

BUREAU OF THE CENSUS
REPORT OF THE DIRECTOR
TO THE SECRETARY OF
COMMERCE AND LABOR



Concerning the Operations of
the Bureau for the Year 1903-4

WASHINGTON : 1904

1904

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REPORT OF THE DIRECTOR OF THE CENSUS



Washington, October 15, 1904.

SIR: I have the honor to submit the following report upon the operations of the Bureau of the Census for the last fiscal year. The report covers the first year under the supervision of the Department of Commerce and Labor, and the second year of the existence of the Bureau of the Census as a permanent office under the act of March 6, 1902.

Attached to this report as an appendix will be found the financial statement of Mr. John W. Langley, disbursing officer, showing in detail the expenditures of the Bureau during the last fiscal year. The total amount disbursed was \$1,316,811.22. Included in this sum is the cost of tabulating and compiling the census of the Philippine Islands, approximately \$214,117.58. This amount should be deducted in comparing the expenditures of the Bureau for 1904 with those for 1903. Much of the extra expenditure caused by this tabulation was met from the unexpended balance of the Twelfth Census appropriation, reappropriated by Congress for that purpose, but a considerable part of the work was performed by the regular clerical force of the Bureau, and paid for out of the current appropriations. The cost, also, of preliminary Philippine Census printing, such as blanks, tabulation sheets, bulletins, etc., was defrayed out of the appropriation to the Public Printer for the requirements of the Bureau of the Census.

*Expenditures
of Bureau
during the Fiscal
Year.*

Deducting the cost of the Philippine Census as shown above, the amounts required for the conduct of the Bureau for the fiscal years 1903 and 1904 were as follows:

	1904	1903
Expenses, exclusive of printing and engraving	\$959,022.24	\$1,154,117.94
Printing and engraving	143,671.40	196,153.14
Total	1,102,693.64	1,350,271.08

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The census of manufactures ordered by Congress for 1905 makes it necessary to increase the amount estimated to be required for the coming year so as to include that undertaking. The estimate for the fiscal year 1905-6 is \$1,482,340.

Justification of
the Establish-
ment of the
Permanent
Census Bureau.

Sufficient time has now elapsed to justify the conclusion that the establishment of a permanent Census Office was wise legislation, altogether apart from the main arguments which led Congress to enact the law. These arguments were that it would permit of careful and scientific study of the main and secondary results of the decennial enumerations; that it would keep together a corps of experts, trained and competent to prepare for and take the Thirteenth Census, and sufficiently familiar with the methods and scope of previous censuses to insure close comparability and greater accuracy in the results; and that it would create a central office, exclusively devoted to statistical investigation, in which many statistical inquiries now carried on in bureaus not specially equipped for such work could gradually be concentrated.

Value of Census
Bureau Publica-
tions.

Much has already been accomplished along these lines. The list of publications of the Bureau of the Census for the last fiscal year, Appendix C, shows a number of supplementary statistical reports, analyzing and interpreting the results of the Twelfth Census, in directions that heretofore have been neglected, for lack of time and opportunity to consider them. Other studies, of equal interest and importance, are in progress or are contemplated. These studies in many instances deal with data hitherto untabulated. They possess a sociological value hardly less than that which attaches to the main census results. Their presentation places the census of the United States in the first place among the censuses of the world; for no other country has as yet been able to carry its interpretative analysis as far as this Bureau is now doing. This achievement possesses special significance when the practice in previous census work is recalled. It long has been the custom in the United States to secure census information considered essential by all civilized nations, and in addition to obtain on the schedules material not included in foreign census inquiry, yet heretofore the interpretation of basic material has been inadequate and no analysis whatever of most of the remaining information has

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been attempted, although the cost of obtaining it was often very large.

This work is the most effective preparation for the Thirteenth Census. It lays bare the errors and sources of error in the last enumeration, and affords every facility for guarding against their recurrence. In order that the best possible utilization of the opportunity may be made, your predecessor appointed a special advisory commission on the recommendation of the Director of the Census, whose duty it will be to make a thorough study of all the conditions surrounding census work in this and other countries, and to prepare a report for the guidance of Congress in enacting legislation for the Thirteenth Census. This committee, with which the Director of the Census will act, consists of Hon. Carroll D. Wright, of the Bureau of Labor; Prof. Walter F. Willcox, of Cornell University; Dr. Henry Gannett, of the United States Geological Survey; Prof. Davis R. Dewey, of the Massachusetts Institute of Technology; and Mr. John Hyde, of the Department of Agriculture—all of them trained students of the theory and technique of modern statistics, and interested in raising the statistical work of the United States to the highest standard. This commission will also advise with the Director of the Census as to the current work of the Bureau, in order to aid him in the effort to bring that work to the highest standard of modern scientific statistical inquiry. It plans to meet at stated intervals, and to obtain suggestions and criticisms from students in all lines of statistical investigation.

Preparation for
Thirteenth Cen-
sus.

The practical usefulness of the Bureau of the Census as a part of the permanent organization of the Government is shown again by the character of the work of the Bureau, in addition to that specifically assigned to it by law. Most important has been the compilation and publication of the census of the Philippine Islands, assigned to the Bureau by the proclamation of the President, dated September 30, 1902, in accordance with the provisions of section 6 of the act of Congress approved July 1, 1902, entitled "An act temporarily to provide for the administration of the affairs of civil government in the Philippine Islands," and in compliance with the request of the Philippine Commission. The schedules of the Philippine Census were received in this Office on September 25, 1903; and

Compilation of
the Philippine
Census.

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the complete tables for population, agriculture, manufactures, and vital statistics, and much other data, have been placed in the hands of the Director of the Philippine Census at intervals during the first six months of the year, the last of the tables being transmitted on October 19, 1904. The work of compiling the population statistics was under the supervision of Mr. William C. Hunt, chief statistician for population.

The final results of the Philippine Census will be printed in four octavo volumes, of approximately 700 pages each. These volumes are now passing through the Government Printing Office, under the supervision of the technical expert of this Bureau, and their publication may be looked for prior to March 1, next.

In the compilation of the Philippine Census, the regular clerical force of the Census Bureau was utilized exclusively, except for a period of three months, during which 150 temporary clerks were employed in order to expedite the punching of the cards.

Statistics of the
Executive Civil
Service.

By order of your predecessor, dated October 8, 1903, the Bureau of the Census has compiled the statistics of the Executive Civil Service of the United States, and the results have recently appeared as Census Bulletin 12. These statistics were collected, pursuant to the Executive order of March 31, 1903, in connection with the preparation of the biennial Official Register by the Secretary of the Interior, and they have been presented in accordance with a scheme formulated by the Civil Service Commission. They show the sex, nativity, age, character of appointment, state from which appointed, length of service, salary, character of work, and place and office where employed, of the 150,383 employees of the Federal Government. The data presented are important and interesting. Accurate information regarding the personnel of the Executive Civil Service can be secured only by compilations of this character, and there will undoubtedly be a demand for it at stated intervals. The Official Register is published biennially; and as much of the information collected for it can be utilized for statistical purposes, the Bureau of the Census should be authorized to compile a similar bulletin at intervals of two, four, or six years. The Census is the only Bureau of the Government equipped to make

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this compilation; and it is respectfully suggested that it will tend to economy and unity of work if the compilation of the Official Register should at the same time, and by amendment of the act of Congress approved January 12, 1895, be transferred from the Department of the Interior to the Bureau of the Census, in order that work so intimately related may be simultaneously carried on.

By a similar order of the Secretary of Commerce and Labor the statistics of immigration for the year 1903-4 have been compiled by the Bureau of the Census in cooperation with the Bureau of Immigration. These statistics will hereafter be compiled in harmony with the decennial census tables, showing the birthplace of the foreign born population. Thus an obvious statistical unification has been brought about. In the compilation of the immigration statistics the punched card has been used, and much information from the alien manifests, hitherto untabulated, is thus brought within reach.

Statistics of Immigration compiled in Cooperation with Bureau of Immigration.

In this connection I desire to repeat my recommendation of last year, in which the Commissioner-General of Immigration has joined, that Congress be urged to enact legislation by which the alien emigration, as well as immigration, can be statistically measured. There can be no accurate record of the changes effected in the character of our population by immigration, without the corresponding details of emigration. The number of these returning immigrants is large, reaching many thousands a year; and until it is officially ascertained we can not hope to bring the statistics of immigration into conformity with census statistics of the foreign born.

Also, by direction of the Secretary, a portion of the clerical force of the Bureau of the Census was employed for six weeks in computing rates of wages for a special report of the Bureau of Labor; the results demonstrated the great advantage, from the point of view of celerity in compiling and promulgating official statistics, which comes from the existence of a large central office, officered by trained experts, to which statistical work, whatever its technical character, may be transferred, by proper executive order, for quick handling. About one-quarter of the clerical force of the Bureau has been continuously occupied upon such work during the past year—work supplemental

Rates of Wages computed for the Special Report of the Bureau of Labor.

to that contemplated by the census act. In the interest of efficiency, expedition, and economy, it seems desirable that additional transfers shall be made in the future as occasion arises; and for such transfers, or for the preparation of statistical reports on any subject, there is ample authority under the provisions of the act establishing the Department of Commerce and Labor.

A General Information Office.

The permanent Census Bureau is coming to be regarded as the general information office of the Government. The daily correspondence, covering inquiries on every variety of topic, is large, and steadily increasing. The rule of the Bureau is to supply the desired information, whenever possible, whether or not it relates to the specific work of the Census.

The Library.

The Bureau is constantly enlarging its facilities for supplying such information. The Census library now contains 10,362 bound volumes and 15,639 unbound pamphlets; and the additions have come almost entirely without cost to the Government. The Bureau has established a system by which it exchanges its own publications for the trade and technical periodicals of this and foreign countries, and with practically all the governments—national, state, and local—both foreign and domestic, which publish reports statistical in character. The Census is thus rapidly accumulating one of the most complete current statistical and reference libraries in the country.

The Geographer's Division.

The geographer's division of this Bureau, under the supervision of Mr. Charles S. Sloane, has greatly enlarged its collection of maps, which now includes topographical maps of every state and territory, and of nearly every city in the United States. These maps are being kept up to date by platting upon them each annexation and detachment of territory. The Bureau will thus be in possession, at the Thirteenth Census, of all the data required to lay out enumeration districts to the best advantage, the lack of this preliminary information at previous censuses having been the chief cause of confusion and delay.

The Census Records.

The original schedules of the twelve decennial censuses of the United States from 1790 to 1900 are now in possession of the Bureau of the Census. These records were transferred from the Department of the Interior to the Census building, in June last, under the act of Congress approved January 12, 1903, pro-

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viding for such transfer and authorizing the Director of the Census "upon the request of a governor of any state or territory, or the chief officer of any municipal government, to furnish such governor or municipal officer with copies of as much of said files or records as may be requested, at the discretion of the Director of the Census, upon payment of the actual cost of making such copies; and the amounts so received shall be covered into the Treasury of the United States, to be placed to the credit of and in addition to the appropriation made for the taking of the census."

The vault in the Census building has been put in fireproof condition and all of these valuable records are now stored in it, except the schedules of the census of 1890. The population returns of that census were taken upon what is known as the family schedule, that is, a schedule for each family, of which there were 12,690,152. Their bulk is so great as to preclude binding, it being estimated that they would comprise 30,000 volumes. During the past year the population schedules of the Twelfth Census have been bound in 2,812 volumes. Thus the population schedules of all the censuses but the Eleventh are now in condition for permanent preservation. The records of the earlier censuses have, however, been subjected to much handling, and many of the bound volumes are in bad condition, necessitating their rebinding at an early date. There are constant requests for information from these records, and it has been the habit heretofore to permit the public unrestricted access to them. A rule has now been made, under which the records will be searched only by the clerks in charge, who are under instructions to exercise the greatest care. With these records in its keeping, the Census Bureau is now in position to be of service to the increasing number of people interested in early history and genealogy, and to furnish certified transcripts for court proceedings. The law above cited authorizes, for the first time, the exaction of a small fee for furnishing copies, certified or otherwise, of the census records, and establishes a proper safeguard for their use.

In this connection I ask your attention to a request frequently made by the patriotic organizations of the country and by individuals, that the Government shall compile and publish the

Preservation of
all Population
Schedules.

Propriety of
Publishing the
Returns of the
First Census.

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names of the heads of families in the original thirteen states, as returned at the census of 1790. Unfortunately the First Census schedules for Delaware, Georgia, Kentucky, New Jersey, Tennessee, and Virginia were burned at the time of the capture of Washington by the British, or have since been lost or destroyed; but the schedules still in existence—comprising Connecticut, Maine, Maryland, Massachusetts, New Hampshire, New York, North Carolina, Pennsylvania, Rhode Island, South Carolina, and Vermont—contain much information, ready access to which would be welcomed by students. This information would increase the general knowledge of the origin and distribution of the early population of the country. The population of the United States in 1790, excluding slaves, was returned as 3,231,533, of which number 824,713 resided in the states and territories for which the schedules are missing, leaving 2,406,820 as the population enumerated on the schedules now in possession of the Bureau. I estimate that this population represents 401,134 heads of families, and that the desired information could be printed in 2,507 pages, at a cost, for printing and binding an edition of 5,000 in two volumes, of \$32,570. I doubt if the Government can make a more substantial and welcome contribution to its own history for a like sum of money; and I recommend that Congress be asked to make a specific appropriation for this publication, much of which is certain to return to the Treasury from the sale of these volumes. If they are sold to the public at a price corresponding somewhat with their cost, it will insure their distribution only to those who will prize them, and avoid the waste which so frequently attends the distribution of public documents.

The Sale of
Census Reports.

It is a question worthy of careful consideration, whether the United States, following the example of nearly all the European governments, should not set a price upon all Census publications except the bulletins and the Abstract. The volumes are large, and costly to produce. While much care and discrimination are exercised in their distribution, I am nevertheless convinced that a large proportion go literally to waste, and I know of no way to prevent this so effective as to place a small price upon each volume—not a price representing the cost of printing

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and binding, but sufficient to insure distribution only to those who have actual need and use for the reports.

Of the main reports of the Twelfth Census, contained in ten quarto volumes, of approximately 1,000 pages each, there have been printed to date 150,000 copies. In the earnest effort to avoid waste, this total has been reached only after several editions for each volume.

The work of the Census during the past year is represented by actual publications, reports completed but not yet published, and reports upon which work is still in progress. A detailed list of these publications, of which the following is a summary, will be found as an appendix to this report.

Publications for
the Year.

Reports published during year.

VOLUMES.

Statistical Atlas.
Employees and Wages.
Occupations at the Twelfth Census.

BULLETINS.

	Number.
Street and Electric Railways	3
Discussion of Increase of Population	4
Central Electric Light and Power Stations	5
Mineral Industries of Porto Rico	6
Estimates of Population	7
Negroes in the United States	8
Mines and Quarries	9
Quantity of Cotton Ginned in the United States (Crops of 1899 to 1903, inclusive)	10
Electric Fire Alarm and Police Patrol Systems	11
The Executive Civil Service of the United States	12
A Discussion of the Vital Statistics of the Twelfth Census	15

PHILIPPINE CENSUS BULLETINS.

Population of the Philippines	1
The Climate of the Philippines	2
Volcanoes and Seismic Centers of the Philippine Archipelago	3

PAMPHLETS.

Statistical Treatment of Causes of Death.
Registration of Births and Deaths.
Report of the Director to the Secretary of Commerce and Labor.
Uniform Municipal Accounting.
Collaboration in Federal and State Statistical Work.
American Census Taking.

*Report of the Director of the Census**Reports in press.*

VOLUMES.

Street and Electric Railways.

Mines and Quarries.

Supplementary Analysis and Discussion of Statistics of Population.

Census of the Philippines—4 volumes:

Vol. I. Introduction. Geography. History. Population. Appendices I and II.

Vol. II. Population Tables and Analysis.

Vol. III. Mortuary Statistics and Education, inclusive of schools.

Vol. IV. Agriculture. Social and Industrial Statistics.

BULLETINS.

	<i>Number.</i>
The Ages of the Population of the United States	13
Proportion of the Sexes in the United States	14
Irrigation in the United States: 1902	16
Telegraphs and Telephones	17

**Abstract of the
Twelfth Census.**

Of the Abstract, which contains in an abridged form, without text, the more important results of the Twelfth Census, three editions have been published, of 25,000, 10,000, and 31,000, respectively, making a total of 66,000 copies so far issued. The demand for this volume continues unabated, showing that it meets the requirements of the great mass of the people for census information and justifies the continuance of its distribution free of cost.

**Methods of
Handling Publi-
cations.**

An earnest effort was made by my predecessor to present effective interpretation of the statistics gathered at the Twelfth Census, and to secure better presentation both in literary style and in printing and binding than had characterized much of previous census work. The time allotted for the production of the main reports was very short, but they undoubtedly marked a noteworthy advance in American Census publications. Since the establishment of the permanent Bureau much attention has been paid to the details of production. Although it gathers its own facts and prepares its own manuscript, this Bureau is in reality but a huge publishing house, for all productive work is ultimately recorded in printed pages. It is appropriate, therefore, that the standards for statistical, literary, and mechanical presentation should be very high. Furthermore, many of those especially interested in the information secured by the Bureau are students and writers upon economic subjects, who are them-

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selves keen critics. Therefore, in addition to collecting facts with increasing speed and accuracy, this Bureau is constantly endeavoring to improve the contents and appearance of Census publications. For the expert interpretation of investigations which are in progress, the assistance of scientists eminent in their respective lines is secured; but it is my policy to train such employees of the Bureau as give evidence of literary ability, to themselves interpret census statistics in a scientific and effective manner.

Two divisions have been created to handle Census manuscript: that of revision and results, under the supervision of a student and scientific writer of some note, assisted by an efficient corps of editors, whose duty it is to examine all statements and to correct defects, whether in subject-matter or style; and that of publication, which has charge of all Census printing, and thus of the mechanical form in which the report, bulletin, or paper is to appear. In the latter division all proof is read with great care, and finally verified in cooperation with the producing division.

Editing and Publishing Census Results.

The policy of the Bureau is to disregard official tradition in typographical form and in binding, as far as may be necessary in securing results which accord with the best modern standards. Good taste costs no more than poor taste. The initial cost of Census volumes, the labor and skill involved in their preparation, and their permanent preservation in libraries as the statistical records of the United States, entitle them to the most dignified and tasteful presentation, in both printing and binding, consistent with economy. No reason exists why Census publications should not be given the same advantages in these particulars accorded, as a matter of course, by private publishing houses to scientific works of far less importance.

If the work of these two divisions is prosecuted in the future with the same enthusiasm and success that so far have attended it, the excellence of the literary style and of the appearance of Census volumes will add materially to the reputation of the Bureau.

The additional work, in various stages of progress, which has occupied the office during the year may be briefly summarized:

The Current Work.

The report upon the wealth, debt, valuation, and taxation of the United States, by states, counties, and municipalities, au-

Report on Wealth, Debt, and Taxation.

Report of the Director of the Census

thorized by section 7 of the act to establish a permanent Census Office, has continued chiefly to occupy the attention of the division of agriculture, under the charge of Mr. L.G. Powers, chief statistician. The fieldwork for the report was completed during the month of May last. The preliminary report, covering the financial operations of the larger cities, will be ready for publication during the present calendar year.

This report is one of the most difficult and important the Census is called upon to make; and nothing heretofore attained in this field has been satisfactory. This has been due largely to the fact that the work was carried on simultaneously with the main census inquiries; and in the rush of that work, could not receive the attention its technical character demanded. The postponement of this report until after the completion of the census proper was one of the wisest provisions of the act for taking the Twelfth Census; it has given the Bureau ample time and opportunity for a most complete presentation of the material resources and financial operations of the nation.

Statistics of Municipal Finance.

The inquiry relating to municipal finance was one of the most noteworthy of the many extensions of census statistics undertaken at the Tenth Census. Since the publication of the information then secured, increased attention has been paid to this class of Federal and state statistics, popular interest has been aroused, and this has led to a general and earnest demand for improvement in methods of municipal accounting.

The earlier statistics were more or less imperfect, because there was no common classification of municipal accounts and no uniform method of municipal bookkeeping. To encourage reform the National Municipal League arranged a classification of payments and receipts and recommended its general adoption. This was done experimentally by Baltimore, Md., Cambridge, Mass., and a few small cities, before the work of the Twelfth Census began. The Bureau of the Census adopted this classification with minor changes, and, in order to secure uniformity of results, prepared instructions for rearranging local statements of accounts. These instructions and the accompanying schedules have contributed appreciably toward uniformity in classification of accounts and methods of accounting.

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While these were steps in the right direction, so much diversity still existed that the task of securing comparable statistics was exceedingly difficult, and in order to complete satisfactorily the decennial inquiry authorized by Congress, it was necessary for the Census to take the lead in a movement looking to greater uniformity in the accounting methods of municipalities. Accordingly, in response to the invitation of the Director of the Census, a conference was held in November, 1903, at Washington, attended by a number of representative auditors, comptrollers, expert accountants, and other students of municipal problems. Interest in the subject of uniformity in classification and methods of municipal accounting received a decided impetus from this conference; minutes of the meeting were published in pamphlet form, and have been in much demand. During the past year the different phases of this problem have been actively discussed at sessions of the Commissioners on Uniform State Laws, the National Municipal League, the Congress of Public Accountants, the National Association of State Bank Supervisors, and the associations of the fiscal officers of the cities of Pennsylvania and Wisconsin. Many municipal officials have expressed a desire for a second conference under the auspices of the Bureau of the Census.

Conference to
secure Uniform-
ity in Municipal
Accounting.

Several cities have made changes in their systems of accounting, to conform wholly or in part to the classification adopted by the Bureau of the Census. Among these are New York city, St. Louis, Buffalo, Minneapolis, Atlanta, Houston, South Bend, and Lincoln. The state of Ohio has established for all its cities a uniform system of accounting in harmony with that of the Census schedules, so far as local laws permit. Cities in New York having less than 250,000 population are now required to make annual reports to the Secretary of State, of their payments and receipts. The state schedule prepared for this purpose is based upon that of this Bureau. Many cities have installed already, or have under consideration, improved accounting systems in harmony with the one above referred to. The representatives of this Bureau have met everywhere with the hearty cooperation of local officials.

It is probable that the annual Census reports upon municipal finance for cities of 30,000 population and over will prove the

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most influential factor in securing the adoption of uniform classification, thus materially lessening the cost of compiling census statistics upon this subject, increasing the accuracy of the returns, making comparison possible between the itemized expenditures of cities of the same population, and encouraging reforms in the public service.

Special Investigations.

As outgrowths of the financial report, two special reports have been undertaken as essential to a full valuation of property. One of these, relating to the valuation of railroad properties, properly apportioned to the several states and territories, has been undertaken in cooperation with the Interstate Commerce Commission, which has placed at the disposal of the Census all the data in its possession gathered from the railroad corporations since the organization of the Commission. The immediate supervision of this investigation has been placed in charge of Prof. Henry C. Adams, the statistician of the Interstate Commerce Commission, and Prof. Henry Balthasar Meyer, Ph. D., of the University of Wisconsin.

The second special investigation relates to the par and market values of the negotiable securities of the country. It has been placed in the charge of Mr. Charles A. Conant, of New York city. This report will cover an entirely new field of Federal statistical investigation, although for the past ten years similar statistics for most of the European countries have been collected. Its object is to ascertain not only the present par and market value of outstanding capital stocks, bonds, and debentures of all active corporations, but also the fluctuations in the value of such securities within a series of years. The data are found in published reports of the corporations and recorded selling prices of stock exchanges.

Defective, Dependent, and Delinquent Classes.

Another pending investigation authorized by section 7 of the census act is that relating to the defective, dependent, and delinquent classes. This inquiry has been placed under the charge of Mr. John Koren, of Boston. Mr. William A. King, chief statistician for vital statistics, has general supervision of the work. Satisfactory progress has been made, and reports are now being received from 5,441 special agents, who are the bookkeepers or wardens of the institutions under review, and who furnish transcripts of their records for a nominal compen-

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sation. The report will cover the movement of population in all these institutions for the calendar year 1904; its completion can therefore hardly be looked for during the present fiscal year.

The annual reports of mortality in registration areas, authorized by section 7 of the census act, have been delayed in compilation by a defect in the statute, which fixed the compensation to be paid for the transcription of registration records at so low a figure that it proved impossible to secure a complete and satisfactory performance of the service. Congress was accordingly asked at its last session to amend the law, but the amendment did not become effective until April 27 last. This amendment permitted the Director to fix a minimum compensation of \$25 for such transcriptions, and in his discretion, in other cases, to pay at the rate of four cents per name, instead of two cents, as provided in the original act. The average compensation fixed, under this amendment, does not exceed $3\frac{1}{2}$ cents a name.

Annual Mortality Reports.

Further delay arose in connection with these mortality reports, by reason of the fact that the force of the division was engaged in compiling the vital statistics of the Philippine Census. As soon as the latter work was completed, the compilation of the mortality reports was resumed, and the statistics for the years 1900, 1901, 1902, and 1903 are now in process of compilation, and should be ready for publication during the current calendar year.

The division of vital statistics is also engaged upon reports concerning the blind, deaf, and dumb, based upon data collected by the enumerators of the Twelfth Census. The statistical tables for these reports were completed some time ago. The preparation of the text and analysis of the tables was committed by my predecessor to Dr. Alexander Graham Bell, of Washington, and he is now engaged upon this work.

Reports concerning Blind, Deaf, and Dumb.

Another investigation now in progress, authorized by section 7 of the census act and of the act of Congress approved July 1, 1898 (30 Stat. L., 546, page 648), relates to the social and financial statistics of cities. The conditions leading to the transfer of the annual report for cities of 30,000 population and over from the Bureau of Labor to the Bureau of the Census, by the order of the Secretary of Commerce and Labor, were explained in the last report of the Director. The Census reports for cities of less than 30,000 population are decennial only; but

Social and Financial Statistics of Cities.

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the two inquiries are so identical in character that there is obvious advantage in making them together, and accordingly the annual canvass of the larger cities required by law was postponed last year, by order of the Secretary, and the data for the years 1903 and 1904 are now being simultaneously collected. A field force of 100 clerks and special agents was assigned to this work at different dates in the months of July and August last, and it is expected that the data will all be in the Bureau during the month of November.

Special Reports
to be Incorporated in Quarto
Volume.

A sixth report, growing out of the original plans for the Twelfth Census, contemplates a general review, analysis, and correlation of the results of that census, under the direction of Prof. W. F. Willcox, of Cornell University, formerly one of the chief statisticians of the Twelfth Census. A number of the special studies of census results produced by this division, in accordance with the original plan, have already been published in bulletin form. Others are now in the hands of the printer, and the final studies are approaching completion so rapidly that I anticipate the publication of the volume within the next six months. These supplemental reports will bring together in one quarto volume of about 1,200 pages, studies on the topics of area, population, increase of population, density and distribution, sex, age, race, negro population and farming, Indian population, Mongolian population, internal migration, illiteracy, marital condition, occupations, vital statistics, birth rate, report on boundaries of accessions, methods of estimating population, methods of mechanical tabulation, and derivative tables relating to the foregoing subjects.

Electrical Industries.

The division of manufactures, Mr. William M. Steuart, chief statistician, is engaged in completing a series of important reports upon the electrical industries. These reports are four in number, and cover street and electric railways, the complete report upon which subject is in the hands of the printer; electric light and power plants, upon which a final bulletin has been published; municipal electric fire alarm and police patrol systems, already published in bulletin form; and telegraphs and telephones, upon which a bulletin is now in preparation. This series of reports is to be assembled in one quarto volume. To-

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gether they present a complete account of the remarkable development of the electrical industry, in its application to public utilities. Nothing so rapid, so striking, and so revolutionary in its effects upon private manufacturing and public convenience, as the application of electricity to power and heating purposes, has been witnessed in industrial history. So marked are the improvements made and the new uses to which electricity is applied, that changes in the statistics of these industries occur with great rapidity, and marked variations doubtless arise during the brief period that elapses between compilation and actual publication. The relation of these industries to the economic and social welfare of the country is so intimate, and is daily becoming so much more important, that I recommend that Congress be asked to authorize new inquiries at dates five years subsequent to those covered, instead of waiting for the decennial period, as originally contemplated by the census law.

The annual canvass of the cotton ginnerers of the Southern states, taken for the purpose of ascertaining the size of the crop during the progress of the picking, was made last year with results highly gratifying from the point of view both of accuracy and of the promptness with which the information was given to the public. The increasing experience of the Bureau has produced such improvement in canvassing methods that preparations for this year's reports were promptly completed. Cotton Statistics.

There will be six canvasses, showing the amount of cotton ginned to September 1, October 18, November 14, December 13, 1904, January 16, 1905, and the end of the season.

The number of special agents employed has been increased from 631 to 667, by the division of a number of the larger districts, thus insuring greater rapidity in gathering the data.

Although the reports of each agent show the quantity of cotton ginned to fixed dates, they are received at the Bureau at different times, depending upon the period required to complete the canvass in the respective districts. The publication of the results has been delayed heretofore until all of the returns were received, but the statistics for the crop of 1904 will be published by county totals and the results made public as rapidly as received. The individual returns will be summarized when all

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are received and the totals will be published as the quantity ginned to the given date in each state, in conformity with the practice followed heretofore.

It is believed that this system will result in satisfying the demand for the early publication of the data, that it will aid in avoiding the fluctuation in prices due to an anticipation or a manipulation of the facts contained in the reports, and that it will also eliminate all possibility of information being given out in advance of its publication by the Bureau.

The cost of the canvass of 1903 was \$99,395, but by reason of the increased number of agents employed, the cost in 1904 will be \$116,400.

The Manufac-
turing Census of
1905.

The division of manufactures is also engaged in the preliminary work of the quinquennial census of manufactures, authorized by section 8 of the census act. This preliminary work consists in the preparation of the main and supplemental schedules, and the carding of the manufacturing establishments to be canvassed. The information for the latter work is obtained from the schedules returned in 1900, supplemented by state, county, and local directories. The plans of the Bureau contemplate the collection of a considerable percentage of the schedules by correspondence; and a copy of the schedule will be mailed to every manufacturer in the United States, whose existence is known, in advance of the actual canvass by districts. It is proposed, in that canvass, to utilize the clerical force of the Bureau, as far as possible, thus avoiding the necessity of appointing untried and untrained special agents to superintend the work in the field.

Cooperation
with the State of
Michigan.

An important step in the direction of cooperation and collaboration between the Bureau of the Census and the statistical offices of the several states, was taken by Congress at its last session, in the enactment of the following law, approved March 1, 1904:

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Director of the Census is hereby authorized and empowered to cooperate with the secretary of state of the state of Michigan in taking the census of manufactures and shall equitably share the expenses thereof, the results of which may be accepted by the United States as its census of manufactures for that State for the year nineteen hundred and five: Provided, That the expenditures incident

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to this cooperation shall not exceed twenty thousand dollars, such expenditures to be paid from the fund appropriated for the expenses of the fieldwork of the census for the fiscal year ending June thirtieth, nineteen hundred and five. And the Director of the Census may, in his discretion, cooperate with the officials of other states which take a like census in so far as it may aid in the collection of statistics of manufactures required by existing law.

The immediate occasion for this legislation was the fact that the constitution of Michigan requires a census of population, agriculture, manufactures, and mining to be taken in the year 1904. The secretary of state of Michigan, under whose authority this census is taken, desired to cooperate with the Bureau of the Census in the manufacturing canvass, in accordance with the recommendation of the Director of the Census in his last report, in order to save the expense of what would prove to be almost a duplicate canvass but six months apart, and in order that the manufacturers of the state might not be subjected to the annoyance of making two returns. The Bureau of the Census could not, however, accept manufacturers' returns for the year 1904 as a part of its census of 1905. The Michigan official therefore appealed to Congress; and with the approval of the Secretary of Commerce and Labor and the Director of the Census, the above quoted statute was unanimously enacted.

Under this law an agreement was made with the secretary of state of Michigan, whereby the manufacturing schedule of the Census Bureau was accepted for the Michigan census, and the correction and compilation of the returns were undertaken by this Bureau. Thus complete agreement between the Census report and the Michigan report was assured. In consideration of the control over the form and character of the returns thus accorded the Census, the latter undertook to defray two-thirds of the expense of the fieldwork, the state of Michigan, on the other hand, affording the Census free use of its office facilities and clerical force at the state capital. In this way the cost of the canvass is "equitably shared," and a considerable sum of money is saved to both the national and state governments.

The money saved is the least important advantage growing out of this joint canvass of the manufacturing industries of Michigan. It is the first practical step ever taken looking to

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the unification of the official statistics of the states and the nation, and the avoidance of the conflict and confusion which have attended their contradictory character. It must lead logically to systematic and sympathetic cooperation along similar lines in many other states, thus foreshadowing an ultimate unity and harmony in official investigations of the utmost advantage to statistical science.

The fieldwork for the Michigan census was undertaken in the latter part of July and entirely completed by the latter part of September.

Cooperation with
the State of
Massachusetts.

An arrangement nearly identical with that made with Michigan has already been entered into with the Bureau of the Statistics of Labor of the state of Massachusetts for a cooperative canvass of the manufacturing industries of the state, which takes a decennial census in 1905. The saving of money by the avoidance of a double canvass will be considerably greater in this state; and the union of forces is the more gratifying and significant by reason of the fact that among the states Massachusetts has long taken the front rank in statistical investigation.

Cooperation with
other States.

A number of states in which no midway census is taken maintain bureaus of statistics, well organized and equipped, which compile annual or biennial reports upon the industries and industrial conditions of the commonwealth. These reports, while possessing much intrinsic value in many instances, have never been compiled from schedules uniform with those of the United States census, or even with those used in other states. It follows that the statistics are not comparable with those of the Federal census or with those of neighboring states. Their usefulness has therefore been greatly, and it would seem unnecessarily, circumscribed. All these periodical state reports can be made to serve as supplements to the Federal census, if the returns are secured along identical lines. State reports, which are now only useful locally, would thus become of far greater value. They would measure accurately comparative growth from year to year within the state and could readily be made to possess national significance.

Acting on this theory, and so construing the authority conferred by the Michigan statute, the Director of the Census is now engaged in making arrangements with the chiefs of the

to the Secretary of Commerce and Labor

bureaus of statistics in a number of these states, whereby their cooperation will be secured in the manufacturing census of 1905. Under the plan proposed the chief of the state bureau will be appointed a special agent of the Census Bureau and have charge of the canvass of a portion of his state, subject to such regulations as may be necessary to secure uniformity of method, thus giving the Census Bureau the advantage of a supervising special agent having training and experience in similar work, who is familiar with industrial conditions in the state, and who already possesses much of the machinery and organization necessary to a prompt and efficient canvass. In consideration, the chief of the state bureau agrees to accept the results of the Federal census in his state report for the current year, and not to make any additional canvass of the industries covered by the Federal census. Having once adopted the Census method of presenting results, it is highly probable that the state bureaus will continue to use them in subsequent reports; and thus another gratifying advance in the movement for unification of industrial statistics will have been made.

The states in which it has been feasible to make the arrangement above described, in whole or in part, and the officials in charge of the several bureaus, are as follows:

- California: W. V. Stafford, Commissioner, Bureau of Labor Statistics.
- Illinois: David Ross, Secretary, State Bureau of Labor Statistics.
- Indiana: Benjamin F. Johnson, Chief, Bureau of Statistics.
- Iowa: Edward D. Brigham, Commissioner, Bureau of Labor Statistics.
- Kansas: W. L. A. Johnson, Commissioner, Bureau of Labor and Industry.
- Massachusetts: Charles F. Pidgin, Chief, Bureau of Statistics of Labor.
- Michigan: A. C. Bird, Supervisor of Census.
- Minnesota: John O'Donnell, Commissioner, Bureau of Labor.
- Missouri: William Anderson, Commissioner of Labor, Bureau of Labor Statistics and Inspection.
- Nebraska: Burrett Bush, Deputy Commissioner of Labor, Bureau of Labor and Industrial Statistics.
- New Hampshire: Lysander H. Carroll, Commissioner, Bureau of Labor.
- New Jersey: Winton C. Garrison, Chief, Bureau of Statistics of Labor and Industries.
- New York: A. F. Weber, Chief Statistician, Department of Labor, Bureau of Statistics.
- North Carolina: Henry B. Varner, Commissioner, Bureau of Labor and Printing.
- Wisconsin: Halford Erickson, Commissioner, Bureau of Labor and Industrial Statistics.

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Cooperation in
taking the Census
of Population.

This movement for cooperation in the compilation of industrial statistics suggests the advantages which would result from a similar cooperation between the several states and the Census Bureau in taking the census of population.

In 24 states and territories of the Union there is a constitutional or statutory requirement for a decennial census of population. Of this number, 13—Florida, Iowa, Kansas, Massachusetts, Michigan, Minnesota, New Jersey, New York, Oregon, Rhode Island, South Dakota, Utah, and Wisconsin—took a population census between 1890 and 1895. These states contained, in 1900, 23,950,628 inhabitants, or 31.52 per cent of the total population of continental United States. The remaining 11—Alabama, California, Colorado, Idaho, Mississippi, Montana, Nebraska, Nevada, Oklahoma, South Carolina, and Wyoming—do not comply with their legal requirement for enumeration. These states contained, in 1900, 8,749,634 inhabitants, forming 11.51 per cent of the total population. The 24 states and territories above named contained, in 1900, 32,700,262 inhabitants, thus comprising 43.03 per cent of the total population of the United States. The 11 states and territories having unobserved laws for decennial enumeration and the 28 without such legal requirement, prefer to rely wholly upon the Federal census rather than to incur the expense of taking a midway census of their own.

That the rapid social evolution and complex growth of the United States call for a census of population more frequently than once in ten years, is a proposition generally admitted by economic and sociological experts. Provision for five-year enumerations has already been made by some countries of Europe, notably France and Germany, and there is a thoroughly organized movement to secure a quinquennial census of Great Britain. In May last a deputation representing the Royal Statistical Society, the Royal Institute of Actuaries, the Sanitary Institute, the Society of Medical Officers of Health, and other similar organizations, appeared before the Local Government Board to urge action looking to a quinquennial census of England and Ireland in 1906. Reference was made at the hearing to the recent establishment of a permanent Census Bureau in the United States, as an example Great

to the Secretary of Commerce and Labor

Britain should follow, and as the necessary preliminary to a more frequent census of the population. It was pointed out that at the census of 1891 there was a discrepancy of 701,843 between the estimated and enumerated population, while at the census of 1901 a difference of 142,000 occurred in the opposite direction. These discrepancies were especially marked in certain localities, for example, in 1901 the Registrar General's estimate of the population of West Ham was 58,278 in excess of the actual figures, causing an error of 3.5 per 1,000 in the estimated death rate. In Liverpool the Registrar General, in 1891, overestimated the population by 100,000, and in 1901 underestimated it by 50,000.

As stated by Sir Robert Giffen, the actual number of the population is the dominant factor governing every statistical investigation into the condition of national health, wealth, and well-being. The only objection raised in England to a quinquennial census of population is that of the expense involved. It is proposed to reduce this expense to a minimum by restricting the intermediate census to the simplest schedule, relating to age, sex, and the distribution of the people. One of its chief advantages would be the check it would afford upon the accuracy of the decennial census.

The objection based upon cost is more valid in the United States than in Great Britain, and the obvious way to meet it in the United States is through the cooperation of the states. A carefully devised plan to secure such cooperation was incorporated in the act for taking the Tenth and subsequent censuses, approved March 3, 1879. The plan was suggested by Hon. Francis A. Walker, Superintendent of the Ninth and Tenth censuses, and the closest student of census problems we have had in this country. This plan was embodied in section 22 of that act, which read as follows:

Cooperation
Authorized by
Congress in
1879.

That if any state or territory, through its duly appointed officers or agents, shall, during the two months beginning on the first Monday of June of the year which is the mean between the decennial censuses of the United States is by this act directed to be taken, take and complete a census in all respects according to the schedules and forms of enumeration in the census of the United States and shall deposit with the Secretary of the Interior, on or before the first of September following, a full and authentic copy of all schedules returned and reports made by the officers and agents

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charged with such enumeration, then the Secretary of the Treasury shall, upon receiving a certificate from the Secretary of the Interior, that such schedules and reports have been duly deposited, pay, on the requisition of the governor of such state or territory, out of any funds in the Treasury not otherwise appropriated, a sum equal to fifty per centum of the amount which was paid to all supervisors and actual enumerators within such State or Territory at the United States census next preceding, increased by one-half the percentage of gain in population in such state or territory between the two United States censuses next preceding: *Provided:* That the blank schedules used for the purposes of the enumeration herein provided for shall be similar, in all respects of form and size of heading and ruling, to those used in the census of the United States.

Under this provision the Federal Government was to pay practically one-half the cost of the quinquennial enumeration of each state taking a census, thus securing all the advantages of an enumeration on lines exactly parallel to its own decennial census. Several states took advantage of the provision, sent forward to Washington copies of their schedules, and received their money for them. These returns were stored away in the Department of the Interior, and no use was ever made of them. The fatal obstacle to the success of General Walker's plan was the fact that there existed no permanent Census Bureau to handle the returns as received. That obstacle is now removed. By the reenactment of section 22 of the act of 1879, the United States can obtain, for one-half the actual cost of the work, a census of a large number of the states at the midway periods. The number of states will be sufficiently large to permit an accurate estimate of population for the remainder, and if this provision of law, so advantageous to the states, should be reenacted, there undoubtedly will be a rapid increase in the number of states and territories taking an intermediate census. It is even possible that eventually all would participate in a work so essential to each.

It would be especially appropriate to reenact the law of 1879 at the present time, for this law may be called the forerunner of the various lines of cooperation between the Federal census and state and municipal officials, described elsewhere in this report.

A bill to reenact section 22 of the act of 1879 was introduced at the last session of Congress, by Mr. Crumpacker, of Indiana, chairman of the House Census Committee. I earnestly urge

to the Secretary of Commerce and Labor

that you recommend favorable action upon this measure. If it can be passed at an early period in the approaching session of Congress, it will undoubtedly lead to legislation in some states for a cooperative population census in 1905.

As announced in the last report of the Director, the Census Bureau has undertaken, both in response to a popular demand and to meet the requirements of its own work, to prepare and publish estimates of population in intercensal years, for cities and towns of 8,000 population and upward, and for the several states and the entire country. The bulletin containing these estimates for the years 1901, 1902, and 1903 was published in April, 1904. The estimates were made in accordance with the uniform plan described in detail in the bulletin.

Estimates of Pop-
ulation.

The constant demand for this bulletin from all parts of the country proves that its publication has met a definite and intelligent popular requirement. It is surprising to find in how many lines of business there is need for estimates of this character. But their chief usefulness is in determining the death rates of municipalities; and it is cause for comment that these death rates have been so long computed in this country on the basis of local estimates of population, in the calculation of which no uniform method has obtained, making it inevitable that no accurate comparison is possible between the death rates of different cities, except in the census years, when all local ratios are supposed to be corrected on the basis of the enumeration.

The science of sanitary statistics is still in its infancy in the United States, and it is in the further development of this science that the permanent Census Bureau is destined to perform its most important service to the public. Estimates of population for municipalities have been officially made in Great Britain for a long period, and the closest attention is paid to them in all matters that have to do with sanitation and the promotion of the public health. But, as stated above, these official estimates of population are sometimes found to be grossly in error, resulting in most misleading conclusions. Similar errors will be inevitable in the population estimates of the Census Bureau; indeed, they should naturally be even greater and more frequent than has been the case in England, for our population is much more mobile, and the growth of our cities

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is influenced by many conditions which do not prevail in older countries, and which can not be measured by any uniform rule based upon the ratio of annual growth in the previous decade. The danger of inaccuracy increases rapidly as the distance from a decennial census increases, and conditions undoubtedly prevail in many Western cities where it will be better not to attempt to compute the rate of growth for a period beyond five years, when there is no intermediate state census by which to correct the estimates. These considerations emphasize the necessity of such censuses, and reenforce the argument in favor of the plan for taking them by cooperation between the Federal and state governments.

Reasons for the Method of Estimating Population adopted by the Bureau.

Considerable criticism of the Census population estimates has been aroused in certain cities which, for various reasons and on evidence more or less satisfactory, believe that they are growing more rapidly than the normal rate, as ascertained by the Census methods.¹

¹ Inasmuch as it is proposed to continue to make these estimates, the Director made a general reply to these criticisms in a letter addressed to the Secretary of Commerce and Labor on May 19, 1904, which follows:

You have called my attention to certain comments and criticisms upon the estimates of population published in a bulletin recently issued by the Bureau of the Census. I am glad of the opportunity to reply to them in one general statement. It is worth attention that these criticisms are much fewer in number and much less violent in tone than the complaints which attended the actual enumeration of population at the Twelfth Census, and also that they come, as a rule, from the same localities. It is apparent, moreover, that they are written by persons who had not read and digested the text which accompanies the estimates, and fully explains the purpose and the method of making them, and the limitations surrounding them. In all quarters where these are understood, the bulletin has met with high commendation as supplying information of great interest and value obtained by the application of a carefully considered scientific method for projecting the census into intercensal years.

Population estimates for intercensal years are demanded by the current work of the Census Bureau; they are equally necessary in the annual mortality reports of our great municipalities, in the calculations and tabular presentations of the Treasury Department, and in many other directions that at once suggest themselves. Heretofore these estimates have been made by local authorities; and since the methods followed differed widely in different localities, the results possessed no uniformity, and thus lacked the first requisite of comparable statistics. This deplorable condition was probably unavoidable so long as there was no permanent Census Bureau. Now that such a bureau exists, it would seem that one of its first duties is to establish a definite, uniform rule for projecting population beyond the date of the latest census, and to make the computations for the public use. Nothing more important in the direction of standardizing official statistics

to the Secretary of Commerce and Labor

The Bureau will so far recognize the justice of these criticisms as to omit the estimates for any city, in future publications, upon receipt of a formal request from the mayor, and provided the city in question is not a city in which registration of deaths is made. In all such cities the estimates must continue to be

has yet been done, in my judgment. The Comptroller of the Treasury has recognized the value of the service of the Census by utilizing its population estimates in determining whether certain localities are entitled to national bank charters under the provisions of law; and it is hoped that all Government officials who have occasion to use population estimates in their work will also make use of them.

These estimates are not in any sense a census, nor are they based upon an investigation of the peculiar local conditions which may affect individual cases. This fact is an answer to the criticisms coming from cities which adduce various reasons for asserting that their rate of growth in population since 1900 has been in excess of that indicated. Each estimate rests upon an hypothesis sufficiently accurate for most statistical purposes—the hypothesis that the annual increase of population since 1900 is one-tenth of the total increase from 1890 to 1900, as established by census enumerations. In only one class of cases has the Census deviated from a strict adherence to this hypothesis and endeavored to make allowance for disturbing local factors. These are the cases in which growth has been affected by annexations of new territory, either before or since the census of 1900. Where such annexations have occurred, their effect upon the population has been carefully calculated, after correspondence with the local authorities, city engineers, mayors, assessors, etc.

In all well settled communities, the hypothesis is found to come remarkably close to the actual fact, when tested by similar computations based upon the growth in previous census decades. For such communities the estimates can safely be accepted in preference to calculations based upon directory canvasses, school canvasses, increase of post office business, or ballots cast at elections. Experience almost invariably demonstrates that these methods of determining population are fallacious and unreliable.

Estimates of the population of the large cities of the United States in 1900, made by this method on the basis of the census results in 1880 and 1890, show that the probable error of the method is 6 per cent; that is, in half the cities the estimates for a date ten years after the last census were within 6 per cent of the truth.

The usual English method, that of assuming that the percentage of increase, instead of the amount, remains constant from decade to decade, or from year to year, gives for American cities a probable error of 18 per cent, showing clearly that this method, however applicable in Great Britain, does not apply to present American conditions.

A common American method, that of multiplying the number of votes cast in a Presidential election by an assumed ratio of that number to population, when tested, shows a probable error of 12 per cent. Estimates based upon accurate city censuses of school children show a probable error of 6 per cent. But such censuses in American cities are often carelessly taken and extremely inaccurate. Estimates based upon multiplying the number of names in a city directory by some assumed ratio show a probable error of 13 per cent, and in every one of the cases tested the population as thus estimated was found to be too large. No one of the alternative methods, therefore, is as accurate for American cities, under present conditions, as the method we have employed.

For cities which have recently entered upon a period of exceptional

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made and published in connection with the annual report on vital statistics.

Comparison of
Returns of Michi-
gan Population
Census with Esti-
mates of the Bu-
reau of the Cen-
sus.

The Michigan state census of 1904 is the first opportunity which has occurred for testing the value of the Census Bureau method of estimating the population. This census showed 28 cities in that state to have 827,294 inhabitants; as estimated by the Census Bureau these cities contain 824,310, a difference of 2,984 inhabitants, the state census exceeding the estimated population less than one-half of 1 per cent. The total population reported by the state census was 2,530,016; as estimated by the Census Bureau, 2,546,258. The estimate for the entire state therefore exceeds the exact figures by 16,242, or six-tenths of 1 per cent. These general figures clearly illustrate how closely the results of the Census Bureau method of estimating approximate to actual enumeration in states showing normal conditions, as in the case of Michigan. The population of Detroit, the

growth produced by the influx of new settlers in great numbers, and which may be said not to have been fairly born when the census of 1890 was taken, the estimates of the census on the basis indicated will undoubtedly prove too small. This fact was frankly admitted in Bulletin Number 7; and a caution was added against any false conceptions in consequence of rigid adherence to the rule of estimating. Several cities from which complaints have been received, are undoubtedly within this category; and they should find whatever solace is necessary for their wounded municipal pride in this admission of the fallibility of the rule in exceptional cases, which is found on page 4 of the census bulletin.

In several cases the suggestion is made that the census should have sent its agents to the locality, and satisfied itself by actual examination that the rate of growth in population is greater than that arrived at by the arithmetical calculation. Such a course was impossible, for reasons that seem to me obvious. As already stated, this office was not taking a census, or anything akin to a census. If, as a result of superficial investigations, unsupported by an actual enumeration, the Bureau had undertaken to publish estimates of population for particular cities larger than those reached by its established rule, then indeed it would have deliberately invited endless criticism. For then it would have substituted sheer guessing for estimates based upon actual enumerations and obtained by a uniform method; wherever it failed to report a population as large as the local expectation, it would have been denounced; wherever it increased the estimate over the population arrived at by the calculation, it would have laid itself open to the criticism that it was favoring certain communities at the expense of others. In the absolute impartiality with which the rule was applied lay the only possible safety for the Census Bureau. It can command respect by consistency, even when it knows that consistency involves a certain element of error. It will lose public confidence when it attempts to arbitrate upon the claims of local directory makers and real estate agents.

By applying a uniform rule, admitting its defects in certain instances, the Census deprives any city of the right to make complaint against it for unfairness or partiality; and all cities can make use of the estimates for

to the Secretary of Commerce and Labor

largest city in Michigan, was estimated by this Bureau to be 317,636 in 1904; the actual population returned by the census is 317,591. In this noteworthy case there was a difference of only 45, or less than one-tenth of 1 per cent, between the estimated and the actual enumeration. For some of the other cities of the state greater variation occurred, owing to local conditions. For cities growing more rapidly than at the normal rate, such as Kalamazoo, Lansing, Marquette, and Saginaw, the estimates resulted in a lower figure than the actual population as returned at the state census, the difference being more than 10 per cent; while in other cities growing less rapidly than at the normal rate, such as Ann Arbor, Iron Mountain, Ishpeming, Manistee, and Menominee, the Census estimates exceeded the state census returns more than 10 per cent. For the 28 cities referred to, this Bureau overestimated the population of 16 and underestimated that of 12. The greatest increase over the Census estimate appears in the city of Saginaw, due to the decrease in population

the purpose of computing statistical rates in mortality and other municipal reports, with the certainty that these rates will be sufficiently accurate to answer the purposes for which they are ordinarily required.

In many of the states of the Union intercensal censuses will be taken next year; and the returns of these enumerations will be utilized by this office in correcting its estimates for future years. But the office can not accept the result of local censuses, however taken, as a basis for modifying its estimates, and for the very good reason that these local censuses are almost invariably found to be grossly incorrect when checked up by a national census.

Turning now to the general results of the census method of projecting the population, as applied to the entire country, I call your attention to the remarkable accuracy that attends the computation when it concerns conditions which can not be affected by local influences and variants. The estimated population of continental United States for 1900, as determined by this method on the basis of the increase from 1880 to 1890, was 75,414,181, while the actual population as returned by the census of 1900 was 75,994,575. In other words, the actual population was 580,394 in excess of the estimate, showing the latter to be in error by three-fourths of one per cent. How far this negligible error is due to the influence of immigration can not be determined.

If we project the population of continental United States for the entire decade in which we are now living, by the census method, we reach the conclusion that the Thirteenth Census, in 1910, will show a population in the neighborhood of 89,041,436. This indicates a percentage of increase of 17.2, as compared with 20.7 in the decade 1890-1900. Events are possible in the future development of the country which will put this estimate awry from the actual census of 1910. Such a possibility exists under every method of estimating.

Very respectfully,

(Signed) S. N. D. NORTH,
Director.

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from 1890 to 1900 and to the increase which has subsequently occurred. Such a condition, however, is clearly exceptional, but Census Bulletin 7, Estimates of Population, calls attention with considerable emphasis to the fact that there will always be many individual cases where the estimates will be far from correct, owing to exceptional changes in municipal growth. In general, the larger the area the more likely to be correct is the method of estimating adopted by the Bureau of the Census.

Increasing
Efficiency of
Employees.

The importance of training as a factor in connection with the preparation of special reports and the Thirteenth Census was one of the reasons which led to the establishment of the permanent Census Bureau. Therefore, it is especially agreeable to be able to report to you that the clerks and officials of this Bureau, as they grow more proficient, are becoming individually more interested in the lines of work under investigation, are showing greater adaptability for assignment to different inquiries, and promise to become an exceptionally efficient force. It is my policy to transfer clerks in large numbers from one division to another, as the pressure of work demands. Incidentally this policy has increased greatly the familiarity of the clerks in the Bureau with different classes of work. As many male clerks are assigned to fieldwork as can be spared from duty in the office; thus a considerable proportion of the employees of the Bureau are constantly dealing directly with the business and professional classes in different communities. This policy enables many of the employees of the Bureau to obtain practical experience in the first step of census work, in addition to the knowledge which they already possess of Census Bureau routine.

The lack of expert assistance in training and directing clerks in this office was recognized by Congress at the last session, and the number of expert chiefs of division was increased from 4 to 8. A list of the officials in the Bureau of the Census, and the number of clerks and employees, by different grades, will be found in Appendix B.

Respectfully,

S. N. D. NORTH,
Director.

Hon. VICTOR H. METCALF,
Secretary of Commerce and Labor.

APPENDIX A.

REPORT OF JOHN W. LANGLEY,
DISBURSING CLERK OF THE BUREAU OF THE CENSUS.

For the fiscal year ended June 30, 1904.

I. *Appropriations, disbursements, unexpended balance, and outstanding liabilities for the fiscal year ended June 30, 1904.*

	Amount ap- propriated.	Amount dis- bursed. ¹	Amount unex- pended.	Amount of outstand- ing liabili- ties.
Total	\$1,322,247.14	\$1,129,192.88	\$193,054.26	\$32,196.81
Salaries	685,860.00	634,457.06	51,402.94	513.79
Special Agents	160,000.00	159,242.43	757.57	757.57
Rent	26,600.00	24,383.33	2,216.67	2,216.67
Stationery	10,000.00	3,494.93	6,505.07	5,818.91
Library	5,000.00	4,871.92	128.08	128.08
Transcript of Registration Records.	14,000.00	5,353.04	8,646.96	3,556.96
Rent of Tabulating Machines	10,000.00	10,000.00		
Miscellaneous Expenses	15,000.00	14,988.39	11.61	11.61
Expenses of the Twelfth Census ...	395,787.14	272,401.78	123,385.36	19,193.22

¹Including payments by the Auditor for the State and other departments from the appropriations:
 Special agents, Census Office, 1904 \$6,118.11
 Miscellaneous expenses, Census Office, 1904 88.95
 Expenses of the Twelfth Census 1,678.45
 Excluding disallowances from the appropriations:
 Special agents, Census Office, 1904 45.99
 Expenses of the Twelfth Census 48.09

2. *Unexpended balance of the appropriation made for the expenses of the Twelfth Census reappropriated March 3, 1903.*

(1) The unexpended balance as shown by the report of the Director of the Census to the Secretary of the Interior, July 15, 1903.....	\$462,753.94
(2) Disallowances, year 1903, collected and credited	735.65
	463,489.59
(3) Less supplemental accounts paid for the fiscal year 1903.....	68,010.45
	395,479.14
(4) Receipts during the year 1904, from the sale of transcripts of census records.....	308.00
Total amount of the unexpended balance available for the fiscal year 1904	395,787.14

*Report of the Director of the Census*3. *Expenditures, including outstanding liabilities, for the fiscal year 1904, chargeable against the unexpended balance of the appropriation for the expenses of the Twelfth Census.*

Amounts (including outstanding liabilities) for current expenses of the office (other than for the Philippine Census) after the specific appropriations provided in the legislative act for the purposes indicated were exhausted:	
Special agents, Census Office, 1904	\$37,942.42
Miscellaneous expenses, Census Office, 1904	14,467.90
Library, Census Office, 1904	493.40
	<u>\$102,903.72</u>
Amount of that portion of the Philippine Census paid from this unexpended balance	167,675.18
Amount of settlements made by the Auditor for the State and other Departments	1,678.45
Amount of miscellaneous expenses	<u>19,337.65</u>
	291,595.00
Amount of the unexpended balance available for the fiscal year 1905	<u>104,192.14</u>

4. *Approximate cost of the tabulation and compilation of the census of the Philippines, to June 30, 1904.*

Expended from unexpended balance of Twelfth Census appropriation	\$167,675.18
Expended from specific appropriations for 1904:	
Approximate cost of clerical labor	\$31,742.64
Cost of printing	11,750.13
Miscellaneous	<u>2,949.63</u>
	46,442.40
Total	<u>214,117.58</u>

APPENDIX B.

Clerical and Field Force.

Chief clerk	Edward McCauley.	
Disbursing and appointment clerk	John W. Langley.	
Chief statisticians:		
Population	William C. Hunt.	
Manufactures	William M. Steuart.	
Agriculture	Le Grand Powers.	
Vital statistics	William A. King.	
Geographer	Charles S. Sloane.	
Expert chiefs of division:		
Director's office	Leon B. Leavitt.	
Population	{ William H. Jarvis.	
Manufactures	{ Edward W. Koch.	
Agriculture	Joseph D. Lewis.	
Vital statistics	Hart Momsen.	
Revision and results	Richard C. Lappin.	
Publication	Joseph A. Hill.	
Publication	William S. Rossiter.	
Total		15
Stenographer		1
Clerks class 4		4
Clerks class 3		7
Clerks class 2		16
Clerks class 1		312
Clerks \$1,000		212
Clerks \$900		37
Expert map moulder		1
Engineer		1
Electrician		1
Skilled laborers \$1,000		3
Skilled laborers \$900		5
Skilled laborers \$840		2
Firemen		2
Messengers		6
Assistant messengers		13
Unskilled laborers \$720		19
Unskilled laborers \$660		2
Watchmen		10
Charwomen		43
		697
Total		712

*Report of the Director of the Census**Temporary Force (Philippine Census).*

Translator \$3,000	I	
Clerks class I	I	
Clerks \$1,000	3	
Clerks \$900	9	
Charwomen	3	
		17
Total		729

Special Agents.

Regular fieldwork	27	
Cotton crop agents	667	
Expert special agents, special classes, and vital statistics	2	
Expert special agents in railroad valuation	11	
Chemical expert	I	
Electrical expert	I	
Special agents for special classes	5, 451	
		6, 160
Total		6, 889

APPENDIX C.

SUMMARY OF CONTENTS OF VOLUMES PUBLISHED DURING
THE PAST YEAR.

STATISTICAL ATLAS (SECOND EDITION).

207 plates. Edition, 15,000 copies.

Illustrating statistics of population, vital statistics, agriculture, and manufactures.

EMPLOYEES AND WAGES.

1,344 pages. Edition, 7,000 copies.

Comprising rates of wages and amounts earned for males and females, for specified periods, in typical manufacturing establishments in various lines of industry and in all sections of the United States.

OCCUPATIONS AT TWELFTH CENSUS.

1,029 pages. 34 diagrams. Edition, 7,000 copies.

A detailed classification of occupations for males and females, by general nativity, color, age periods, parentage, conjugal condition, and months unemployed.

BULLETINS.

No. 3.—*Street and Electric Railways.* (193 pages. Edition, 8,000 copies.) Preliminary report on equipment, cost of construction, expenses, income, wages, wage-earners, and operations for year.

No. 4.—*Discussion of Increase of Population.* (63 pages. 10 maps and diagrams. Edition, 8,500 copies.) Discussion of increase of population for the United States and outlying districts, by geographic and physiographic divisions, states and territories, counties, cities, and country districts.

No. 5.—*Central Electric Light and Power Stations.* (59 pages. Edition, 10,000 copies.) Detailed statistics of equipment, cost of construction, expenses, income, wages, and wage-earners.

No. 6.—*Mineral Industries of Porto Rico.* (18 pages. 7 maps and illustrations. Edition, 6,000 copies.) Historical, descriptive, and statistical.

Report of the Director of the Census

No. 7.—*Estimates of Population*. (21 pages. Edition, 10,000 copies.) Method and result of estimating the population of the larger cities of the United States in 1901, 1902, 1903.

No. 8.—*Negroes in the United States*. (333 pages. 14 maps and diagrams. Edition, 8,000 copies.) Analysis of negro population and the negro as a farmer, with general tables.

No. 9.—*Mines and Quarries*. (59 pages. Edition, 13,000 copies.) Preliminary report on mines and quarries, presenting statistics for all mines and quarries, and petroleum and gas wells, with such manufacturing operations as were carried on in immediate connection therewith, for year ending December 31, 1902. Statistics confined to operations at mine, quarry, or well.

No. 10.—*Quantity of Cotton Ginned in the United States (crops of 1899 to 1903, inclusive)*. (56 pages. 13 maps. Edition, 40,000 copies.) Statistics for cotton crop of 1903, with comparative statistics for 1902, 1901, 1900, and 1899. Special features: cotton reclaimed by thrashing cotton bolls; estimate of cotton destroyed by the boll weevil; and distribution by states of the quantity of linter cotton saved by the cottonseed-oil mills from reginning seed of the crop of 1903.

No. 11.—*Municipal Electric Fire Alarm and Police Patrol Systems*. (33 pages. 2 illustrations. Edition, 7,000 copies.) Containing a historical and descriptive account of these systems with detailed statistics of construction and equipment.

No. 12.—*The Executive Civil Service of the United States*. (239 pages. Edition, 15,000 copies.) Detailed statistics of nativity, age, sex, service, salary, occupation, and location of the employees in the civil service of the United States.

No. 15.—*A Discussion of the Vital Statistics of the Twelfth Census*. (24 pages. Edition, 8,000 copies.) Supplemental and comparative statistics.

PHILIPPINE CENSUS BULLETINS.

No. 1.—*Population of the Philippines*. (100 pages. Edition, 35,000 copies.) Population by islands, provinces, municipalities, and barrios, 1903.

No. 2.—*Climate of the Philippines*. (103 pages. 29 maps and diagrams. Edition, 15,000 copies.) Description of islands, the temperature, water vapor, and movements of the atmosphere.

No. 3.—*Volcanoes and Seismic Centers of the Philippine Archipelago*. (80 pages. 17 maps and outlines. Edition, 15,000 copies.) Containing an account of the volcanic nature, the historical geology, and the earthquakes of the archipelago, with description of principal volcanoes and seismic centers.

PAMPHLETS.

Statistical Treatment of Causes of Death.—(19 pages. Edition, 1,000 copies.) Plan proposed by the Committee on Demography of the American Public Health Association in cooperation with the Census Bureau, relative

to the Secretary of Commerce and Labor

to the treatment of jointly returned causes of death, and the revision of the international classification.

Registration of Births and Deaths.—(32 pages. Edition, 1,000 copies.) Draft of laws and forms of certificates for the registration of births and deaths, approved by cooperating committees, the Surgeon-General of the United States Public Health and Marine-Hospital Service, and the Director of the Census, with list of pamphlets on vital statistics issued by the Census Bureau.

Report of the Director to the Secretary of Commerce and Labor.—(27 pages. Edition, 2,500 copies.) A report of the progress of census work in the interval between report to Secretary of the Interior, June 30, 1903, when this office was incorporated in the Department of Commerce and Labor, and this date, October 28, 1903, with an outline of plans for the future, and certain recommendations and suggestions regarding the proper field and function of the permanent Census Bureau.

Uniform Municipal Accounting.—(89 pages. Edition, 1,000 copies.) Minutes of a conference on uniform municipal accounting held in the city of Washington, November 19 and 20, 1903, under the auspices of the United States Bureau of the Census.

Collaboration in Federal and State Statistical Work.—(73 pages. Edition, 500 copies.) Report of the permanent committee on uniformity of schedule and cooperative work in the census of manufactures, 1905, for the Twentieth Annual Convention of the Commissioners of State Labor Bureaus, Concord, N. H., July 12, 1904, showing difference between census manufacturing schedule and state schedules.

American Census Taking.—(34 pages. 11 illustrations and diagrams. Edition, 50,000 copies.) Published for distribution at the Louisiana Purchase Exposition. History of American census taking and description of mechanical devices used, with plans for future census work and summary of census publications.

