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BUREAU OF THE CENSUS

REPORT OF THE DIRECTOR

TO THE SECRETARY OF COMMERCE AND LABOR

Concerning the Operations of the Bureau for the Year 1910-11

WASHINGTON : 1912

REPORT

OF THE

DIRECTOR OF THE CENSUS.

DECEMBER 31, 1911.

SIR: The fiscal year ended June 30, 1911, was the second of the three years which constitute the decennial census period as defined by law. Within this period of three years the organization and operations of the Census Bureau are governed in the main by the act providing for the Thirteenth and subsequent decennial censuses, passed July 2, 1909. The greater part of the work of the bureau during the year has been in compiling the results of the Thirteenth Decennial Census, although the annual work required under the permanent census act and its amendments has been carried on as usual.

GENERAL PROGRESS OF DECENNIAL CENSUS WORK.

The census act requires that the results of the census shall be published within the census period of three years, beginning July 1, 1909, and ending June 30, 1912. Had the deficiency appropriation of $1,000,000 requested by the Bureau of the Census been provided by Congress in December, 1911, it would have been possible to comply substantially with this requirement, at least to comply with it in as full a degree as was found possible at the Twelfth Census. That is to say, it would have been possible, by the expiration of the census period, to publish in pamphlet form the principal data as to every subject, and the full details as to most but not all subjects. This was all which was accomplished at the Twelfth Census. With one or two exceptions, the final bound volumes were not published during the census period, and the abstract of the census, which is the most important document from the standpoint of the great majority of readers, but which can not be published until data on every subject are available, was not published until several months after the expiration of the census period.

It had been hoped that, with the somewhat more efficient machines utilized at the present census, it would be possible to complete the work a little more promptly than was done at the Twelfth Census. For two reasons, however, this will prove impossible. In the first

place, more time was spent at this census than at the last in verifying the correctness of the schedules before tabulating them. In particular, answers to the new inquiry regarding mother tongue required very careful editing. This necessity was the greater by reason of the fact that the amendment to the census act requiring the question of mother tongue was enacted so late that it was impossible to provide a column on the population schedules to contain the question, and it was necessary by a makeshift device to instruct the enumerators to insert the required information in columns originally intended to show only country of birth or country of birth of parents. In the second place, very radical changes have seemed desirable in the methods of presenting the statistics in order that they may be made as useful as possible to the public. While these changes have tended but little, if at all, to increase clerical labor, the devising of them has required much time on the part of the responsible officials and expert statisticians of the Census Bureau. It is believed that the changes thus made will be generally recognized as marked improvements. It is probable that the principles adopted will for the most part be permanently accepted for the future, and that few radical changes in methods of tabulation will be necessary at the next census, so that at that time the results should be available more promptly.

The officials of the Census Bureau recognize fully that the interest of many people in the statistics derived from the census steadily diminishes with the increase in the length of time intervening between collection and publication. Nevertheless, great promptness in the publication of the results of the decennial census is much less necessary than in the publication of the results of annual inquiries. The conditions which are reflected by the decennial census are mainly conditions which change with comparative slowness. It is far better that the statistics should be accurate and that they should be presented in such a way as to bring out their full and true significance than that they should be rushed out in imperfect form. The immense complexity of the processes involved in a thorough presentation of the statistics of a decennial census will always preclude the final publication of the entire results within less than two or three years after the enumeration. It is, however, desirable that the more important facts and those which require the least analysis should be presented within a much shorter time than two years. This object has been met to a considerable extent at the present census by the publication of bulletins, and still more by the publication of preliminary notices, which were primarily for the press, but were also available for such individuals as particularly require advance statistics. It is believed, however, that at another census arrangements

can be made for a still prompter publication of at least preliminary figures on the more important topics. Such arrangements will involve some changes in methods of tabulation and will perhaps tend slightly to increase expense.

The original plans of the bureau contemplated that the final and complete abstract of the census, with the several state supplements, should be issued in bound form very shortly after the completion of the present fiscal year, although most of the final volumes, containing the details of the entire census, would not have been available for some little time thereafter. Moreover, it was expected that there would remain to be performed during the fiscal year 1913 certain supplemental and special analyses of census statistics involving a considerable amount of office work, the results of which would have hardly been published much before July 1, 1913. The most important of these special analyses which were contemplated for the fiscal year 1913 had to do with population and included (1) analysis of occupation statistics, (2) characteristics of the foreign-born population classified by country of birth, and (3) statistics of fecundity. A limited amount of supplemental work was also planned in connection with decennial census statistics of agriculture and of manufactures and mines.

It was expected before June 30, 1912, to complete the first run of the population cards with reference to occupations, so as to show the number of persons employed in each occupation by sex, color, and native or foreign birth. It is highly desirable, however, that there should be a more detailed analysis relating to the principal occupations showing such facts as country of birth, marital condition, age, status as employer, employee, or working on own account, and the like. Under the general scheme of tabulation followed by the Census Bureau statistics of occupations are necessarily taken up last of all, and the second occupation run of the cards, from which these more detailed analyses are derived, could not possibly have been made and the results therefrom compiled during the census period. At the Twelfth Census also it was found impossible to publish these more detailed analyses regarding occupation statistics within the three-year census period.

At the Twelfth Census practically no information was published concerning the characteristics of the foreign-born population as classified by country of birth. The total number born in each foreign country was stated, and also the number and citizenship of adult males born in each. The great interest in the subject of immigration during recent years makes it of the highest importance to show, for the persons born in each of the leading countries from which our

foreign-born population has been derived, such characteristics as age, sex, marital condition, illiteracy, and ability to speak English. The machine tabulation of these facts has already been made, but it was not expected within the census period to complete the tables and prepare a proper text analysis of them. The number born in each country can be published within the time fixed by law for the completion of the census.

As stated in the last annual report of this bureau, the information derivable from the returns of the census of 1890 and 1900 with regard to fecundity of the population was never compiled and published, although considerable preliminary expenditure looking in that direction was incurred at the census of 1900. It would be of much value to the public if information on this subject could, during the fiscal year 1913, be compiled from the schedules of the census of 1910.

The additional analyses of agricultural, manufacturing, and mining statistics, which it was originally intended to make during 1913, were of a minor character, involving little cost.

The action of Congress in appropriating only $500,000 for the remainder of the Thirteenth Census period instead of $1,000,000 requested by the Census Bureau materially changes the conditions regarding the completion of the census work. In a broad way the probable effect will be, first, to necessitate deferring until the fiscal year 1913 work on a few subjects which should have been completed during the present fiscal year, and, second, on the assumption that no increase will be made in the appropriations for 1913 by reason of this deferred work, to necessitate the elimination of certain supplemental analyses and special lines of work on Thirteenth Census material which were contemplated for the fiscal year 1913.

For example, it is probable that even the first run of the population cards for the purpose of occupation statistics will have to be deferred till after the Thirteenth Census period; also the completion of statistics of the foreign born by mother tongue, statistics of institutions, and special industry presentations in the manufactures census. It will be the aim of the bureau to continue and complete the work on the majority of subjects within the time originally planned. It will probably prove desirable to publish the abstract of the census in preliminary form shortly after June 30, 1912, and later, when the tabulations on the deferred subjects have been completed, to publish another and final edition. It is probable also that the final reports on most subjects can be published at about the time originally anticipated, but that one or more volumes containing statistics on deferred subjects can be published only at a somewhat later date.

Should the appropriations for 1913 be reduced materially below the amount estimated by the bureau—which was determined before the reduction of the deficiency appropriation—much more serious curtailment of the work of the bureau for 1913 will be necessary.

PROPOSED WORK FOR THE FISCAL YEAR 1913.

From what has just been said it will be seen that the original plans of the Census Bureau contemplated performing during the fiscal year 1913 a considerable amount of work in the further elaboration of the results of the Thirteenth Decennial Census. Under present conditions it appears the more desirable that the bureau should, during the next fiscal year, confine itself as far as possible to the completion of decennial census material and to the annual investigations required by law. Comparatively little work can probably be done during that year upon special intercensal inquiries, whether quinquennial or decennial, authorized by the permanent census act. In fact, there is no particular necessity for entering extensively upon such special intercensal inquiries until the fiscal year 1914. A beginning should be made in the latter part of the fiscal year 1913 upon the collection of statistics for electrical industries, which should relate to the business of the calendar year 1912 in order to maintain an even interval of five years between the investigations, the previous reports on this subject having covered, respectively, the years 1902 and 1907.

The last investigation made by the Bureau of the Census into the subject of wealth, debt, and taxation related primarily to the calendar year 1902 or the fiscal year of the various states and localities corresponding most nearly thereto. If it were necessary to maintain strictly an interval of 10 years between these inquiries, work on this subject should begin early in the fiscal year 1913. It seems on the whole, however, much preferable that this subject should be deferred one year and that the statistics collected should relate primarily to the calendar year 1913, including the returns for fiscal years of states and localities ending at any time from June 30, 1913, up to, but not including, June 30, 1914. It should be noted that the preceding investigation of wealth, debt, and taxation, although nominally based on the year 1902, was not completed for several years, and some of the statistics, in fact, relate to the year 1904. The following is a list of the principal lines of work now contemplated for the fiscal year 1913:

Decennial census work.—Occupation statistics; statistics of foreign elements by country of origin; statistics of tenure of homes; statistics

of prisoners, insane, paupers, blind, and deaf; benevolent institutions; statistics concerning animals sold or slaughtered by farmers; plantation statistics for Southern states; analysis of agricultural statistics by tenure, size of farms, types of farming, etc.; manufactures statistics for industrial districts; bulletins on individual manufacturing industries; mines, completion of report.

Annual and intercensus work.—Vital statistics (annual); financial and other statistics of cities (annual); forest products statistics (annual); cotton statistics (annual); electrical industries (quinquennial); wealth, debt, and taxation (decennial, but intercensus).

SCHEME OF DECENNIAL CENSUS PUBLICATIONS.

During the year a general plan for the arrangement, publication, and distribution of the information derived from the census was devised and is being carried out. This scheme involved somewhat radical changes and will, it is believed, be more satisfactory and more economical than that employed in the past. The principal aim has been to present the more important results of the census in a condensed report, as convenient and intelligible for the ordinary reader as possible. It is considered desirable to distribute this condensed report or abstract more widely than any census publication has hitherto been distributed.

ABSTRACT OF THE CENSUS.

Most persons who are interested in census statistics desire to know the details with regard to the population, agriculture, manufactures, and mines of their own state and of their own county or community and also the principal facts for other states and the country as a whole. Ordinarily, however, they are little interested in the more elaborate statistical analyses with regard to other states and still less in statistics for counties and local communities (other than the largest cities) in other states. With this conception in mind, the Bureau of the Census aims to supply for general distribution—that is, for distribution to as many persons as possible—an abstract of the census for the country as a whole, by states and principal cities, together with a detailed presentation of the facts for the state, county, or city in which the person to whom the report is sent resides. The final form in which this information for general distribution will be published will be that of a single bound volume, entitled "Abstract of the Thirteenth Decennial Census, with supplement for the State of ——." Each state will thus have a separate edition of the volume, but the

greater part of the contents will be identical for all of the editions. This part which is common to all will correspond approximately with the abstract of the census published at the last two decennial censuses. It will, however, it is believed, be more convenient and interesting than previous abstracts. It will contain a text describing the tables, defining terms, and summarizing the more important facts, whereas the abstracts hitherto have consisted exclusively of tabular matter. It will also present somewhat more material, including particularly various averages and percentages, in addition to absolute figures, by means of which comparisons between different states and cities, or between the results of different censuses, may be readily made.

A very important feature of the proposed plan is that it provides for assembling in one place all the data relating to the particular locality in which the person to whom the report is sent resides. At the last census the only way in which the resident of a given county, for example, could obtain all the information contained in the census regarding the population and agriculture of that county was by securing a set of four large volumes, containing more than a thousand pages each, and examining scores of tables, widely separated through these volumes, in order to segregate the data from those for other counties. In other words, all information was grouped according to subjects and not according to geographic units. In order to find all the census data regarding his state, a person would have to examine 10 or more volumes. Aside from the difficulty of thus getting at the desired information, the necessary limitation of the edition of the full reports, which were very expensive, rendered it impossible to furnish any large number of persons with the means of doing so. The present plan will make it possible by reference to a single volume to find any or all the facts that the Census Bureau publishes with regard to the county or city in which the person resides, and substantially all the facts which it publishes with regard to his state. Indeed, the tables will be so arranged that all the data for a given county will appear on six or seven pages of the volume. This change will not only be a convenience to readers, but will also render it unnecessary to print so large an edition of the full reports as was formerly issued, and thus greatly reduce expense.

The material to be ultimately contained in the bound abstract of the census, with its several state supplements, will be for the most part published in advance in the form of unbound bulletins. For example, in the case of the population census there has already been issued one complete series of state bulletins, showing the number of inhabitants by counties and minor civil divisions, together

with comparative statistics, by counties, of density of population, and of urban and rural population. A second series of state population bulletins will contain the remaining facts with regard to the population of each state, such as sex, color, general nativity, citizenship, illiteracy, and the like. These two bulletins for a given state will together constitute the population section of the state supplement to the census abstract. The contents of the abstract proper will also be published in advance, in the form of several bulletins, each dealing with a given subject or group of subjects and presenting comparative tables for all states and large cities.

FINAL REPORTS.

The complete set of the final reports of the census will, as hitherto, contain all the detailed material for all of the states and smaller areas. There will be probably 12 volumes, containing all told about 11,000 pages—a somewhat less number of pages than was contained in the final reports of the last census. These bulky volumes are of little use to most persons, and are intended chiefly for libraries and institutions and for the comparatively few individuals who use them for special study or in connection with the management of large business enterprises. As already indicated, the provision of state supplements to the abstract of the census will make it possible to materially reduce the edition of the final reports.

The final reports will consist of volumes of two classes. Volumes of the first class will constitute a geographic grouping of the census material, and those of the second class a grouping by subjects. For example, there will be, for population, one or possibly two volumes, which will consist merely of the binding together of those pages giving details with regard to population which appear in the several state supplements to the abstract of the census; the data regarding each state will thus constitute a section by itself. Another population volume, however, will assemble the information for the several states and principal cities according to subjects, one section, for example, dealing with race, another with sex, etc. There will thus be to some extent a duplication of material in the final reports, the same data appearing once under the geographic arrangement and again under the subject arrangement. This duplication, however, will not be very extensive, for, in the first place, the details with regard to the population of the individual counties and the smaller cities will appear only in the volumes based on the geographic arrangement, and, in the second place, some of the analytical presentations in the subject volumes will not be reproduced in full in the volumes with geo-

graphic arrangement. Moreover, the expense of duplication will be reduced by using the same type, in many cases, for both presentations.

It is intended also to issue a series of monographs or special reports covering individual subjects of the census. These will be merely advance sections of, or reprints from, the final reports. They have the double purpose of furnishing data more promptly, at least in certain cases, and of saving the expense of supplying a complete volume or series of volumes to persons desiring information on a single subject only.

DATE OF PUBLICATION OF RESULTS.

The radical changes made at the present census in the methods of publishing the results render comparison with previous censuses, with reference to the promptness of publication, practically impossible. In 1900, for example, the statistics of certain subjects of the population census, by counties, were published in advance bulletins as soon as the material became available, while the results as to other subjects were never published in bulletin form, but appeared only much later in the final reports. This advance publication of part of the material was possible because, as already stated, there was no intention of ultimately bringing all the material regarding any given county or state into one place. The adoption of the opposite policy at the present census renders it necessary, subject to certain exceptions, to defer the publication of the material for a given locality on any one subject until the material on all subjects is available. An exception to this principle was made by the preliminary publication of tables relating to the number of inhabitants by counties, without waiting for the completion of the tabulations regarding their characteristics—sex, race, etc. Again, in the case of the agricultural census the material on a group of the most important subjects, by counties, has been published in one series of bulletins, the data on other subjects being reserved for a second series.

There can be no question that the ultimate advantages of arranging the census results in a form convenient for ready reference will much more than offset any slight disadvantage from the delay in the publication of part of the material. Moreover, it has been the practice of the bureau at the present census to give the principal results, particularly by states and larger cities, to the public in the form of newspaper announcements, often some months in advance of the publication of the regular bulletins.

OFFICE FORCE.

The office force of the decennial census required a very large addition to the force of the bureau in Washington. At the beginning of the fiscal year 1910 the number of office employees was about 650; by the beginning of the fiscal year 1911 the force had increased to about 3,000, and it increased still further until September, 1910, when the maximum of about 3,800 was reached. After September the force was gradually reduced as different branches of work were brought to completion. On June 30, 1911, the office employees in Washington numbered, all told, 2,868, consisting of 24 administrative officers, 93 special agents, 2,540 clerks, 169 subclerical employees, and 42 employees in the machine shop. Since the close of the fiscal year the force has been still further reduced, and, in view of the shortage of the census appropriation, it will be necessary to reduce it very greatly early in 1912. A detailed statement of the force as of December 31, 1911, appears on page 38.

TEMPORARY THIRTEENTH CENSUS FORCE.

On July 1, 1910, the bureau had in its employ a limited number of clerks appointed under authority of a provision of the census act permitting the appointment in case of emergency, for not to exceed 60 days, of persons who had had previous census experience, or of persons selected from the special census eligible register without regard to apportionment or rating, and who by reason of residence were immediately available. This emergency force was appointed primarily for the purpose of the temporary rush work of punching population cards. It was entirely dropped in December, 1910, and no further emergency appointments were made during the fiscal year 1911. In October, 1911, however, 35 clerks who had been dropped a few months before were taken on again for a short time under an emergency appointment, in order to expedite the work of machine tabulation in the division of agriculture.

With the exception of a small number of experienced clerks formerly employed by the Immigration Commission, who were made eligible for temporary appointment in the Census Bureau under Executive order of December 29, 1909, the entire temporary force of the Bureau of the Census during most of the census period has consisted exclusively of those appointed by virtue of civil-service examination. The great majority of these were appointed as a result of competitive civil-service examination held expressly for the Thirteenth Census work, being apportioned among the states and selected in all cases from the top of the register. The remainder, a

small number, consisted of clerks in the classified service of other departments, who had had previous experience in census work, and who were temporarily transferred to the bureau under the fifth proviso of section 7 of the Thirteenth Census act.

In many states, particularly in the West and South, the number of persons who successfully passed the examination for the Thirteenth Census force and who were willing to accept appointment when tendered, was not sufficient to fill the quotas of those states, notwithstanding the fact that a second examination was held in order particularly to secure more eligibles from such states. It became necessary therefore to appoint a disproportionate number of clerks from 13 of the other states, mainly from Maryland, Virginia, and the District of Columbia. It has been the aim of the Census Bureau, as far as possible, to restore approximate equality among the states in the office force by dismissing from its rolls, first, persons appointed from those states which had an excess in the number of original appointments. This policy had necessarily to be modified in some degree by considerations of efficiency and economy. It would obviously be undesirable to drop a clerk appointed from, say, the District of Columbia, in the midst of a given piece of work, upon which he had become expert, and transfer to this work a clerk from some other state who had had no experience on the particular task. So far as practicable, however, clerks from states having an excess of appointments were assigned to work which would terminate at a relatively early date.

Practically all of the temporary clerks employed during the decennial census period were appointed in the first instance at a salary of $600 a year. A plan of promotion was, however, devised by which clerks who rendered satisfactory service were automatically advanced at intervals of two months to $720, $840, and $900, respectively. The great majority of the clerks ultimately received at least $900. To about one-third, whose work was of a supervisory character or involved special skill, a further promotion to $1,000 was given, and to a very small proportion of clerks of this class who were exceptionally efficient, a salary of $1,200 was ultimately paid. At the end of the fiscal year 1911, out of a total of nearly 2,000 clerks in the temporary force, 47 were earning $1,200, 727 were receiving $1,000, and 1,244 were receiving $900 per annum. On December 31, 1911, with a total of over 1,300 temporary clerks, there were in the corresponding groups 54, 596, and 676 clerks, respectively. In spite of this system of promotions the average rate of pay of temporary clerks for the entire period of employment has been somewhat lower during the Thirteenth Census period than it was during the Twelfth.

SALARIES OF PERMANENT FORCE.

In the fiscal year 1909, immediately preceding the decennial census period, there were under the provisions of the permanent census act 16 clerks in the Census Bureau above the grade of $1,200, and under the appropriation act for that year 20 additional, making 36 altogether. The Thirteenth Census act provided that, by reason of the large expansion of the total force of the bureau during the census period, there should be 100 clerks of these grades in addition to the number provided by the permanent census act, or 116 in all; the actual net addition, as compared with 1909, thus being 80. These additional higher positions were practically all given to the permanent clerks of the bureau, who thus formed the nucleus of the large Thirteenth Census force and who were given duties involving increased responsibility as compared with their duties prior to the census period. Before the close of the decennial census period, June 30, 1912, all temporary clerks appointed under the terms of the Thirteenth Census act will necessarily be dropped from the rolls and the force will presumably return to substantially the same aggregate number as were employed in 1909. It would, however, be highly unfortunate if for the fiscal year 1913 the number of clerks of the higher grades should be reduced to the same number as were employed in 1909. A considerable proportion of the well-earned promotions of permanent clerks which have been made during the census period ought in all justice to continue after that period closes. As conditions were prior to the decennial census period the Census Bureau had a smaller proportion of well-paid clerks than any other bureau in the Government service. It had for several years been possible to retain the service of the more competent clerks only by reason of the prospect for promotion during the decennial census period. In a total office force numbering on June 30, 1909, 626 there were only 53, including all officers of the bureau as well as clerks, who received more than $1,200 per annum, the proportion of the total at more than that salary being only 8.5 per cent. In the Department of Commerce and Labor as a whole, excluding the Bureau of the Census, 37.7 per cent of the employees at that time received over $1,200, and there was no other bureau in the department in which the proportion was less than 24.4 per cent. In the Department of State at that time 0.2 per cent of all employees received over $1,200; in the Department of the Treasury, 32.5 per cent; in the Department of War, 36.2 per cent; in the Department of the Navy, 30.8 per cent; in the Department of the Interior, 45.1 per cent; in the Post Office Department, 32.8 per cent; in the Department of Justice, 55.5 per cent; in the Department of Agriculture, 21.4 per cent.

In view of these conditions it has been recommended, in the estimates submitted to Congress for the fiscal year 1913, that provision be made for 73 clerks, at grades from $1,400 to $1,800, a reduction of 43 as compared with the number authorized during the decennial census period, but an increase of 37 as compared with the number in 1909. Should these places be authorized by Congress, the Census Bureau would still have only 93 persons receiving over $1,200 (including officers) out of a total force of 649 permanent employees covered by the estimates, or 14.3 per cent, which would still be a much lower percentage of the higher grades than is found in any other bureau of the Government service.

Should Congress fail to provide the number of clerical positions of the higher grades requested, it will be quite impossible for the bureau to retain the services of many of its most competent employees. They will seek transfers to other departments or leave the Government service for private employment. It would be very much to the detriment of the public service for the Census Bureau to be deprived of the services of the skilled clerks whom it has taken years to train.

PROPOSED LEGISLATION FOR 1913.

Owing to separations from the service which have occurred in the Bureau of the Census since June 30, 1909, the number of which will probably be materially increased during the next few months, it will be necessary to make a considerable number of appointments to the permanent census force during the fiscal year 1912 in order to restore it even to the former level. It is highly desirable that in making these appointments the bureau should be able to profit by the training which it has given to the temporary clerks who were employed by virtue of the provisions of the Thirteenth Census act. It is not, however, suggested that appointments to the permanent force should be made merely by the retention of clerks from the Thirteenth Census temporary rolls. Many of the temporary clerks have already successfully passed competitive civil-service examinations for departmental positions, and others will doubtless pass such examinations in the near future. The bureau has recommended to Congress, in connection with the estimates for the appropriations of 1913, that a proviso be inserted to the effect that the Civil Service Commission, in certifying eligibles from the various registers for appointment to positions on the permanent census force during the fiscal year 1913, at salaries of $1,200 or less, shall give preference to those eligibles who have had at least one year's experience in census work. Under this proviso the ordinary rules of apportionment would still be in force, so that a state entitled to

an appointment under the apportionment would receive that appointment whether it had any candidate with census experience on the eligible register or not. It is obvious that clerks who have had a year or more of census work and who have also successfully passed a competitive examination for a departmental position would be more useful additions to the census force than could possibly be found among those who have had no such experience.

In order to finish all the supplemental tabulations and analyses of the results of the Thirteenth Decennial Census which are desirable, and at the same time to carry on the annual work of the Bureau of the Census and begin certain intercensal investigations, the force of the bureau for the fiscal year 1913 should be somewhat larger than for the fiscal year 1909, the last year preceding the census period. The average number of employees on the census force in Washington in 1909 was about 625. An average of 770 will be required for the proper conduct of the work in 1913. On the other hand, it is not believed that the number of employees for the fiscal year 1914 will need to be appreciably greater than the number for 1909. It seems desirable, therefore, that this temporary excess of clerical force should be provided for through the appointment of a limited number of temporary clerks. The estimates of the Bureau of the Census for the appropriations for the fiscal year 1913, therefore, contain a proviso that, in addition to its regular force, the bureau may employ not to exceed 175 temporary clerks for a period not to extend beyond June 30, 1913. An estimate of $120,000 is made for paying the salaries of such clerks.

QUARTERS.

Besides the main Census Building at First and B Streets NW., which has been rented since the Twelfth Census, the bureau continues to occupy the two annexes which were rented for the Thirteenth Census period—Annex No. 1, a four-story brick building, located on First Street, immediately adjoining the main building, at an annual rental of $6,000, and Annex No. 2, a four-story brick building, located on L Street, near Fifth Street NW., at an annual rental of $13,000. These two buildings will be given up early in the year 1912, after hich all employees and equipment of the bureau will be housed in ıe main Census Building, as was the case prior to the beginning of .e Thirteenth Census period, July 1, 1909.

The following statement, which appeared in my annual report for the year 1909–10, is here reproduced, and shows the floor space and rentals of the three buildings now leased by the Bureau of the Census:

	Gross square feet.	Annual rental.	Gross rental per square foot
			Cents.
Main building	95,000	$21,000	22.2
Annex No. 1	32,000	6,000	18.7
Annex No. 2	62,000	13,000	21.0
Total	189,000	40,000	21.2

APPROPRIATIONS.

APPROPRIATIONS AND EXPENSES FOR CENSUS PERIOD.

In the annual report of the Bureau of the Census for 1910 it was estimated that the total expenses of the bureau during the Thirteenth Census period, including the Thirteenth Census work proper and the annual work of the bureau, would amount to $14,500,000. An appropriation of $2,500,000, in addition to the $12,000,000 theretofore provided, was accordingly requested and duly granted by Congress. It is now found, however, that the estimate of expense was too low. On account of the extraordinary character of the changes made at the present census with respect to the questions on the schedules, the character of the machines employed, the methods of checking the accuracy of the returns and the tabulations, and form of the tables prepared, it was quite impossible, from the experience of the census of 1900, to make an accurate estimate of the cost of the office work of the census of 1910. Less economy was realized than was hoped from the improvement in the tabulation machinery for population work, particularly because, as elsewhere stated, the printing mechanism on the tabulating machines was not as satisfactory as was expected, so that it was necessary to copy all figures from the printed slips onto posting sheets. Moreover, it required a somewhat longer time than had been anticipated to perfect the operation of the automatic tabulating machines, so that the economies secured by them applied to a much smaller part of the total tabulation work than had been hoped. It now appears that to complete the census work according to the original plans (that is, completing all except the supplementary analyses already referred to, which were to be made after the close of the census period) prior to June 30, 1912, would involve a total expenditure of approximately $15,500,000.

An estimate for a deficiency appropriation of $1,000,000 was therefore submitted to the special session of Congress in August, 1911, and brought up again in December. Congress made an appropriation of $500,000. With this sum, as already stated, it will not be possible to complete as much of the work by June 30, 1912, as had been expected.

Had the entire appropriation of $1,000,000 requested from Congress been provided, making the aggregate appropriation for the bureau during the three-year census period $15,500,000, the amount expended for the Thirteenth Decennial Census proper would have been in the neighborhood of $13,800,000, the remaining $1,700,000 representing the cost of the current annual work of the bureau for three years. This item of $13,800,000 is all that can properly be compared with the expense of about $11,770,000 which was incurred by the Census Bureau during the Twelfth Census period ended June 30, 1902. This would represent an increase in cost of about 17 per cent, whereas the population of the country has increased 21 per cent. So far as office work and printing alone are concerned, it is estimated that the cost of the Thirteenth Census, if completed according to the original plans, would be slightly less than that of the Twelfth Census, notwithstanding the increase in population. The increase in the aggregate cost is wholly in field work.

The approximate cost of the field work of the Twelfth Census was $4,925,000, and that of the Thirteenth Census somewhat over $7,000,000, an increase of over 40 per cent. This increase was due to three principal causes. In the first place there was a great increase in population and a very considerable increase in the number of farms and in the magnitude of the manufacturing industry of the country. In the second place there were several special investigations required by law at the later census which were not made at the earlier. These special investigations included irrigation, institutions for the dependent, defective, and delinquent classes, and the number of animals slaughtered for food or for hides. The present census also covered Hawaii and Porto Rico, which were not covered in 1900. The total field cost of these new special investigations and of the work in Porto Rico and Hawaii was in the neighborhood of $400,000. In the third place it was found absolutely necessary to pay higher rates to enumerators and supervisors, first, by reason of the general increase of wages throughout the country, and second, by reason of the increased number of inquiries on the regular population and agricultural schedules. This necessity was recognized in the census act itself, which fixed higher salaries for supervisors and fixed a higher minimum rate per farm for enumerators for collecting agri-

cultural schedules. In many localities it would have been impossible to secure enumerators at all except by increasing the rates.

A detailed statement of the expenditures of the bureau during the calendar year 1911, and also for the entire period from July 1, 1909, to December 31, 1911, appears on page 36.

ESTIMATES FOR 1913.

The estimates of the Census Bureau for the fiscal year 1913, which have been laid before Congress, call for a total sum of $1,612,440. This estimate was prepared prior to the action of Congress with reference to the deficiency appropriation for the fiscal year 1912, and was necessarily based on the assumption that the entire amount of $1,000,000 requested by the bureau would be granted. In view of the fact that only $500,000 was appropriated, it may be necessary to request Congress to make changes in some of the items in the estimates for 1913, although the bureau does not contemplate requesting an increase in the aggregate amount originally estimated.

The estimate of $1,612,440 for the fiscal year 1913 may be compared with the appropriation made for the fiscal year 1909, the last year preceding the three-year decennial census period. The aggregate appropriation for that year, including the Census Bureau's allotment of the printing fund for the Department of Commerce and Labor, amounted to $1,425,940, so that the estimates for 1913 represent an increase of $186,500, or 13.1 per cent.

It is not anticipated, however, that there will be any need of a permanent increase in the appropriations for future years, as compared with the year immediately preceding the decennial census period. During the fiscal year 1913 there should be performed a large amount of work in the way of supplemental analysis of decennial census statistics in addition to the work deferred from 1912 (see p. 7), and there is required also a large expenditure for printing the results of the decennial census. The expenditures for these purposes are temporary in character, and it is highly probable that the work of the bureau for the fiscal year 1914 can be properly performed for an appreciably smaller amount than has been requested for 1913.

In recognition of the temporary character of part of the work to be done in 1913, the Census Bureau, instead of making estimates for a considerable increase in the number of its regular employees, has, as elsewhere stated, provided in the estimates for the sum of $120,000 for the employment of temporary clerks. There is also in the estimates a specific item of $185,000 for printing and binding in connection with the results of the Thirteenth Decennial Census.

DIVISION OF POPULATION.

The various steps in the office work of compiling the population census were described in the annual report of the director for 1910. Aside from subsidiary processes of comparison, verification, etc., the work consists of four main steps: (1) The punching of a card for each individual in the population; (2) sorting of these cards by electric sorting machines into main groups; (3) tabulation of facts from the cards for each of these groups by means of electric tabulating machines; (4) assembling and publication of the results.

CARD PUNCHING.

The punching of the cards for the population of continental United States and outlying possessions (except the Philippine Islands, Guam, Samoa, and the Canal Zone, for which no census was taken) was completed in February, 1911, the total number punched being 93,402,151. This is the largest single task in the population work and consumed 570,136 working hours, the average number of cards punched per day of seven hours being 1,146. The following statement shows the number of cards punched on each class of machines and the average number per day. It relates only to cards for the population of continental United States.

CLASS OF MACHINE.	Total cards punched.	Actual hours of work.	AVERAGE.		Pay per 100 cards
			Per hour.	Per day.	
ELECTRIC MACHINES.					
Piece price	55,002,805	244,122.25	225.38	1,577.66	- 20 cts.
Annual salary	8,475,758	87,284.75	97.34	681.38	
HAND MACHINES.					
Piece price	25,180,052	176,455.75	142.70	998.90	- 30 cts.
Annual salary	4,743,536	62,273.50	76.17	533.19	

The above table shows averages for the entire period of operation. The clerks became more and more expert as the work progressed, and the average output toward the end of the period was much higher than for the entire period. For the cards punched during December, 1910, and January, 1911, the average per operator per day on the electric machines was 2,125 and on the hand machines 1,193.

While the system of piece-price payment for card punching undoubtedly resulted in a very material increase in speed, it also tempted the operators to be less careful. A critical examination shows that the errors of punching clerks have practically no effect upon the correctness of totals for large areas. In such areas errors in one

direction are usually substantially offset by errors in the opposite direction. It occasionally happens, however, in figures for a given locality that the errors are of some consequence. Of course, some errors would arise even if clerks were paid entirely on an annual salary basis, but all things considered it is quite doubtful whether the experiment of piece-price payment for punching the cards should be repeated at another census.

CARD SORTING.

In order that the work of the tabulating machines may be simplified as much as possible and the number of counters reduced, it is essential that the population cards should be sorted into certain groups before tabulation proper begins. In this way all of the facts recorded on a given reading of the tabulating machines relate exclusively to a given class or subclass of the population. For example, if the cards are divided into 10 groups which are run through the machines separately, it is obvious that, with a given number of counters, ten times as many combinations of facts can be recorded as would be possible without the segregation.

Nearly all of the work of sorting the cards has been done on electric sorting machines, the compartment into which each card is placed being determined automatically by the holes in the card itself. These sorting machines had been purchased for the census of 1900 from the Tabulating Machine Co., but for the purposes of the present census they were widened and their speed increased by the machine shop of the bureau. The suit brought by the Tabulating Machine Co., claiming that the alterations made in these machines constituted an infringement of the patents of that company, is still pending.

Broadly speaking, the principal sorts which have thus far been made of the population cards are as follows:

(1) A sort which divides the cards (sorted by sex at time of punching) according to race and native or foreign birth or native or foreign parentage. This sort is made after the cards have been passed through the tabulating machines for the purpose of verifying them and eliminating inconsistencies, but before the first run of the cards through the tabulating machines for the purpose of actual tabulation of the results.

(2) A further sort which divides the cards for each of the race, nativity, and parentage classes according to age periods. This sort is made after the first and second runs of the cards through the tabulating machines and furnishes the basis for the third tabulation run.

(3) A sort of the cards for persons of foreign birth or foreign parentage, which divides them according to the country of birth or mother tongue, or according to the country of birth or mother tongue of parents in the case of persons themselves native born. The cards as thus sorted are the basis for the fourth run of the tabulating machines. For the work on occupation statistics, which still remains to be done, the cards will have to be sorted according to occupations.

TABULATION OF THE CARDS.

The tabulating machines of the Census Bureau are used for two purposes—first, for the purpose of discovering inconsistencies in facts recorded on the cards; and, second, for the purpose of tabulating the facts after the inconsistencies have been corrected. The so-called verification run of the cards was made before they had been sorted (except by sex). It applied to the entire number of cards for the country. The electric machines were so wired up as automatically to reject any card which lacked the required number of punch holes; for example, a card in which no age was punched would be rejected and subsequently corrected by reference to the official schedule. The machines were also arranged so as to reject cards containing holes which were absolutely or apparently inconsistent with one another, as, for example, a card punched "male" and at the same time "wife," or a card punched "married," but with an age of less than 15 years.

Aside from the verification run the complete tabulation of the population census will require six distinct processes or runs of the machines. Four of these runs had been completed prior to the close of the calendar year 1911. These four runs developed all of the facts regarding the population, save only those relating to occupations and a few minor facts which are obtained by tallying directly from the enumerators' schedules and not by the use of cards. The last two runs of the cards, which have not as yet been begun, will deal exclusively with occupation statistics.

The first and third runs of the cards (the verification run is not considered in assigning these designations) through the tabulating machines each covered the entire population of the country, while the second and fourth runs related exclusively to the foreign-born population and the native population of foreign parentage.

The tabulating machines on which these various runs of the cards have been made are of two kinds, hand machines and automatic machines. The former are sometimes designated as semiautomatic, because they contain an automatic printing mechanism, but the cards are placed in the machine by hand, while with the automatic machines they are fed in by mechanical methods. The automatic

machines are naturally far more rapid in their operation than the hand machines, but they were not perfected soon enough to permit any very large proportion of the tabulation of the present census to be made upon them. The automatic machine was devised by the experts of the Census Bureau and differs radically from any previously manufactured in this or any other country. As usually happens, however, in developing elaborate new machinery, numerous minor mechanical difficulties were encountered at the outset which delayed the general application of these machines to census work. During the past year these mechanical difficulties have been gradually but at last almost wholly eliminated, and the seven automatic machines which the bureau now possesses are working very satisfactorily. Occasional difficulty is still encountered from the fact that the automatic machines require cards of almost absolutely perfect dimensions and with holes punched in almost mathematically exact positions. Some of the cards used at the present census were slightly defective in shape or size, and the new electrical punching machines above described failed in some cases to punch the holes on the cards with absolute precision of position. In such cases the cards were, with few exceptions, as perfect as is necessary for use with the hand tabulating machines. There is no reason to doubt that these imperfections in the cards can be substantially eliminated in the future and that the automatic machines can at another census be used to advantage either exclusively or for much the greater part of the work. The possibilities of these machines are evidenced by the fact that a single machine has, in actual operation in the Census Bureau, handled as many as 150,000 cards in a working day of seven hours, whereas the maximum for the hand machines is about 30,000 cards per day. On the average, when working with perfect cards, the automatic will turn out from four to six times as many as the hand machine. The automatic machines, however, require either two operators per machine or three operators for each two machines; it is probable that at future censuses, with more accurately punched cards, there will seldom be need for more than three operators for two machines. With the hand machines a single operator performs the entire process.

The verification run was made exclusively on hand machines. On the first tabulation run automatic machines were used for only about 3 per cent of the cards; they were not used at all on the second run, but on the third run they were used for between one-fourth and one-fifth of the cards, and on the fourth run for about the same proportion.

The clerks operating the hand tabulating machines were paid on an annual salary basis at the beginning of their work, and also in the case of work on groups of cards where the numbers to be handled between

readings were very small. The greater part of the work on the hand machines, however, was paid for at piece-price rates. None of the objections which lie against piece-price payment in the case of punching of cards applies in the case of tabulation, since there is very little possibility of error on account of the carelessness of the clerks. The piece-price rates for tabulation differed for different classes of cards, being adjusted in such a way as to secure earnings for a given degree of efficiency and industry as nearly uniform as possible. The larger the number of cards which can be run through the machines before the reading has to be taken the greater the speed, as considerable time is required for changing from one area to another. For tabulating the cards of native white persons of native parentage on the first run the rate of pay was 15 cents per thousand cards. Operators on the piece-price system were able to earn at about the rate of $1,000 per year on the average. In the five runs of the tabulating machines above described (the verification run included) the cards for the native population of native parentage were each handled three times, and the cards for the foreign-born population and the native population of foreign parentage each handled five times. These numbers do not include the runs of the cards through the sorting machines. The five runs together represented the handling of 343,183,472 cards. The total number of hours of clerical labor in this work was 142,297, the average number of cards handled per operator per day of seven hours being 16,882. The average number of cards tabulated per operator per day on the hand machines for all of the runs combined was 16,024; on the automatic machines, 37,276. The number for the hand machines was more than double the number tabulated per operator per day at the census of 1900. On the third run of the cards, when the operators had become fully skilled, the average number tabulated per operator per day on the hand machines under piece-price payment was 21,276, and on the automatic machines (annual salary basis) 49,937. This figure for automatic machines is the average number per operator per day and not the average number per machine per day, which is larger, because more than one operator is required per machine. The number per machine per day on the third run was 84,853.

While both the hand and the automatic machines have been more satisfactory than the machines used 10 years ago, nevertheless the experience of the present census shows that the machines can be made very much more efficient with a few changes involving comparatively slight expense. The machines as they are now constructed print the results of the tabulation of each unit of area and therein are more satisfactory than the machines used 10 years ago, in which the results

were recorded on dials and had to be copied off on sheets. The results are, however, printed in a form which is physically very inconvenient for the further processes of compilation. They appear upon long, narrow strips or ribbons of paper. A single strip nearly 3 feet long and an inch wide contains the results of only 10 counters for one unit of area. In order that different units of area may be combined conveniently, it is necessary to transcribe the figures immediately from the slips upon posting sheets. It is now proposed to reduce greatly the space occupied by the counters and make arrangements by which the results of tabulation for a series of areas can be presented one below the other on a sheet of convenient size. This will do away entirely with the process of copying the data onto original posting sheets. This change, together with other minor improvements which are in contemplation, will, it is believed, enable the few remaining runs of the population cards to be handled at an expense of $40,000 or $50,000 less than would be necessary under the present method.

Constant improvements are being made in the art of mechanical tabulation, and it is possible that before the census of 1920 is taken changes of such a radical character will be introduced as to render obsolete the machines purchased or constructed by the Census Bureau for the present census. There is good reason to believe, however, that the present machines with alterations of a moderate character will be available for the next census. In that case part of the expenditure for the present census will represent an investment which will correspondingly reduce the cost of taking the next census. If, however, no further use should be made of the present machines for population work, there can be no doubt that even at the present census the bureau has saved money as a result of constructing its tabulating machines in preference to leasing machines from private concerns as was done at the census of 1900. Moreover, the bureau has developed a corps of expert machinists and inventors who will be able to keep abreast of improvements in the art of tabulation by machinery, so that the bureau will be able in the future to avail itself of the most improved machinery at reasonable cost.

PROSECUTION OF CENSUS FRAUDS.

As fully set forth in the last annual report of this bureau, the exceptional care exercised at the present census in investigating the work of the enumerators resulted in the discovery of a very considerable number of fraudulent overcounts, particularly in cities in the Northwestern states. In all cases where the investigations made by the bureau indicated a probability that the overcounts of the population were due to deliberate fraud, the facts were brought to the

attention of the Department of Justice. That department appointed a special attorney to investigate and prosecute such frauds. Up to the end of December, 1911, indictments had been returned in the aggregate against 67 persons, of whom 56 were enumerators; 8, special agents appointed to assist supervisors and to direct enumerators; 1, the mayor of a city, who was charged with conspiring with the enumerators and others; 1, an attorney charged with joining in the same conspiracy; and 1, the supervisor of the census for the district in which the city of Tacoma, Wash., is located. The great majority of those indicted have either pleaded guilty or nolo contendere. In the case of two enumerators at Spokane, Wash., a jury trial resulted in a verdict of not guilty. In the case of one special agent the Government decided not to push the prosecution after indictment. Two enumerators have been convicted on trial. The cases against a small number of enumerators, against the supervisor of the census at Tacoma and various special agents who assisted him, and against three special agents in Portland, Oreg., remain to be tried.

Most of the enumerators who have pleaded guilty have received comparatively light punishment, the courts evidently being of the opinion that their offense was due largely to the pressure of public opinion demanding a padded enumeration. In numerous cases, moreover, the prosecuting officers have recommended very moderate penalties for enumerators who furnished information by which prosecutions could be brought against more responsible officials. For example, the large number of enumerators who have pleaded guilty in Tacoma were each punished by a fine of only $50 and costs. Some other enumerators, however, have been punished by fines ranging from $100 to $500, and in a few cases with imprisonment for 24 or 48 hours. The mayor of the city of Superior, Wis., who pleaded nolo contendere, was fined $750 and costs, and an attorney of that city, who was also charged with conspiracy and pleaded nolo contendere, was fined $1,500 and costs. One enumerator in Portland, Oreg., who was found guilty on trial, was sentenced to six months in jail and to pay a fine of $100 and costs.

The result of these prosecutions of census frauds will, it is hoped, serve as a most effective deterrent against the repetition of such frauds at any future census, not only in the cities in which the prosecutions have occurred, but throughout the states in which these cities are located and in large measure throughout the country. Aside from the wholesome fear which such prosecutions engender, it is obvious that the people of any city will hereafter hesitate to encourage the padding of the census in view of the risk that, as the result of possible discovery, their city may be subjected to ridicule and criticism.

DIVISION OF AGRICULTURE.

WORK OF THE DECENNIAL CENSUS.

The progress of the office work of the agricultural census has been thoroughly satisfactory and has amply demonstrated the wisdom of the decision to abandon the use of the system of tabulation by means of punched cards, substituting the simple method of tabulating by ordinary adding machines directly from the schedules. The schedules themselves are first sorted into groups determined by race of the farmer, tenure of farm operator, and size of the farm. At the census of 1900 it required more than 3,900,000 hours of clerical labor to tabulate the agricultural statistics. Notwithstanding the increase in the number of farms and the increase in the number of questions on the schedule, involving a probable total increase of approximately 50 per cent in the amount of work performed, it is believed that the present agricultural census can be wholly tabulated by the utilization of about 2,600,000 hours of clerical labor. Up to December, 1911, the actual hours expended have been 2,170,408, and by far the greater part of the work is completed.

The results have been already published or are in the hands of the printer with respect to the most important data derivable from the census schedules, including acreage and value of farms, number and value of the different classes of live stock and of poultry, and acreage, product, and value of the leading crops. The data with regard to these subjects, as being the most important, were tabulated in advance of those regarding other subjects. The results for each state as a whole were first given out in the form of press announcements, and subsequently state bulletins were published giving the facts for each individual county.

By the end of the calendar year 1911 the greater part of the machine work of the tabulation with reference to all other subjects had also been completed. Part of the schedules still remained to be tabulated with reference to the subject of number of domestic animals sold and slaughtered, and the subject of poultry products, and some work also remained to be done in the way of verifying the results of tabulations regarding dairy products, minor crops, and other minor subjects, and bringing the data into final county and state tables. The original plans of the Census Bureau contemplated completing the entire series of regular tabulations of the agricultural census within the decennial census period, although it was considered desirable that certain supplemental analyses, scarcely required by law but of material value for an accurate knowledge of agricultural conditions, should be made during the fiscal year 1913. For example, it seemed desirable

during that fiscal year to work up some presentations with reference to the relative importance of different types of agriculture in different sections of the country, and with reference to differences in the type and results of agricultural operations as between owners and tenants in the country generally, and as between negro farmers and white farmers in the South. Owing to the shortage of the appropriations it may not be possible during the present census period to complete statistics with regard to the number of domestic animals sold and slaughtered, but otherwise the results of the census, lacking the special analyses above referred to, can doubtless be completed within the census period, and the results published during that period or immediately thereafter.

STATISTICS OF PLANTATIONS.

A special feature of the Thirteenth Decennial Census with reference to statistics of agriculture has been the collection of information regarding plantations in the South. Under the general practice of the Census Bureau for several censuses past, the farm, which is the unit of enumeration and tabulation, has been defined as the tract of land directly operated by a given individual whether as owner or as tenant. In other words, each tenant holding is treated as an individual farm.

It is a well-known fact that in the Southern states there are relatively more farms operated by tenants than in the Northern states, and that in some sections of the South there are still many large tracts of land known locally as "plantations," which include many contiguous tenant holdings. On large numbers of these plantations the agricultural operations of the tenants are under a degree of supervision or control by the owner or his representative that approximates the supervision or control of farmers over their wage laborers. Where this is true the "plantations" are as distinct units of agricultural operations as are large farms which employ a number of hired laborers. Counting each tenant holding as a distinct farm, as has hitherto been done by the census, gives to the Southern states, in general, an apparently lower average size of farms than is recorded for the Northern states, and makes it impossible to secure accurate comparisons between conditions in the two sections on the basis of existing statistics.

At the census of 1910 for the first time an attempt was made in the Southern states to secure statistics, not only of "farms" as heretofore, but also of "plantations." In other words, a double system of enumeration was attempted, one treating each tenant holding as a farm the same as heretofore, the other to secure statistics of the properties and agricultural operations of plantations.

The returns secured were not as satisfactory as had been hoped. An exact definition of a "plantation," which would apply in every case, was found impossible. The enumerators did not secure schedules for all plantations, and in many cases where schedules were secured they did not contain the data sought relating to the extent to which the plantation landlord exercised supervision over his tenants. Nevertheless, the Bureau of the Census secured a large mass of new and most valuable information in this hitherto unexplored field of agricultural economics.

From its study of the data collected the bureau finds that the best treatment that is possible is to compile statistics of groups of plantations for which the schedules returned were reasonably satisfactory and typical, without attempting to cover every existing plantation in the South. The compilation to be made will include data relating to the acreage and improved acreage of plantations, the number of tenants, the value of the several classes of property, the number of farm animals, and the principal crops. Information relating to the extent of supervision by the landlord over the tenants will be presented as far as available. This compilation will be made for 325 counties in the Southern states, selected as representative of the section in which the "plantation" system exists.

It is not probable that the work required for this "plantation" study, as now contemplated, can be completed during the present fiscal year, but the subject is of such importance that it is hoped that the work can be pushed to completion early in the next year.

IRRIGATION STATISTICS.

The field work on the special inquiry regarding irrigation enterprises, which was provided for by an amendment to the census act passed February 25, 1910, was completed about July 1, 1911. This field work was performed under a cooperative arrangement with the Department of Agriculture. Under the arrangement made the field work was supervised for the most part by the state agents for irrigation investigation of the Department of Agriculture, assisted by permanent employees of the Bureau of the Census. In this way advantage was taken of the expert knowledge and familiarity with local conditions possessed by the agents of the Department of Agriculture, also of the expert knowledge of census methods possessed by the employees of the Census Bureau. Under this supervision the detailed canvass of irrigation enterprises was chiefly performed by special agents appointed locally, many of whom were irrigation engineers of experience. The total cost of the field work regarding irrigation enterprises was a little less than $100,000.

The tabulation of the results of this irrigation investigation proceeded satisfactorily. The principal results were published in the form of advance notices, intended primarily for the press, during the fall of 1911, and the publication of final bulletins by states has been begun. It is believed that the results of this investigation will be of much general interest and will amply repay the cost.

ANNUAL INVESTIGATIONS.

STATISTICS OF CITIES.

The annual work of the Bureau of the Census regarding official statistics of cities containing a population of over 30,000 inhabitants is under the charge of the chief statistician for agriculture. The reports of the bureau on this subject are attracting ever-increasing popular attention and commanding greater official and scientific consideration. City officials and the men in control of the various civic organizations are coming more and more to recognize the importance of this work in many fields of accounting and administrative reform in the government of our cities.

The men engaged in collecting and compiling these statistics are not at the present time receiving the compensation which the character and importance of their duties require. Their compensation is meagerly small as compared with that allowed by some of the city governments for the same class of work, and yet the city employees with their larger salaries often look to the census agents for leadership in their work.

With the increasing importance which is being attached to the census official statistics of cities, the bureau has made special effort to secure a more prompt publication of these reports. As one result of this effort, the field work for the year 1910 will be closed before January 1, 1912, or two months earlier than ever before. This achievement, combined with some office changes, would have permitted the office to publish the 1910 report six months earlier relatively than any of its predecessors, had appropriations for printing been adequate. It is doubtful whether it will be possible to publish either the 1909 or 1910 report until July 1, 1912.

DIVISION OF MANUFACTURES.

WORK OF THE DECENNIAL CENSUS.

The office work of tabulating the statistics of manufactures proceeded in a thoroughly satisfactory manner. The methods of tabulation are comparatively simple, but the volume of work to be performed is great, and the utmost care is necessary to secure accuracy.

The totals for the combined manufactures of the entire country were completed in October, 1911, and given to the press and the public in a preliminary announcement. Prior to that time figures had been given out showing the totals for each state in the country. A considerable number of state bulletins have already been issued, giving the full information regarding each industry in the state, and similar bulletins for all of the states will be published before the end of the present fiscal year. It is expected also to publish a bulletin summarizing the statistics by industries and by states for the country as a whole within a comparatively short time.

It has been the custom in the past to present census statistics for manufactures in three different forms: first, by states; second, by subjects; and, third, by industries; and the same plan is being followed at the present census. In the bulletins for individual states, which, bound up together, constitute one volume, the facts regarding all the industries in a given state, collectively and separately, are published together. In the subject presentation the data are arranged topically, for the convenience of those interested in some particular industrial problem. One set of tables, for example, deals with the general financial results of manufacturing industries, one with wage earners, one with the classification of establishments according to character of ownership, one with classification according to size, and so forth. These subject presentations together constitute one volume. Finally, all of the information regarding any one industry is brought together in a single place. There is thus a series of industry bulletins which, bound up together, constitute one or more census volumes. This form of presentation is the most valuable from the standpoint of the manufacturers themselves, each manufacturer being desirous of the full information regarding his own industry, but caring less for the details regarding other industries or regarding industries in general.

It had been hoped that the bureau could publish all of its reports regarding the manufactures census by the end of the fiscal year 1912; but it will probably be necessary to defer until the fiscal year 1913 the compilation of at least part of the bulletins for individual industries. Moreover, it will probably be necessary to defer the printing of the topical report, although the office work will, in all likelihood, be completed by June 30, 1912.

The general scheme of presentation just described involves the duplication of most of the statistics of manufactures and the triplication of a considerable part of them. In order to facilitate this duplicate and triplicate tabulation, extensive use has been made at the present census of a photographic machine which is capable of very rapid and very economical reproduction of tables or other mate-

rial. For example, when the statistics for each state have been tabulated by industries, a photograph is made of the table for each state, and it is then cut up into slips, one slip for each industry, and the slips for any given industry are rearranged so as to present the information for that industry by states. This method not only saves the time of hand copying, but also the time required to verify the correctness of the work of copying. Considerable use of this photographic device is also made by other divisions of the bureau.

The tabulation of the results of a special inquiry regarding domestic animals slaughtered for food or for hides, which was authorized by an amendment to the Thirteenth Census act, was completed, so far as slaughtering establishments proper are concerned, in February, 1911, and a summary statement for the United States was published. These statistics covered all wholesale and retail slaughtering establishments, whereas statistics at the census of 1905 were confined to wholesale establishments. The entire number of animals slaughtered in the country, however, has not yet been determined, as the data for animals slaughtered on farms, which are derived from the agricultural schedules, have not all been tabulated, and, as already stated, may not be finished during the present fiscal year.

The compilation of the statistics of mines and quarries, while in charge of an expert special agent, is assigned to the division of manufactures for administrative purposes. Owing to the highly technical nature of the subject, the compilation and publication of the results have not kept pace with that of manufactures. It is expected, however, that the main facts of the mining census will be given to the public, at least in pamphlet form, by the close of the present fiscal year.

ANNUAL INVESTIGATIONS.

Forest products.—The results of the annual inquiry regarding the consumption of forest products in the United States, relating to the calendar year 1909, were published early in 1911, and the figures for 1910, which had been collected during the spring of 1911, were published in preliminary form during the latter part of the year. These statistics are collected entirely by correspondence. The amount of detail covered by the schedules has gradually increased from year to year until the labor of tabulation has become very considerable. It has been deemed preferable for the future to reduce somewhat the scope of the inquiries. The principal change will be the abandonment of the practice of calculating annually the value of each class of forest products. The statistics will be confined to quantities produced, with statements regarding prevailing prices. It is expected that the cost of this work can be reduced more than 50 per cent by the changes

proposed, and the Forest Service of the Department of Agriculture, in cooperation with which the statistics are published, joins with the Census Bureau in the opinion that there will be no serious diminution in the value of the results to the public.

Cotton.—The collection of the statistics of cotton ginned from the crop of 1910 proceeded without difficulty, and the reports were published promptly. During the fall of 1911, when the statistics of cotton ginned from the crop of that year were being collected, some opposition arose in certain quarters. It was alleged that the publication at frequent intervals of statistics regarding the production of cotton gave an advantage to cotton buyers and spinners, while the producers had no similar advantage from frequent knowledge of the stocks on hand and the consumption. Bills have recently been introduced in Congress providing for more frequent reports of stocks and consumption. The Director of the Census has in general refrained from recommending any legislation which would increase the work of the Census Bureau and involve additional appropriations, but there can be little doubt that the bureau would secure better cooperation on the part of the ginners in furnishing the statistics if changes in the law of the character suggested should be made. It should be stated, however, that in comparatively few cases has the opposition to the ginning statistics gone so far as to involve actual refusal to furnish the information required.

DIVISION OF REVISION AND RESULTS.

The principal work of this division consists of a critical inspection of the results of the various census investigations. All manuscripts and tables prepared in other divisions of the bureau are submitted to this division before publication for standardization of form, style, etc. During the present decennial census period the census of special classes is assigned to this division.

STATISTICS OF DEPENDENT, DEFECTIVE, AND DELINQUENT CLASSES.

In addition to the general statistics of population, agriculture, and manufactures, the decennial census included a special enumeration of the inmates of institutions for criminals, paupers, insane, and feeble-minded; of the deaf and dumb and blind, whether in institutions or not; and of benevolent institutions. The investigation regarding institutional population related to the entire calendar year 1910; and in each institution for criminals, paupers, and insane and feeble-minded some official of the institution was appointed as a special agent, at a small compensation, to send in reports month by month during the year. For benevolent institutions the information was

secured by sending schedules after the end of the year to the head of the institution with the request that they be filled out, no compensation being given. In the case of the deaf and dumb and blind the information was secured by sending special schedules of inquiries by mail to all homes in which persons of this class were reported by the general population enumerators. A considerable amount of correspondence has been necessary for the perfection of the schedules on all of these subjects, and the work of collecting the original data was not, therefore, quite completed at the end of the calendar year 1911. In the meantime a large proportion of the schedules received have been edited and prepared for tabulation. It will probably be necessary to defer the actual work of tabulating these statistics until the fiscal year 1913.

DIVISION OF VITAL STATISTICS.

This division has been engaged chiefly in the collection and compilation of the annual statistics of births and deaths and in efforts to extend the area of effective registration of vital statistics in the United States and promote uniformity of methods so that the results as published by Federal, state, and municipal authorities will become more useful and comparable.

Since the last annual report, largely through the activity of this bureau, the registration area for deaths has been extended to include Ohio, Minnesota, Missouri, Montana, North Carolina (municipalities having a population of 1,000 or over in 1900), and Utah. Kentucky also began the registration of vital statistics, under the model law recommended by the American Medical Association, the American Public Health Association, and the Bureau of the Census, on January 1, 1911. It is expected that this state will be admitted to the census registration area. These additions increase the total estimated population in the registration area to 59,224,403 persons, or 63 per cent of the total estimated population of continental United States. This is a marked improvement over the percentage for 1900 (37.9) and indicates the great advantage resulting from the permanent organization of the bureau with respect to the direction of such work.

There is an active interest in the practical importance of vital statistics throughout the country, especially in the South, which, up to this time, has been entirely deprived of correct vital data except for a few registration cities. Early in 1912 bills will be introduced in the legislatures of Mississippi and Virginia, with excellent prospect of passage, and amendments necessary to conform to the provisions of the model law may also be obtained in Louisiana and Texas.

The annual report on the statistics of mortality for the registration area, 1909, has been prepared and a considerable portion of it, including all the summary and general tables, is in type. It contains rates for each of the years 1901 to 1909, revised on the basis of the population shown by the census of 1910. Publication of this report will probably have to be delayed until the appropriation for the next fiscal year shall become available.

The annual bulletin on mortality statistics for the year 1910 has been published and distributed. This bulletin is intended to convey advance information for the use of sanitary officials and others requiring the latest data. The annual report for the year, which is a very important one because of the possibility of making direct comparison of registration and population returns, is now in course of preparation.

The first compilation of births ever prepared by the Bureau of the Census on the basis of transcripts from the original certificates has been completed. It relates to the year 1908, but its immediate publication will probably be delayed by lack of funds. Compilations of births from a limited birth-registration area have also been made for the years 1909 and 1910, and transcripts for a portion of the year 1911 have been received. The registration of births is much less complete and accurate in this country than the registration of deaths, but there is an awakening sentiment in its favor.

In January, 1911, a booklet entitled "Physicians' Pocket Reference to the International List of Causes of Death" was mailed to every physician in the United States. The publication has already accomplished much for the improvement of the statement of cause of death, a fundamental matter for correct mortality statistics. A "Manual of the International List of Causes of Death" has also been published for the use of registration officials, which is in full accordance with the similar manual since published by the registrar general of England so that all English-speaking countries are now agreed in the methods of collection and statistical treatment of causes of death. A much-needed reform in medical nomenclature is now in progress, with the cooperation of this bureau and other Government services. The chief statistician of the division of vital statistics of the Census Bureau is chairman of the committee on the nomenclature and classification of diseases constituted by the American Medical Association for this purpose.

Respectfully submitted.

E. Dana Durand,
Director.

Hon. Charles Nagel,
Secretary of Commerce and Labor.

APPENDIX I.

FINANCIAL STATEMENT OF THE THIRTEENTH DECENNIAL CENSUS TO DECEMBER 31, 1911.

APPROPRIATIONS, RECEIPTS, ETC.

Expenses of the Thirteenth Census, 1910-1912	$15,000,000.00
Preliminary expenses of the Thirteenth Census, 1909-10	150,000.00
Recoveries on account of overpayments	2,524.34
Receipts for transcripts of records	643.18
Reimbursements from Bureau of Immigration	12,161.99
Reimbursements from Government Printing Office	6,610.20
Reimbursement for photostat	500.00
Total	15,172,439.71

EXPENDITURES.

	Disbursements July 1, 1909, to Dec. 31, 1910.	Disbursements Jan. 1, 1911, to Dec. 31, 1911.	Total.
THIRTEENTH CENSUS FIELD WORK.			
Continental United States:			
Supervisors—			
Salaries	$572,290.00	$12,898.00	$585,188.00
Expenses	95,930.99	3,229.73	99,160.72
Assistance	495,052.25	703.60	495,755.85
Enumerators	4,751,197.87	3,781.54	4,754,979.41
Interpreters	37,083.20	262.56	37,345.76
Institutions, field work	5,677.85	109,582.07	115,259.92
Manufactures census:			
Salaries of special agents	409,173.06	3,532.65	412,705.71
Salaries of clerks detailed for field work	61,730.08	.....	61,730.08
Travel, subsistence, etc	245,545.19	6,052.26	251,597.45
Irrigation—			
Salaries of special agents	10,484.00	32,541.50	43,025.50
Salaries of clerks detailed for field work	2,966.66	4,423.88	7,390.54
Travel, subsistence, etc	10,065.41	36,684.96	46,750.37
Other investigations:			
Salary and medical expenses of Alice V. Houghton	.....	1,751.00	1,751.00
Frauds and reenumerations	10,283.41	13,518.38	23,801.79
All other	34,490.75	14,773.09	49,263.84
Alaska	76,466.15	1,837.00	78,303.15
Porto Rico	113,717.75	11.10	113,728.85
Hawaii	34,260.41	489.38	34,749.79
Total	6,966,415.03	[1] 246,072.70	7,212,487.73
COMPILATION AND PUBLICATION OF THIRTEENTH CENSUS STATISTICS.			
Salaries by divisions:			
Director's	29,054.87	18,665.26	47,720.13
Chief Clerk's	166,738.49	128,620.58	295,359.07
Machine shop	62,674.06	45,654.34	108,328.40
Appointment	58,479.70	32,539.57	91,019.27
Disbursements	38,189.56	26,196.93	64,386.49
Geographer's	81,409.09	48,905.59	130,314.68
Publication	33,231.66	15,133.00	48,364.66
Revision and Results	56,392.92	107,026.26	163,419.18
Population	901,473.92	1,140,036.38	2,041,510.30
Agriculture	347,242.56	567,971.50	915,214.06
Irrigation	9,055.03	14,787.72	23,842.75
Manufactures and mining	360,299.23	371,951.95	732,251.18
Total	2,144,241.09	[1] 2,517,489.08	4,661,730.17

[1] These figures include $289,676.04, salaries earned in 1911, but not on cash book Dec. 31, 1911; and $62,318.03 for printing done in 1911, but not paid Dec. 31, 1911.

EXPENDITURES—Continued.

	Disbursements July 1, 1909, to Dec. 31, 1910.	Disbursements Jan. 1, 1911, to Dec. 31, 1911.	Total.
COMPILATION AND PUBLICATION OF THIRTEENTH CENSUS STATISTICS—continued.			
Salaries of special agents	$87,551.89	$85,351.70	$172,903.59
Tabulating machinery and mechanical equipment	311,907.65	25,760.05	337,667.70
Stationery	50,498.94	28,026.76	78,525.70
Rent	48,683.53	40,350.05	89,033.58
Cards	58,696.70	8,626.20	67,322.90
Printing:			
Reports, including press notices	2,073.77	29,621.14	31,694.91
Other	125,122.75	15,527.55	140,650.30
Office maintenance	36,787.46	41,756.06	78,543.52
Furniture	16,684.42	818.81	17,503.23
Miscellaneous supplies	55,483.36	9,059.66	64,543.02
Total	2,937,731.56	[1] 2,802,387.06	5,740,118.62
ANNUAL AND OTHER INVESTIGATIONS OF PERMANENT BUREAU.			
Cotton:			
Office work, salaries	22,953.15	13,830.02	36,783.17
Field work	375,763.87	210,317.77	586,081.64
Printing	5,900.86	6,943.05	12,843.91
Statistics of cities:			
Office work, salaries	43,823.00	40,814.00	84,637.00
Field work—			
Salaries of special agents	6,398.00	22,308.00	28,706.00
Salaries of clerks detailed for field work	39,938.00	16,029.00	55,967.00
Travel, subsistence, etc	32,898.88	26,551.21	59,450.09
Printing	11,314.96	8,557.95	19,872.91
Vital statistics:			
Office work, salaries	112,588.16	81,065.15	193,653.31
Field work (transcripts of records)	56,152.84	45,489.27	101,642.11
Printing	27,991.43	10,730.95	38,722.38
Forest statistics:			
Office work, salaries	54,474.26	42,567.71	97,041.97
Printing	3,390.64	5,114.40	8,505.04
Official Register:			
Office work, salaries	24,699.17	6,343.65	31,042.82
Printing	23,261.44	620.71	23,882.15
International commission at Paris	2,155.75	.....	2,155.75
All other investigations:			
Office work, salaries	37,708.43	3,931.50	41,639.93
Travel, subsistence, etc	7,509.03	5,353.20	12,862.23
Printing	44,375.37	16,607.12	60,982.49
Total	933,297.24	[1] 563,174.66	1,496,471.90
Grand total	10,837,448.83	3,611,634.42	14,449,078.25

[1] These figures include $289,676.04, salaries earned in 1911, but not on cash book Dec. 31, 1911; and $62,318.03 for printing done in 1911, but not paid Dec. 31, 1911.

SUMMARY.

Appropriations, receipts, etc	$15,172,439.71
Expenditures	14,449,078.25
Balance, December 31, 1911	723,361.46

APPENDIX II.

THIRTEENTH CENSUS FORCE AS OF DECEMBER 31, 1911.

OFFICIALS.

Assistant Director	Roland P. Falkner.
Chief Clerk	William A. Hathaway.
Appointment Clerk	Clifford Hastings.
Disbursing Clerk	Emmons K. Ellsworth.
Chief Statisticians:	
Population	William C. Hunt.
Agriculture	Le Grand Powers.
Manufactures	William M. Steuart.
Revision and Results	Joseph A. Hill.
Vital Statistics	Cressy L. Wilbur.
Geographer	Charles S. Sloane.
Secretary to the Director	Hugh A. Brown.
Expert chiefs of division:	
Population	William H. Jarvis.
	Arthur E. Seymour.
	William B. Cragg.
Agriculture	William J. Barrows.
	Arthur J. Hirsch.
Manufactures	Joseph D. Lewis.
	Frank L. Sanford.
	Hickman P. Childers.
Vital Statistics	Richard C. Lappin.
Disbursing Office	George W. Crane.
Publication	Harry H. Pierce.
Expert on tabulating machinery	Harry Hayward Allen.
Chief mechanician	E. M. LaBotteaux.

STATEMENT SHOWING NATURE AND DISTRIBUTION OF OFFICE AND FIELD FORCE.

CLERICAL FORCE.

CLASS.	Permanent.	Temporary.	Total.
Stenographers:			
$1,800	.....	2	2
$1,500	1	.....	1
Clerks:			
Class 4	28	1	29
Class 3	29	.....	29
Class 2	55	1	56
Class 1	329	54	383
$1,000	37	596	633
$900	6	676	682
$840	5	5	10
$720	1	1	2
Total	.....	.....	1,827

SUBCLERICAL FORCE.

Skilled laborers:			
$1,000	8	.....	8
$900	5	.....	5
$840	8	1	9
$720	10	.....	10
$600	1	.....	1
Unskilled laborers, $720	13	17	30
Messengers, $840	4	.....	4
Assistant messengers, $720	4	9	13
Messenger boys, $480	.....	5	5
Watchmen, $720	4	7	11
Charwomen, $240	19	18	37
Total	.....	.....	133

MACHINE-SHOP FORCE.

pert, $1,800	1
xpert, $1,600	1
xperts, $1,400	2
s, $1,400	2
$1,200	2
00	1
elpers, $840	2
	11

SPECIAL AGENT FORCE.

known and tried experience in statistical work"	18
nts for general field work, etc	63
	81

SUMMARY OF THIRTEENTH CENSUS FORCE.

	24
	1,827
	133
	11
s (general force)	81
office force	2,076
s to collect statistics of cotton	740

9 special agents appointed to enumerate institutions, the appointments of 26 have not yet ated. The duties of these agents were very temporary and their remuneration nominal.

O