entries.</i>
6. I. 1	Serial number of village, block, and schedule.
V	Symbol for head of family.
✓	Symbol for born in the place where enumerated.
29	Age.
K	Roman Catholic.
Badereibesitzer. S.	Proprietor of bathing establishment: independent.
B	Bavarian subject.
M $\left\{ \begin{array}{l} 2 \\ 4 \\ \hline 6 \end{array} \right.$	} Symbol denoting that the person enumerated is the head of a household of 6 persons—2 males and 4 females.

The slips were arranged in the order of the schedules and tied into bundles by villages. They were then sorted (also by villages) into heaps corresponding to the columns of the final tables which were to be filled up.

the Indian
slip system.

The Bavarian system, while employing colour to denote sex combined with civil condition, did not vary the shape of the slip so as to express any other general attribute, such as religion, literacy, or illiteracy. In India the system was modified in three particulars—

- (1) by using colour to indicate religion;
- (2) by varying the shape or size of the slip or by printing on it special symbols, to express sex and civil condition;
- (3) by filling up for each individual two slips instead of one, so as to expedite the completion of the heavier tables.

The selection of colour was of course determined by the price of the paper; the cheapest paper of a suitable kind being used for Hindus, as the most numerous religion; the next cheapest for Muhammadans; and so on. The number of colours that could be employed depended on the number that the average abstractor could be got to manipulate with accuracy. In Mysore the artistic instincts of the Superintendent, Mr. T. Ananda Row, led him to print on the slips pictorial busts indicating for each sex the states of celibacy, marriage, and widowhood. I quote his own description of this quaint device:—"The busts represent male faces and female faces, and are designed to picture their respective civil conditions. They are self-explanatory to persons familiar with South Indian life. To others the following notes may be interesting:—

Male; Bachelor is represented by the face of a male youth with a caste "*Bottu*" (dot) on his forehead, and a cap and a buttoned jacket indicative of student life.

Male, Married is represented by an elderly face with moustaches, caste dot on the forehead, turban on the head, a coat and upper cloth in Indian style—all characteristic of what is known by the term "*Grihasthāsrama*."

Male, Widower is represented by an elderly face with moustaches, head bare indicating grief or mourning, and body also bare but for its being partially covered with a loose upper garment commonly called "*Angavasthra*." The absence of any caste mark on the forehead is an additional sign of grief or mourning.

Female, Unmarried.—A young face with combed hair on the head and "*Bottu*" (caste mark) on the forehead, a simple close fitting necklet and earring.

NOTE.—The "*Bottu*" is a small circular mark placed in the centre of the forehead by most Indian females. It is practically an ornamental non-sectarian mark.

Female, Married.—A face of mature age with caste mark on the forehead and ornaments on the ears, nose and neck, such as are given at wedding to a bride by the bridegroom, and particularly a gold band (called "*Bandi*") sitting loose and low round the neck with a medallion (called "*Tāli*") indicative of married life with husband living.

Female, Widow.—Face indicating advanced age, no caste mark on the forehead, no ornaments, head periodically shaved and the face with short or no hair, and covered by one end of the cloth worn round the person—all illustrating widowhood as it is manifested mostly among Brahmans."

It will be seen that each slip denoted religion by its colour, and sex and civil condition by its shape, size, symbol, or picture. These data, therefore, had not to be written down. In copying the remaining particulars certain standard abbreviations were made use of in order to economise time. When the slips had been written up for the unit-area—village, police-station or *tahsil*—of a given table, they were sorted according to the headings of the table, counted, and the results entered in the prescribed form. The system is in fact an adaptation to Census purposes of the familiar 'card catalogue,' and its principle is so simple that there is really nothing to describe. When applied to the production of statistics relating to 294 millions of people in the form of eighteen major and several minor tables the mere *modus operandi* required a considerable organization. As the system was a new one and the procedure for sorting the slips admitted of indefinite variation, I contented myself with suggesting two alternative methods by which this might be done, and left it to Superintendents to adopt one or other of my schemes, or to devise improvements of their own, as they thought fit. Into these details it is the less necessary for me to enter as the subject has recently been examined by Professor Von Mayr* himself with Teutonic industry and parental interest in the application of his own methods to the largest Census in the world. The results attained speak for themselves in the large saving effected and in the reduction of the time spent on compilation of the statistics. In Madras, for example, Mr. Francis completed in 7 months tables, which on the system in force in 1891 had taken 21 m.

* Die Verwendung des Zählblättchens bei der Volkszählung in British-Indien vom 1. J. Allgemeines Statistisches Archiv.

to compile, and a similar acceleration of processes took place in almost every Province of India.

Provin-
Reports.

Among the Provincial Superintendents Mr. Gait stands in a class by himself. His charge was the largest and the most populous and embraced the most varied physical conditions and the most heterogeneous races. To carry out successfully the census of more than seventy-eight millions of people comprising the quick-witted and adaptive Bengali of the deltaic rice swamps, the sluggish and depressed peasantry of Bihar, the conservative priest-ridden Oriya, and the primitive but excitable tribes of the Chota Nagpur plateau and the Orissa hills, is a task demanding in itself no mean administrative capacity. To describe effectively the results of the operations requires a grasp of statistics, philology, history, and ethnography which few officials possess. Mr. Gait's report is of permanent value for the light which it throws on these subjects and for the comprehensive account which it gives not only of the Bengal of to-day but of the changes which have passed over the Province since the first Census of 1872. It forms a worthy companion to Mr. Beverley's well-known report of thirty years ago.

The United Provinces of Agra and Oudh present fewer difficulties than Bengal. Their population, though ~~large~~ ^{present} is fairly homogeneous, and the Superintendent has at his disposal the invaluable village agency which the Permanent Settlement ~~has~~ ^{was} denied to Bengal. Mr. Burn has done ample justice to his charge and his report is of special interest for its account of linguistic developments in the Province and its study of the working religion of the ordinary Hindu and of the curious quasi-Vedic revival known as the Ārya Samāj.

Census work in Bombay was greatly impeded by administrative difficulties connected with famine and plague. The effects of these calamities on the population are vividly depicted in Mr. Enthoven's report which has the further merit of being eminently readable and of bringing out both the pathetic and the humorous aspects of an Indian Census.

In the Central Provinces the succession of bad seasons which preceded the two great famines and the successful efforts made by the administration to combat the second and more widespread calamity have been carefully recorded by Mr. Russell, who himself took part in the famine campaign.

For Madras Mr. Francis has produced a concise and business-like report, illustrated by admirable maps and diagrams, and containing an instructive notice of the causes which have promoted the spread of Christianity in the South of India, and a useful glossary of the obscure and intricate caste system which has developed there.

The Burma report treats of a fascinating people concerning whom much has been written. Mr. Lewis has given us an interesting sketch of the animism, thinly veneered with Buddhism, that makes up the religion of the Burman, and has entered upon a lucid exposition of the obscure question of tonic images.

In the Assam Report Mr. Allen has made a careful study of an obscure and interesting subject—the decline of the indigenous population of the Brahmaputra valley.

He shows by means of certain caste statistics that the decrease among the Assamese coincides with the prevalence of the severe form of malaria known as *Kālā āzār* or the black sickness, and is not due to any lack of vitality on the part of the people themselves.

The first Census of Baluchistan offered Mr. Hughes-Buller an opportunity of which he has made admirable use. His report discloses remarkable insight into the origin and mutual relations of the characteristic races of the Agency; it is full of local colour and it gives a vivid picture of a strange un-Indian country, of parts of which a native proverb says "Oh, God! when thou hadst created Sibi and Dādhar, what object was there in conceiving hell?" Central India and Rajputana were also completely enumerated for the first time. Both Agencies present exceptional difficulties and my thanks are due to Captain Luard and Captain Bannerman for the excellent results attained.

In all Provinces much attention was paid to religion and ethnography, and the reports contain a considerable amount of material which has not been published before; Mr. Gait's treatment of these subjects is perhaps the most complete and systematic, but Mr. Russell has dealt very fully with the interesting tribes and castes of the Central Provinces; Mr. Enthoven has done much to elucidate the complicated structure of native society in Bombay; Mr. Rose gave much attention to religious development in the Punjab and to the multifarious considerations which affect intermarriage between different groups within the same caste or tribe; and the Superintendents of Census in the Native States have brought out a variety of details which add substantially to our knowledge. I may mention in particular Mr. M. Sankara Menon's careful account of the rise and spread of Christianity in Cochin; Mr. Dalal's analysis of the caste system in Baroda; Mr. Ananda Row's examination of the marriage systems of Mysore; and Mr. Subrahmanya Aiyar's chapter on religion and description of the castes of Travancore. Students who wander in the by-paths of ethnography will find much curious information in the notes on tattooing and diagrams of standard designs which are given in the Baroda and Mysore reports. Finally, I commend to all who are interested in the rise and growth of our Empire in the East Mr. Edwardes' picturesque sketch of the various stages of development by which an obscure fishing village has been transformed into the stately City of Bombay.

H. H. RISLEY.
